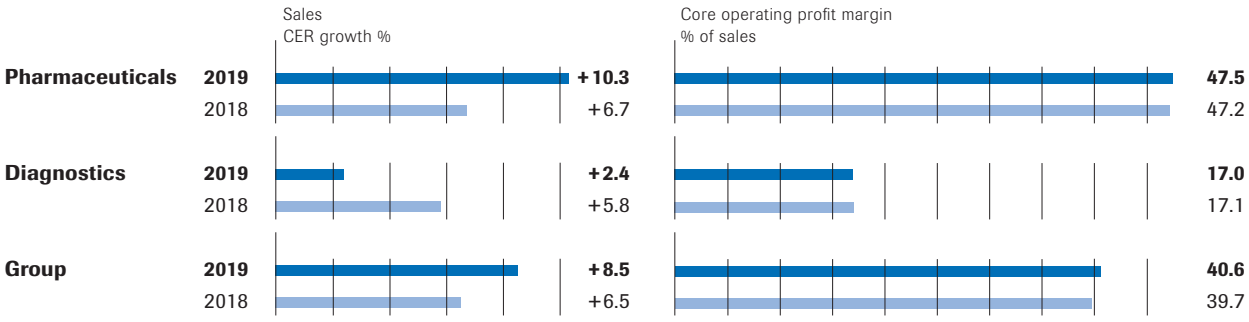
Half-Year Report *2019*

Finance in brief

Key interim results



	Six months ended 30 June 2019 (CHF m)	2018 (CHF m)	% change (CHF)	% change (CER)	% of sales (2019)	% of sales (2018)
IFRS results						
Sales	30,469	28,111	+8	+9		
Operating profit	10,841	9,812	+10	+11	35.6	34.9
Net income	8,904	7,516	+18	+19	29.2	26.7
Net income attributable to Roche shareholders	8,619	7,309	+18	+19	28.3	26.0
Diluted EPS (CHF)	9.99	8.51	+17	+18		
Core results						
Research and development	5,561	5,313	+5	+4	18.3	18.9
Core operating profit	12,363	11,162	+11	+11	40.6	39.7
Core EPS (CHF)	11.12	9.84	+13	+13		
Free cash flow						
Operating free cash flow	7,508	8,042	–7	–9	24.6	28.6
Free cash flow	5,277	5,966	–12	–13	17.3	21.2

	30 June 2019 (CHF m)	31 December 2018 (CHF m)	% change (CHF)	% change (CER)
Net debt	(8,399)	(5,652)	+49	+52
Capitalisation	50,587	49,136	+3	+3
– Debt	19,571	18,770	+4	+5
– Equity	31,016	30,366	+2	+2

CER (Constant Exchange Rates): The percentage changes at Constant Exchange Rates are calculated using simulations by reconsolidating both the 2019 and 2018 results at constant exchange rates (the average rates for the year ended 31 December 2018). For the definition of CER see page 77.

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 70–73 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 73–75 and reconciliations between the IFRS cash flow and free cash flow are given there.

Contents

Finance in brief 2

Financial Review 4

Roche Group Interim Consolidated Financial Statements 39

Notes to the Roche Group Interim Consolidated Financial Statements 45

1. Accounting policies 45
2. Operating segment information 48
3. Revenue 51
4. Net financial expense 52
5. Income taxes 54
6. Mergers and acquisitions 54
7. Global restructuring plans 56
8. Goodwill 59
9. Intangible assets 59
10. Provisions and contingent liabilities 61
11. Debt 62
12. Equity attributable to Roche shareholders 64
13. Subsidiaries and associates 64
14. Earnings per share and non-voting equity security 65
15. Statement of cash flows 66
16. Financial risk management 67

Independent Auditor's Report on the Review of Interim Consolidated Financial Statements 69

