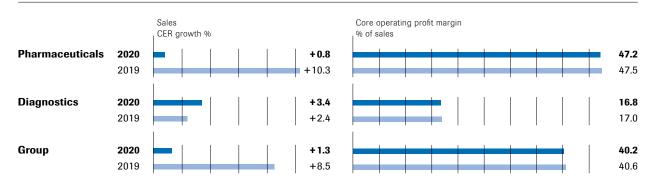


Half-Year Report 2020

Finance in Brief

Key interim results



	Six months ended 30 June					
	2020	2019	% change	% change	% of sales	% of sales
	(CHF m)	(CHF m)	(CHF)	(CER)	(2020)	(2019)
IFRS results						
Sales	29,281	30,469	-4	+1		
Operating profit	10,638	10,841	-2	+6	36.3	35.6
Net income	8,465	8,904	-5	+3	28.9	29.2
Net income attributable to Roche shareholders	8,079	8,619	-6	+2	27.6	28.3
Diluted EPS (CHF)	9.32	9.99		+2		
Core results						
Research and development	5,787	5,561	+4	+7	19.8	18.3
Core operating profit	11,766	12,363	-5	+2	40.2	40.6
Core EPS (CHF)	10.44	11.12	-6	+2		
Free cash flow						
Operating free cash flow	5,036	7,508	-33	-26	17.2	24.6
Free cash flow	3,274	5,277	-38	-29	11.2	17.3

	30 June 2020 (CHF m)	31 December 2019 (CHF m)	% change (CHF)	% change (CER)
Net debt	(8,791)	(2,505)	+251	+242
Capitalisation	49,858	50,230	-1	+2
- Debt	15,043	14,363	+5	+7
- Equity	34,815	35,867	-3	0

CER (Constant Exchange Rates): The percentage changes at Constant Exchange Rates are calculated using simulations by reconsolidating both the 2020 and 2019 results at constant exchange rates (the average rates for the year ended 31 December 2019). For the definition of CER see page 81.

Core results and Core EPS (earnings per share): These exclude non-core items such as global restructuring plans and amortisation and impairment of goodwill and intangible assets. This allows an assessment of both the actual results and the underlying performance of the business. A full income statement for the Group and the operating results of the divisions are shown on both an IFRS and core basis. The core concept is fully described on pages 74–77 and reconciliations between the IFRS and core results are given there.

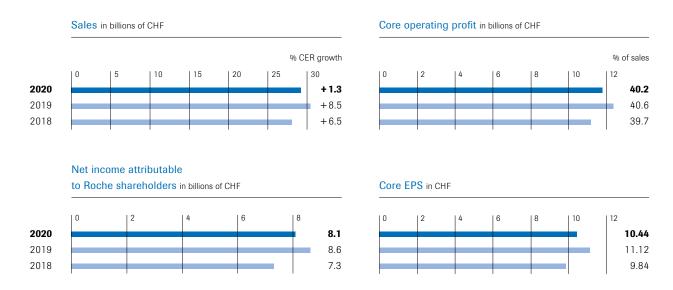
Free cash flow is used to assess the Group's ability to generate the cash required to conduct and maintain its operations. It also indicates the Group's ability to generate cash to finance dividend payments, repay debt and to undertake merger and acquisition activities. The free cash flow concept is used in the internal management of the business. The free cash flow concept is fully described on pages 77–79 and reconciliations between the IFRS cash flow and free cash flow are given there.

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Financial Review

Group results



In the first half of 2020 the Roche Group reported sales growth of 1% at constant exchange rates (CER) and core operating profit growth of 2%. IFRS net income increased by 3% while Core EPS increased by 2%. The appreciation of the Swiss franc against almost all currencies had an adverse net impact on the results expressed in Swiss francs compared to constant exchange rates of 5 percentage points on sales, 7 percentage points on core operating profit and 8 percentage points on Core EPS. The COVID-19 pandemic outbreak poses an unprecedented challenge for healthcare systems across the globe. With healthcare needs remaining high, the Roche Group's business has so far proved to be largely resilient in this difficult environment. The Pharmaceuticals Division has seen the continuing uptake of new medicines compensating for biosimilar erosion. In the Diagnostics Division sales of COVID-19 tests offset a decline in routine testing across the portfolio. The Group has made important contributions to manage this global health crisis in close collaboration with authorities. The Diagnostics Division launched its SARS-CoV-2 PCR test for various systems (including the high-throughput cobas 6800/8800 systems) in March and its Elecsys Anti-SARS-CoV-2 antibody test in May. The Pharmaceuticals Division has initiated a global phase III clinical trial (COVACTA) of Actemra/RoActemra in hospitalised patients with severe COVID-19 pneumonia and further studies as a monotherapy or combination therapy. To date no major manufacturing supply chain issues have been identified and the Group's planned drug launches, filings, pivotal phase III trial readouts and pivotal trial starts are largely on track. Operating free cash flow was CHF 5.0 billion, a decrease of 26%, due to higher investments in in-licensing and increased net working capital. The Group has maintained sufficient liquidity to support its ongoing business activities and is well positioned to meet its financial obligations.

Divisional operating results for the six months ended 30 June 2020

	Pharmaceuticals (CHF m)	Diagnostics (CHF m)	Corporate (CHF m)	Group (CHF m)
Sales	23,202	6,079	=	29,281
Core operating profit	10,961	1,022	(217)	11,766
- margin, % of sales	47.2	16.8	=	40.2
Operating profit	10,027	865	(254)	10,638
- margin, % of sales	43.2	14.2	=	36.3
Operating free cash flow	5,454	(44)	(374)	5,036
- margin, % of sales	23.5	-0.7	=	17.2

District Inc.	4.0	D 1		1.4	4.0	1 100 1 0010
Divisional ob	erating results -	- Developmeni	ot results	compared to th	e six months	ended 30 June 2019

	Pharmaceuticals	Diagnostics	Corporate	Group
Sales				
- % increase at CER	+1	+3		+1
Core operating profit				
- % increase at CER	+2	+9	+17	+2
- margin: percentage point change	+0.5	+0.9		+0.4
Operating profit				
- % increase at CER	+6	+4	-5	+6
- margin: percentage point change	+2.1	+0.1	=	+1.6
Operating free cash flow				
- % increase at CER	-28		+30	-26
- margin: percentage point change	-9.6		_	-6.7

To some extent the COVID-19 pandemic negatively affected sales across the whole business as described in the following section on 'Impact of the COVID-19 pandemic'. In the first half of 2020 sales in the Pharmaceuticals Division were CHF 23.2 billion (2019: CHF 24.2 billion), an increase of 1% at CER. New products were the major growth driver, with Tecentriq, Hemlibra, Ocrevus, Perjeta and Kadcyla together contributing an additional CHF 2.0 billion (CER) of new sales. Tecentriq sales were 74% higher, with growth in all regions. The launch and rollout of Hemlibra continued with sales reaching CHF 1.0 billion. Sales of Ocrevus were 25% higher at CHF 2.1 billion. Perjeta sales were CHF 1.9 billion, an increase of 17%, mostly due to growth in China. Kadcyla sales grew by 39% mainly due to higher demand in both the US and Europe. Total sales in the Pharmaceuticals Division grew mostly in the International region and Europe. In the US, the first biosimilar versions of Herceptin, Avastin and MabThera/Rituxan entered the market in the second half of 2019 and US sales of these three products were CHF 1.7 billion (CER) lower in the first half of 2020. Actemra/RoActemra sales increased by 36% mainly driven by the treatment of patients with severe COVID-19 pneumonia. The Diagnostics Division reported sales of CHF 6.1 billion, an increase of 3% at CER. The major growth area was Molecular Diagnostics, which grew by 61%, driven by the SARS-CoV-2 PCR test. Centralised and Point of Care Solutions sales decreased by 10%, which was attributable to a reduction in routine testing volumes during the COVID-19 pandemic. Diabetes Care sales decreased by 6% due to the continued overall contraction of the blood glucose monitoring market as well as COVID-19 effects.

The Pharmaceuticals Division's core operating profit increased by 2% at CER, ahead of the sales growth of 1%. Royalty and other operating income decreased by CHF 0.2 billion due to lower product disposal gains than in the comparative period. Cost of sales decreased by 13% due to lower inventory write-offs, product mix factors and lower collaboration and profit-sharing expenses. Marketing and distribution costs were stable and included activities to support ongoing product launches and rollouts, notably Ocrevus, Tecentriq and Xofluza, offset by reduced spending due to the COVID-19 pandemic. Research and development costs grew by 7%, with the growth mostly driven by late-stage investments in oncology, ophthalmology and personalised healthcare. There were also significant in-licensing transactions in the first half of 2020 to bring external innovation into the Roche Group resulting in CHF 1.5 billion of spending.

In the Diagnostics Division, core operating profit increased by 9% at CER, ahead of the sales growth of 3%. Cost of sales grew by 5% due to relatively higher sales volumes of Molecular Diagnostics instruments. Marketing and distribution costs decreased by 6% driven by lower spending as a result of the COVID-19 restrictions and cost containment measures. Research and development costs increased by 7% due to increased spending for laboratory automation and digital solutions.

The IFRS operating profit increased by 6% (CER) in the Pharmaceuticals Division and included CHF 0.3 billion of income following the release of provisions for the Accutane litigation in the US. The IFRS operating profit increased by 4% (CER) in the Diagnostics Division, with prior-year figures including CHF 0.1 billion for the release of contingent consideration provisions. The 2020 interim results include CHF 1.2 billion for the amortisation and impairment of intangible assets and CHF 0.3 billion of expenses from global restructuring plans.

Operating free cash flow was CHF 5.0 billion, a decrease of 26% at CER due to higher spending on in-licensing and alliance arrangements and increased net working capital. The free cash flow was CHF 3.3 billion, a decrease of CHF 2.0 billion. This was due to the lower operating free cash flow and higher net cash outflows from treasury activities, partially offset by the deferral of tax payments in the US.

Financing costs decreased by 28% (CER) on an IFRS basis at CHF 0.3 billion due to lower interest expenses attributable to the repayment of debt in the second half of 2019. The Group's effective core tax rate decreased to 16.5% compared to 16.7% in the first half of 2019. Several separate tax disputes were resolved in the first half of both 2020 and 2019, resulting in a reduction of the Group's effective core tax rate of around 2 percentage points in both periods.

Net income increased by 3% at CER on an IFRS basis to CHF 8.5 billion and by 3% on a core basis to CHF 9.4 billion, driven in both cases by the operating results. The amount of net income attributable to non-controlling interests increased by 38% on an IFRS basis, and by 34% on a core basis, due to the increased contribution of Chugai to the overall Group results.

Income statement

IFRS results	2020 (CHF m)	s ended 30 June 2019	% change	0/ 1
	(CHF m)		% change	% change
		(CHF m)	(CHF)	(CER)
Sales	29,281	30,469	-4	+1
Royalties and other operating income	1,097	1,282	-14	-12
Revenue	30,378	31,751	-4	+1
Cost of sales	(7,785)	(8,650)	-10	-6
Marketing and distribution	(4,572)	(4,906)	<u>-7</u>	-2
Research and development	(6,345)	(6,122)	+4	+7
General and administration	(1,038)	(1,232)	-16	-12
Operating profit	10,638	10,841	-2	+6
Financing costs	(286)	(414)	-31	-28
Other financial income (expense)	(171)	(73)	+134	+136
Profit before taxes	10,181	10,354	-2	+6
Income taxes	(1,716)	(1,450)	+18	+28
Net income	8,465	8,904	-5	+3
Attributable to				
- Roche shareholders	8,079	8,619	-6	+2
- Non-controlling interests	386	285	+35	+38
EPS - Basic (CHF)	9.45	10.07	-6	+2
EPS - Diluted (CHF)	9.32	9.99	-7	+2
Core results ¹⁾				
Sales	29,281	30,469		+1
Royalties and other operating income	1,097	1,282	-14	-12
Revenue	30,378	31,751		+1
Cost of sales	(7,079)	(7,868)	-10	-6
Marketing and distribution	(4,515)	(4,800)	-6	-2
Research and development	(5,787)	(5,561)	+4	+7
General and administration	(1,231)	(1,159)	+6	+11
Operating profit	11,766	12,363	-5	+2
Financing costs	(280)	(403)	-31	-28
Other financial income (expense)	(171)	(73)	+134	+136
Profit before taxes	11,315	11,887	-5	+3
Income taxes	(1,872)	(1,991)	-6	+1
Net income	9,443	9,896		+3
TOUR MODIFIC	7,443			
Attributable to				
- Roche shareholders	9,049	9,595	-6	+2
- Non-controlling interests	394	301	+31	+34
Core EPS – Basic (CHF)	10.58	11.21	-6	+2
Core EPS – Diluted (CHF)	10.44	11.12	-6	+2

¹⁾ See pages 74-77 for definition of core results and Core EPS.

Impact of the COVID-19 pandemic

Roche medicines and medical devices

Tests that detect the virus. In March 2020 the cobas SARS-CoV-2 PCR test to detect an active infection with the novel coronavirus received US FDA Emergency Use Authorization and became available in markets accepting the CE mark. Hospitals and reference laboratories can run the test on Roche Diagnostics' high-volume fully automated cobas 6800 and cobas 8800 systems based on PCR technology, which are installed in major hospitals and laboratories around the world. Sales in the Molecular Diagnostics business area in the first half of 2020 were CHF 1.6 billion, an increase of 61% compared to an increase of 6% in the full year 2019.

Tests that detect immune response. In May 2020 the Elecsys Anti-SARS-CoV-2 antibody test received US FDA Emergency Use Authorization and became available in markets accepting the CE mark. The test is designed to help determine if a patient has developed antibodies against the SARS-CoV-2 after exposure to the virus. The tests can be run on Roche Diagnostics' cobas e analysers, which are widely available around the world.

Investigating treatment options. In March 2020 the Pharmaceuticals Division initiated a global phase III clinical trial, COVACTA, to evaluate the safety and efficacy of intravenous Actemra/RoActemra on top of standard of care in hospitalised adult patients with severe COVID-19 pneumonia compared to placebo on top of standard of care. In May the Pharmaceuticals Division started a further global phase III study, REMDACTA, to evaluate the safety and efficacy of Actemra/RoActemra plus the antiviral remdesivir, versus placebo plus remdesivir in hospitalised patients with severe COVID-19 pneumonia, in collaboration with Gilead Sciences. Also in May, the Pharmaceuticals Division started two further phase III studies to evaluate the safety and efficacy of Actemra/RoActemra in the treatment of adult patients with severe COVID-19 pneumonia: EMPACTA includes patients that are often underrepresented in clinical trials while MARIPOSA studies a lower dose of Actemra/RoActemra. In addition to these trials, there are other independently led clinical trials, on multiple medicines including Actemra/RoActemra that are taking place around the world. At the time of writing, there are no robust, well-controlled studies showing safety and efficacy of Actemra/RoActemra in clinical treatment of COVID-19 pneumonia, and the medicine is currently not approved for this use. Sales of Actemra/RoActemra in the first half of 2020 were CHF 1.5 billion, an increase of 36% compared to an increase of 8% in the full year 2019.

Impact on the Roche Group's business and results

Revenues. The COVID-19 pandemic had an impact on the Group's revenues, both on the absolute amounts and in the phasing during the first half of 2020. The following factors affected sales across the whole portfolio in the Pharmaceuticals and Diagnostics businesses, although the impact varied by product and by geography:

- The restrictions on local travel and public gatherings discouraged some patients from visiting physicians, health practices and hospitals. This especially affected elderly patients.
- Many hospitals and health practices experienced a certain level of disruption leading to delays or cancellations of patient visits, especially for non-critical procedures.
- There was a certain level of forward purchasing as doctors wrote prescriptions for longer periods to minimise patient visits to pharmacies, and as patients and distributors stocked up in anticipation of restrictions and potential supply chain disruptions.

These factors manifested in a higher level of sales prior to restrictions being imposed, followed by a lower level of sales during the second quarter of 2020 and then a slow recovery beginning at the end of the second quarter as restrictions were progressively eased in certain countries. It is uncertain how this recovery might continue in the second half of 2020, and this is highly contingent on the future development of the pandemic. Within the Roche Group's sales growth of 1% in the first half of 2020, there was 7% year-on-year growth in the first quarter and 4% decline in the second quarter.

In the Pharmaceuticals Division the overall impact of COVID-19 was negative, partly compensated by additional sales of Actemra/RoActemra (+36%). The negative impacts were strongest for medicines where regular visits to health practices or hospitals are needed, for example for infusions. Sales of Lucentis in the US (-19%), Ocrevus (+25%) and the oncology portfolio (-6%) were therefore particularly affected, although the oncology portfolio was also heavily impacted by biosimilar erosion. The ongoing rollouts of Tecentriq (+74%) and Hemlibra (+94%) continued strongly, although the uptake of Hemlibra in the second quarter was also impacted to some extent by the pandemic. The Pharmaceuticals Division's overall interim results were influenced by the launch of new products and the US biosimilar erosion as well as the COVID-19 pandemic, although the impact of the pandemic falls almost entirely into the second quarter. Consequently within the Pharmaceuticals Division's interim sales growth of 1%, there was 7% year-on-year sales growth in the first quarter of 2020 followed by a sales decline of 6% in the second quarter.

In the Diagnostics Division the pandemic had a negative impact on sales across the whole portfolio, but this was compensated by sales of the cobas SARS-CoV-2 PCR tests. The pandemic led to a reduction in overall diagnostic testing, which translated into reduced instrument placements in the laboratory solutions business and reduced sales of reagents and consumables. This in turn led to a certain build-up in inventories as at 30 June 2020. Within the Diagnostics Division's sales growth of 3% in the first half of 2020, there is 5% year-on-year growth in the first quarter and 2% increase in the second quarter.

Manufacturing and supply. Despite some of the supply and logistics challenges due to the COVID-19 pandemic, the Roche Group has been able to continue to deliver medicines and diagnostics wherever possible for patients across a broad range of other disease areas under exceptional conditions. To date there has been limited disruption and the Group is continually monitoring the situation. While a certain level of volatility in purchasing patterns was noted during the first half of 2020, this has not significantly impacted the supply chain.

With the announcement of new clinical trials, and a potential increase in demand for Actemra/RoActemra, the Pharmaceuticals Division has accelerated manufacturing capacity to maximise production with the goal of increasing available supply globally. While the Roche Group is ensuring a coordinated, global overview of additional supply requests, provision of medicines is managed on a country level according to local rules and regulations and in close collaboration with the authorities.

The Diagnostics Division has ramped up production capacity for both the cobas SARS-CoV-2 PCR test and the Elecsys Anti-SARS-CoV-2 antibody test with further scale-up as fast as possible. The Roche Group is committed to delivering as many tests as possible within the limits of supply and delivering its novel coronavirus tests to areas where they can be immediately effective. Tests will be shipped from production sites to locations where appropriate infrastructure is in place and testing can begin without delay.

Research and development. The Roche Group's planned drug launches, filings, pivotal phase III trial readouts and pivotal trial starts are largely on track. The Group is continuously monitoring all ongoing studies, both in terms of missed doses and overall data integrity. The Group's development teams are taking significant efforts to protect these studies with continued support from health authorities, but the ultimate impact will also depend on the length and severity of the pandemic. Should the pandemic have a prolonged duration then the launch of new clinical trials and the progress of ongoing clinical trials may be delayed by restrictions at medical facilities and by patients deferring visits or simply not volunteering.

Operating results. The major impact on the operating profit came from the above-mentioned factors for revenues. Overall operating expenses were impacted to some extent by the COVID-19 pandemic, but these impacts were partly offsetting. While some additional costs were incurred for areas such as IT infrastructure and distribution costs, there was less spending on travel and congresses. In particular, the 2% decline in marketing and distribution costs was driven by a general slowdown in marketing activities during the second quarter, including lower travel costs. There were no significant costs for idle manufacturing capacity or inventory write-offs that could be attributed directly to the pandemic, and construction projects incurred only minor costs for delays during restrictions.

Core results. The Group has not made any changes to its core results concept as a result of the COVID-19 pandemic. The specific COVID-19-related impacts referred to above are included in both the IFRS and core results. It should be noted that the core results exclude non-core items such as global restructuring plans and amortisation and impairment of goodwill and intangible assets, regardless of the cause.

Liquidity and financial position

The liquidity and financial position of the Roche Group remained sound during this exceptional period.

Liquidity. The Group continues to show strong cash generation ability. Free cash flow was CHF 3.3 billion and the 29% decrease compared to the first half of 2019 was partly due to investments in in-licensing deals, which totalled CHF 1.8 billion and were not related to the pandemic. Roche continues to enjoy strong long-term investment-grade credit ratings of AA by Standard & Poor's and Aa3 by Moody's. The Group has committed credit lines with various financial institutions totalling USD 7.5 billion available as back-stop lines for the commercial paper program. As at 30 June 2020 no debt has been drawn under these credit lines. The Group did not renegotiate any major contracts for liquidity reasons.

The Group did not observe a significant increase in credit risk in the first half of 2020 due to the COVID-19 pandemic. Bad debt expenses and overdue receivables remained at a relatively low level. Payment terms for certain products in the US have been temporarily extended and this contributed to an increase in trade receivables at 30 June 2020. Income tax payments were lower due to the US Internal Revenue Service providing a tax payment extension in response to the COVID-19 pandemic.

The Roche Group did not apply for public support measures which may require compliance with particular conditions. The COVACTA phase III clinical trial for Actemra/RoActemra referred to above has been carried out in collaboration with the Biomedical Advanced Research and Development Authority (BARDA), a part of the US Department of Health and Human Services Office of the Assistant Secretary for Preparedness and Response (ASPR).

Financial position as at 30 June 2020. As described previously, trade receivables and inventories increased in part due to COVID-19 effects. Income tax payables in the US also increased due to the tax payment extension. There were no significant bad debts or write-offs of inventories that could be directly attributed to COVID-19 factors.

Intangible asset impairment charges of CHF 0.3 billion were incurred as a result of a delay in clinical trials, partly caused by COVID-19, for the Spark Therapeutics' haemophilia A programme. No other impairment issues were noted for goodwill and intangible assets. The Group will carry out further regular reviews for impairment in the second half of 2020, and any continued negative impacts from the pandemic, notably on the timing of clinical trials, would need to be considered. The Roche Group continued to investigate external innovations and a total of CHF 2.5 billion was spent on in-licensing deals and asset acquisitions.

No impairment issues were noted for financial assets, although the volatility in global markets had a corresponding impact on the carrying value of investments held at fair value. Similarly, there was a certain volatility in the fair value of pension assets and discount rates during the first half of 2020, but the situation had largely stabilised by 30 June 2020 and no emergency funding payments to the Group's pension plans are currently foreseen.