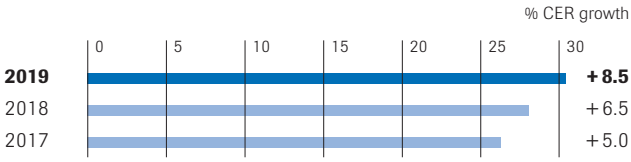
Supplementary Information 70

Roche Securities 78

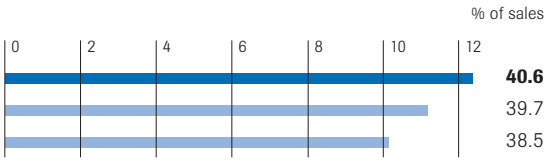
Financial Review

Group results

Sales in billions of CHF

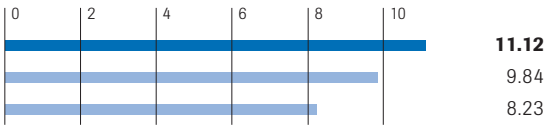


Core operating profit in billions of CHF



Net income attributable to Roche shareholders in billions of CHF

Core EPS in CHF



In the first half of 2019 the Roche Group reported sales growth of 9% at constant exchange rates (CER) and core operating profit growth of 11%. This business growth led to an increase in IFRS net income of 19% and increase in Core EPS of 13%. The sales growth continued to be driven by the Pharmaceuticals Division's new medicines, which more than compensated for the biosimilar competition in Europe and Japan. The Group improved its operating profitability, while continuing its investments in research and development and supporting the launch of new products. Operating free cash flow was CHF 7.5 billion, a decrease of 9%, due to higher net working capital and higher investments in intangible assets.

Divisional operating results for the six months ended 30 June 2019

	Pharmaceuticals (CHF m)	Diagnostics (CHF m)	Corporate (CHF m)	Group (CHF m)
Sales	24,194	6,275	–	30,469
Core operating profit	11,500	1,064	(201)	12,363
– margin, % of sales	47.5	17.0	–	40.6
Operating profit	10,168	959	(286)	10,841
– margin, % of sales	42.0	15.3	–	35.6
Operating free cash flow	8,191	(380)	(303)	7,508
– margin, % of sales	33.9	(6.1)	–	24.6

Divisional operating results – Development of results compared to the six months ended 30 June 2018

	Pharmaceuticals	Diagnostics	Corporate	Group
Sales				
– % increase at CER	+10	+2	–	+9
Core operating profit				
– % increase at CER	+11	+4	–2	+11
– margin: percentage point change	+0.5	+0.3	–	+0.9
Operating profit				
– % increase at CER	+9	+22	–11	+11
– margin: percentage point change	–0.5	+2.5	–	+0.7
Operating free cash flow				
– % increase at CER	+1	–	+6	–9
– margin: percentage point change	–3.0	–	–	–4.6

In the first half of 2019 sales in the Pharmaceuticals Division were CHF 24.2 billion (2018: CHF 21.8 billion). New products were the major growth driver, with Ocrevus, Hemlibra, Tecentriq and Perjeta together contributing an additional CHF 2.0 billion (CER) of new sales. Sales in China were 58% higher at CHF 1.6 billion, with broader market penetration. Ocrevus sales were 63% higher at CHF 1.7 billion, led by the US. The launch and rollouts of Hemlibra continued with sales reaching CHF 0.5 billion. Tecentriq sales grew in all regions, mostly due to higher demand in the US and new launches. Perjeta sales were CHF 1.8 billion, an increase of 34%, with growth across all regions. New product sales more than compensated for the impact of biosimilar entry in Europe and Japan, where sales of MabThera/Rituxan and Herceptin fell by CHF 0.7 billion (CER) during the first half of 2019. In the US, the first biosimilar versions of MabThera/Rituxan, Herceptin and Avastin are anticipated to come to market in the second half of 2019. Avastin sales were 7% higher mainly due to growth in the US and China. The Diagnostics Division reported sales of CHF 6.3 billion, an increase of 2% at CER. The major growth area was Centralised and Point of Care Solutions, which represented more than half of the division's sales and which grew by 3%, led by a 7% growth in the immunodiagnostics business. Molecular Diagnostics sales increased by 6%, with growth in the underlying molecular business. Diabetes Care sales increased by 1% driven by North America, with continued unfavourable market dynamics in Europe.

The Pharmaceuticals Division's core operating profit increased by 11% at CER, slightly ahead of the sales increase. Royalty and other operating income decreased by CHF 0.1 billion following the expiry of the Cabilly patent at the end of 2018, partially offset by product disposal gains. Cost of sales increased by 10%, in line with the sales growth, with increased royalty expenses being partly offset by a favourable product mix. Marketing and distribution grew by 8% due to increased spending on product launches and rollouts including Tecentriq, Ocrevus and Xofluza. Research and development costs grew by 5%, with oncology, neuroscience and immunology representing significant areas of spending.

In the Diagnostics Division core operating profit increased by 4% at CER, ahead of sales growth, supported by lower operational expenditure. Cost of sales grew by 5% due to increased sales volumes, higher costs from external suppliers as well as increased costs for technical services. Research and development decreased by 4% due to lower spending in development projects, notably in Molecular Diagnostics and Diabetes Care.

The IFRS operating profit increased by 9% (CER) in the Pharmaceuticals Division and by 22% (CER) in the Diagnostics Division, with the Diagnostics Division's results being impacted by the release of contingent consideration provisions. The 2019 interim results include CHF 1.1 billion for the amortisation and impairment of intangible assets and CHF 0.5 billion of expenses from global restructuring plans.

Operating free cash flow was CHF 7.5 billion, a decrease of 9% at CER, due to higher net working capital and higher investments in intangible assets partly offset by the higher cash generation of the pharmaceuticals business. The free cash flow was CHF 5.3 billion, a decrease of CHF 0.7 billion, due to the lower operating free cash flow, higher net cash outflows from treasury activities and higher tax payments.

Financing costs were 7% (CER) higher on an IFRS basis at CHF 0.4 billion due to US interest rates being higher than in the comparative period. Other financial income was lower due to a fall in the value of some of the Group's investments and the base effect of gains on disposal of investments in 2018. Income tax expenses were lower, with the Group's effective core tax rate at 16.7% compared to 20.1% in the first half of 2018. This was mainly due to the impacts from the resolution of several tax disputes which had an impact of 2.0 percentage points on the effective core tax rate. The negative impact of the fall in investment income and the positive impact of the settlement of tax disputes were largely offsetting in the Group's core net income. The implementation of the Swiss tax reform in the first half of 2019 had a non-core transitional impact on the Group's deferred tax positions of CHF 0.2 billion which has no impact on tax payments.

Net income increased by 19% at CER on an IFRS basis to CHF 8.9 billion and by 14% on a core basis to CHF 9.9 billion, driven in both cases by the operating results and lower income tax expenses. The IFRS net income was additionally affected by the positive transition impact of the Swiss tax reform.

The results expressed in Swiss francs were negatively impacted by the stronger Swiss franc against Latin American currencies and the euro, partly offset by the appreciation of the US dollar against the Swiss franc. The net impact on the results expressed in Swiss francs compared to constant exchange rates was negligible on sales, core operating profit and Core EPS.