Group results (continued)

Mergers and acquisitions

Spark Therapeutics. On 17 December 2019 the Group acquired a 100% controlling interest in Spark Therapeutics, Inc. ('Spark Therapeutics'), a publicly owned US company based in Philadelphia, Pennsylvania, that had been listed on Nasdaq Stock Market. Spark Therapeutics is a fully integrated commercial company committed to discovering, developing and delivering gene therapies. Spark Therapeutics is reported in the Pharmaceuticals Division. The cash purchase consideration was USD 4.8 billion (equivalent to CHF 4.7 billion). In the 2019 Annual Financial Statements, the allocation of the purchase price recorded in the balance sheet was provisional. During the first half of 2020 the identification and valuation of intangible assets and other assets and liabilities was completed. Accordingly, the provisional amounts recorded in the balance sheet at 31 December 2019 were restated as set out in Note 6 to the Interim Financial Statements. As a result, the values for intangible assets were increased by CHF 2.4 billion, deferred tax assets by CHF 0.3 billion and deferred tax liabilities by CHF 0.5 billion, with a consequent decrease in goodwill of CHF 2.2 billion.

Asset acquisitions. During the first six months of 2020 the Group acquired a 100% controlling interest in Promedior, Inc. ('Promedior') and Lexent Bio, Inc. ('Lexent Bio') for the Pharmaceuticals Division and Stratos Genomics, Inc. ('Stratos Genomics') for the Diagnostics Division. The total initial cash consideration was USD 0.7 billion (equivalent to CHF 0.7 billion) and additional contingent payments may be made based upon the achievement of performance-related milestones. Of this CHF 0.4 billion relates to the Promedior acquisition, by which the Group obtained rights to Promedior's entire portfolio including phase III-ready asset PRM-151, a recombinant human pentraxin-2 molecule for the treatment of idiopathic pulmonary fibrosis (IPF). These transactions do not qualify as business combinations under IFRS 3 and have been accounted for as additions to intangible assets. The cash flows from business combinations and asset acquisitions, including the settlement of contingent consideration arrangements, do not form part of the free cash flow.

Further details are given in Note 6 to the Interim Financial Statements.

Alliance transactions

In the first half of 2020 the Group completed the licensing agreement with Sarepta Therapeutics, Inc. that was announced on 23 December 2019 and under which the Group acquired the exclusive rights to launch and commercialise SRP-9001, Sarepta's investigational micro-dystrophin gene therapy for Duchenne muscular dystrophy (DMD) outside the US. The initial payments resulted in the recognition of CHF 0.8 billion of intangible assets and CHF 0.3 billion of equity investments.

Other significant transactions included an upfront payment of CHF 0.2 billion to Arrakis Therapeutics for a strategic collaboration and license agreement for the discovery of RNA-targeted small molecule (rSM) drugs against a broad set of targets across all of the Pharmaceutical Division's research and development areas. In addition there was an upfront payment of CHF 0.1 billion to Vividion Therapeutics for rights to Vividion's proteomics screening platform and proprietary small molecule library to target novel E3 ligases, as well as a range of oncology and immunology therapeutic targets.

In total in-licensing deals and other alliance transactions completed in the first half of 2020 resulted in intangible assets totalling CHF 1.3 billion being recognised (2019: CHF 0.8 billion). The total cash outflow of CHF 1.8 billion included the Sarepta equity investment as well as a payment of CHF 0.2 billion relating to the 2019 Dicerna Pharmaceuticals transaction for treatments of chronic hepatitis B virus infection. Of this total amount, CHF 1.5 billion was included in the Pharmaceuticals Division's operating free cash flow and the CHF 0.3 billion Sarepta equity investment was included in the free cash flow from treasury activities.

On 14 July 2020 the Group announced a collaboration with Blueprint Medicines Corporation for the co-development and co-commercialisation rights for pralsetinib, an investigational, precision therapy in late-stage development for people with RET-altered non-small cell lung cancer, various types of thyroid cancer and other solid tumours. Under the terms of the agreement, the Group will pay an upfront of USD 675 million in cash in addition to a USD 100 million equity investment in Blueprint Medicines.

For all the above transactions, additional payments may be made based upon the achievement of performance-related milestones and from royalty arrangements.

Global restructuring plans

During the first half of 2020 the Group continued with the implementation of various global restructuring plans initiated in prior years.

Global restructuring plans: costs incurred for the six months ended 30 June 2020 in millions of CHF

	Diagnostics	Site consolidation	Other plans	Total
Global restructuring costs				
- Employee-related costs	36	3	103	142
- Site closure costs	17	3	20	40
Divestments of products and businesses	0	0	0	0
- Other reorganisation expenses	30	4	37	71
Total global restructuring costs	83	10	160	253
Additional costs				
- Impairment of goodwill	0	0	0	0
- Impairment of intangible assets	0	0	0	0
- Legal and environmental cases	0	0	0	0
Total costs	83	10	160	253

Diagnostics Division. Strategy plans in the Diagnostics Division incurred costs of CHF 45 million, mainly for employee-related costs.

Other global restructuring plans. Initiatives for the outsourcing of IT and other functions to shared service centres and external providers incurred costs of CHF 66 million, mainly employee-related.

Impairment of goodwill and intangible assets

There were intangible asset impairment charges of CHF 342 million in the Pharmaceuticals Division coming from the partial impairment of the intangible asset for SPK-8011, a novel gene therapy for the treatment of haemophilia A, acquired as part of the Spark Therapeutics acquisition. The impairment is a result of a delay in clinical trials, partly impacted by the COVID-19 pandemic, leading to reduced sales expectations. There were no impairments in the Diagnostics Division. Further details are given in Note 9 to the Interim Financial Statements.

Legal and environmental cases

Based on the development of the various litigations, notably the Accutane case in the US, some of the provisions previously held were released which resulted in an income of CHF 0.3 billion. Further details are given in Note 10 to the Interim Financial Statements.

Net income and earnings per share

IFRS net income decreased by 5% in CHF terms and increased by 3% at CER while Core EPS increased by 2% at CER and decreased by 6% in CHF. The core basis excludes non-core items such as global restructuring costs, amortisation and impairment of goodwill and intangible assets, and mergers and acquisitions and alliance arrangements. The amount of net income attributable to non-controlling interests increased by 38% on an IFRS basis, and by 34% on a core basis, due to the increased contribution of Chugai to the overall Group results.

Net income

	Six mo	onths ended 30 June		
	2020	2019	% change	% change
	(CHF m)	(CHF m)	(CHF)	(CER)
IFRS net income	8,465	8,904	-5	+3
Reconciling items (net of tax)				
- Global restructuring	206	383	-46	-44
- Intangible asset amortisation	733	659	+11	+14
Goodwill and intangible asset impairment	267	287	-7	-4
Mergers and acquisitions and alliance transactions	27	(90)	-	-
Legal and environmental cases	(250)	66	-	-
- Pension plan settlements	(2)	0	-	-
- Transitional effect of Swiss tax reform	0	(235)	_	-
Normalisation of equity compensation plan tax benefit	(3)	(78)	-96	-95
Core net income	9,443	9,896	-5	+3

Supplementary net income and EPS information is given on pages 74 to 77. This includes calculations of Core EPS and reconciles the core results to the Group's published IFRS results.

Financial position

Financial position

	30 June 2020 (CHF m)	31 December 2019 (CHF m)	% change (CHF)	% change (CER)
Pharmaceuticals	— CHFIII)		(СПР)	(CEN)
Net working capital	5,122	1,441	+255	+267
Long-term net operating assets 1)	30,407	29,348	+4	+5
Diagnostics				
Net working capital	3,605	2,742	+31	+37
Long-term net operating assets	10,939	11,036	-1	+2
Corporate				
Net working capital	(132)	(240)	-45	-44
Long-term net operating assets	36	(5)	-	
Net operating assets ¹⁾	49,977	44,322	+13	+15
Net debt	(8,791)	(2,505)	+251	+242
Lease liabilities	(1,267)	(1,219)	+4	+7
Pensions	(6,712)	(6,535)	+3	+4
Income taxes 1)	719	1,080	-33	-25
Other non-operating assets, net	889	724	+23	+23
Total net assets	34,815	35,867	-3	0

¹⁾ Provisional 2019 balance sheet amounts restated for final accounting of Spark Therapeutics acquisition (see Note 6 to the Interim Financial Statements).

Compared to the start of the year the Swiss franc appreciated against almost all currencies, with the US dollar, the euro, and, additionally, the Brazilian real having a significant effect on the Group's net operating assets. This had a negative translation impact, which was partly offset at Group level by the natural hedge from the Group's US dollar-denominated debt. The exchange rates used are given on page 34.

Net working capital increased significantly in both divisions. In the Pharmaceuticals Division trade receivables increased in the US as the extended payment terms for Ocrevus and Lucentis remain in effect, while the payment terms for certain other products were temporarily extended during 2020. The increase in inventories was driven by active management to ensure product availability and by launch supply. In the Diagnostics Division inventories increased as healthcare systems delayed the installation of instruments in the Centralised and Point of Care Solutions business and reduced routine testing due to COVID-19. In both divisions payables decreased due to the settlement of year-end positions.

The increase in net debt was due to dividend payments of CHF 7.8 billion, partly offset by the free cash flow of CHF 3.3 billion. The net pension liability was 4% higher following a decrease in some discount rates. The net tax assets decreased mainly due to income tax expenses exceeding the taxes paid, partly offset by the deferred tax effects of the equity compensation plans that are variable according to the price of the underlying equity. Lease liabilities of CHF 1.3 billion increased by 7% due to additional office space rented by Flatiron Health.

Free cash flow

Free cash flow

3,274	5,277	-38	-29
(1,269)	(1,911)		-31
(493)	(320)	+54	+57
5,036	7,508	-33	-26
(374)	(303)	+23	+30
(44)	(380)		
5,454	8,191	-33	-28
2020 (CHF m)	2019 (CHF m)	% change (CHF)	% change (CER)
	2020 (CHF m) 5,454 (44) (374) 5,036 (493) (1,269)	(CHF m) (CHF m) 5,454 8,191 (44) (380) (374) (303) 5,036 7,508 (493) (320) (1,269) (1,911)	2020 (CHF m) 2019 (CHF m) % change (CHF) 5,454 8,191 -33 (44) (380) -88 (374) (303) +23 5,036 7,508 -33 (493) (320) +54 (1,269) (1,911) -34

See pages 77-79 for definition of free cash flow.

The Group's operating free cash flow for the first six months of 2020 was CHF 5.0 billion, a decrease of 26% at CER. This was due to higher investments in intangible assets and increased net working capital. The free cash flow in the first half of 2020 was CHF 3.3 billion, a decrease of 29%, due to the lower operating free cash flow and higher financial long-term investments, partly offset by lower income tax payments.

Pharmaceuticals operating results

Pharmaceuticals Division interim operating results

	2020 (CHF m)	2019 (CHF m)	% change (CHF)	% change (CER)
IFRS results				(0-1-7)
Sales	23,202	24,194	-4	+1
Royalties and other operating income	1,070	1,249	-14	-12
Revenue	24,272	25,443	-5	0
Cost of sales	(4,800)	(5,597)	-14	-11
Marketing and distribution	(3,305)	(3,464)	-5	-1
Research and development	(5,605)	(5,372)	+4	+8
General and administration	(535)	(842)	-36	-35
Operating profit	10,027	10,168	-1	+6
- margin, % of sales	43.2	42.0	+1.2	+2.1
Core results ¹⁾				
Sales	23,202	24,194	-4	+1
Royalties and other operating income	1,070	1,249	-14	-12
Revenue	24,272	25,443	-5	0
Cost of sales	(4,175)	(4,939)	-15	-13
Marketing and distribution	(3,266)	(3,395)	-4	0
Research and development	(5,077)	(4,873)	+4	+7
General and administration	(793)	(736)	+8	+11
Core operating profit	10,961	11,500	-5	+2
- margin, % of sales	47.2	47.5	-0.3	+0.5
Financial position				
Net working capital	5,122	1,441	+255	+267
Long-term net operating assets ³	30,407	29,348	+4	+5
Net operating assets ³⁾	35,529	30,789	+15	+17
Free cash flow ²⁾				
Operating free cash flow	5,454	8,191	-33	-28
- margin, % of sales	23.5	33.9	-10.4	-9.6

- 1) See pages 74-77 for definition of core results.
- 2) See pages 77-79 for definition of free cash flow.
- 3) Provisional 2019 balance sheet amounts restated for final accounting of Spark Therapeutics acquisition (see Note 6 to the Interim Financial Statements).

Sales overview

Pharmaceuticals Division – Interim sales by therapeutic area

	2020 (CHF m)	2019 (CHF m)	% change (CER)	% of sales (2020)	% of sales (2019)
Oncology	12,469	13,938	-6	53.7	57.6
Immunology	4,272	4,234	+6	18.4	17.5
Neuroscience	2,381	2,069	+21	10.3	8.6
Haemophilia A	1,003	535	+94	4.3	2.2
Ophthalmology	728	928	-19	3.1	3.8
Infectious diseases	496	594	-11	2.1	2.5
Other therapeutic areas	1,853	1,896	+1	8.1	7.8
Total sales	23,202	24,194	+1	100	100

The COVID-19 pandemic had an overall negative impact on the division's sales in the second quarter. There was a general dampening on sales from the restrictions during the second quarter. Hospitalisations and outpatient visits decreased, which particularly impacted sales of Ocrevus, Hemlibra, Lucentis and MabThera/Rituxan. The rollouts of Tecentriq and Hemlibra continued to generate growth. New product sales continued to compensate for the increasing competition from biosimilars, notably Herceptin, Avastin and MabThera/Rituxan in the US. Actemra/RoActemra sales increased by 36% driven by the adoption in treatment guidelines for patients with severe COVID-19 pneumonia.

The sales growth was driven by the continuing rollout of the new products Tecentriq, Hemlibra, Ocrevus, Perjeta and Kadcyla, which together contributed an additional CHF 2.0 billion (CER) of new sales. Tecentriq sales grew by 74% to CHF 1.3 billion, mostly due to higher demand in the US and major EU markets. The launch and rollout of Hemlibra continued across the US, Japan and major EU markets with sales reaching CHF 1.0 billion, an increase of 94%, while Ocrevus continued its growth development, with a 25% sales increase to CHF 2.1 billion. Sales of both Ocrevus and Hemlibra were especially adversely affected by the COVID-19 pandemic. Perjeta sales were up by 17%, with China being a major driver of growth. Kadcyla sales grew by 39% mainly due to higher demand in the US and Europe with patients switched to the new standard of treatment following the positive readout of the KATHERINE study.

Biosimilar competition had a negative impact, with continuing erosion for Herceptin, MabThera/Rituxan and Avastin, mostly in the US. Global sales of these three products fell by CHF 2.3 billion (CER) to total sales of CHF 7.5 billion, a decrease of 23%, in the first half of 2020. In the US, Europe and Japan, where biosimilars have been launched, the combined sales declined by CHF 2.1 billion (CER). The COVID-19 pandemic also had an impact on sales of these three products, notably in China and for MabThera/Rituxan in the US. Sales in China were also affected following price updates since the inclusion in the National Reimbursement Drug List (NRDL). The first biosimilar versions of Herceptin, Avastin and MabThera/Rituxan entered the market in the US in the second half of 2019, with a negative impact of CHF 1.7 billion (CER) in the first half of 2020. Sales of Herceptin and MabThera/Rituxan in Europe declined by CHF 0.3 billion (CER). The first biosimilar versions of Avastin could come to market in Europe in the second half of 2020.

Sales in the oncology therapeutic area decreased by 6%, due to the biosimilar competition for Herceptin, Avastin and MabThera/Rituxan described above, partially compensated by growth of the new products Tecentriq and Perjeta. Tecentriq sales grew in all regions, mostly due to higher demand in the US and major EU markets and rollout in Japan. Perjeta sales increased mostly due to growth in China, Japan and Russia. Kadcyla and Alecensa both showed continuing post-launch growth across all regions.

Sales in immunology grew by 6%, with Actemra/RoActemra and Esbriet increasing by 36% and 11%, respectively. The increase in Actemra/RoActemra sales was mainly driven by the adoption of this medicine by many countries in their guidelines to treat patients with severe COVID-19 pneumonia. MabThera/Rituxan sales in immunology decreased by 25% driven by the US, due to the impacts of the COVID-19 pandemic and biosimilar entry. Lucentis sales declined by 19% in the US and were affected by COVID-19 restrictions disrupting ophthalmology practices and limiting patient access. Infectious diseases sales were 11% lower due to lower sales of Rocephin and Tamiflu. In other therapeutic areas, sales of Activase/TNKase were 4% higher in the US.

Product sales

Pharmaceuticals Division - Interim sales

Oncology Avastin Herceptin Perjeta MabThera/Rituxan ¹⁾ Tecentriq Kadcyla	2,835 2,200 1,941 1,850 1,297 837 540 310	3,659 3,264 1,755 2,509 782 636	-18 -28 +17 -23 +74	(2020) 12.2 9.5 8.4 8.0	15.1 13.5 7.3
Avastin Herceptin Perjeta MabThera/Rituxan ¹⁾ Tecentriq	2,200 1,941 1,850 1,297 837 540 310	3,264 1,755 2,509 782 636	-28 +17 -23	9.5	13.5
Herceptin Perjeta MabThera/Rituxan ¹⁾ Tecentriq	2,200 1,941 1,850 1,297 837 540 310	3,264 1,755 2,509 782 636	-28 +17 -23	9.5	13.5
Perjeta MabThera/Rituxan ¹⁾ Tecentriq	1,941 1,850 1,297 837 540 310	1,755 2,509 782 636	+17	8.4	
MabThera/Rituxan ¹⁾ Tecentriq	1,850 1,297 837 540 310	2,509 782 636	-23		7.5
Tecentriq	1,297 837 540 310	782 636		0.0	10.4
· · · · · · · · · · · · · · · · · · ·	837 540 310	636		5.6	3.2
	540 310		+39	3.6	2.6
Alecensa	310	421	+34	2.3	1.7
Gazyva/Gazyvaro		241	+35	1.3	1.0
Xeloda	176	216	-14	0.8	0.9
Tarceva	99	181	-42	0.4	0.7
Polivy	83	2	Over +500	0.4	0.0
Others	310	272	+19	1.2	1.2
Total Oncology	12,469	13,938	-6	53.7	57.6
Immunology	1./01	1.105			
Actemra/RoActemra	1,461	1,135	+36	6.3	4.7
Xolair	958	972	+2	4.1	4.0
MabThera/Rituxan ¹⁾	590	830	-25	2.5	3.5
Esbriet Dube on the control of the c	566	532	+11	2.4	2.2
Pulmozyme	352	371	0	1.5	1.5
CellCept	314	325	+3	1.4	1.3
Others	31	69	<u>-56</u>	0.2	0.3
Total Immunology	4,272	4,234		18.4	17.5
Neuroscience					
Ocrevus	2,076	1,735	+25	8.9	7.2
Madopar	194	189	+13	0.8	0.8
Others	111	145	-15	0.6	0.6
Total Neuroscience	2,381	2,069	+21	10.3	8.6
Haemophilia A					
Hemlibra	1,003	535	+94	4.3	2.2
Total Haemophilia A	1,003	535	+94	4.3	2.2
Ophthalmology				_	
Lucentis	728	928		3.1	3.8
Total Ophthalmology	728	928	-19	3.1	3.8
Infectious diseases					
Tamiflu	186	227	-12	0.8	1.0
Rocephin	130	173	-19	0.6	0.7
Others	180	194	-1	0.7	0.8
Total Infectious diseases	496	594	-11	2.1	2.5
Other therapeutic areas	201				
Activase/TNKase	691	686	+4	3.0	2.8
Mircera	251	282		1.1	1.2
NeoRecormon/Epogin	124	130	0	0.5	0.5
Others	787	798	+2	3.5	3.3
Total other therapeutic areas	1,853	1,896		8.1	7.8
Total sales	23,202	24,194	+1	100	100

¹⁾ Total MabThera/Rituxan sales of CHF 2,440 million (2019: CHF 3,339 million) split between oncology and immunology franchises.

Avastin. For advanced colorectal, breast, lung, kidney, cervical and ovarian cancer, relapsed glioblastoma and liver cancer in combination with Tecentriq.

Avastin interim regional sales

	2020 (CHF m)	2019 (CHF m)	% change (CER)	% of sales (2020)	% of sales (2019)
United States	1,057	1,630	-33	37.3	44.5
Europe	796	920	-8	28.1	25.1
Japan	363	424	-13	12.8	11.6
International	619	685	-1	21.8	18.8
Total sales	2,835	3,659	-18	100	100

US sales decreased by 33% due to the launch of biosimilars. In Europe the sales decrease was due to competitive pressure, notably in Germany. In Japan sales decreased due to the government price cut and biosimilar competition. In the International region, the main driver in the sales decline was Canada.

MabThera/Rituxan. For non-Hodgkin lymphoma (NHL), chronic lymphocytic leukaemia (CLL), follicular lymphoma (FL) and pemphigus vulgaris (PV), rheumatoid arthritis (RA) as well as certain types of antineutrophil cytoplasmic antibody (ANCA)-associated vasculitis.

MabThera/Rituxan interim regional sales

Total sales	2,440	3,339	-23	100	100
International	512	677	-17	20.9	20.3
Japan	33	58	-42	1.4	1.7
Europe	202	323		8.3	9.7
United States	1,693	2,281	-23	69.4	68.3
	2020 (CHF m)	2019 (CHF m)	% change (CER)	% of sales (2020)	% of sales (2019)

Sales were 23% lower due to biosimilar erosion as well as market contraction from the COVID-19 pandemic restrictions. US sales decreased by 23%, with a decline in both the oncology and immunology segments, and in part driven by COVID-19. Sales in the International region were lower with a 12% decline in China following price updates since the inclusion in the National Reimbursement Drug List (NRDL) and a 50% decline in Brazil. In Japan sales decreased due to biosimilar competition.

HER2 franchise (Herceptin, Perjeta and Kadcyla). For HER2-positive breast cancer and HER2-positive metastatic (advanced) gastric cancer (Herceptin only).

Herceptin interim regional sales

	2020 (CHF m)	2019 (CHF m)	% change (CER)	% of sales (2020)	% of sales (2019)
United States	848	1,509	-42	38.5	46.2
Europe	361	568	-33	16.4	17.4
Japan	77	123	-37	3.5	3.8
International	914	1,064	-5	41.6	32.6
Total sales	2,200	3,264	-28	100	100

Perjeta interim regional sales

	2020 (CHF m)	2019 (CHF m)	% change (CER)	% of sales (2020)	% of sales (2019)
United States	770	788	+1	39.7	44.9
Europe	567	541	+11	29.2	30.8
Japan	149	120	+27	7.7	6.8
International	455	306	+65	23.4	17.5
Total sales	1,941	1,755	+17	100	100

Kadcyla interim regional sales

	2020 (CHF m)	2019 (CHF m)	% change (CER)	% of sales (2020)	% of sales (2019)
United States	404	278	+51	48.3	43.7
Europe	257	204	+34	30.7	32.1
Japan	41	40	+3	4.9	6.3
International	135	114	+35	16.1	17.9
Total sales	837	636	+39	100	100

Sales in the HER2 franchise decreased by 7% to CHF 5.0 billion. Herceptin sales were 28% lower, driven by the US and Europe, due to biosimilar launches which started in the second half of 2019 in the US and in mid-2018 in Europe. Sales of Perjeta grew by 17% with increases mostly driven by China in both early breast cancer and metastatic breast cancer settings. In the US, sales of Perjeta grew by 1% due to growth in the early breast cancer setting, partly offset by COVID-19 restrictions. Kadcyla sales increased by 39% globally, and by 51% in the US, notably in the early breast cancer setting. Kadcyla sales benefited from the positive readout from the KATHERINE study and by patients switching to the new standard of treatment.

Ocrevus. For relapsing forms of multiple sclerosis (RMS) and primary progressive multiple sclerosis (PPMS).

Ocrevus interim regional sales

Total sales	2,076	1,735	+25	100	100
T . I I	0.050	1 -0-		100	
International	108	68	+75	5.2	3.9
Europe	297	211	+49	14.3	12.2
United States	1,671	1,456	+19	80.5	83.9
	2020 (CHF m)	2019 (CHF m)	% change (CER)	% of sales (2020)	% of sales (2019)

There was continuously growing demand in both indications in the US, with growth driven both by new and returning patients, with a higher proportion of sales coming from returning patients. In Europe and the International region Ocrevus continues to show strong uptake where launched, notably in France, Canada, Germany and Spain. Sales of Ocrevus were impacted by COVID-19 as the treatment is administered by intravenous infusion and requires hospital visits, which in many cases were cancelled or delayed during the pandemic restrictions.

Actemra/RoActemra. For rheumatoid arthritis (RA), systemic juvenile idiopathic arthritis, polyarticular juvenile idiopathic arthritis and giant cell arteritis.

Actemra/RoActemra interim regional sales

	2020 (CHF m)	2019 (CHF m)	% change (CER)	% of sales (2020)	% of sales (2019)
United States	692	460	+56	47.4	40.5
Europe	382	355	+14	26.1	31.3
Japan	181	188	-2	12.4	16.6
International	206	132	+77	14.1	11.6
Total sales	1,461	1,135	+36	100	100

Sales increased by 36%, with growth driven by the adoption of Actemra/RoActemra by many countries in their treatment guidelines to treat patients with severe COVID-19 pneumonia. The US was the major contributor to the sales increase, along with Russia and Spain. Various clinical studies have been initiated to evaluate the safety and efficacy of Actemra/RoActemra in patients with severe COVID-19 pneumonia.

Tecentriq. For advanced bladder cancer, advanced lung cancer, initial therapy of non-squamous non-small cell lung cancer (NSCLC), extensive-stage small cell lung cancer and PD-L1-positive triple-negative breast cancer.

Tecentriq interim regional sales

	2020 (CHF m)	2019 (CHF m)	% change (CER)	% of sales (2020)	% of sales (2019)
United States	744	508	+52	57.4	65.0
Europe	282	134	+123	21.7	17.1
Japan	148	75	+102	11.4	9.6
International	123	65	+111	9.5	8.3
Total sales	1,297	782	+74	100	100

Sales grew by 74% with growth in all regions, notably the US, where higher sales were driven by the new indications for extensive-stage small cell lung cancer and PD-L1-positive triple-negative breast cancer. In Europe, sales grew mainly driven by Germany in the extensive-stage small cell lung cancer and PD-L1-positive triple-negative breast cancer indications. Sales in Japan increased due to the growth in the treatment of NSCLC and extensive-stage small cell lung cancer.

Hemlibra. For haemophilia A.

Hemlibra interim regional sales

	2020 (CHF m)	2019 (CHF m)	% change (CER)	% of sales (2020)	% of sales (2019)
United States	664	381	+80	66.2	71.2
Europe	146	63	+143	14.6	11.8
Japan	151	82	+87	15.1	15.3
International	42	9	+418	4.1	1.7
Total sales	1,003	535	+94	100	100

The global rollout of Hemlibra continued during the first half of 2020. Sales continued to show a strong uptake, especially in the US with strong demand in the non-inhibitor segment. COVID-19 restrictions caused a slowdown in growth due to missed patient visits affecting potential new patients, whereas existing patients remained on their treatment.

Xolair. For moderate to severe persistent allergic asthma (AA) and chronic idiopathic urticaria (CIU).

Xolair interim regional sales

	2020 (CHF m)	2019 (CHF m)	% change (CER)	% of sales (2020)	% of sales (2019)
United States	958	972	+2	100	100
Total sales	958	972	+2	100	100

Sales increased by 2%, driven by the demand in both indications. Xolair remains the market leader in the larger allergic asthma indication.

Activase/TNKase. For acute ischaemic stroke (AIS) and acute myocardial infarction (AMI). Sales were 4% higher, led by the US, and mainly driven by broader use in hospitals and a higher number of patients being treated.

Lucentis. For wet age-related macular degeneration (wAMD), macular oedema following retinal vein occlusion (RVO), diabetic macular oedema (DME) and diabetic retinopathy (DR). US sales decreased by 19%, in all approved indications. The COVID-19 pandemic caused some disruption in hospitals and ophthalmology practices and many patients delayed treatment during the restrictions.

Esbriet. For idiopathic pulmonary fibrosis (IPF). Sales grew by 11% driven by broader use in hospitals.

Alecensa. For ALK-positive non-small cell lung cancer (NSCLC). The global uptake continued with a 34% increase in sales across all regions with International and Europe as the main drivers.

Pharmaceuticals Division - Interim sales by region

Total sales	23,202	24,194	+1	100	100
				100	100
nternational	4,640	4,615	+11	20.0	19.0
lapan	1,908	1,988		8.2	8.2
Europe	4,190	4,221	+5	18.1	17.5
Jnited States	12,464	13,370	-4	53.7	55.3
	2020 (CHF m)	2019 (CHF m)	% change (CER)	% of sales (2020)	% of sales (2019)

United States. Sales decreased by 4% driven by the combined 31% fall in total Herceptin, Avastin and MabThera/Rituxan sales due to the launches of biosimilars as well as market contractions due to COVID-19 particularly for MabThera/Rituxan. Hemlibra continued to show strong uptake since being launched in November 2017. Actemra/RoActemra sales increased by 56% mostly due to the use for hospitalised patients with severe COVID-19 pneumonia. Tecentriq sales increased by 52% due to growth in the new indications. Ocrevus sales increased by 19% and were driven by both new and returning patient demand, partly dampened by COVID-19 effects. Sales in the HER2 franchise decreased by 19%, mostly driven by lower Herceptin sales, partially offset by a 51% sales increase for Kadcyla, notably in the early breast cancer setting. Lucentis sales decreased due to COVID-19 impacts.

Europe. Sales grew by 5% with new product sales more than compensating for the biosimilar competition to Herceptin (–33%) and MabThera/Rituxan (–34%) and impacts of the COVID-19 pandemic. Tecentriq sales continued to grow and increased by 123% following successful launches, notably in Germany, and continued uptake across Europe. Hemlibra (+143%) and Ocrevus (+49%) showed strong uptake, in particular in Germany and France.

Japan. Interim sales decreased by 2%, driven by a combined 20% fall in sales of Herceptin, Avastin and MabThera/Rituxan. This arose from biosimilar competition and government price cuts. This decline was partially compensated for by recently launched products including Hemlibra and Tecentriq. Perjeta sales grew by 27% due to the launch of an additional indication for early breast cancer.

International. Sales increased by 11%, mostly driven by Russia, China and also the Middle East and North Africa, where there were successful tenders. China saw a sales increase of 7%, due to a strong uptake of Perjeta and Alecensa, partially offset by the NRDL price update and the COVID-19 impact for Herceptin, Avastin and MabThera/Rituxan. Sales in the rest of the International region increased by 13% with growth in new products (Perjeta, Tecentriq, Ocrevus, Hemlibra, Kadcyla and Alecensa) and Actemra/RoActemra more than offsetting a decline in MabThera/Rituxan. Sales in Russia grew due to the inclusion of Tecentriq, Herceptin, Perjeta and Kadcyla in the National Oncology Program.

Pharmaceuticals Division - Interim sales for E7 leading emerging markets

	2020 (CHF m)	2019 (CHF m)	% change (CER)	% of sales (2020)	% of sales (2019)
Brazil	352	486	-4	1.5	2.0
China	1,587	1,587	+7	6.9	6.6
India	42	30	+52	0.2	0.1
Mexico	121	115	+23	0.5	0.5
Russia	203	84	+158	0.9	0.3
South Korea	173	184	+2	0.7	0.8
Turkey	112	120	+11	0.5	0.5
Total sales	2,590	2,606	+11	11.2	10.8

Competition from generic medicines and biosimilars. The introduction of a generic, biosimilar or non-comparable biologic version of the same or a similar medicine typically results in a significant reduction in net sales for the relevant product, as other manufacturers typically offer their versions at lower prices.

The intellectual property for biologics can involve multiple patents and patent timelines for each individual product and therefore it is more difficult to give an exact date for patent expiry for biologic medicines. The Group's basic, primary patents for its major biologic medicines begin to expire as follows:

- MabThera/Rituxan: from 2018 in the US.
- Herceptin: from 2019 in the US.
- Avastin: from 2019 in the US and from 2020 in the EU.
- Subcutaneous formulations of MabThera/Rituxan and Herceptin: beyond 2025 (secondary patent rights).

Biosimilar competition for these three products had an estimated negative impact of CHF 2.1 billion (CER) in the first half of 2020, with the main impact being sales in the US which fell by CHF 1.7 billion (CER). Sales in Europe and Japan fell by CHF 0.4 billion (CER). The COVID-19 pandemic had a negative impact on the overall market in the first half of 2020, notably for MabThera/Rituxan in the US.

United States. The first biosimilar versions of Herceptin and Avastin were launched in the US from mid-2019 and the first biosimilar versions of MabThera/Rituxan in late 2019. Interim 2020 sales for these three products were CHF 1.7 billion lower (at CER) than in the prior period, a decline of 31%. US sales of these three products were also affected by the COVID-19 pandemic which had a certain impact on the overall market, particularly for MabThera/Rituxan.

Europe. The first biosimilar versions of MabThera/Rituxan and Herceptin were launched in Europe from mid-2017 and from mid-2018, respectively. They are now marketed in most EU countries and were the major factor in the continuing sales decline of these products in Europe in the first half of 2020. Based on publicly available information from competitor companies, the Group currently anticipates that the first biosimilar versions of Avastin could come to market in Europe in the second half of 2020.

Japan. In Japan, the first biosimilar versions of MabThera/Rituxan and Herceptin were launched in 2018. Sales were impacted by this and by government price cuts. The first biosimilar version of Avastin was launched in late 2019 in the colorectal cancer setting.

2020 interim product sales affected by biosimilar launches

	2020 (CHF m)	2019 (CHF m)	% change (CER)	Comment
MabThera/Rituxan - US	1,693	2,281	-23	First biosimilar launches from late 2019
Herceptin - US	848	1,509	-42	First biosimilar launches from mid-2019
Avastin - US	1,057	1,630	-33	First biosimilar launches from mid-2019
MabThera/Rituxan - Europe	202	323	-34	First biosimilar launches from mid-2017
Herceptin - Europe	361	568	-33	First biosimilar launches from mid-2018
Avastin - Europe	796	920	-8	No biosimilar launches by mid-2020
MabThera/Rituxan – Japan	33	58	-42	First biosimilar launches from early 2018
Herceptin - Japan	77	123	-37	First biosimilar launches from mid-2018
Avastin – Japan	363	424	-13	First biosimilar launches from late 2019 1)

¹⁾ Colorectal cancer indication only.

Sales in the first half of 2020 for MabThera/Rituxan, Herceptin and Avastin are disclosed above in the previous sections, including regional breakdowns, and these are summarised in the table below. As noted in the previous sections, the year-on-year movements were also driven by regular price and volume changes, as well as by the impacts of the COVID-19 pandemic. Biosimilar competition is only one factor in the overall picture.

Total interim MabThera/Rituxan, Herceptin and Avastin sales

	2020 (CHF m)	2019 (CHF m)	% change (CER)	% division sales (2020)	% division sales (2019)
United States	3,598	5,420	-31	15.5	22.4
Europe	1,359	1,811	-20	5.9	7.5
Japan	473	605	-20	2.0	2.5
International	2,045	2,426	-7	8.8	10.0
Total sales	7,475	10,262	-23	32.2	42.4

Operating results

Pharmaceuticals Division - Royalties and other operating income for the six months ended 30 June

	2020 (CHF m)	2019 (CHF m)	% change (CER)
Royalty income	573	538	+10
Income from out-licensing agreements	98	56	+81
Income from disposal of products and other	399	655	-38
Total – IFRS and Core basis	1,070	1,249	-12

Royalties and other operating income decreased by 12% at CER. Royalty income was 10% higher, as a settlement gain of CHF 128 million more than offset the base effect of the residual income in the first half of 2019 from the expired Cabilly patent. Royalty income from Lucentis sales outside the US was also lower while royalty income from Venclexta sales outside the US increased. Income from out-licensing agreements increased due to upfront and milestone income mostly in Japan. Income from product disposals and other decreased due to the base effect of the income in 2019 of CHF 431 million from sale of rights for Lexotan, Bactrim and Dormicum. This was partially compensated in 2020 by income from sale of the global rights for Rocaltrol, excluding China and Japan, for CHF 101 million and by profit-share income increasing to CHF 266 million (2019: CHF 213 million), mainly due to increased sales of Venclexta in the US.

Pharmaceuticals Division - Cost of sales for the six months ended 30 June

Iotai - irko basis	(4,800)	(5,597)	
Total - IFRS basis	(4,000)	(5.507)	
Amortisation of intangible assets	(613)	(555)	+14
Global restructuring plans	(12)	(103)	
Cost of sales – Core basis	(4,175)	(4,939)	
Impairment of property, plant and equipment and right-of-use assets	(8)	(27)	
Collaboration and profit-sharing agreements	(1,000)	(1,205)	
Royalty expenses	(675)	(683)	+1
Manufacturing cost of goods sold and period costs	(2,492)	(3,024)	
	2020 (CHF m)	2019 (CHF m)	% change (CER)
	2020	2010	Né abanga

Core costs decreased by 13% at CER. As a percentage of sales, cost of sales decreased by 2.6 percentage points to 18.0%. Manufacturing cost of sales decreased by 14%, despite the sales growth of 1%. This was due to inventory write-offs in the first half of 2019 and product mix factors in the first half of 2020. Royalty expenses were 1% higher due to increased sales for certain royalty-bearing products, notably Ocrevus. Collaboration and profit-sharing expenses decreased by 14% driven by lower US sales of MabThera/Rituxan. Amortisation charges went up by 14% due to the Rozlytrek product intangible assets, which started being amortised after the product launch in the second half of 2019, and new Luxturna product intangible assets from the Spark Therapeutics acquisition.

Pharmaceuticals Division - Marketing and distribution for the six months ended 30 June

	2020	2019	% change
	(CHF m)	(CHF m)	(CER)
Marketing and distribution – Core basis	(3,266)	(3,395)	0
Global restructuring plans	(27)	(52)	-45
Amortisation of intangible assets	(12)	(17)	-29
Total – IFRS basis	(3,305)	(3,464)	-1

Core costs were stable at CER. As a percentage of sales, they increased to 14.1% from 14.0% in the comparative period. Major marketing and distribution activities included supporting the ongoing launches and rollouts of Ocrevus, Tecentriq and Xofluza, and also pre-launch activities. The cost increase was offset by a general slowdown in marketing activities during the second quarter, including lower expenses for travel and congresses due to COVID-19 restrictions.

Pharmaceuticals Division - Research and development for the six months ended 30 June

	2020 2019		% change
	(CHF m)	(CHF m)	(CER)
Research and development – Core basis	(5,077)	(4,873)	+7
Global restructuring plans	(36)	(73)	-48
Amortisation of intangible assets	(150)	(102)	+51
Impairment of intangible assets	(342)	(324)	+9
Total – IFRS basis	(5,605)	(5,372)	+8

Core costs increased by 7% at CER and, as a percentage of sales, increased by 1.8 percentage points to 21.9%. The oncology franchise remained the primary area of research and development with the cancer immunotherapy portfolio being a key driver. Neuroscience and immunology also represent significant areas of spending. Growth in spend is mostly driven by late-stage investments in oncology, ophthalmology and personalised healthcare, as well as spending at Spark Therapeutics and Flatiron Health.

In addition, the Pharmaceuticals Division in-licensed pipeline compounds and technologies and made asset acquisitions which have been capitalised as intangible assets with a total value of CHF 1.7 billion. The major item was a payment to Sarepta Therapeutics of CHF 815 million for the exclusive right to launch and commercialise SRP-9001, Sarepta's investigational micro-dystrophin gene therapy for Duchenne muscular dystrophy (DMD) outside the US. There was also a CHF 405 million payment for the Promedior asset acquisition with which the Group obtained rights to Promedior's entire portfolio including phase III-ready asset PRM-151, a recombinant human pentraxin-2 molecule for the treatment of idiopathic pulmonary fibrosis (IPF). See the above sections on 'Mergers and acquisitions' and 'Alliance transactions' for further details. Impairment charges in the first half of 2020 were a result of a delay in clinical trials for the Spark Therapeutics' haemophilia A intangible asset.

Pharmaceuticals Division - General and administration for the six months ended 30 June

	2020 (CHF m)	2019 (CHF m)	% change (CER)
Administration	(739)	(696)	+10
Pensions – past service costs	0	(3)	-90
Gains (losses) on disposal of property, plant and equipment			
and right-of-use assets	(1)	0	-
Business taxes and capital taxes	(102)	(62)	+69
Other general items	49	25	+121
General and administration – Core basis	(793)	(736)	+11
Global restructuring plans	(53)	(19)	+173
Impairment of goodwill and intangible assets	0	0	-
Mergers and acquisitions and alliance transactions	(28)	(40)	-25
Legal and environmental cases	337	(47)	-
Pension plan settlements	2	0	-
Total – IFRS basis	(535)	(842)	-35

Core costs increased by 11% at CER and, as a percentage of sales, increased to 3.4% from 3.0%. Administration costs were higher mainly due to Spark Therapeutics, Flatiron Health and Foundation Medicine. Business taxes and capital taxes increased by 69% primarily due to the low costs for the US Branded Prescription Drug Fee in the first half of 2019. The income from legal and environmental cases was related to the release of the Accutane US litigation provision.

Roche Pharmaceuticals and Chugai subdivisional operating results

Pharmaceuticals subdivisional interim operating results in millions of CHF

	Roche F	harmaceuticals		Chugai	Chugai Pharmaceuticals Di		
	2020	2019	2020	2019	2020	2019	
Sales							
- External customers	21,294	22,206	1,908	1,988	23,202	24,194	
- Within division	819	781	819	578	1,638	1,359	
Core operating profit	9,802	10,692	1,279	935	10,961	11,500	
- margin, % of sales to external customers	46.0	48.1	67.0	47.0	47.2	47.5	
Operating profit	8,897	9,418	1,250	877	10,027	10,168	
- margin, % of sales to external customers	41.8	42.4	65.5	44.1	43.2	42.0	
Operating free cash flow	5,014	7,599	440	592	5,454	8,191	
- margin, % of sales to external customers	23.5	34.2	23.1	29.8	23.5	33.9	
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Pharmaceuticals Division total core operating profit and operating profit both include the elimination of minus CHF 120 million of unrealised intercompany gains between Roche Pharmaceuticals and Chugai (2019: minus CHF 127 million).

The increase in the exchange rate of the Japanese yen has an adverse impact of approximately 2 percentage points on the Chugai results when expressed in Swiss francs for the Group's consolidated results. At CER (as reported in Japanese yen), sales by Chugai to external customers decreased by 2% while sales within the division increased by 44%. Chugai core operating profit increased by 39% due to higher royalty income from Roche Pharmaceuticals as well as higher gross profit from sales within the division. This was partially offset by higher research and development costs. Operating free cash flow at Chugai decreased by 24% at CER as a result of an increase in net working capital and the capital expenditure for the new research site at Yokohama, Japan.

Financial position

Pharmaceuticals Division - Net operating assets

	30 June 2020 (CHF m)	31 Dec. 2019 (CHF m)	% change (CHF)	% change (CER)	Movement: Transactions (CHF m)	Movement: CTA and other (CHF m)
Trade receivables	8,667	7,418	+17	+21	1,510	(261)
Inventories	4,001	3,696	+8	+10	388	(83)
Trade payables	(1,556)	(2,007)	-22	-21	416	35
Net trade working capital	11,112	9,107	+22	+25	2,314	(309)
Other receivables (payables)	(5,990)	(7,666)	-22	-20	1,545	131
Net working capital	5,122	1,441	+255	+267	3,859	(178)
Property, plant and equipment	15,406	15,306	+1	+2	288	(188)
Right-of-use assets	880	801	+10	+12	98	(19)
Goodwill and intangible assets 1)	16,341	16,016	+2	+4	602	(277)
Provisions	(2,644)	(3,140)	-16	-14	448	48
Other long-term assets, net	424	365	+16	+18	67	(8)
Long-term net operating assets ¹⁾	30,407	29,348	+4	+5	1,503	(444)
Net operating assets ¹⁾	35,529	30,789	+15	+17	5,362	(622)

¹⁾ Provisional 2019 balance sheet amounts restated for final accounting of Spark Therapeutics acquisition (see Note 6 to the Interim Financial Statements).

The absolute amount of the movement between the 30 June 2020 and 31 December 2019 consolidated balances reported in Swiss francs is split between actual 2020 transactions (translated at average rates for 2019) and the currency translation adjustment (CTA) that arises on consolidation. The 2020 transactions include non-cash movements and therefore the movements in this table are not the same as the amounts shown in the operating free cash flow (which only includes the cash movements). A full consolidated balance sheet is given on page 46 of the Interim Financial Statements, and a reconciliation between that balance sheet and the information given above is on page 80.

Currency translation effects on balance sheet amounts. Compared to the start of the year the Swiss franc appreciated against almost all currencies, with the US dollar and, additionally, the Brazilian real having a significant effect on the net operating assets of the Pharmaceuticals Division. This resulted in a net negative translation impact. The exchange rates used are given on page 34.

Net working capital. Net working capital increased by 267%, due to a lower net liability for other receivables/payables, while net trade working capital was 25% higher. Trade receivables were higher by 21% largely due to the extended payment terms in the US for certain products. The extended payment terms for Ocrevus and Lucentis remain in effect, while the payment terms for certain other products were temporarily extended during 2020. The increase in inventories was driven by active management to ensure product availability and by launch supply. Trade payables decreased as a result of the settlement of year-end positions. The net liability position for other receivables/payables decreased following the settlement of the accruals recorded at the end of 2019.