Income statement

	Six months ended 30 June 2019 (CHF m)	2018 (CHF m)	% change (CHF)	% change (CER)
IFRS results				
Sales	30,469	28,111	+8	+9
Royalties and other operating income	1,282	1,416	–9	–11
Revenue	**31,751**	**29,527**	**+8**	**+8**
Cost of sales	(8,650)	(8,046)	+8	+8
Marketing and distribution	(4,906)	(4,600)	+7	+7
Research and development	(6,122)	(5,612)	+9	+8
General and administration	(1,232)	(1,457)	–15	–15
Operating profit	**10,841**	**9,812**	**+10**	**+11**
Financing costs	(414)	(383)	+8	+7
Other financial income (expense)	(73)	65	–	–
Profit before taxes	**10,354**	**9,494**	**+9**	**+9**
Income taxes	(1,450)	(1,978)	–27	–27
Net income	**8,904**	**7,516**	**+18**	**+19**
Attributable to				
– Roche shareholders	8,619	7,309	+18	+19
– Non-controlling interests	285	207	+38	+36
EPS – Basic (CHF)	10.07	8.56	+18	+18
EPS – Diluted (CHF)	9.99	8.51	+17	+18
Core results [1]				
Sales	30,469	28,111	+8	+9
Royalties and other operating income	1,282	1,414	–9	–11
Revenue	**31,751**	**29,525**	**+8**	**+8**
Cost of sales	(7,868)	(7,322)	+7	+8
Marketing and distribution	(4,800)	(4,551)	+5	+6
Research and development	(5,561)	(5,313)	+5	+4
General and administration	(1,159)	(1,177)	–2	–1
Operating profit	**12,363**	**11,162**	**+11**	**+11**
Financing costs	(403)	(369)	+9	+8
Other financial income (expense)	(73)	65	–	–
Profit before taxes	**11,887**	**10,858**	**+9**	**+10**
Income taxes	(1,991)	(2,179)	–9	–9
Net income	**9,896**	**8,679**	**+14**	**+14**
Attributable to				
– Roche shareholders	9,595	8,451	+14	+14
– Non-controlling interests	301	228	+32	+30
Core EPS – Basic (CHF)	11.21	9.89	+13	+13
Core EPS – Diluted (CHF)	11.12	9.84	+13	+13

1) See pages 70–73 for definition of core results and Core EPS.

Leases

Effective 1 January 2019 the Group has implemented IFRS 16 'Leases'. IFRS 16 replaces existing leases guidance, including IAS 17 'Leases'. The Group applied the cumulative catch-up method option for the transition, meaning that the comparative 2018 results have not been restated. Further details are given in Note 1 to the Interim Financial Statements.

The main impact of the new standard is to bring operating leases onto the balance sheet. The new standard results in the carrying value of leased assets ('right-of-use assets') being increased by CHF 1.2 billion as of 1 January 2019, with lease liabilities increased by a similar amount. These leases represent primarily office facilities and motor vehicles. The application of the new standard results in part of what has been previously reported as operating lease costs being recorded as interest expenses. Given the leases involved and the prevailing low interest rate environment the Group does not currently expect this effect to be material, with the amount in the interim period of 2019 being CHF 8 million.

The application of the new standard does not materially impact the Group's Alternative Performance Measures. There are classification changes within Core EPS and operating free cash flow, but the totals are largely unaffected, while the Group's definition of net debt does not include lease liabilities. The new standard does have an impact on EBITDA. Further details are given on pages 70 to 77.

Mergers and acquisitions

There were no business combinations or asset acquisitions in the first half of 2019.

Spark Therapeutics. On 25 February 2019 the Group announced that it had entered into a definitive merger agreement to fully acquire Spark Therapeutics, Inc. ('Spark Therapeutics') at a price of USD 114.50 per share in an all-cash transaction. This corresponds to a total transaction value of approximately USD 4.3 billion on a fully diluted basis. The closing of the tender offer is subject to a majority of Spark Therapeutics' outstanding shares being tendered in the tender offer. In addition, the transaction is subject to the expiration or termination of the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976 and other customary closing conditions. Regulatory review of the transaction is ongoing, and the parties are actively working with the US and UK authorities to facilitate that process. The closing of the transaction is currently expected to take place in 2019.

During the first half of 2019 there was CHF 135 million of non-core income from the reversal of contingent consideration provisions.

Further details are given in Notes 6, 10 and 16 to the Interim Financial Statements.

Global restructuring plans

During the first half of 2019 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 2019 in millions of CHF

	Diagnostics[1]	Site consolidation[2]	Other plans[3]	Total
Global restructuring costs				
– Employee-related costs	93	69	155	317
– Site closure costs	15	33	3	51
– Divestments of products and businesses	(16)	0	0	(16)
– Other reorganisation expenses	63	7	55	125
Total global restructuring costs	**155**	**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**

1) Includes strategy plans in the Diagnostics Division.
2) Includes the Pharmaceuticals Division's strategic realignment of its manufacturing network and resourcing flexibility in biologics manufacturing network.
3) Includes plans for outsourcing of IT and other functions to shared service centres and external providers.