Long-term net operating assets. Overall long-term net operating assets increased by 5%, due to increased intangible assets and lower provisions. Intangible asset additions were CHF 1.7 billion, and include the CHF 815 million paid to Sarepta Therapeutics for the exclusive rights to launch and commercialise Sarepta Therapeutics' investigational micro-dystrophin gene therapy for Duchenne muscular dystrophy (DMD) outside the US. Additional intangible assets purchases were for the asset acquisition of Promedior and upfront payments to Arrakis Therapeutics and Vividion Therapeutics (see the above section on 'Alliance transactions'). Capital expenditure includes manufacturing investments in the US, Japan, Switzerland and Germany, site developments in Switzerland and South San Francisco and Chugai's research facilities at Yokohama in Japan. Provisions decreased due to the release of the Accutane US litigation provision.

Free cash flow

Pharmaceuticals Division - Operating free cash flow for the six months ended 30 June

	2020 (CHF m)	2019 (CHF m)	% change (CHF)	% change (CER)
Operating profit	10,027	10,168	-1	+6
- Depreciation, amortisation and impairment	1,865	1,716	+9	+12
- Provisions	(418)	140	=	=
- Equity compensation plans	253	199	+27	+32
- Other	33	246	-87	-91
Operating profit cash adjustments	1,733	2,301	-25	-27
Operating profit, net of operating cash adjustments	11,760	12,469	-6	-1
(Increase) decrease in net working capital	(3,628)	(2,691)	+35	+40
Investments in property, plant and equipment	(1,054)	(795)	+33	+36
Principal portion of lease liabilities paid	(124)	(120)	+3	+8
Investments in intangible assets	(1,500)	(672)	+123	+125
Operating free cash flow	5,454	8,191	-33	-28
- as % of sales	23.5	33.9	-10.4	-9.6

See pages 77–79 for definition of free cash flow and a detailed breakdown.

The Pharmaceuticals Division's operating free cash flow decreased by 28% at CER to CHF 5.5 billion. The cash generation of the business, measured by the operating profit, net of operating cash adjustments, was down 1% compared to the 2% increase in core operating profit. This difference was mainly due to lower inventory write-offs and higher utilisation of provisions in 2020. Net working capital absorbed an additional CHF 3.6 billion of cash, largely driven by higher receivables and lower other payables, for the reasons described above in the 'Financial position' section. Capital expenditure was higher than in the prior year mainly due to the Chugai research facility at Yokohama. Investments in intangible assets were significantly higher than in 2019 and include payments to Sarepta Therapeutics of CHF 0.8 billion and the new in-licensing deals with Arrakis Therapeutics and Vividion Therapeutics as well as the payment for the 2019 Dicerna Pharmaceuticals transaction (see the above section on 'Alliance transactions').

Diagnostics operating results

Diagnostics Division interim operating results

	2020 (CHF m)	2019 (CHF m)	% change (CHF)	% change (CER)
IFRS results				
Sales	6,079	6,275	-3	+3
Royalties and other operating income	27	33	-18	+14
Revenue	6,106	6,308	-3	+3
Cost of sales	(2,985)	(3,053)	-2	+3
Marketing and distribution	(1,267)	(1,442)	-12	-7
Research and development	(740)	(750)	-1	+2
General and administration	(249)	(104)	+139	+151
Operating profit	865	959	-10	+4
- margin, % of sales	14.2	15.3	-1.1	+0.1
Core results ¹⁾				
Sales	6,079	6,275	-3	+3
Royalties and other operating income	27	33	-18	-14
Revenue	6,106	6,308	-3	+3
Cost of sales	(2,904)	(2,929)	-1	+5
Marketing and distribution	(1,249)	(1,405)	-11	-6
Research and development	(710)	(688)	+3	+7
General and administration	(221)	(222)	0	+4
Core operating profit	1,022	1,064	-4	+9
- margin, % of sales	16.8	17.0	-0.2	+0.9
Financial position				
Net working capital	3,605	2,742	+31	+37
Long-term net operating assets	10,939	11,036	-1	+2
Net operating assets	14,544	13,778	+6	+9
Free cash flow ²⁾				
Operating free cash flow	(44)	(380)	-88	-
- margin, % of sales	-0.7	-6.1	_	

¹⁾ See pages 74-77 for definition of core results.

Sales

The Diagnostics Division reported overall sales growth of 3% at CER to CHF 6.1 billion. The COVID-19 pandemic had contrasting impacts in the different parts of the business. Molecular Diagnostics reported a sales growth of 61% due to the launch of the cobas SARS-CoV-2 PCR test, while Centralised and Point of Care Solutions sales fell by 10% due to the reduction of routine testing volume. Diabetes Care sales declined by 6% due to the continued overall contraction of the blood glucose monitoring market and the impact of the COVID-19 pandemic.

Diagnostics Division – Interim sales by business area

	2020 (CHF m)	2019 (CHF m)	% change (CER)	% of sales (2020)	% of sales (2019)
Centralised and Point of Care Solutions	3,181	3,762	-10	52.3	59.9
Molecular Diagnostics	1,558	1,029	+61	25.6	16.4
Diabetes Care	832	958	-6	13.7	15.3
Tissue Diagnostics	508	526	+2	8.4	8.4
Total sales	6,079	6,275	+3	100	100

²⁾ See pages 77–79 for definition of free cash flow.

Centralised and Point of Care Solutions. Overall sales decreased by 10% due to the combined effects of healthcare centres deprioritising routine care to allocate more resources to COVID-19 preparedness efforts and patients avoiding healthcare centres for fear of exposure to COVID-19. The routine testing as reflected by Immunodiagnostics and Clinical Chemistry sales declined by 12% and 14%, respectively, largely driven by the major markets like China and the US. The Centralised and Point of Care Solutions business declined in all the regions, especially in Asia-Pacific, where sales were 18% lower.

Molecular Diagnostics. Overall sales rose by 61%, with 69% growth in the underlying molecular business offset by a 6% decrease in the sequencing business. The sales growth was driven by the launch of the cobas SARS-CoV-2 PCR test in March 2020. Regionally, sales in North America were 62% higher and EMEA sales were up by 65%.

Diabetes Care. Sales decreased by 6% in line with the continued contracting of the blood glucose monitoring market due to patients switching to continuous glucose monitoring systems. The COVID-19 pandemic also had an impact. The decrease was reflected mainly in the EMEA region with a 10% decline, notably in Germany, the UK and Italy.

Tissue Diagnostics. Sales increased by 2% due to growth in companion diagnostics advanced staining instruments sales and recovery from manufacturing delays in the prior year, partially offset by lower testing volume due to the COVID-19 pandemic. Regionally, Asia-Pacific grew by 12% offset by a 1% decline in sales in North America.

Diagnostics Division - Interim sales by region

	2020 (CHF m)	2019 (CHF m)	% change (CER)	% of sales (2020)	% of sales (2019)
Europe, Middle East and Africa (EMEA)	2,408	2,456	+5	39.5	39.2
North America	1,740	1,589	+13	28.8	25.3
Asia-Pacific	1,362	1,606	-9	22.4	25.6
Latin America	343	398	+6	5.6	6.3
Japan	226	226	+1	3.7	3.6
Total sales	6,079	6,275	+3	100	100

Molecular Diagnostics was the global driver of sales growth, offsetting the COVID-19 impacts in the rest of the portfolio. In addition, sales in North America were positively impacted by the Molecular Diagnostics point of care business and the decline in Diabetes Care sales reduced the overall growth in EMEA. The sales decrease in Asia-Pacific was driven by China (–16%) due to the decrease in routine testing following the COVID-19 pandemic restrictions.

Diagnostics Division - Interim sales for E7 leading emerging markets

Total sales	1,278	1,575	-11	21.0	25.1
Turkey	52	62	0	0.9	1.0
South Korea	112	120	+1	1.8	1.9
Russia	81	81	+10	1.3	1.3
Mexico	58	59	+14	1.0	0.9
India	72	92	-13	1.2	1.5
China	823	1,045	-16	13.5	16.7
Brazil	80	116	-9	1.3	1.8
	2020 (CHF m)	2019 (CHF m)	% change (CER)	% of sales (2020)	% of sales (2019)

Operating results

Diagnostics Division - Royalties and other operating income for the six months ended 30 June

	2020	2019	% change
	(CHF m)	(CHF m)	(CER)
Royalty income	20	23	-9
Income from out-licensing agreements	0	0	0
Income from disposal of products and other	7	10	-26
Total – Core basis	27	33	-14
Global restructuring plans	0	0	0
Total – IFRS basis	27	33	-14

Core royalties and other operating income decreased by 14% at CER due to lower royalty income and lower income from disposal of products compared to 2019.

Diagnostics Division - Cost of sales for the six months ended 30 June

	2020 (CHF m)	2019 (CHF m)	% change (CER)
Manufacturing cost of goods sold and period costs	(2,852)	(2,875)	+5
Royalty expenses	(52)	(54)	-1
Cost of sales – Core basis	(2,904)	(2,929)	+5
Global restructuring plans	(33)	(68)	-47
Amortisation of intangible assets	(48)	(56)	-13
Total - IFRS basis	(2,985)	(3,053)	+3

Core costs increased by 5% at CER, above the sales growth of 3%. The increase was a mix effect from higher sales volumes of Molecular Diagnostics instruments, which have a relatively lower gross margin. The core cost of sales ratio increased by 1.2 percentage points to 47.8%. Global restructuring costs decreased compared to the first six months in 2019 due to less activities related to strategy plans, notably in Diabetes Care.

Diagnostics Division - Marketing and distribution for the six months ended 30 June

	2020 (CHF m)	2019 (CHF m)	% change (CER)
Marketing and distribution – Core basis	(1,249)	(1,405)	-6
Global restructuring plans	(15)	(33)	-54
Amortisation of intangible assets	(3)	(4)	0
Total – IFRS basis	(1,267)	(1,442)	-7

Core costs decreased at CER, due to lower spending on congresses and travelling following the COVID-19 restrictions and cost containment measures. On a core basis, marketing and distribution costs as a percentage of sales decreased to 20.5% compared to 22.4% in 2019.

Diagnostics Division - Research and development for the six months ended 30 June

	2020 (CHF m)	2019 (CHF m)	% change (CER)
Research and development – Core basis	(710)	(688)	+7
Global restructuring plans	(26)	(59)	-56
Amortisation of intangible assets	(4)	(3)	+25
Total – IFRS basis	(740)	(750)	+2

Core costs increased by 7% at CER, due to increased spending for laboratory automation and digital solutions. As a percentage of sales, research and development core costs increased to 11.7% from 11.0% in 2019. Global restructuring costs decreased due to less activity in strategy plans, notably in Diabetes Care.

Diagnostics Division - General and administration for the six months ended 30 June

Total – IFRS basis	(249)	(104)	+151
Legal and environmental cases	(18)	(11)	+71
Mergers and acquisitions and alliance transactions	(2)	124	
Global restructuring plans	(8)	5	
General and administration – Core basis	(221)	(222)	+4
Other general items	25	32	
Business taxes and capital taxes	(8)	(9)	0
Gains (losses) on divestment of businesses	0	1	-100
and right-of-use assets	4	12	
Gains (losses) on disposal of property, plant and equipment			
Administration	(242)	(258)	
	(CHF m)	(CHF m)	(CER)
	2020	2019	% change

Core costs increased by 4% at CER, and, as a percentage of sales, core costs increased to 3.6% from 3.5% in 2019. Administration costs were 1% lower due to lower personnel and travel expenses as a result of the COVID-19 restrictions and cost containment measures. Mergers and acquisitions and alliance transactions in 2019 included income from the reversal of contingent consideration provisions.

Financial position

Diagnostics Division - Net operating assets

	30 June 2020 (CHF m)	31 Dec. 2019 (CHF m)	% change (CHF)	% change (CER)	Movement: Transactions (CHF m)	Movement: CTA and other (CHF m)
Trade receivables	3,129	3,143	0	+4	136	(150)
Inventories	2,786	2,359	+18	+20	471	(44)
Trade payables	(860)	(1,065)	-19	-17	183	22
Net trade working capital	5,055	4,437	+14	+18	790	(172)
Other receivables (payables)	(1,450)	(1,695)	-14	-13	222	23
Net working capital	3,605	2,742	+31	+37	1,012	(149)
Property, plant and equipment	6,401	6,598	-3	0	(21)	(176)
Right-of-use assets	266	303	-12	-9	(26)	(11)
Goodwill and intangible assets	5,162	5,030	+3	+4	224	(92)
Provisions	(927)	(958)	-3	-1	12	19
Other long-term assets, net	37	63	-41	-37	(22)	(4)
Long-term net operating assets	10,939	11,036	-1	+2	167	(264)
Net operating assets	14,544	13,778	+6	+9	1,179	(413)

The absolute amount of the movement between the 30 June 2020 and 31 December 2019 consolidated balances reported in Swiss francs is split between actual 2020 transactions (translated at average rates for 2019) and the currency translation adjustment (CTA) that arises on consolidation. The 2020 transactions include non-cash movements and therefore the movements in this table are not the same as the amounts shown in the operating free cash flow (which only includes the cash movements). A full consolidated balance sheet is given on page 46 of the Interim Financial Statements, and a reconciliation between that balance sheet and the information given above is on page 80.

Currency translation effects on balance sheet amounts. Compared to the start of the year the Swiss franc appreciated against almost all currencies, with the US dollar, the euro and, additionally, the Brazilian real having a significant effect on the net operating assets of the Diagnostics Division. This resulted in a negative translation impact. The exchange rates used are given on page 34.

Net working capital. Net working capital increased by 37% due to higher inventories and a lower net liability for other receivables/payables. The 4% increase in trade receivables is due to the 3% sales growth. Inventories increased by 20% due to delayed installation of instruments and lower levels of routine testing due to COVID-19 restrictions, which led to a build-up of uninstalled instruments and reagents in the Centralised and Point of Care Solutions business. Trade payables decreased by 17% compared to the start of the year following the settlement of year-end positions. The decrease in net liability for other receivables/payables came from the settlement of year-end accounts payable and accruals.

Long-term net operating assets. Overall long-term net operating assets increased by 2% at CER, mainly attributable to the increase in intangible assets resulting from the Stratos Genomics asset acquisition. Property plant and equipment was stable as lower site investments and reduced placements of new instruments were offset by depreciation.

Free cash flow

Diagnostics Division - Operating free cash flow for the six months ended 30 June

	2020 (CHF m)	2019 (CHF m)	% change (CHF)	% change (CER)
Operating profit	865	959	-10	+4
- Depreciation, amortisation and impairment	655	672	-3	+4
- Provisions	(19)	(137)	-86	-86
- Equity compensation plans	42	37	+14	+17
- Other	91	58	+57	+39
Operating profit cash adjustments	769	630	+22	+28
Operating profit, net of operating cash adjustments	1,634	1,589	+3	+14
(Increase) decrease in net working capital	(1,062)	(977)	+9	+15
Investments in property, plant and equipment	(538)	(696)	-23	-17
Principal portion of lease liabilities paid	(54)	(54)	0	+6
Investments in intangible assets	(24)	(242)	-90	-90
Operating free cash flow	(44)	(380)	-88	_
- as % of sales	(0.7)	(6.1)		

See pages 77-79 for definition of free cash flow and a detailed breakdown.

The operating free cash flow of the Diagnostics Division was a net cash outflow of CHF 44 million compared to a net cash outflow of CHF 380 million in the first half of 2019. The cash generation of the business, measured by the operating profit, net of operating cash adjustments, increased by 14% while the core operating profit increased by 9%. The difference was due to increased depreciation and gains on property disposal in the prior period. Net working capital increased and absorbed CHF 1,062 million of cash in the first half of 2020 which was attributable to increases in inventories and lower other payables and accruals for the reasons described above in the 'Financial position' section. Capital expenditure was lower due to a reduction in site investments and fewer instruments being placed at customer sites. The decline in investments in intangible assets was related to an in-licensing deal in 2019.

Corporate operating results

Corporate interim operating results summary

	2020 (CHF m)	2019 (CHF m)	% change (CER)
Administration	(240)	(222)	+9
Business taxes and capital taxes	(11)	(11)	+1
Other general items	34	32	_
General and administration costs – Core basis ¹⁾	(217)	(201)	+17
Global restructuring plans	(43)	(75)	-42
Legal and environmental cases	6	(10)	-
Total costs – IFRS basis	(254)	(286)	-5
Financial position			
Net working capital	(132)	(240)	-44
Long-term net operating assets	36	(5)	_
Net operating assets	(96)	(245)	-59
Free cash flow ²⁾			
Operating free cash flow	(374)	(303)	+30

¹⁾ See pages 74-77 for definition of core results.

General and administration costs increased by 17% at CER on a core basis with administration costs higher by 9%. This increase is due to the build-up of the shared service centre network providing services to both divisions. Total costs on IFRS basis have decreased by 5% due to less restructuring activities in corporate functions, mainly in Human Resources and Finance. Net working capital was higher due to lower payables and higher prepayments. Corporate operating free cash flow showed a higher outflow due to the settlement of payables.

²⁾ See pages 77-79 for definition of free cash flow and a detailed breakdown.

Foreign exchange impact on operating results

The Group's exposure to movements in foreign currencies affecting its operating results, as expressed in Swiss francs, is summarised by the following key figures and comments.

Growth (reported at CER and in Swiss francs) for the six months ended 30 June

		% change (CHF)		
	2020	2019	2020	2019
Pharmaceuticals Division				
Sales	+1	+10	-4	+11
Core operating profit	+2	+11	-5	+12
Diagnostics Division				
Sales	+3	+2	-3	0
Core operating profit	+9	+4	-4	-1
Group				
Sales	+1	+9	-4	+8
Core operating profit	+2	+11	-5	+11

Exchange rates against the Swiss franc

	30 June 2020	Average to 30 June 2020	31 December 2019	Average to 30 June 2019
1 USD	0.95	0.97	0.97	1.00
1 EUR	1.07	1.06	1.09	1.13
100 JPY	0.88	0.89	0.89	0.91

The results expressed in Swiss francs were negatively impacted by the appreciation of the Swiss franc against almost all currencies. The net impact expressed in Swiss francs compared to constant exchange rates was 5 percentage points on sales, 7 percentage points on core operating profit and 8 percentage points on Core EPS. The sensitivity of Group sales and core operating profit to a 1% change in average foreign currency exchange rates against the Swiss franc during the first half of 2020 is shown in the table below.

Currency sensitivities for the six months ended 30 June 2020

Impact of 1% increase in average exchange rate versus the Swiss franc	Sales (CHF m)	Core operating profit (CHF m)	
US dollar	145	94	
Euro	46	24	
Japanese yen	21	21	
All other currencies	72	46	

Treasury and taxation results

Treasury and taxation interim results

	2020 (CHF m)	2019 (CHF m)	% change (CHF)	% change (CER)
IFRS results	(0111111)	(6111 111)	(6111)	(CLIV)
Operating profit	10,638	10,841	-2	+6
Financing costs	(286)	(414)	-31	-28
Other financial income (expense)	(171)	(73)	+134	+136
Profit before taxes	10,181	10,354	2	+6
Income taxes	(1,716)	(1,450)	+18	+28
Net income	8,465	8,904	5	+3
Attributable to	0,400			
- Roche shareholders	8,079	8,619		+2
- Non-controlling interests	386	285	+35	+38
- Non-controlling interests				+30
Core results ¹⁾				
Operating profit	11,766	12,363	-5	+2
Financing costs	(280)	(403)	-31	-28
Other financial income (expense)	(171)	(73)	+134	+136
Profit before taxes	11,315	11,887	-5	+3
Income taxes	(1,872)	(1,991)	-6	+1
Net income	9,443	9,896	-5	+3
Attributable to				
 Roche shareholders 	9,049	9,595	-6	+2
- Non-controlling interests	394	301	+31	+34
Financial position				
Net debt	(8,791)	(2,505)	+251	+242
Lease liabilities	(1,267)	(1,219)	+4	+7
Pensions	(6,712)	(6,535)	+3	+4
Income taxes ³⁾	719	1,080	-33	-25
Equity investments	1,037	737	+41	+41
Derivatives, net	(26)	(88)	-70	-70
Collateral, net	(21)	148	-	-
Interest payable	(126)	(176)	-28	+28
Other non-operating assets, net	25	103	-76	-75
Total net assets (liabilities) ³⁾	(15,162)	(8,455)	+79	+79
Free cash flow ²⁾				
Treasury activities	(493)	(320)	+54	+57
Taxes paid	(1,269)	(1,911)	-34	-31
Total	(1,762)	(2,231)	-21	-18

¹⁾ See pages 74-77 for definition of core results.

Financing costs

Core financing costs were CHF 280 million, a decrease of 28% at CER compared to the first half of 2019. Interest expenses on debt decreased by 30% at CER to CHF 216 million due to repayment of debt in the second half of 2019. The net interest cost of defined benefit pension plans decreased by 24% at CER due to lower discount rates in Germany and the US at the end of 2019. A full analysis of financing costs is given in Note 4 to the Interim Financial Statements.

²⁾ See pages 77-79 for definition of free cash flow.

³⁾ Provisional 2019 balance sheet amounts restated for final accounting of Spark Therapeutics acquisition (see Note 6 to the Interim Financial Statements).

Other financial income (expense)

Core other financial income (expense) was a net expense of CHF 171 million compared to a net expense of CHF 73 million in the first half of 2019. Income from equity securities, which reflects the fair value changes in the Roche Venture Fund investments, notably the investment in Allakos, reported a net loss of CHF 61 million compared to a net loss of CHF 38 million in the first half of 2019. The net foreign exchange results, which reflect hedging costs and losses on unhedged positions, were losses of CHF 111 million compared to net losses of CHF 66 million in 2019. A full analysis of other financial income (expense) is given in Note 4 to the Interim Financial Statements.

Income taxes

The Group's effective core tax rate decreased by 0.2 percentage points to 16.5% in the first half of 2020. Several separate tax disputes were resolved in the first half of both 2020 and 2019, resulting in a reduction of the Group's effective core tax rate of around 2 percentage points in both periods.

The IFRS results saw the effective tax rate increase by 2.9 percentage points. In addition to the core impacts mentioned above, the non-core impacts in 2019 from the Swiss tax reform and the deferred tax impact from equity compensation plans acted to reduce the 2019 IFRS tax rate. The IFRS results also include the releases of contingent consideration provisions that are not taxable, hence the net effect in the 'Mergers and acquisitions and alliance transactions' line in the table below.

Further details are given in Note 5 to the Interim Financial Statements.

Analysis of the Group's effective tax rate for the six months ended 30 June

10,181	(1,716)	16.9	10,354	(1,450)	14.0
_	3	_		78	
-	-	-		235	
2	0	0.0			
322	(72)	22.4	(72)	6	8.3
(33)	6	18.2	78	12	
(1,172)	172	14.7	(1,061)	115	10.8
(253)	47	18.6	(478)	95	19.9
11,315	(1,872)	16.5	11,887	(1,991)	16.7
(CHF m)	(CHF m)	(%)	(CHF m)	(CHF m)	(%)
before tax	taxes	Tax rate	before tax	taxes	Tax rate
Destit		2020	Destit		2019
	(CHF m) 11,315 (253) (1,172) (33) 322 2 -	before tax (CHF m) 11,315 (1,872) (253) 47 (1,172) 172 (33) 6 322 (72) 2 0	Profit before tax (CHF m) (CHF m) (Wh) 11,315 (1,872) 16.5 (253) 47 18.6 (1,172) 172 14.7 (33) 6 18.2 322 (72) 22.4 2 0 0.0 - 3	Profit before tax (CHF m) Income taxes (CHF m) Tax rate (Photo tax) (CHF m) Profit before tax (CHF m) 11,315 (1,872) 16.5 11,887 (253) 47 18.6 (478) (1,172) 172 14.7 (1,061) (33) 6 18.2 78 322 (72) 22.4 (72) 2 0 0.0 - - - - - - 3 - -	Profit before tax (CHF m) Income taxes (CHF m) Tax rate (CHF m) Profit before tax (CHF m) Income taxes (CHF m) 11,315 (1,872) 16.5 11,887 (1,991) (253) 47 18.6 (478) 95 (1,172) 172 14.7 (1,061) 115 (33) 6 18.2 78 12 322 (72) 22.4 (72) 6 2 0 0.0 - - - - - 235 - 3 - - 78

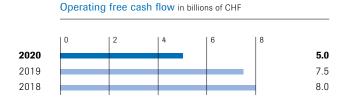
Financial position

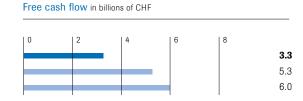
The increase in net debt was due to dividend payments of CHF 7.8 billion, partly offset by the free cash flow of CHF 3.3 billion. The net pension liability was higher due to a decrease in some discount rates. The net tax assets decreased mainly due to income tax expenses exceeding the taxes paid, partly offset by the deferred tax effects of the equity compensation plans that are variable according to the price of the underlying equity. At 30 June 2020 the Group held equity investments with a market value of CHF 1.0 billion, which consist mostly of holdings in biotechnology and other pharmaceuticals companies which were acquired as part of licensing transactions and scientific collaborations or as investments of the Roche Venture Fund. These include the CHF 0.3 billion equity investment in Sarepta Therapeutics (see the above section on 'Alliance transactions').

Free cash flow

The net cash outflow from treasury activities increased to CHF 0.5 billion. The lower interest payments were offset by investments in financial long-term assets, notably CHF 0.3 billion of equity in Sarepta Therapeutics. Total taxes paid in the first half of 2020 were down by 31% to CHF 1.3 billion mainly due to the US Internal Revenue Service providing a tax payment extension in response to the COVID-19 pandemic, which defers the provisional 2020 US federal tax payments into the second half of 2020.

Cash flows and net debt





Free cash flow for the six months ended 30 June

	Pharmaceuticals	Diagnostics	Corporate	Group
	(CHF m)	(CHF m)	(CHF m)	(CHF m)
2020				
Operating profit – IFRS basis	10,027	865	(254)	10,638
Operating profit cash adjustments	1,733	769	34	2,536
Operating profit, net of operating cash adjustments	11,760	1,634	(220)	13,174
(Increase) decrease in net working capital	(3,628)	(1,062)	(127)	(4,817)
Investments in property, plant and equipment	(1,054)	(538)	(22)	(1,614)
Principal portion of lease liabilities paid	(124)	(54)	(5)	(183)
Investments in intangible assets	(1,500)	(24)	0	(1,524)
Operating free cash flow	5,454	(44)	(374)	5,036
Treasury activities				(493)
Taxes paid				(1,269)
Free cash flow				3,274
2019				
Operating profit – IFRS basis	10,168	959	(286)	10,841
Operating profit cash adjustments	2,301	630	59	2,990
Operating profit, net of operating cash adjustments	12,469	1,589	(227)	13,831
(Increase) decrease in net working capital	(2,691)	(977)	(55)	(3,723)
Investments in property, plant and equipment	(795)	(696)	(17)	(1,508)
Principal portion of lease liabilities paid	(120)	(54)	(4)	(178)
Investments in intangible assets	(672)	(242)	0	(914)
Operating free cash flow	8,191	(380)	(303)	7,508
Treasury activities				(320)
Taxes paid				(1,911)
Free cash flow				5,277

See pages 77-79 for definition of free cash flow and a detailed breakdown.

Operating free cash flow decreased by 26% at CER to CHF 5.0 billion. This was due to higher investments in intangible assets and increases in net working capital.

The free cash flow of CHF 3.3 billion was 29% lower than in the first half of 2019, as a result of lower operating free cash flow and higher net cash outflow from treasury operations, partly offset by lower income tax payments.

Net debt - Movement in carrying value in millions of CHF

	i i
At 1 January 2020	
Cash and cash equivalents	6,075
Marketable securities	5,783
Long-term debt	(12,668)
Short-term debt	(1,695)
Net debt at beginning of period	(2,505)
Change in net debt during interim period 2020	
Free cash flow	3,274
Dividend payments	(7,806)
Transactions in own equity instruments	(1,380)
Mergers and acquisitions, net of divestments of subsidiaries	(721)
Hedging and collateral arrangements	196
Changes in ownership interests in subsidiaries	0
Currency translation, fair value and other movements	151
Change in net debt	(6,286)
At 30 June 2020	
Cash and cash equivalents	3,770
Marketable securities	2,482
Long-term debt	(12,491)
Short-term debt	(2,552)
Net debt at end of period	(8,791)
·	_

Net debt - Currency profile in millions of CHF

	Cash and n	Cash and marketable securities					
	30 June 2020	31 Dec. 2019	30 June 2020	31 Dec. 2019			
US dollar ¹⁾	1,015	1,159	(10,030)	(9,686)			
Euro	1,054	3,452	(1,762)	(1,789)			
Swiss franc	1,080	3,653	(2,503)	(2,503)			
Japanese yen	2,544	2,967	0	0			
Pound sterling	31	57	(90)	(97)			
Other	528	570	(658)	(288)			
Total	6,252	11,858	(15,043)	(14,363)			

¹⁾ US dollar-denominated debt includes those bonds and notes denominated in euros that were swapped into US dollars, and therefore in the financial statements have economic characteristics equivalent to US dollar-denominated bonds and notes.

The net debt position of the Group at 30 June 2020 was CHF 8.8 billion, an increase of CHF 6.3 billion from 31 December 2019. The increase during the first half of 2020 was due to CHF 7.8 billion for the annual dividend payments, which exceeded the free cash flow of CHF 3.3 billion. Mergers and acquisitions, net of divestments of subsidiaries, includes the asset acquisitions of Promedior, Stratos Genomics and Lexent Bio for a total initial cash consideration of CHF 0.7 billion, as described in the above section on 'Mergers and acquisitions'. Transactions in own equity instruments relates to purchases in connection with the Group's equity compensation plans.

Pensions and other post-employment benefits

Funding status and balance sheet position in millions of CHF

	30 June 2020	31 December 2019
Funded plans		
- Fair value of plan assets	17,033	17,187
- Defined benefit obligation	(18,661)	(18,586)
Over (under) funding	(1,628)	(1,399)
Unfunded plans		
- Defined benefit obligation	(5,217)	(5,269)
Total funding status	(6,845)	(6,668)
Total fanding status	(0,0-10)	(0,000)
Limit on asset recognition	0	0
Reimbursement rights	133	133
Net recognised asset (liability)	(6,712)	(6,535)

Overall the funding status on an IFRS basis of the Group's funded defined benefit plans decreased to 91% compared to 92% at the start of the year. This came from a decrease in discount rates in the US and UK, while discount rates in Germany and Switzerland remained largely stable compared to the end of 2019. A decrease in the fair value of plan assets in Switzerland was partially offset by an increase in the fair value of plan assets in the US. The funding status of the pension funds is monitored by the local pension fund governance bodies as well as being closely reviewed at a Group level.

The unfunded plans are mainly those in the Group's German affiliates, where the fully reserved pension obligations are invested in the local affiliate's operations. The unfunded liabilities for these plans decreased in Swiss franc terms during the first half of 2020 due to movements in exchange rates.

Further information on the Group's pensions and other post-employment benefits is given in Note 26 to the 2019 Annual Financial Statements.

Debt

During the first half of 2020 the Group issued no debt and there was no redemption of bonds.

Bonds and notes: nominal amounts at 30 June 2020 by contractual maturity

	US dollar (USD m)	Euro (EUR m)	Pound sterling (GBP m)	Swiss franc (CHF m)	Total ¹⁾ (USD m)	Total ¹⁾ (CHF m)
2020	0	0	0	0	0	0
2021	644	1,1402)	0	0	1,926	1,832
2022	650	0	0	500	1,176	1,118
2023	390	650	77	0	1,215	1,156
2024	589	0	0	750	1,378	1,311
2025–2029	3,006	1,000	0	850	5,024	4,779
2030 and beyond	2,054	0	0	400	2,475	2,354
Total	7,333	2,790	77	2,500	13,194	12,550

¹⁾ Total translated at 30 June 2020 exchange rates.

The Group plans to meet its debt obligations using existing liquid funds as well as cash generated from business operations. In the full year 2019 the free cash flow was CHF 16.8 billion, which included the cash generated from operations, as well as payment of interest and tax. In the first half of 2020 free cash flow was CHF 3.3 billion.

For short-term financing requirements, the Group has a commercial paper program in the US under which it can issue up to USD 7.5 billion of unsecured commercial paper notes and has committed credit lines of USD 7.5 billion available as back-stop lines. Commercial paper notes totalling USD 2.0 billion were outstanding as of 30 June 2020 (31 December 2019: USD 1.4 billion). For longer-term financing the Group maintains strong long-term investment-grade credit ratings of AA by Standard & Poor's and Aa3 by Moody's which should facilitate efficient access to international capital markets.

Further information on the Group's debt is given in Note 11 to the Interim Financial Statements and Note 21 to the 2019 Annual Financial Statements.

²⁾ Of the proceeds from these bonds and notes, EUR 850 million have been swapped into US dollars, and therefore in the financial statements the bonds and notes have economic characteristics equivalent to US dollar-denominated bonds and notes.

Financial risks

As at 30 June 2020 the Group has a net debt position of CHF 8.8 billion (31 December 2019: CHF 2.5 billion). The financial assets of the Group are managed in a conservative way with the objective to meet the Group's financial obligations at all times.

Asset allocation. Liquid funds are either held as cash or are invested in high-quality, investment-grade fixed income securities with an investment horizon to meet those liquidity requirements.

Cash and marketable securities

	(CHF m)	30 June 2020 (% of total)	(CHF m)	31 December 2019 (% of total)
	l —————	(%) () (()(1)	[CIII III]	(%) (1) ((1))
Cash and cash equivalents	3,770	60	6,075	51
Money market instruments	1,761	29	4,963	42
Debt securities	707	11	807	7
Equity securities	14	0	13	0
Total cash and marketable securities	6,252	100	11,858	100

Credit risk. Credit risk arises from the possibility that counterparties to transactions may default on their obligations causing financial losses for the Group. The rating profile of the Group's CHF 6.2 billion of cash and fixed income marketable securities remained strong with 87% being invested in the A-AAA range. The Group has signed netting and collateral agreements with the counterparties in order to mitigate counterparty risk on derivative positions. The Group did not observe a significant increase in credit risk in the first half of 2020 due to the COVID-19 pandemic. Bad debt expenses and overdue receivables remained at a relatively low level.

The Group has trade receivables of CHF 12.6 billion. Since the beginning of 2010 there have been financial difficulties in Southern European countries, notably Spain, Italy, Greece and Portugal. The Group is a leading supplier to the healthcare sectors in these countries and at 30 June 2020 has trade receivables of EUR 0.5 billion (CHF 0.6 billion) with public customers in these countries. This is an increase of 3% compared to 31 December 2019 in euro terms. The Group uses different measures to improve collections in these countries, including intense communication with customers, factoring, negotiations of payment plans, charging of interest for late payments, and legal actions. Since 2011 the Group's trade receivables balance in Southern Europe has decreased by 63% in euro terms.

Liquidity risk. Liquidity risk arises through a surplus of financial obligations over available financial assets due at any point in time. The Group's approach to liquidity risk is to maintain sufficient readily available reserves in order to meet its liquidity requirements at any point in time. In addition to the current liquidity position, the Group has strong cash generation ability. Those future cash flows will be used to repay debt instruments in the coming years. The Group did not observe a significant increase in liquidity risk in the first half of 2020 due to the COVID-19 pandemic. Free cash flow was CHF 3.3 billion and the 29% decrease compared to the first half of 2019 was partly due to investments in in-licensing deals.

Roche continues to enjoy strong long-term investment-grade credit ratings of AA by Standard & Poor's and Aa3 by Moody's. At the same time Roche is rated at the highest available short-term ratings by those agencies. These ratings have not changed since the onset of the COVID-19 pandemic. In the event of financing requirements, the ratings and the strong credit of Roche should permit efficient access to international capital markets, including the commercial paper market. The Group has committed credit lines with various financial institutions totalling USD 7.5 billion available as back-stop lines for the commercial paper program. As at 30 June 2020 no debt has been drawn under these credit lines.

Market risk. Market risk arises from changing market prices of the Group's financial assets or financial liabilities. The exposures are predominantly related to changes in interest rates, foreign exchange rates and equity prices. The Group uses Value-at-Risk (VaR) to assess the impact of market risk on its financial instruments. VaR data indicates the value range within which a given financial instrument will fluctuate with a pre-set probability as a result of movements in market prices. The Group's VaR has decreased since 31 December 2019 reflecting the reduction in US interest rates during the first six months of 2020.

Interest rate risk. Interest rate risk arises from movements in interest rates which could affect the Group's financial result or the value of the Group equity. The Group may use interest rate derivatives to manage its interest-rate-related exposure and financial result.

Further information on financial risk management and financial risks and the VaR methodology is included in Note 31 to the 2019 Annual Financial Statements.

International Financial Reporting Standards

The Roche Group has been using International Financial Reporting Standards (IFRS) to report its consolidated results since 1990. In 2020 the Group implemented various minor amendments to existing standards and interpretations which have no material impact on the Group's overall results and financial position. The amendments to IFRS 3 'Business Combinations' on the definition of a business, which are mandatorily applicable in 2020, were early adopted by the Group in 2018.

See Note 1 to the Interim Financial Statements for further details.

Roche Group Interim Consolidated Financial Statements

The Interim Consolidated Financial Statements have been reviewed by the Group's auditor and their review report is presented on page 73.

Roche Group consolidated income statement for the six months ended 30 June 2020 in millions of CHF

	Pharmaceuticals	Diagnostics	Corporate	Group
Sales 2,3	23,202	6,079	-	29,281
Royalties and other operating income 2,3	1,070	27	-	1,097
Revenue ^{2,3}	24,272	6,106	-	30,378
Cost of sales	(4,800)	(2,985)	-	(7,785)
Marketing and distribution	(3,305)	(1,267)	-	(4,572)
Research and development ²	(5,605)	(740)	-	(6,345)
General and administration	(535)	(249)	(254)	(1,038)
Operating profit ²	10,027	865	(254)	10,638
Financing costs ⁴				(286)
Other financial income (expense) ⁴	_			(171)
Profit before taxes	-			10,181
Income taxes ⁵				(1,716)
Net income				8,465
Attributable to				
- Roche shareholders				8,079
- Non-controlling interests				386
Earnings per share and non-voting equity security 14				
Basic (CHF)				9.45
Diluted (CHF)				9.32

Roche Group consolidated income statement for the six months ended 30 June 2019 in millions of CHF

	Pharmaceuticals	Diagnostics	Corporate	Group
Sales ^{2,3}	24,194	6,275	_	30,469
Royalties and other operating income ^{2, 3}	1,249	33	-	1,282
Revenue ^{2, 3}	25,443	6,308		31,751
Cost of sales	(5,597)	(3,053)	_	(8,650)
Marketing and distribution	(3,464)	(1,442)	-	(4,906)
Research and development ²	(5,372)	(750)	-	(6,122)
General and administration	(842)	(104)	(286)	(1,232)
Operating profit ²	10,168	959	(286)	10,841
Financing costs ⁴				(414)
Other financial income (expense) ⁴				(73)
Profit before taxes				10,354
Income taxes ⁵				(1,450)
Net income				8,904
Attributable to				
- Roche shareholders				8,619
- Non-controlling interests				285
Earnings per share and non-voting equity security 14				
Basic (CHF)		-		10.07
Diluted (CHF)				9.99

Roche Group consolidated statement of comprehensive income in $\operatorname{millions}$ of CHF

	Six mont	hs ended 30 June
	2020	2019
Net income recognised in income statement	8,465	8,904
Other comprehensive income (OCI)		
Remeasurements of defined benefit plans	(141)	(514)
Fair value changes on equity investments at fair value through OCI	82	(1)
Items that will never be reclassified to the income statement	(59)	(515)
Fair value changes on debt investments at fair value through OCI	7	10
Cash flow hedges	(15)	(21)
Currency translation of foreign operations	(622)	(110)
Items that are or may be reclassified to the income statement	(630)	(121)
Other comprehensive income, net of tax	(689)	(636)
Total comprehensive income	7,776	8,268
Attributable to		
- Roche shareholders	7,421	7,954
- Non-controlling interests	355	314
Total	7,776	8,268

Roche Group consolidated balance sheet in millions of CHF

	30 June 2020	31 December 2019
Non-current assets		
Property, plant and equipment	22,066	22,173
Right-of-use assets	1,181	1,145
Goodwill 8	10,109	10,295
Intangible assets ⁹	11,394	10,751
Deferred tax assets	5,069	4,979
Defined benefit plan assets	902	945
Other non-current assets	1,939	1,549
Total non-current assets	52,660	51,837
Current assets		
Inventories	6,787	6,055
Accounts receivable	11,666	10,440
Current income tax assets	189	237
Other current assets	2,809	2,664
Marketable securities	2,482	5,783
Cash and cash equivalents	3,770	6,075
Total current assets	27,703	31,254
Total assets	80,363	83,091
Non-current liabilities		
Long-term debt 11	(12,491)	(12,668)
Deferred tax liabilities	(301)	(298)
Defined benefit plan liabilities	(7,614)	(7,480)
Provisions 10	(1,451)	(1,515)
Other non-current liabilities	(1,228)	(1,144)
Total non-current liabilities	(23,085)	(23,105)
Current liabilities		
Short-term debt 11	(2,552)	(1,695)
Current income tax liabilities	(4,238)	(3,838)
Provisions 10	(2,387)	(2,885)
Accounts payable	(3,042)	(3,822)
Other current liabilities	(10,244)	(11,879)
Total current liabilities	(22,463)	(24,119)
Total liabilities	(45,548)	(47,224)
Total net assets	34,815	35,867
Equity		
Capital and reserves attributable to Roche shareholders	31,509	32,747
Equity attributable to non-controlling interests	3,306	3,120
Total equity	34,815	35,867

As disclosed in Note 6, the balance sheet at 31 December 2019 has been restated following the finalisation of the valuation of the net assets acquired related to the Spark Therapeutics acquisition in 2019. A reconciliation to the previously published balance sheet is provided in Note 6.

Roche Group consolidated statement of cash flows in millions of CHF $\,$

	Six months	ended 30 June
1_	2020	2019
Cash flows from operating activities		
Cash generated from operations 15	13,807	14,092
(Increase) decrease in net working capital	(4,817)	(3,723)
Payments made for defined benefit plans	(284)	(294)
Utilisation of provisions	(505)	(485)
Disposal of products	130	436
Income taxes paid	(1,269)	(1,911)
Total cash flows from operating activities	7,062	8,115
Cash flows from investing activities		
Purchase of property, plant and equipment	(1,614)	(1,508)
Purchase of intangible assets	(1,524)	(914)
Disposal of property, plant and equipment	34	33
Business combinations ⁶	0	(99)
Asset acquisitions ⁶	(674)	0
Divestment of subsidiaries	0	2
Interest and dividends received	11	26
Sales of equity securities and debt securities	206	531
Purchases of equity securities and debt securities	(111)	(123)
Sales (purchases) of money market instruments and time accounts over three months, net	3,170	556
Other investing cash flows	(294)	(12)
Total cash flows from investing activities	(796)	(1,508)
Cash flows from financing activities		
Proceeds from issue of bonds and notes 11	0	0
Redemption and repurchase of bonds and notes 11	0	0
Increase (decrease) in commercial paper 11	521	741
Increase (decrease) in other debt	393	206
Hedging and collateral arrangements	196	(16)
Changes in ownership interest in subsidiaries	0	(21)
Equity contribution by non-controlling interests	0	13
Interest paid	(264)	(358)
Principal portion of lease liabilities paid	(183)	(178)
Dividends paid 15	(7,806)	(7,574)
Equity-settled equity compensation plans, net of transactions in own equity	(1,380)	(401)
Other financing cash flows	3	0
Total cash flows from financing activities	(8,520)	(7,588)
Not offset of surrency translation on each and each squivalents	(F1)	(11)
Net effect of currency translation on cash and cash equivalents	(51)	(11)
Increase (decrease) in cash and cash equivalents	(2,305)	(992)
Cash and cash equivalents at beginning of period	6,075	6,681
Cash and cash equivalents at end of period	3,770	5,689

Roche Group consolidated statement of changes in equity in millions of CHF

	Share	Retained	Fair value	Hedging	Translation		Non- controlling	Total
	capital	earnings	reserves	reserves	reserves	Total	interests	equity
Six months ended 30 June 2019								
At 1 January 2019	160	34,931	28	47	(7,548)	27,618	2,744	30,362
Net income recognised in income								
statement		8,619				8,619	285	8,904
Net change in fair value – financial assets								
at fair value through OCI		4	5			9	0	9
Cash flow hedges				(20)		(20)	(1)	(21)
Currency translation of foreign operations			1		(141)	(140)	30	(110)
Remeasurements of defined benefit plans		(514)				(514)	0	(514)
Total comprehensive income		8,109	6	(20)	(141)	7,954	314	8,268
Dividends		(7,449)				(7,449)	(106)	(7.555)
Equity compensation plans, net of		(7,443)				(7,443)		(7,333)
, , , , , , , , , , , , , , , , , , , ,		(53)				(53)	2	(51)
Changes in awarrabin interest in		(33)				(33)		(31)
Changes in ownership interest in		(0)				(0)	(10)	(01)
subsidiaries		(9)				(9)	(12)	(21)
Changes in non-controlling interests		(2)				(2)	2	
Equity contribution by non-controlling								
interests							13	13
At 30 June 2019	160	35,527	34	27	(7,689)	28,059	2,957	31,016
Six months ended 30 June 2020								
At 1 January 2020	160	40,524	15	13	(7,965)	32,747	3,120	35,867
Net income recognised in income								
statement	-	8,079	-	-	-	8,079	386	8,465
Net change in fair value - financial assets								
at fair value through OCI	-	13	74	-	-	87	2	89
Cash flow hedges	-	-	-	(15)	-	(15)	0	(15)
Currency translation of foreign operations	-	-	0	-	(589)	(589)	(33)	(622)
Remeasurements of defined benefit plans	-	(141)	-	-	-	(141)	0	(141)
Total comprehensive income	-	7,951	74	(15)	(589)	7,421	355	7,776
Dividends	-	(7,700)	-	-	-	(7,700)	(174)	(7,874)
Equity compensation plans, net of								
transactions in own equity	_	(957)	_	_	-	(957)	3	(954)
Changes in non-controlling interests	-	(2)	_	_	=	(2)	2	-
At 30 June 2020	160	39,816	89	(2)	(8,554)	31,509	3,306	34,815

Notes to the Roche Group **Interim Consolidated Financial Statements**

1. Accounting policies

Basis of preparation

These financial statements are the unaudited condensed interim consolidated financial statements (hereafter 'the Interim Financial Statements') of Roche Holding Ltd, a company registered in Switzerland, and its subsidiaries (hereafter 'the Group') for the six months ended 30 June 2020 (hereafter 'the interim period'). These Interim Financial Statements should be read in conjunction with the consolidated financial statements for the year ended 31 December 2019 (hereafter 'the Annual Financial Statements'), as they provide an update of previously reported information. They were approved for issue by the Board of Directors on 21 July 2020.