Diagnostics Division. Strategy plans in the Diagnostics Division incurred costs of CHF 88 million mainly for employee-related costs. IT process optimisation plans incurred costs of CHF 46 million.

Site consolidation. Costs for the resourcing flexibility plan in the biologics manufacturing network were CHF 72 million which included the closure of the manufacturing plant in Rio de Janeiro in Brazil. The expected costs of the environmental remediation at the Clarecastle site were reassessed and resulted in an increase in the provisions by CHF 44 million.

Other global restructuring plans. The major items were CHF 46 million of employee-related costs at Chugai and CHF 42 million for plans for the outsourcing of IT and other functions to shared service centres and external providers. Other plans include the resourcing flexibility plans in the Pharmaceuticals Division, with costs of CHF 44 million.

Impairment of goodwill and intangible assets

There were intangible asset impairment charges of CHF 324 million in the Pharmaceuticals Division coming from the full impairment of four different compounds due to either clinical data assessments or from decisions to stop the development of the respective compounds. There were no impairments in the Diagnostics Division. Further details are given in Note 9 to the Interim Financial Statements.

Legal and environmental cases

The legal and environmental cases include an increase in provisions of CHF 54 million for environmental matters mainly at Clarecastle. There were no other significant developments in the first half of 2019. Further details are given in Note 10 to the Interim Financial Statements.

Net income and earnings per share

IFRS net income increased by 18% in CHF terms and by 19% at CER while Core EPS increased by 13% at CER (13% 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.

Net income

	Six months ended 30 June 2019 (CHF m)	2018 (CHF m)	% change (CHF)	% change (CER)
IFRS net income	**8,904**	**7,516**	**+18**	**+19**
Reconciling items (net of tax)				
– Global restructuring	383	355	+8	+8
– Intangible asset amortisation	659	522	+26	+24
– Goodwill and intangible asset impairment	287	234	+23	+21
– Mergers and acquisitions and alliance transactions	(90)	(45)	+100	+97
– Legal and environmental cases	66	61	+8	+9
– Transitional effect of Swiss tax reform	(235)	0	–	–
– Normalisation of equity compensation plan tax benefit	(78)	36	–	–
Core net income	**9,896**	**8,679**	**+14**	**+14**

Supplementary net income and EPS information is given on pages 70 to 73. This includes calculations of Core EPS and reconciles the core results to the Group's published IFRS results.

Financial position

Financial position

	30 June 2019 (CHF m)	31 December 2018 (CHF m)	% change (CHF)	% change (CER)
Pharmaceuticals				
Net working capital	4,841	2,472	+96	+95
Long-term net operating assets	25,754	25,215	+2	+3
Diagnostics				
Net working capital	3,621	2,697	+34	+35
Long-term net operating assets	12,264	11,625	+5	+6
Corporate				
Net working capital	(159)	(214)	–26	–26
Long-term net operating assets	(24)	(44)	–45	–38
Net operating assets	**46,297**	**41,751**	**+11**	**+12**
Net debt	(8,399)	(5,652)	+49	+52
Pensions	(6,810)	(6,140)	+11	+12
Lease liabilities	(1,156)	–	–	–
Income taxes	612	(89)	–	–
Other non-operating assets, net	472	496	–5	–5
Total net assets	**31,016**	**30,366**	**+2**	**+2**

Compared to the start of the year the Swiss franc appreciated against the euro and the US dollar, but depreciated against the Japanese yen. This had a negative translation impact on the net operating assets, 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 30.