Statement of compliance

The Interim Financial Statements have been prepared in accordance with IAS 34 'Interim Financial Reporting'. They do not include all of the information required for a complete set of IFRS financial statements. However, selected explanatory notes are included to explain events and transactions that are significant to an understanding of the changes in the Group since the Annual Financial Statements.

Management judgements and estimates

The preparation of the Interim Financial Statements requires management to make judgements, estimates and assumptions that affect the application of accounting policies and the reported amounts of revenues, expenses, assets, liabilities and related disclosures. If in the future such estimates and assumptions, which are based on management's best judgement at the date of the Interim Financial Statements, deviate from the actual circumstances, the original estimates and assumptions will be modified as appropriate in the period in which the circumstances change. The significant judgements made by management in applying the Group's accounting policies and the key sources of estimation uncertainty are the same as those applied in the Annual Financial Statements.

Impact of the COVID-19 pandemic

The Group has assessed certain accounting matters that generally require consideration of forecast financial information taking into account the potential future impacts of the COVID-19 pandemic. The accounting matters assessed included, but were not limited to, the Group's provisions for product returns, allowances for doubtful accounts for trade and lease receivables, inventory allowances, the carrying value of goodwill, intangible assets, property, plant and equipment and defined benefit pension plan assets and liabilities. Any continued negative impacts from the pandemic in the second half of 2020 may have an impact on these, or other, matters.

Bad debt expenses and overdue receivables remained at a relatively low level. There were no significant costs for idle manufacturing capacity or inventory write-offs that could be directly attributed to the pandemic, and only minor additional COVID-19-related costs were incurred on construction projects.

Intangible asset impairment charges of CHF 342 million were incurred as a result of a delay in clinical trials, partly impacted by the COVID-19 pandemic (see Note 9). No other impairment issues were noted for goodwill and intangible assets. The Group will carry out further reviews for impairment in the second half of 2020, and any continued negative impacts from the pandemic will be considered.

No impairment issues were noted for financial assets, although the volatility in global markets had a corresponding impact on the carrying value of equity investments held at fair value. Similarly there was volatility in the fair value of pension plan assets and discount rates during the six months ended 30 June 2020.

While there was no significant impact from the areas assessed on the Group's Interim Financial Statements, the Group will continue to monitor these areas of increased judgements and risk for material changes.

Seasonality

The Group operates in industries where significant seasonal or cyclical variations in total sales are not experienced during the financial year.

Significant accounting policies

Except as described below, the accounting policies applied in these Interim Financial Statements are the same as those applied in the Annual Financial Statements. Changes in accounting policies will also be reflected in the Group's Consolidated Financial Statements for the year ending 31 December 2020.

Changes in accounting policies

In 2020 the Group has implemented various minor amendments to existing standards and interpretations, which have no material impact on the Group's overall results and financial position. The amendments to IFRS 3 'Business Combinations' on the definition of a business, which are mandatorily applicable in 2020, were early adopted by the Group in 2018.

Future new and revised standards

The Group is currently assessing the potential impacts of the various new and revised standards and interpretations that will be mandatory from 1 January 2021 which the Group has not yet applied. Based on the analysis to date, the Group does not anticipate that these will have a material impact on the Group's overall results and financial position. The Group is also assessing other new and revised standards which are not mandatory until after 2021.

2. Operating segment information

The Group has two divisions, Pharmaceuticals and Diagnostics. Revenues are primarily generated from the sale of prescription pharmaceutical products and diagnostic instruments, reagents and consumables, respectively. Both divisions also derive revenues from the sale or licensing of products or technology to third parties. Residual operating activities from divested businesses and certain global activities are reported as 'Corporate'. These include the Corporate Executive Committee and global group functions for communications, human resources, finance (including treasury and taxes), legal, safety and environmental services. Subdivisional information is also presented for the Roche Pharmaceuticals and Chugai operating segments within the Pharmaceuticals Division.

Divisional information in millions of CHF

	Phar	maceuticals		Diagnostics		Corporate		Group
Six months ended 30 June	2020	2019	2020	2019	2020	2019	2020	2019
Revenue from external customers								
Sales	23,202	24,194	6,079	6,275	-	_	29,281	30,469
Royalties and other operating income	1,070	1,249	27	33	-	_	1,097	1,282
Total	24,272	25,443	6,106	6,308	-		30,378	31,751
Revenue from other operating								
segments								
Sales	_	_	8	5	-	_	8	5
Royalties and other operating income	-		-	_	-	_	-	_
Elimination of interdivisional revenue							(8)	(5)
Total	_		8	5	_		-	_
Segment results								
Operating profit	10.027	10.168	865	959	(254)	(286)	10.638	10.841
	10,027				(20.)		. 0,000	
Capital expenditure								
Business combinations	0		0	0	_		0	
Asset acquisitions	408	0	256	0	_		664	0
Additions to property, plant and								
equipment	1,007	904	541	695	22	17	1,570	1,616
Additions to right-of-use assets	232	114	45	52	0	6	277	172
Additions to intangible assets	1,313	616	24	232	_		1,337	848
Total	2,960	1,634	866	979	22	23	3,848	2,636
December and development								
Research and development			740	750			0.045	
Research and development costs	5,605	5,372	740		_		6,345	6,122
Other segment information								
Depreciation of property, plant and								
equipment	621	580	536	549	28	35	1,185	1,164
Depreciation of right-of-use assets	119	111	56	54	5	5	180	170
Amortisation of intangible assets	775	674	55	63	-	_	830	737
Impairment of property, plant and								
equipment	8	27	0	6	0	0	8	33
Impairment of right-of-use assets	0	0	8	0	0	0	8	0
Impairment of goodwill	0		0	0	_		0	
Impairment of intangible assets	342	324	0	0	_	_	342	324
Equity compensation plan expenses	261	205	46	41	25	19	332	265

Pharmaceuticals subdivisional information in millions of CHF

Six months ended 30 June	Roche Pha 2020	armaceuticals 2019	2020	Chugai 2019	Pharmaceu 2020	ticals Division 2019
Revenue from external customers						
Sales	21,294	22,206	1,908	1,988	23,202	24,194
Royalties and other operating income	996	1,208	74	41	1,070	1,249
Total	22,290	23,414	1,982	2,029	24,272	25,443
Revenue from other operating segments						
Sales	819	781	819	578_	1,638	1,359
Royalties and other operating income	15	11	487	303	502	314
Elimination of income within division					(2,140)	(1,673)
Total	834	792	1,306	881		
Segment results						
Operating profit	8,897	9,418	1,250	877	10,147	10,295
Elimination of results within division					(120)	(127)
Operating profit	8,897	9,418	1,250	877	10,027	10,168
Capital expenditure						
Business combinations	0	0	0	0	0	0
Asset acquisitions	408	0	0	0	408	0
Additions to property, plant and equipment	662	624	345	280	1,007	904
Additions to right-of-use assets	210	72	22	42	232	114
Additions to intangible assets	1,304	595	9	21	1,313	616
Total	2,584	1,291	376	343	2,960	1,634
Research and development						
Research and development costs	5,130	4,957	495	455	5,625	5,412
Elimination of costs within division					(20)	(40)
Total	5,130	4,957	495	455	5,605	5,372
Other segment information						
Depreciation of property, plant and equipment	527	512	94		621	580
Depreciations of right-of-use assets	94	83	25	28	119	111
Amortisation of intangible assets	766	665	9	9	775	674
Impairment of property, plant and equipment	8	16	0	11	8	27
Impairment of right-of-use assets	0	0	0	0	0	0
Impairment of goodwill	0	0	0	0	0	0
Impairment of intangible assets	342	324	0		342	324
iiiipaii iiieiit oi iiitaiigibie assets						

Net assets in millions of CHF

		Assets		Liabilities		Net assets
	30 June	31 December	30 June	31 December	30 June	31 December
		2019	2020	2019	2020	2019
Net operating assets						
Pharmaceuticals	47,643	45,215	(12,114)	(14,426)	35,529	30,789
Diagnostics	18,516	18,287	(3,972)	(4,509)	14,544	13,778
Corporate	392	362	(488)	(607)	(96)	(245)
Total	66,551	63,864	(16,574)	(19,542)	49,977	44,322
Current income tax net assets (liabilities) Deferred tax net assets (liabilities) Defined benefit plan net assets (liabilities) Lease liabilities					(4,049) 4,768 (6,712) (1,267)	(3,601) 4,681 (6,535) (1,219)
Marketable securities					2,482	5,783
Cash and cash equivalents					3,770	6,075
Debt					(15,043)	(14,363)
Other net assets (liabilities)					889	724
Total net assets					34,815	35,867

As disclosed in Note 6, the net operating assets for the Pharmaceuticals Division and the deferred tax net assets (liabilities) for the Group at 31 December 2019 have been restated following the finalisation of the valuation of the net assets acquired related to the Spark Therapeutics acquisition in 2019. A reconciliation to the previously published balance sheet is provided in Note 6.

Net operating assets - Pharmaceuticals subdivisional information in millions of CHF

	30 June 2020	Assets 31 December 2019	30 June 2020	Liabilities 31 December 2019	30 June 2020	Net assets 31 December 2019
Roche Pharmaceuticals	43,499	41,333	(12,520)	(14,462)	30,979	26,871
Chugai	6,589	6,098	(876)	(1,133)	5,713	4,965
Elimination within division	(2,445)	(2,216)	1,282	1,169	(1,163)	(1,047)
Pharmaceuticals Division	47,643	45,215	(12,114)	(14,426)	35,529	30,789

As disclosed in Note 6, the net operating assets of Roche Pharmaceuticals at 31 December 2019 have been restated following the finalisation of the valuation of the net assets acquired related to the Spark Therapeutics acquisition in 2019. A reconciliation to the previously published balance sheet is provided in Note 6.

3. Revenue

Disaggregated revenue information

Disaggregation of revenue in millions of CHF

		Six months end	led 30 June 2020		Six months ended	d 30 June 2019
	Revenue from contracts with	Revenue from		Revenue from contracts with	Revenue from	
	customers	other sources	Total	customers	other sources	Total
Pharmaceuticals Division						
Sales by therapeutic area						
Oncology	12,469	_	12,469	13,938		13,938
Immunology	4,272	-	4,272	4,234	-	4,234
Neuroscience	2,381	-	2,381	2,069	-	2,069
Haemophilia A	1,003	-	1,003	535	-	535
Ophthalmology	728	-	728	928	-	928
Infectious diseases	496	-	496	594	-	594
Other therapeutic areas	1,853	-	1,853	1,896	-	1,896
Sales	23,202	-	23,202	24,194		24,194
Royalty income	573	_	573	538	_	538
Income from out-licensing agreements	98	_	98	56		56
Income from disposal of products and						
other	133	266	399	442	213	655
Royalties and other operating						
income	804	266	1,070	1,036	213	1,249
Diagnostics Division						
Sales by business area						
Centralised and Point of Care Solutions	2,862	319	3,181	3,449	313	3,762
Molecular Diagnostics	1,499	59	1,558	975	54	1,029
Diabetes Care	831	1	832	957	1	958
Tissue Diagnostics	477	31	508	501	25	526
Sales	5,669	410	6,079	5,882	393	6,275
Royalty income	20	_	20	23	_	23
Income from out-licensing agreements	0		0	0		0
Income from disposal of products and						- 0
other	0	7	7	1	9	10
Royalties and other operating				·		10
income	20	7	27	24	9	33
Total	29,695	683	30,378	31,136	615	31,751

Revenue from other sources primarily relates to lease revenue and collaboration income for which the counterparty is not considered a customer, such as income from profit-sharing arrangements.

Gross-to-net sales reconciliation for the Pharmaceuticals Division

The gross-to-net sales reconciliation for the Pharmaceuticals Division is shown in the table below. The companies in the Diagnostics Division have similar reconciling items, but at much lower amounts.

Pharmaceuticals Division sales gross-to-net reconciliation in millions of CHF

Six months endec			
	2020	2019	
Gross sales	28,598	29,346	
Government and regulatory mandatory price reductions	(3,131)	(3,275)	
Contractual price reductions	(1,778)	(1,400)	
Cash discounts	(178)	(171)	
Customer returns reserves	(107)	(112)	
Others	(202)	(194)	
Net sales	23,202	24,194	

Government and regulatory mandatory price reductions. These consist of mandatory price reductions. The major elements are 340B Drug Discount Program, Medicaid, and other plans in the US, which totalled USD 2.8 billion equivalent to CHF 2.7 billion (six months ended 30 June 2019: USD 2.8 billion equivalent to CHF 2.8 billion).

Contractual price reductions. These include rebates and chargebacks that are the result of contractual agreements that are primarily volume based and performance based.

Cash discounts. These include credits offered to wholesalers for remitting payment on their purchases within contractually defined incentive periods.

Customer returns reserves. These are allowances established for expected product returns.

Sales reductions that are expected to be withheld by the customer upon settlement, such as contractual price reductions and cash discounts, are recorded in the balance sheet as a deduction from trade receivables. Sales reductions that are separately payable to customers, governmental health authorities or healthcare regulatory authorities are recorded in the balance sheet as accrued liabilities. Provisions for sales returns are recorded in the balance sheet as other provisions.

4. Net financial expense

Financing costs in millions of CHF

	Si	x months ended 30 June
	2020	2019
Interest expense	(216)	(318)
Amortisation of debt discount ¹¹	(4)	(6)
Net gains (losses) on redemption and repurchase of bonds and notes 11	0	0
Discount unwind	(6)	(11)
Net interest cost of defined benefit plans	(51)	(71)
Interest expenses on lease liabilities	(9)	(8)
Total financing costs	(286)	(414)

Other financial income (expense) in millions of CHF

	S	x months ended 30 June
	2020	2019
Net gains (losses) on equity investments / securities at fair value through profit or loss	(61)	(39)
Dividend income from equity investments / securities at fair value through profit or loss	0	0
Dividend income from equity investments / securities at fair value through OCI	0	1
Net income from equity investments / securities	(61)	(38)
Interest income from debt securities at fair value through OCI and at amortised cost	14	36
Net gains (losses) on sale of debt securities at fair value through OCI	1	5
Net interest income and income from debt securities	15	41
Net foreign exchange gains (losses)	(227)	(33)
Net gains (losses) on foreign currency derivatives	116	(33)
Foreign exchange gains (losses)	(111)	(66)
Gains (losses) on net monetary position in hyperinflationary economies	(5)	(10)
Net other financial income (expense)	(9)	5_
Associates	0	(5)
Total other financial income (expense)	(171)	(73)

Net financial expense in millions of CHF

Financing costs (286) (4 Other financial income (expense) (171) (Net financial expense (457) (4 Financial result from Treasury management (406) (4	Net financial expense	(457)	(487)
Financing costs (286) (4 Other financial income (expense) (171) (Net financial expense (457) (4 Financial result from Treasury management (406) (4	Associates	0	(5)
Financing costs Other financial income (expense) Net financial expense (286) (171) (171) (457) (457)	Financial result from Pension management	(51)	(71)
Financing costs (286) (4 Other financial income (expense) (171) (Financial result from Treasury management	(406)	(411)
Financing costs (286) (4 Other financial income (expense) (171) (Net financial expense	(457)	(487)
Financing costs (286)	· · · · · · · · · · · · · · · · · · ·		(73)
2020		(286)	(414)
			ix months ended 30 June

5. Income taxes

Income tax expense is recognised based upon management's best estimate of the weighted average annual income tax rate expected for the full financial year multiplied by the pre-tax income for the six months ended 30 June 2020.

Income tax expenses in millions of CHF

	Si	x months ended 30 June
	2020	2019
Current income taxes	(1,869)	(2,105)
Deferred taxes	153	655
Total income tax (expense)	(1,716)	(1,450)

The Group's effective tax rate for the six months ended 30 June 2020 increased to 16.9% (six months ended 30 June 2019: 14.0%). The main drivers for the increase were the impacts in 2019 from the Swiss tax reform and the deferred tax impact from equity compensation plans, which acted to reduce the 2019 effective tax rate.

Several separate tax disputes were resolved in the first six months ended 30 June of both 2020 and 2019, resulting in a reduction of the Group's effective tax rate of around 2 percentage points in both periods.

6. Mergers and acquisitions

Business combinations - 2020

The Group did not complete any business combination during the six months ended 30 June 2020.

Business combinations - 2019

The Group did not complete any business combination during the six months ended 30 June 2019.

Finalisation of the Spark Therapeutics acquisition accounting

Spark Therapeutics, Inc. On 17 December 2019 the Group acquired a 100% controlling interest in Spark Therapeutics, Inc. ('Spark Therapeutics'), a publicly owned US company based in Philadelphia, Pennsylvania, that had been listed on Nasdaq. Spark Therapeutics is a fully integrated commercial company committed to discovering, developing and delivering gene therapies. Spark Therapeutics is reported in the Pharmaceuticals Division as part of the Roche Pharmaceuticals operating segment. The total consideration was USD 4,772 million, which was paid in cash.

In the 2019 Annual Financial Statements the accounting for the Spark Therapeutics acquisition was provisional based on preliminary information because the transaction closed shortly before 31 December 2019. The identification and valuation of intangible assets, other assets and liabilities were finalised in 2020. The identifiable assets acquired and liabilities assumed are set out in the table below.

Business combinations - 2019: net assets acquired in millions of CHF

	Spark Therapeutics
Property, plant and equipment	77
Right-of-use assets	65
Intangible assets	
- Product intangibles: in use	457
- Product intangibles: not available for use	1,967
Deferred tax assets	299
Cash and cash equivalents	157
Marketable securities	133
Deferred tax liabilities	(533)
Other non-current liabilities	
- Deferred income	(133)
- Lease liabilities	(77)
- Other long-term liabilities	(2)
Other net assets (liabilities)	(28)
Net identifiable assets	2,382
Goodwill	2,306
Total consideration	4,688
Cash	4,688
Total consideration	4,688

Intangible assets include Spark Therapeutics' lead clinical asset SPK-8011, a novel gene therapy for the treatment of haemophilia A, and Luxturna, Spark Therapeutics' marketed gene therapy for the treatment of patients with confirmed biallelic RPE65 mutation-associated retinal dystrophy (an inherited retinal disease). Luxturna was the first gene therapy to receive an FDA approval in 2017. The European Commission granted marketing authorisation for Luxturna in 2018. Intangible assets also include Spark Therapeutics' other clinical and pre-clinical assets. The fair value of the intangible assets was determined using an excess earning method that is based on management forecasts and observable market data for discount rates, tax rates and foreign exchange rates. The present value was calculated using a risk-adjusted discount rate of 10.0%. The valuation was performed by an independent valuer.

Goodwill represents Spark Therapeutics' technological capabilities in gene therapy, such as gene therapy manufacturing, adeno-associated viral vector engineering and immunology. Furthermore, goodwill represents a control premium, the acquired workforce and the expected synergies, notably in the areas of research and development as well as commercialisation of gene therapies. None of the goodwill is expected to be deductible for income tax purposes.

The Spark Therapeutics accounts receivable was comprised of gross contractual amounts due of CHF 12 million which were all expected to be collectable at the date of the acquisition.

Directly attributable transaction costs of CHF 25 million were reported in the Roche Pharmaceuticals operating segment within general and administration expenses.

Cash flows from business combinations

Business combinations: net cash outflow in millions of CHF

					ded 30 June 2019
Pharmaceuticals	Diagnostics	Total	Pharmaceuticals	Diagnostics	Total
0	0	0	0	0	0
0	0	0	0	(3)	(3)
0	0	0	(31)	(65)	(96)
0	0	0	0	0	0
0	0	0	(31)	(68)	(99)
	Pharmaceuticals 0 0 0 0 0 0 0 0			Pharmaceuticals Diagnostics Total Pharmaceuticals	Pharmaceuticals Diagnostics Total Pharmaceuticals Diagnostics 0 0 0 0 0 0 0 0 0 0 0 (3) 0 0 0 0 0 0 0 0 0 0 0 0

Asset acquisitions - 2020

Promedior, Inc. On 13 February 2020 the Group acquired a 100% controlling interest in Promedior, Inc. ('Promedior'), a privately owned US company based in Lexington, Massachusetts. With the acquisition, the Group obtained rights to Promedior's entire portfolio including phase III-ready asset PRM-151, a recombinant human pentraxin-2 molecule for the treatment of idiopathic pulmonary fibrosis. Promedior is reported in the Pharmaceuticals Division. The cash consideration paid at the acquisition date was USD 414 million. Additional contingent payments may be made based upon the achievement of performance-related milestones.

Stratos Genomics, Inc. On 20 May 2020 the Group acquired a 100% controlling interest in Stratos Genomics, Inc. ('Stratos Genomics'), a privately owned US company based in Seattle, Washington. Stratos Genomics is an early-stage sequencing technology company, which the Group acquired to advance the development of the Group's nanopore sequencer. The acquisition provides the Group access to Stratos Genomics' unique chemistry, Sequencing by Expansion. Stratos Genomics is reported in the Diagnostics Division. The cash consideration paid at the acquisition date was USD 250 million. Additional contingent payments may be made based upon the achievement of performance-related milestones.

Lexent Bio, Inc. On 12 June 2020 the Group acquired a 100% controlling interest in Lexent Bio, Inc. ('Lexent Bio'), a privately owned US company based in San Francisco and San Diego, California. The acquisition provides the Group access to Lexent Bio's novel multiomics liquid biopsy platforms. Lexent Bio is reported in the Pharmaceuticals Division. The cash consideration paid at the acquisition date was USD 30 million. An additional contingent payment may be made based upon the achievement of a performance-related milestone.

During the six months ended 30 June 2020 the Group has made contingent payments of CHF 22 million (six months ended 30 June 2019: none) related to asset acquisitions closed in previous years based upon the achievement of performance-related milestones

Asset acquisitions - 2020: net assets acquired in millions of CHF

	-	Stratos		
	Promedior	Genomics	Lexent Bio	Total
Intangible assets				
- Product intangibles: not available for use	360	255	25	640
Deferred tax assets	25	12	3	40
Cash and cash equivalents	18	6	0	24
Other net assets (liabilities)	2	0	0	2
Net identifiable assets	405	273	28	706
Fair value of previously held equity interest	-	(25)	-	(25)
Total consideration	405	248	28	681
Cash	405	243	28	676
Deferred consideration	-	5	-	5
Total consideration	405	248	28	681

Asset acquisitions - 2019

The Group did not complete any asset acquisition during the six months ended 30 June 2019.

Cash flows from asset acquisitions

Asset acquisitions: net cash outflow in millions of CHF

Six months ended 30 June 2020				Six months en	ded 30 June 2019
Pharmaceuticals	Diagnostics	Total	Pharmaceuticals	Diagnostics	Total
(433)	(243)	(676)	0	0	0
18	6	24	0	0	0
(22)	0	(22)	0	0	0
(437)	(237)	(674)	0	0	0
	(433) 18 (22)	Pharmaceuticals Diagnostics (433) (243) 18 6 (22) 0	Pharmaceuticals Diagnostics Total (433) (243) (676) 18 6 24 (22) 0 (22)	Pharmaceuticals Diagnostics Total Pharmaceuticals	Pharmaceuticals Diagnostics Total (676) Pharmaceuticals Diagnostics 18 6 24 0 0 (22) 0 (22) 0 0

Restated balance sheet - 31 December 2019

In the 2019 Annual Financial Statements the accounting for the Spark Therapeutics acquisition was provisional based on preliminary information because the transaction closed shortly before 31 December 2019. The identification and valuation of intangible assets, other assets and liabilities were finalised in 2020 and as a result the comparative balance sheet information at 31 December 2019 has been restated. The reconciliation between the balance sheet and the net assets acquired published previously for 2019 (using provisional acquisition accounting) and the restated amounts which are reported as comparatives in 2019 (using final acquisition accounting), as required by IFRS 3 'Business Combinations', are presented below.

Restated Roche Group consolidated balance sheet (selected items) in millions of CHF

			31 December 2019
	As originally published	Measurement adjustment	Restated
Goodwill	12,456	(2,161)	10,295
Intangible assets	8,358	2,393	10,751
Deferred tax assets	5,211	(232)	4,979
Other net assets	9,842	-	9,842
Net assets	35,867	_	35,867

The measurement adjustments in the table above are at the closing exchange rate on 31 December 2019.

Restated Spark Therapeutics acquisition - 2019: net assets acquired (selected items) in millions of CHF

			Spark Therapeutics
	As originally	Measurement	
	published	adjustment	Restated
Intangible assets			
- Product intangibles: in use	-	457	457
- Product intangibles: not available for use	-	1,967	1,967
Deferred tax assets	-	299	299
Deferred tax liabilities	-	(533)	(533)
Other net assets (liabilities)	192	0	192
Net identifiable assets	192	2,190	2,382
Goodwill	4,496	(2,190)	2,306
Total consideration	4,688	-	4,688

The measurement adjustments in the table above are at the exchange rate on the date of control for the Spark Therapeutics acquisition (17 December 2019).

7. Global restructuring plans

During the six months ended 30 June 2020 the Group continued with the implementation of various global restructuring plans initiated in prior years.

Global restructuring plans: costs incurred in millions of CHF

	Diagnostics	Site consolidation	Other plans	Total
Six months ended 30 June 2020				
Global restructuring costs				
- Employee-related costs	36	3	103	142
- Site closure costs	17	3	20	40
- Divestment of products and businesses	0	0	0	0
- Other reorganisation expenses	30	4	37	71
Total global restructuring costs	83	10	160	253
Additional costs				
- Impairment of goodwill	0	0	0	0
- Impairment of intangible assets	0	0	0	0
- Legal and environmental cases	0	0	0	0
Total costs	83	10	160	253
Six months ended 30 June 2019	_			
Global restructuring costs	_			
 Employee-related costs 	93	69	155	317
- Site closure costs	15	33	3	51
 Divestment of products and businesses 	(16)	0	0	(16)
 Other reorganisation expenses 	63	7	55	125
Total global restructuring costs		109	213	477
Additional costs				
- Impairment of goodwill	0	0	0	0
- Impairment of intangible assets	0	0	0	0
 Legal and environmental cases 	0	44	0	44
Total costs	155	153	213	521

Diagnostics Division. During the six months ended 30 June 2020 strategy plans in the Diagnostics Division incurred costs of CHF 45 million, mainly for employee-related costs.

Other global restructuring plans. During the six months ended 30 June 2020 initiatives for the outsourcing of IT and other functions to shared service centres and external providers incurred costs of CHF 66 million, mainly employee-related.

Global restructuring plans: summary of costs incurred in millions of CHF

	Six	months ended 30 June
	2020	2019
Termination costs	72	264
Defined benefit plans	0	10
Other employee-related costs	70	43
Total employee-related costs	142	317
Impairment of property, plant and equipment and right-of-use assets	8	0
Accelerated depreciation of property, plant and equipment and right-of-use assets	30	31
(Gains) losses on disposal of property, plant and equipment and right-of-use assets	0	2
Other site closure costs	2	18
Total site closure costs	40	51
Divestment of products and businesses		
- (Gains) losses on divestment of subsidiaries	0	(14)
- Other (gains) losses on divestment of products and businesses	0	(2)
Total costs on divestment of products and businesses	0	(16)
Other reorganisation expenses	71	125
Total global restructuring costs	253	477

Global restructuring plans: classification of costs in millions of CHF $\,$

		Six months en	ded 30 June 2020		Six months end	led 30 June 2019
	Depreciation, amortisation			Depreciation, amortisation		
	and impairment	Other	Total	and impairment	Other	Total
Cost of sales						
- Pharmaceuticals	2	10	12	18	85	103
- Diagnostics	9	24	33	4	64	68
Marketing and distribution						
- Pharmaceuticals	4	23	27	0	52	52
- Diagnostics	1	14	15	0	33	33
Research and development						
- Pharmaceuticals	16	20	36	3	70	73
- Diagnostics	5	21	26	5	54	59
General and administration						
- Pharmaceuticals	0	53	53	0	63	63
- Diagnostics	1	7	8	1	(6)	(5)
- Corporate	0	43	43	0	75	75
Total	38	215	253	31	490	521
Total by operating segment						
- Roche Pharmaceuticals	2	106	108	18	224	242
- Chugai	20	0	20	3	46	49
- Diagnostics	16	66	82	10	145	155
- Corporate	0	43	43	0	75	75
Total	38	215	253	31	490	521

8. Goodwill

Goodwill: movements in carrying value of assets in millions of CHF

Six months ended 30 June 2020	
At 1 January 2020	10,295
Currency translation effects	(186)
At 30 June 2020	10,109
Allocated by operating segment	
Roche Pharmaceuticals	5,890
Chugai	98
Diagnostics	4,121
Total Group	10,109

As disclosed in Note 6, the goodwill at 31 December 2019 has been restated following the finalisation of the valuation of the net assets acquired related to the Spark Therapeutics acquisition in 2019. A reconciliation to the previously published goodwill is provided in Note 6.

Impairment charges - 2020

There were no impairments of goodwill during the six months ended 30 June 2020.

Impairment charges - 2019

There were no impairments of goodwill during the six months ended 30 June 2019.

9. Intangible assets

Intangible assets: movements in carrying value of assets in millions of CHF

		Product			
	Product intangibles: in use	intangibles: not available for use	Marketing intangibles: in use	Technology intangibles: in use	Total
Six months ended 30 June 2020	- Intuse	Tor dac	111 430	III dae	Total
At 1 January 2020	6,523	3,656	137	435	10,751
Asset acquisitions	0	662	0	0	662
Additions	477	828	9	23	1,337
Transfers	13	(13)	0	0	-
Amortisation charge	(753)	-	(15)	(62)	(830)
Impairment charge	0	(342)	0	0	(342)
Currency translation effects	(96)	(79)	(2)	(7)	(184)
At 30 June 2020	6,164	4,712	129	389	11,394
Allocated by operating segment					
Roche Pharmaceuticals	5,423	4,422	41	363	10,249
Chugai	14	34	56	0	104
Diagnostics	727	256	32	26	1,041
Total Group	6,164	4,712	129	389	11,394

As disclosed in Note 6, the intangible assets at 31 December 2019 have been restated following the finalisation of the valuation of the net assets acquired related to the Spark Therapeutics acquisition in 2019. A reconciliation to the previously published intangible assets is provided in Note 6.

Classification of intangible asset amortisation and impairment expenses in millions of CHF

		Amortisation		Impairment
Six months ended 30 June	2020	2019	2020	2019
Cost of sales				
- Pharmaceuticals	(613)	(555)	0	0
- Diagnostics	(48)	(56)	0	0
Marketing and distribution				
- Pharmaceuticals	(12)	(17)	0	0
- Diagnostics	(3)	(4)	0	0
Research and development				
- Pharmaceuticals	(150)	(102)	(342)	(324)
- Diagnostics	(4)	(3)	0	0
Total	(830)	(737)	(342)	(324)

Impairment charges - 2020

Pharmaceuticals Division. Impairment charges totalling CHF 342 million were recorded which related to:

• A charge of CHF 342 million for the partial impairment of the intangible asset for SPK-8011, a novel gene therapy for the treatment of haemophilia A, acquired as part of the Spark Therapeutics acquisition. The impairment is a result of a delay in clinical trials, partly impacted by the COVID-19 pandemic, leading to reduced sales expectations. The asset concerned, which was not yet being amortised, was written down to its estimated recoverable amount of CHF 1,063 million.

Impairment charges - 2019

Pharmaceuticals Division. Impairment charges totalling CHF 324 million were recorded. The major items related to:

- A charge of CHF 137 million following clinical data assessment of two compounds. The assets concerned, which were not yet being amortised, were fully written down.
- A charge of CHF 125 million due to the decision to stop the development of a compound with an alliance partner. The asset concerned, which was not yet being amortised, was fully written down.
- A charge of CHF 60 million due to the decision to stop the development of a compound and the related collaboration activities with an alliance partner. The asset concerned, which was not yet being amortised, was fully written down.

10. Provisions and contingent liabilities

Provisions in millions of CHF

	30 June 2020	31 December 2019
Legal provisions	534	882
Environmental provisions	477	503
Restructuring provisions	1,033	1,194
Contingent consideration provisions ¹⁶	208	205
Other provisions	1,586	1,616
Total provisions	3,838	4,400
Current	2,387	2,885
Non-current	1,451	1,515
Total provisions	3,838	4,400

During the six months ended 30 June 2020 CHF 505 million of provisions were utilised (six months ended 30 June 2019: CHF 584 million), of which the entire amount is included in the cash flow from operating activities and mainly related to the utilisation of restructuring and other provisions (six months ended 30 June 2019: CHF 485 million). During the six months ended 30 June 2019 CHF 99 million were included in the cash flows from business combinations for payments made from deferred and contingent consideration arrangements (see Note 6).

As part of the regular review of litigation matters, management has reassessed the provisions recorded for certain litigation matters. Based on the development of the various litigations, notably the Accutane case in the US, some of the provisions previously held were released which resulted in an income of CHF 351 million for the six months ended 30 June 2020. This was a major element in the expenses for legal and environmental cases during the six months ended 30 June 2020, which show a net income of CHF 325 million included in general and administration (six months ended 30 June 2019: net expenses of CHF 68 million).

Other than as described below, no significant changes in the Group's contingent liabilities or provisions for legal cases have occurred since the approval of the Annual Financial Statements by the Board of Directors.

Accutane. The litigation related to Accutane is described in Note 20 to the Annual Financial Statements. At 31 December 2019 Hoffmann-La Roche Inc. ('HLR') was defending no pending actions in the US and there were approximately 3,422 cases on appeal. After a hearing on 7 January 2020, on 17 January 2020 the New Jersey Appellate Division issued its decision on whether plaintiffs' experts can testify that Accutane causes ulcerative colitis. It affirmed the trial court's ruling and concluded that the trial court properly had excluded the experts thereby dismissing cases alleging that Accutane caused plaintiffs' ulcerative colitis. The plaintiffs filed a petition for appeal to the New Jersey Supreme Court. On 8 May 2020 the Supreme Court entered an order denying the petition. Plaintiffs cannot further appeal. All remaining cases were permanently dismissed. The Supreme Court had dismissed previously other inflammatory bowel disease ('IBD') cases in 2018. With this the matter in the US is now concluded.

Meso litigation. The litigation related to the lawsuit filed by Roche Diagnostics Corporation ('Roche') against Meso Scale Diagnostics, LLC ('Meso') is described in Note 20 to the Annual Financial Statements. In 2020 post-trial motions have been filed by both parties. Meso has moved for enhancement, pre-judgment interest and post-judgment royalties. The court hearing took place on 6 May 2020. The court has not issued any final order of judgment yet.

Iraqi Ministry of Health. The litigation related to the Iraqi Ministry of Health is described in Note 20 to the Annual Financial Statements. In October 2017 F. Hoffmann-La Roche Ltd ('FHLR'), Hoffmann-La Roche Inc. ('HLR') and Genentech and certain other pharmaceutical and/or medical device companies were named as defendants in a complaint filed in the Federal District Court for the District of Columbia, US, on behalf of US service-members and their relatives who allege that they were killed or injured in Iraq between 2005 and 2009. On 17 July 2020 the Federal District Court granted the defendants' motions to dismiss. The plaintiffs may appeal this decision. The Group is vigorously defending itself in this matter. The outcome of this matter cannot be determined at this time.

There have been certain procedural developments in the other significant litigation matters described in Note 20 to the Annual Financial Statements. These do not significantly affect the assessment of the Group's management concerning the adequacy of the total provisions recorded for legal matters.

11. Debt

Debt: movements in carrying value of recognised liabilities in millions of CHF

Six months ended 30 June 2020	
At 1 January 2020	14,363
Proceeds from issue of bonds and notes	0
Redemption and repurchase of bonds and notes	0
Increase (decrease) in commercial paper	521
Increase (decrease) in other debt	393
Changes from financing cash flows	914
Net (gains) losses on redemption and repurchase of bonds and notes ⁴	0
Amortisation of debt discount ⁴	4
Financing costs	4
Net foreign currency transaction (gains) losses	(2)
Currency translation effects	(239)
Changes in foreign exchange rates	(241)
Changes in fair values of hedging instruments	3
Other changes	0
At 30 June 2020	15,043
Bonds and notes	12.490
Commercial paper	1,893
Amounts due to banks and other financial institutions	658
Other borrowings	2
Total debt	15,043
Long-term debt	12.491
Short-term debt	2,552
Total debt	15,043

Unamortised discount included in the carrying value of bonds and notes at 30 June 2020 was CHF 69 million (30 June 2019: CHF 85 million).

Issuance of bonds and notes - 2020

During the six months ended 30 June 2020 the Group did not issue any bonds or notes.

Issuance of bonds and notes - 2019

During the six months ended 30 June 2019 the Group did not issue any bonds or notes.

Redemption and repurchase of bonds and notes - 2020

During the six months ended 30 June 2020 the Group did not redeem or repurchase any bonds or notes.

Redemption and repurchase of bonds and notes - 2019

During the six months ended 30 June 2019 the Group did not redeem or repurchase any bonds or notes.

Commercial paper

Roche Holdings, Inc. commercial paper program. Roche Holdings, Inc. has an established commercial paper program under which it can issue up to USD 7.5 billion of unsecured commercial paper notes guaranteed by Roche Holding Ltd. The committed credit line that is available as a back-stop supporting the commercial paper program is USD 7.5 billion at 30 June 2020. The maturity of the notes under the program cannot exceed 365 days from the date of issuance. At 30 June 2020 unsecured commercial paper notes with a principal amount of USD 2.0 billion and an average interest rate of 0.15% were outstanding.

Movements in commercial paper obligations in millions of CHF

Six months ended 30 June 2020	
At 1 January 2020	1,406
Net cash proceeds (payments)	521
Currency translation effects	(34)
At 30 June 2020	1,893

12. Equity attributable to Roche shareholders

Share capital and non-voting equity securities (Genussscheine)

The authorised and issued share capital of the Group and the number of issued non-voting equity securities have not changed during the six months ended 30 June 2020. The weighted average number of shares and non-voting equity securities in issue during the six months ended 30 June 2020 was 855 million (six months ended 30 June 2019: 856 million).

Dividends

On 17 March 2020 the shareholders approved the distribution of a dividend of CHF 9.00 per share and non-voting equity security (2019: CHF 8.70) in respect of the 2019 business year. The distribution to holders of outstanding shares and non-voting equity securities totalled CHF 7,700 million (2019: CHF 7,449 million) and has been recorded against retained earnings in the six months ended 30 June 2020.

Own equity instruments

Holdings of own equity instruments in equivalent number of non-voting equity securities

	30 June 2020 (millions)	31 December 2019 (millions)
Shares	0	0
Non-voting equity securities	7.9	6.8
Total	7.9	6.8

Own equity instruments are held for the Group's potential conversion obligations that may arise from the Group's equity compensation plans (described in Note 27 to the Annual Financial Statements).

Retained earnings

In addition to net income attributable to Roche shareholders of CHF 8,079 million (six months ended 30 June 2019: CHF 8,619 million) and the dividend payments described above, retained earnings also include losses on remeasurements of defined benefit plans of CHF 141 million, after tax (six months ended 30 June 2019: losses of CHF 514 million, after tax). These were based on updated actuarial calculations for major plans and the losses were due to changes in discount rates since the end of 2019.

13. Subsidiaries and associates

Chugai

Chugai is a fully consolidated subsidiary of the Group and at 30 June 2020 the Group's interest in Chugai was 61.2% (31 December 2019: 61.2%). The common stock of Chugai is publicly traded and is listed on the Tokyo Stock Exchange under the stock code 'TSE:4519'. On 21 January 2020 Chugai announced a split of its common stock. Effective 1 July 2020 the number of issued shares has increased from 559,685,889 to 1,679,057,667 (three-for-one split). Chugai prepares financial statements in accordance with International Financial Reporting Standards (IFRS) that are filed on a quarterly basis with the Tokyo Stock Exchange.

The dividends distributed to third parties holding Chugai shares during the six months ended 30 June 2020 totalled CHF 174 million (six months ended 30 June 2019: CHF 106 million) and have been recorded against non-controlling interests. Dividends paid by Chugai to Roche are eliminated on consolidation as intercompany items.

14. Earnings per share and non-voting equity security

Basic earnings per share and non-voting equity security

20	2019
79	8,619
60	160
03	703
(8)	(7)
55	856
45	10.07
(8	5

Diluted earnings per share and non-voting equity security

Si	x months ended 30 June
2020	2019
8,079	8,619
(1)	(1)
8,078	8,618
855	856
11	7
866	863
9.32	9.99
	8,079 (1) 8,078 855 11

15. Statement of cash flows

${\color{red} \textbf{Cash generated from operations}} \text{ in millions of CHF} \\$

		Six months ended 30 June	
		2019	
Net income	8,465	8,904	
Add back non-operating (income) expense			
- Financing costs ⁴	286	414	
- Other financial (income) expense 4	171	73	
- Income taxes ⁵	1,716	1,450	
Operating profit	10,638	10,841	
Depreciation of property, plant and equipment ²	1,185	1,164	
Depreciation of right-of-use assets ²	180	170	
Amortisation of intangible assets ²	830	737	
Impairment of goodwill ²	0	0	
Impairment of intangible assets ²	342	324	
Impairment of property, plant and equipment ²	8	33	
Impairment of right-of-use assets ²	8	0	
Operating (income) expense for defined benefit plans	337	312	
Operating expense for equity-settled equity compensation plans	318	253	
Net (income) expense for provisions	2	440	
Bad debt (reversal) expense	4	2	
Inventory write-downs	100	313	
Net (gain) loss on disposal of products	(130)	(436)	
Other adjustments	(15)	(61)	
Cash generated from operations	13,807	14,092	

Dividends paid in millions of CHF

Dividend withholding tax	66	(20)	
Increase (decrease) in dividends payable	2	1	
- Other non-controlling interests	0	0	
- Chugai	(174)	(106)	
Dividends to non-controlling shareholders			
Dividends to Roche Group shareholders	(7,700)	(7,449)	
	Six months ended		

16. Financial risk management

The Group's financial risk management objectives and policies are consistent with those disclosed in Note 31 to the Annual Financial Statements.

Fair value hierarchy

The table below analyses financial instruments carried at fair value, by valuation method. The different levels have been defined as follows:

- Level 1 quoted prices (unadjusted) in active markets for identical assets and liabilities.
- Level 2 observable inputs other than quoted prices in active markets for identical assets and liabilities.
- Level 3 unobservable inputs.

Fair value hierarchy of financial instruments in millions of CHF

	Level 1	Level 2	Level 3	Total
At 30 June 2020				
Marketable securities:				
- Equity securities at fair value through profit or loss	14	-	-	14
- Debt securities at fair value through OCI	707	0	-	707
- Money market instruments at fair value through OCI	-	1,171	-	1,171
Derivative financial instruments	-	216	-	216
Equity investments at fair value through OCI	385	31	-	416
Equity investments at fair value through profit or loss	399	222	-	621
Financial assets recognised at fair value	1,505	1,640	-	3,145
Derivative financial instruments	_	(242)	-	(242)
Contingent consideration	-	-	(208)	(208)
Financial liabilities recognised at fair value	-	(242)	(208)	(450)

At 30 June 2020 Level 1 financial assets consist of treasury bills, bonds and quoted shares. Level 2 financial assets consist primarily of commercial paper, certificates of deposit and derivative financial instruments.

The Group determines Level 2 fair values using the following valuation techniques:

- Marketable securities and derivative financial instruments are based on valuation models that use observable market data for interest rates, yield curves, foreign exchange rates and implied volatilities for similar instruments at the measurement date
- Equity investments at fair value through OCI and at fair value through profit or loss are based on a valuation model that uses the most recently published observable market data.

The Group recognises transfers between levels of the fair value hierarchy as at the end of the reporting period during which the transfer has occurred. There were no significant transfers between Level 1 and Level 2 during the six months ended 30 June 2020.

Level 3 fair values

Details of the determination of Level 3 fair value measurements are set out below.

Contingent consideration arrangements in millions of CHF

Six months ended 30 June 2020	
At 1 January 2020	(205)
Utilised for settlements ⁶	0
Total gains and losses included in the income statement	
- Unused amounts reversed - recorded within general and administration	9
- Additional amounts created - recorded within general and administration	(10)
- Discount unwind included in financing costs	(3)
Total gains and losses included in other comprehensive income	
- Currency translation effects	1
At 30 June 2020	(208)

Contingent consideration arrangements

The Group is party to certain contingent consideration arrangements arising from business combinations and asset acquisitions. The fair values of contingent consideration from business combinations are determined considering the expected payments, discounted to present value using a risk-adjusted average discount rate of 3.1% at 30 June 2020 (31 December 2019: 3.0%). The expected payments are determined by considering the possible scenarios of forecast sales and other performance criteria, the amount to be paid under each scenario, and the probability of each scenario. The significant unobservable inputs are the forecast sales, other performance criteria and the risk-adjusted discount rate. The estimated fair value would increase if the forecast sales or other performance criteria rates were higher or the risk-adjusted discount rate was lower. At 30 June 2020 the total potential payments under contingent consideration arrangements arising from business combinations could be up to CHF 0.5 billion (31 December 2019: CHF 0.5 billion).