Net working capital increased significantly in both divisions. In the Pharmaceuticals Division trade receivables were higher due to the underlying sales growth and due to growth in certain products with extended payment terms in the US, in particular for MabThera/Rituxan and Ocrevus. In the Diagnostics Division inventories increased due to expected demand in emerging markets, especially in the Asia-Pacific region, driving higher purchase of instruments. There was also a decrease in trade payables. In both divisions the net liability for other receivables/payables decreased due to the settlement of year-end positions.

The increase in net debt was due to dividend payments of CHF 7.6 billion, partly offset by the free cash flow of CHF 5.3 billion. The net pension liability was 12% higher at CHF 6.8 billion following decreases in discount rates. The net tax assets increased mainly due to the deferred tax effects of the Swiss tax reform, the change in net pension liabilities and the equity compensation plans that are variable according to the price of the underlying equity. Lease liabilities of CHF 1.2 billion were a result of the accounting changes in IFRS 16 that brought operating leases onto the balance sheet effective 1 January 2019.

Free cash flow

Free cash flow

	Six months ended 30 June			
	2019 (CHF m)	2018 (CHF m)	% change (CHF)	% change (CER)
Pharmaceuticals	8,191	7,900	+4	+1
Diagnostics	(380)	429	–	–
Corporate	(303)	(287)	+6	+6
Operating free cash flow	**7,508**	**8,042**	**–7**	**–9**
Treasury activities	(320)	(228)	+40	+34
Taxes paid	(1,911)	(1,848)	+3	+2
Free cash flow	**5,277**	**5,966**	**–12**	**–13**

See pages 73–75 for definition of free cash flow.

The Group's operating free cash flow for the first six months of 2019 was CHF 7.5 billion, a decrease of 9% at CER. This was due to higher net working capital, notably higher receivables, and higher investments in intangible assets partly offset by the high cash generation of the pharmaceuticals business. The free cash flow in the first half of 2019 was CHF 5.3 billion, a decrease of 13% compared to the first half of 2018. This was due to the lower operating free cash flow, higher net cash outflows from treasury activities, as the proceeds from sales of equity securities in the first half of 2018 were not repeated in 2019, and higher tax payments.

Pharmaceuticals operating results

Pharmaceuticals Division interim operating results

	2019 (CHF m)	2018 (CHF m)	% change (CHF)	% change (CER)
IFRS results				
Sales	24,194	21,847	+11	+10
Royalties and other operating income	1,249	1,375	–9	–11
Revenue	**25,443**	**23,222**	**+10**	**+9**
Cost of sales	(5,597)	(5,061)	+11	+10
Marketing and distribution	(3,464)	(3,154)	+10	+9
Research and development	(5,372)	(4,862)	+10	+9
General and administration	(842)	(835)	+1	0
Operating profit	**10,168**	**9,310**	**+9**	**+9**
– margin, % of sales	42.0	42.6	–0.6	–0.5
Core results[1]				
Sales	24,194	21,847	+11	+10
Royalties and other operating income	1,249	1,375	–9	–11
Revenue	**25,443**	**23,222**	**+10**	**+9**
Cost of sales	(4,939)	(4,476)	+10	+10
Marketing and distribution	(3,395)	(3,122)	+9	+8
Research and development	(4,873)	(4,598)	+6	+5
General and administration	(736)	(725)	+2	0
Core operating profit	**11,500**	**10,301**	**+12**	**+11**
– margin, % of sales	47.5	47.2	+0.3	+0.5
Financial position				
Net working capital	4,841	2,472	+96	+95
Long-term net operating assets	25,754	25,215	+2	+3
Net operating assets	**30,595**	**27,687**	**+11**	**+11**
Free cash flow[2]				
Operating free cash flow	8,191	7,900	+4	+1
– margin, % of sales	33.9	36.2	–2.3	–3.0

1) See pages 70–73 for definition of core results.
2) See pages 73–75 for definition of free cash flow.

Sales overview

Pharmaceuticals Division – Interim sales by therapeutic area

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
Oncology	13,938	13,171	+6	57.6	60.3
Immunology	4,234	3,928	+7	17.5	18.0
Neuroscience	2,069	1,383	+48	8.6	6.3
Ophthalmology	928	818	+10	3.8	3.7
Infectious diseases	594	684	–12	2.5	3.1
Haemophilia A	535	57	Over +500	2.2	0.3
Other therapeutic areas	1,896	1,806	+3	7.8	8.3
Total sales	**24,194**	**21,847**	**+10**	**100**	**100**

In the first half of 2019 sales in the Pharmaceuticals Division increased by 10% at CER to CHF 24.2 billion. New product sales more than compensated for the biosimilar competition to MabThera/Rituxan and Herceptin in Europe and Japan.

The sales growth was driven by the continuing rollout of the new products Ocrevus, Hemlibra, Tecentriq and Perjeta, which together contributed an additional CHF 2.0 billion (CER) of new sales, representing 91% of the division's growth. Ocrevus in particular continued its high growth development with total sales in the first half of 2019 of CHF 1.7 billion (2018: 1.0 billion) due to continuing growth in the US and initial uptake in other markets, notably in Germany and Italy. The launch and rollout of Hemlibra continued with sales reaching CHF 535 million, across the US, Japan and major EU markets. Tecentriq sales grew in all regions, mostly due to higher demand in the US and launches in Japan, Spain and Italy. Perjeta sales were up by 34% to CHF 1.8 billion with growth across all regions.

Biosimilar competition had a negative impact, with continuing erosion for MabThera/Rituxan and Herceptin in Europe and Japan. Sales of these two products fell by CHF 720 million (CER) in Europe and Japan in the first half of 2019. The first biosimilar versions of MabThera/Rituxan, Herceptin and Avastin are anticipated to come to market in the US in the second half of 2019. In total, Avastin, MabThera/Rituxan and Herceptin sales in the first half of 2019 were CHF 10.3 billion, a decrease of 2%.

The oncology therapeutic area grew by 6%, led by the new products Tecentriq and Perjeta. Avastin sales increased by 7%, mainly due to growth in the US and also in China due to broader market penetration. Herceptin and MabThera/Rituxan sales fell by 9% and 8% respectively, affected by biosimilar competition in Europe and Japan. Kadcyla (+33%) and Alecensa (+50%) both showed continuing post-launch growth across all regions.

Sales in immunology grew by 7%, with Actemra/RoActemra and Esbriet increasing by 8% and 11% respectively. MabThera/Rituxan sales increased by 9% driven by the US. Lucentis sales grew 10% in the US in all approved indications. Infectious diseases sales were 12% lower mainly due to lower sales of Tamiflu in the US. In other therapeutic areas, sales of Activase/TNKase were 2% higher in the US.

Product sales

Pharmaceuticals Division – Interim sales

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
Oncology					
Avastin	3,659	3,418	+7	15.1	15.6
Herceptin	3,264	3,624	–9	13.5	16.6
MabThera/Rituxan [1]	2,509	2,705	–8	10.4	12.4
Perjeta	1,755	1,313	+34	7.3	6.0
Tecentriq	782	320	+141	3.2	1.5
Kadcyla	636	484	+33	2.6	2.2
Alecensa	421	279	+50	1.7	1.3
Gazyva/Gazyvaro	241	177	+36	1.0	0.8
Xeloda	216	216	+1	0.9	1.0
Tarceva	181	298	–39	0.7	1.4
Others	274	337	–18	1.2	1.5
Total Oncology	**13,938**	**13,171**	**+6**	**57.6**	**60.3**
Immunology					
Actemra/RoActemra	1,135	1,049	+8	4.7	4.8
Xolair	972	928	+1	4.0	4.2
MabThera/Rituxan [1]	830	749	+9	3.5	3.4
Esbriet	532	472	+11	2.2	2.2
Pulmozyme	371	357	+3	1.5	1.6
CellCept	325	333	–1	1.3	1.5
Others	69	40	+78	0.3	0.3
Total Immunology	**4,234**	**3,928**	**+7**	**17.5**	**18.0**
Infectious diseases					
Tamiflu	227	320	–29	1.0	1.5
Rocephin	173	161	+10	0.7	0.7
Others	194	203	–2	0.8	0.9
Total Infectious diseases	**594**	**684**	**–12**	**2.5**	**3.1**
Ophthalmology					
Lucentis	928	818	+10	3.8	3.7
Total Ophthalmology	**928**	**818**	**+10**	**3.8**	**3.7**
Neuroscience					
Ocrevus	1,735	1,040	+63	7.2	4.8
Madopar	189	182	+8	0.8	0.8
Others	145	161	–8	0.6	0.7
Total Neuroscience	**2,069**	**1,383**	**+48**	**8.6**	**6.3**
Haemophilia A					
Hemlibra	535	57	Over +500	2.2	0.3
Total Haemophilia A	**535**	**57**	**Over +500**	**2.2**	**0.3**
Other therapeutic areas					
Activase/TNKase	686	652	+2	2.8	3.0
Mircera	282	248	+13	1.2	1.1
NeoRecormon/Epogin	130	149	–12	0.5	0.7
Others	798	757	+4	3.3	3.5
Total other therapeutic areas	**1,896**	**1,806**	**+3**	**7.8**	**8.3**
Total sales	**24,194**	**21,847**	**+10**	**100**	**100**