Carrying value and fair value

At 30 June 2020 the carrying value of bonds and notes is CHF 12.5 billion compared to a fair value of CHF 14.1 billion and the carrying value of total debt is CHF 15.0 billion compared to a fair value of CHF 16.7 billion. The carrying values of financial assets are a reasonable approximation of the fair values at 30 June 2020.



Independent Auditor's Report on the Review of Interim Consolidated Financial Statements

To the Board of Directors of Roche Holding Ltd, Basel

Introduction

We have been engaged to review the accompanying consolidated balance sheet of Roche Holding Ltd as at 30 June 2020 and the related consolidated statements of income, comprehensive income, cash flows and changes in equity for the six-month period then ended, and selected explanatory notes (the interim consolidated financial statements) on pages 43 to 72. The Board of Directors is responsible for the preparation and presentation of these interim consolidated financial statements in accordance with International Accounting Standard 34 'Interim Financial Reporting'. Our responsibility is to express a conclusion on these interim consolidated financial statements based on our review.

Scope of Review

We conducted our review in accordance with the International Standard on Review Engagements 2410, 'Review of Interim Financial Information Performed by the Independent Auditor of the Entity'. A review of interim financial information consists of making inquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures. A review is substantially less in scope than an audit conducted in accordance with International Standards on Auditing and consequently does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

Conclusion

Based on our review, nothing has come to our attention that causes us to believe that the accompanying interim consolidated financial statements as at 30 June 2020 are not prepared, in all material respects, in accordance with International Accounting Standard 34 'Interim Financial Reporting'.

KPMG AG

Mark Baillache Licensed Audit Expert

Basel, 21 July 2020

Marc Ziegler Licensed Audit Expert

KPMG AG, Viaduktstrasse 42, PO Box 3456, CH-4002 Basel

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Supplementary Information

Alternative Performance Measures

The financial information included in the Financial Review includes certain Alternative Performance Measures (APMs) which are not accounting measures as defined by IFRS, in particular the core results, net working capital, net operating assets, free cash flow and constant exchange rates. These APMs should not be used instead of, or considered as alternatives to, the Group's consolidated interim financial results based on IFRS. These APMs may not be comparable to similarly titled measures disclosed by other companies. All APMs presented in the Financial Review relate to the performance of the current reported period and comparative periods.

Core results

Core results allow for an assessment of both the Group's actual results as defined by IFRS and the underlying performance of the business. The core results concept, which is used in the internal management of the business, is based on the IFRS results, with the following adjustments:

- Global restructuring plans (see Note 7) are excluded.
- · Amortisation and impairment of intangible assets (see Note 9) and impairment of goodwill (see Note 8) are excluded.
- Acquisition accounting and other impacts from the accounting for merger and acquisition transactions and alliance arrangements (see Financial Review) are excluded.
- · Discontinued operations (currently none) are excluded.
- Legal and environmental cases (see Financial Review) are excluded.
- Global issues outside the healthcare sector beyond the Group's control are excluded.
- Material treasury items such as major debt restructurings (currently none) are excluded.
- Pension plan settlements are excluded.
- The tax benefit recorded under IFRS in respect of Equity Compensation Plans (ECPs), which varies according to the price of the underlying equity, is replaced by a normalised tax benefit, being the IFRS 2 expense multiplied by the applicable tax rate (see Note 5).

The core results concept was further described on 22 October 2010 at an Investor Update teleconference, which is available for download at: http://www.roche.com/investors/ir_agenda/csr_151010.htm

The Group's IFRS results, including the divisional breakdown, are reconciled to the core results in the tables below. The calculation of Core EPS is also given in the tables below. Additional commentary to the adjustment items is given in the Financial Review.

Core results reconciliation - Six months ended 30 June 2020 in millions of CHF

					M&A					
			Intan-	Intan-	and		Pension		Normali-	
		Global	gibles	gibles	alliance	Legal &	plan		sation of	
	IEDO	restruc-	amorti-	impair-	trans-	environ-	settle-	Global	ECP tax	0
	IFRS	turing	sation	ment	actions	mental	ments	issues	benefit	Core
Sales	29,281	-	-	-	_	-	-	_	-	29,281
Royalties and other operating										
income	1,097	0	_		_	_	_	_	_	1,097
Cost of sales	(7,785)	45	661	0	-	-	-	_	_	(7,079)
Marketing and distribution	(4,572)	42	15	0	-	-	-	-	-	(4,515)
Research and development	(6,345)	62	154	342	-	-	-	-	-	(5,787)
General and administration	(1,038)	104	-	0	30	(325)	(2)	-	-	(1,231)
Operating profit	10,638	253	830	342	30	(325)	(2)	-	-	11,766
Financing costs	(286)	0	-	-	3	3	-	-	-	(280)
Other financial income (expense)	(171)	-	-	-	-	-	-	-	-	(171)
Profit before taxes	10,181	253	830	342	33	(322)	(2)	-	-	11,315
Income taxes	(1,716)	(47)	(97)	(75)	(6)	72	0	0	(3)	(1,872)
Net income	8,465	206	733	267	27	(250)	(2)	0	(3)	9,443
Attributable to										
- Roche shareholders	8,079	200	731	267	27	(250)	(2)	0	(3)	9,049
- Non-controlling interests	386	6	2	0	-	0	-	-	-	394

Core results reconciliation - Six months ended 30 June 2019 in millions of CHF

-					M&A					
			Intan-	Intan-	and		Pension		Normali-	
		Global	gibles	gibles	alliance	Legal &	plan		sation of	
		restruc-	amorti-	impair-	trans-	environ-	settle-	Global	ECP tax	
	IFRS	turing	sation	ment	actions	mental	ments	issues	benefit	Core
Sales	30,469								_	30,469
Royalties and other operating										
income	1,282	0	-	-	=	=	-	-	-	1,282
Cost of sales	(8,650)	171	611	0	_				_	(7,868)
Marketing and distribution	(4,906)	85	21	0	_				_	(4,800)
Research and development	(6,122)	132	105	324	_				_	(5,561)
General and administration	(1,232)	89	_	0	(84)	68	0			(1,159)
Operating profit	10,841	477	737	324	(84)	68	0	_	_	12,363
Financing costs	(414)	1	-	-	6	4	-	-	_	(403)
Other financial income (expense)	(73)	_	_		_	_				(73)
Profit before taxes	10,354	478	737	324	(78)	72	0	_	_	11,887
Income taxes	(1,450)	(95)	(78)	(37)	(12)	(6)	0	(235)	(78)	(1,991)
Net income	8,904	383	659	287	(90)	66	0	(235)	(78)	9,896
Attributable to										
- Roche shareholders	8,619	369	657	287	(90)	66	0	(235)	(78)	9,595
- Non-controlling interests	285	14	2	0	_	0	_			301

Divisional core results reconciliation - Six months ended 30 June 2020 in millions of CHF

	IFRS	Global restruc- turing	Intangibles amorti- sation	Intangibles impairment	M&A and alliance trans- actions	Legal & environ- mental	Pension plan settlements	Core
Pharmaceuticals								
Sales	23,202	-	-	-	-	-	-	23,202
Royalties and other operating income	1,070	-	-	-	-	-	-	1,070
Cost of sales	(4,800)	12	613	0	-	-	-	(4,175)
Marketing and distribution	(3,305)	27	12	0	-	-	-	(3,266)
Research and development	(5,605)	36	150	342	-	-	-	(5,077)
General and administration	(535)	53	-	0	28	(337)	(2)	(793)
Operating profit	10,027	128	775	342	28	(337)	(2)	10,961
Diagnostics								
Sales	6,079	_	_	_	_		_	6,079
Royalties and other operating income	27	_	_	_	_	_	_	27
Cost of sales	(2,985)	33	48	0	-	_	-	(2,904)
Marketing and distribution	(1,267)	15	3	0	-	_	_	(1,249)
Research and development	(740)	26	4	0	_	_	_	(710)
General and administration	(249)	8	-	0	2	18	0	(221)
Operating profit	865	82	55	0	2	18	0	1,022
Corporate								
General and administration	(254)	43	-	-	0	(6)	0	(217)
Operating profit	(254)	43	-	-	0	(6)	0	(217)

Divisional core results reconciliation - Six months ended 30 June 2019 in millions of CHF

	IFRS	Global restruc- turing	Intangibles amorti- sation	Intangibles impairment	M&A and alliance trans- actions	Legal & environ- mental	Pension plan settlements	Core
Pharmaceuticals								
Sales	24,194							24,194
Royalties and other operating income	1,249	0						1,249
Cost of sales	(5,597)	103	555	0	-		-	(4,939)
Marketing and distribution	(3,464)	52	17	0	-	=		(3,395)
Research and development	(5,372)	73	102	324	-			(4,873)
General and administration	(842)	19	_	0	40	47	0	(736)
Operating profit	10,168	247	674	324	40	47	0	11,500
Diagnostics								
Sales	6,275							6,275
Royalties and other operating income	33	0						33
Cost of sales	(3,053)	68	56	0	-		-	(2,929)
Marketing and distribution	(1,442)	33	4	0	-		-	(1,405)
Research and development	(750)	59	3	0	-	=		(688)
General and administration	(104)	(5)	_	0	(124)	11	0	(222)
Operating profit	959	155	63	0	(124)	11	0	1,064
Corporate								
General and administration	(286)	75	_	_	0	10	0	(201)
Operating profit	(286)	75	_		0	10	0	(201)

Core EPS (basic)

	S	ix months ended 30 June
	2020	2019
Core net income attributable to Roche shareholders (CHF millions)	9,049	9,595
Weighted average number of shares and non-voting equity securities in issue		
used to calculate basic earnings per share (millions) 14	855	856
Core earnings per share (basic) (CHF)	10.58	11.21

Core EPS (diluted)

	S	ix months ended 30 June
	2020	2019
Core net income attributable to Roche shareholders (CHF millions)	9,049	9,595
Increase in non-controlling interests' share of core net income, assuming all outstanding		
Chugai stock options exercised (CHF millions)	(1)	(1)
Net income used to calculate diluted earnings per share (CHF millions)	9,048	9,594
Weighted average number of shares and non-voting equity securities in issue		
used to calculate diluted earnings per share (millions) 14	866	863
Core earnings per share (diluted) (CHF)	10.44	11.12

Free cash flow

Free cash flow is used to assess the Group's ability to generate the cash required to conduct and maintain its operations. It also indicates the Group's ability to generate cash to finance dividend payments, repay debt and to undertake merger and acquisition activities. The free cash flow concept is used in the internal management of the business.

Operating free cash flow is calculated based on the IFRS operating profit and adjusted for certain cash items, movements in net working capital and capital expenditures (investments in property, plant and equipment and intangible assets as well as the principal portion of lease liabilities paid for leased assets). Operating free cash flow is different from cash flows from operating activities as defined by IAS 7 in that it includes capital expenditures (which is within the responsibility of divisional management) and excludes income taxes paid (which is not within the responsibility of divisional management). Cash outflows from defined benefit plans are allocated to the operating free cash flow based on the current service cost with the residual allocated to treasury activities.

Free cash flow is calculated as the operating free cash flow adjusted for treasury activities and taxes paid. Free cash flow is different from total cash flows as defined by IAS 7 in that it excludes dividend payments, cash inflows/outflows from financing activities such as issuance/repayment of debt, purchase/sale of marketable securities and cash inflows/outflows from mergers, acquisitions and divestments.

Operating free cash flow and free cash flow are calculated as shown in the tables below. Additional commentary to the adjustment items is given in the Financial Review.

Operating free cash flow reconciliation in millions of CHF $\,$

	Si	x months ended 30 June
	2020	2019
Cash flows from operating activities (IFRS basis in accordance with IAS 7)	7,062	8,115
Add back		
- Income taxes paid	1,269	1,911
Deduct		
- Investments in property, plant and equipment	(1,614)	(1,508)
- Principal portion of lease liabilities paid	(183)	(178)
- Investments in intangible assets	(1,524)	(914)
- Disposal of property, plant and equipment	34	33
- Disposal of intangible assets	0	0
Pensions and other post-employment benefits		
- Add back total payments for defined benefit plans	284	294
- Deduct allocation of payments to operating free cash flow	(339)	(298)
Acquisition-related items, including transaction costs	47	53
Other operating items	0	0
Operating free cash flow	5,036	7,508

Free cash flow reconciliation in millions of CHF

	Six	months ended 30 June
	2020	2019
Cash flows from operating activities (IFRS basis in accordance with IAS 7)	7,062	8,115
Deduct		
- Investments in property, plant and equipment	(1,614)	(1,508)
- Principal portion of lease liabilities paid	(183)	(178)
- Investments in intangible assets	(1,524)	(914)
- Disposal of property, plant and equipment	34	33
- Disposal of intangible assets	0	0
- Interest paid	(264)	(358)
Other operating items, including acquisition-related items	47	53
Other treasury items	(284)	34
Free cash flow	3,274	5,277

Supplementary information used to calculate the divisional operating free cash flow is shown in the table below.

Divisional operating free cash flow information in millions of $\ensuremath{\mathsf{CHF}}$

	Phai	rmaceuticals		Diagnostics		Corporate		Group
Six months ended 30 June	2020	2019	2020	2019	2020	2019	2020	2019
Depreciation, amortisation and								
impairments								
Depreciation of property, plant and								
equipment	621	580	536	549	28	35	1,185	1,164
Depreciation of right-of-use assets	119	111	56	54	5	5	180	170
Amortisation of intangible assets	775	674	55	63	-		830	737
Impairment of property, plant and								
equipment	8	27	0	6	0	0	8	33
Impairment of right-of-use assets	0	0	8	0	0	0	8	0
Impairment of goodwill	0	0	0	0	-		0	0
Impairment of intangible assets	342	324	0	0	-	-	342	324
Total	1,865	1,716	655	672	33	40	2,553	2,428
Other adjustments								
Add back								
 Expenses for equity-settled equity 								
compensation plans	253	199	42	37	23	17	318	253
 Net (income) expense for provisions 	(100)	411	97	(2)	5	31	2	440
 Net (gain) loss from disposals 	(124)	(431)	(3)	(27)	-	_	(127)	(458)
 Non-cash working capital and 								
other items	24	238	63	55	1	(3)	88	290
Deduct								
- Utilisation of provisions	(318)	(271)	(116)	(135)	(28)	(26)	(462)	(432)
- Proceeds from disposals	133	439	31	30	-	_	164	469
Total	(132)	585	114	(42)	1	19	(17)	562
Operating profit cash adjustments	1,733	2,301	769	630	34	59	2,536	2,990

EBITDA

The Group does not use Earnings Before Interest, Tax, Depreciation and Amortisation (EBITDA) in either its internal management reporting or its external communications. In the opinion of the Group's management, operating free cash flow gives a more useful and consistent measurement of 'cash earnings' than EBITDA, which includes many non-cash items such as provisions, allowances for trade receivables and inventories, and certain non-cash entries arising from acquisition accounting and pension accounting. Operating free cash flow also includes the cash used for investments in property, plant and equipment, leased assets and intangible assets, whereas EBITDA excludes all costs and cash outflows for these items.

For the convenience of those readers who do use EBITDA, this is provided in the table below. As the starting point this uses the core results, which already exclude the amortisation and impairment of goodwill and intangible assets.

EBITDA (using core results) in millions of CHF

Phai	rmaceuticals	S Diagnostics Corporate				Group	
2020	2019	2020	2019	2020	2019	2020	2019
10,961	11,500	1,022	1,064	(217)	(201)	11,766	12,363
609	587	527	544	28	35	1,164	1,166
118	111	56	54	5	5	179	170
11,688	12,198	1,605	1,662	(184)	(161)	13,109	13,699
50.4	50.4	26.4	26.5	-		44.8	45.0
	10,961 609 118 11,688	10,961 11,500 609 587 118 111 11,688 12,198	2020 2019 2020 10,961 11,500 1,022 609 587 527 118 111 56 11,688 12,198 1,605	2020 2019 2020 2019 10,961 11,500 1,022 1,064 609 587 527 544 118 111 56 54 11,688 12,198 1,605 1,662	2020 2019 2020 2019 2020 10,961 11,500 1,022 1,064 (217) 609 587 527 544 28 118 111 56 54 5 11,688 12,198 1,605 1,662 (184)	2020 2019 2020 2019 2020 2019 10,961 11,500 1,022 1,064 (217) (201) 609 587 527 544 28 35 118 111 56 54 5 5 11,688 12,198 1,605 1,662 (184) (161)	2020 2019 2020 2019 <td< td=""></td<>

Net operating assets

Net operating assets allow for an assessment of the Group's operating performance of the business independently from financing and tax activities. Net operating assets are calculated as property, plant and equipment, leased assets ('right-of-use assets'), goodwill, intangible assets, net working capital and long-term net operating assets minus provisions.

The calculation of the net operating assets disclosed in Note 2 is shown in the table below.

Net operating assets reconciliation - 30 June 2020 in millions of CHF

				Treasury and	
	Pharmaceuticals	Diagnostics	Corporate	taxation	Group
Property, plant and equipment	15,406	6,401	259	-	22,066
Right-of-use assets	880	266	35	-	1,181
Goodwill	5,988	4,121	-	-	10,109
Intangible assets	10,353	1,041	-	-	11,394
Inventories	4,001	2,786	-	-	6,787
Provisions	(2,644)	(927)	(267)	-	(3,838)
Current income tax net liabilities	-	-	-	(4,049)	(4,049)
Deferred tax net assets	-	-	-	4,768	4,768
Defined benefit plan net liabilities	-	-	-	(6,712)	(6,712)
Lease liabilities	-	-	-	(1,267)	(1,267)
Marketable securities	-	-	-	2,482	2,482
Cash and cash equivalents	=	-	-	3,770	3,770
Debt	-	-	-	(15,043)	(15,043)
Other net assets (liabilities)					
Net working capital	1,121	819	(132)	_	1,808
- Other long-term net operating assets	424	37	9	_	470
- Other	-	-	-	889	889
Total net assets	35,529	14,544	(96)	(15,162)	34,815

Net debt

Net debt is used to monitor the Group's overall short- and long-term liquidity. Net debt is calculated as the sum of total debt (long-term and short-term) less marketable securities, cash and cash equivalents.

Net debt calculations, including details of movements during the current reported period, are shown in the table on page 38 in the Financial Review.

Net working capital

Net working capital is used to assess the Group's efficiency in utilising assets and short-term liquidity. Net trade working capital is calculated as trade receivables and inventories minus trade payables. Net working capital is calculated as net trade working capital adjusted for other receivables and other payables.

Net working capital and net trade working capital calculations are shown in the tables on page 26 (Pharmaceuticals Division), page 31 (Diagnostics Division) and page 33 (Corporate) in the Financial Review.

Constant exchange rates

Certain percentage changes in the Financial Review have been calculated using constant exchange rates (CER) which allow for an assessment of the Group's financial performance with the effects of exchange rate fluctuations eliminated. The percentage changes at constant exchange rates are calculated using simulations by reconsolidating both the current reported period and the prior period numbers at constant currency exchange rates, equalling the average exchange rates for the prior year. For example, a CER change between a 2020 line item and its 2019 equivalent is calculated using the average exchange rate for the year ended 31 December 2019 for both the 2020 line item and the 2019 line item and subsequently calculating the change in percent with respect to the two recalculated numbers.

Foreign exchange gains and losses are excluded from the calculation of CER growth rates in the earning per share calculations. In countries where there is a significant devaluation in the local currency in the current reported period, the simulations use the average exchange rate of the current reported period instead of the prior period to avoid that CER growth rates are artificially inflated.

Roche Securities

Number of shares and non-voting equity securities a)

Total in issue	854,641,595	855,756,455
Number of own shares and non-voting equity securities (Genussscheine) held	(7,921,105)	(6,806,245)
Total	862,562,700	862,562,700
Number of non-voting equity securities (Genussscheine) (no nominal value)	702,562,700	702,562,700
Number of shares (nominal value: CHF 1.00)	160,000,000	160,000,000
	30 June 2020	31 December 2019

Data per share and non-voting equity security in CHF

		Si	Six months ended 30 June	
		2020	2019	
Earnings (basic)		9.45	10.07	
Earnings (diluted)		9.32	9.99	
Core earnings (basic)		10.58	11.21	
Core earnings (diluted)		10.44	11.12	
Stock price of share ^{b)}	Opening	307.60	239.40	
	High	352.20	280.60	
	Low	267.40	239.40	
	Period end	325.00	273.60	
Stock price of non-voting equity security (Genussscheine) ^{b)}	Opening	314.00	243.40	
	High	354.05	280.65	
	Low	274.45	243.40	
	Period end	328.35	274.65	

Market capitalisation in millions of CHF

	30 June 2020	31 December 2019	30 June 2019
Period end	280,086	267,684	234,949

a) Each non-voting equity security (Genussschein) confers the same rights as any of the shares to participate in the available earnings and any remaining proceeds a) Lactified equity security (Genussschein) confers the same rights as any of the shares to participate in the available earnings and any remaining proceeds from liquidation following repayment of the nominal value of the shares and the participation certificate capital (if any). Shares and non-voting equity securities are listed on the SIX Swiss Exchange. Roche Holding Ltd has no restrictions as to ownership of its shares or non-voting equity securities.

b) All stock price data reflect daily closing prices.

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Cautionary statement regarding forward-looking statements

This Half-Year Report contains certain forward-looking statements. These forward-looking statements may be identified by words such as 'believes', 'expects', 'anticipates', 'projects', 'intends', 'should', 'seeks', 'estimates', 'future' or similar expressions or by discussion of, among other things, strategy, goals, plans or intentions. Various factors may cause actual results to differ materially in the future from those reflected in forward-looking statements contained in this Report, among others: (1) pricing and product initiatives of competitors; (2) legislative and regulatory developments and economic conditions; (3) delay or inability in obtaining regulatory approvals or bringing products to market; (4) fluctuations in currency exchange rates and general financial market conditions; (5) uncertainties in the discovery, development or marketing of new products or new uses of existing products, including without limitation negative results of clinical trials or research projects, unexpected side effects of pipeline or marketed products; (6) increased government pricing pressures; (7) interruptions in production; (8) loss of or inability to obtain adequate protection for intellectual property rights; (9) litigation; (10) loss of key executives or other employees; and (11) adverse publicity and news coverage.

The statement regarding earnings per share growth is not a profit forecast and should not be interpreted to mean that Roche's earnings or earnings per share for 2020 or any subsequent period will necessarily match or exceed the historical published earnings or earnings per share of Roche.

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