1) Total MabThera/Rituxan sales of CHF 3,339 million (2018: CHF 3,454 million) split between oncology and immunology franchises.

Avastin. For advanced colorectal, breast, lung, kidney, cervical and ovarian cancer, and relapsed glioblastoma.

Avastin interim regional sales

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
United States	1,630	1,442	+9	44.5	42.2
Europe	920	933	+2	25.1	27.3
Japan	424	404	+3	11.6	11.8
International	685	639	+13	18.8	18.7
Total sales	**3,659**	**3,418**	**+7**	**100**	**100**

Overall sales increased by 7% compared to prior year. US sales increased by 9% due to continued growth in all approved indications. In Europe sales were 2% higher mainly driven by Germany. In Japan sales increased by 3% due to growth in all approved indications other than lung cancer. In the International region, sales grew by 13%, largely due to broader market penetration in China, where sales increased by 61%.

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

MabThera/Rituxan interim regional sales

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
United States	2,281	2,127	+4	68.3	61.6
Europe	323	525	–36	9.7	15.2
Japan	58	105	–46	1.7	3.0
International	677	697	+2	20.3	20.2
Total sales	**3,339**	**3,454**	**–4**	**100**	**100**

Sales were 4% lower, driven by Europe and Japan due to the launch of biosimilars in most EU markets and in Japan. US sales increased by 4%, with growth in both the immunology and oncology segments, and also driven by the subcutaneous formulation. Sales in the International region were 2% higher with 21% growth in China, again due to broader market penetration.

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

Herceptin interim regional sales

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
United States	1,509	1,494	–2	46.2	41.2
Europe	568	1,076	–45	17.4	29.7
Japan	123	123	–2	3.8	3.4
International	1,064	931	+21	32.6	25.7
Total sales	**3,264**	**3,624**	**–9**	**100**	**100**

Perjeta interim regional sales

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
United States	788	626	+22	44.9	47.7
Europe	541	438	+28	30.8	33.4
Japan	120	63	+87	6.8	4.8
International	306	186	+77	17.5	14.1
Total sales	**1,755**	**1,313**	**+34**	**100**	**100**

Kadcyla interim regional sales

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
United States	278	178	+51	43.7	36.8
Europe	204	186	+14	32.1	38.4
Japan	40	35	+11	6.3	7.2
International	114	85	+48	17.9	17.6
Total sales	**636**	**484**	**+33**	**100**	**100**

Sales in the HER2 franchise grew by 5% to CHF 5.7 billion. Herceptin sales were 9% lower, mainly driven by Europe, partially offset by the growth in China where sales increased by 144%. The 45% decline in Europe was mainly due to biosimilar launches which started in mid-2018. Sales of Perjeta grew by 34% with increased demand in all regions, notably in the early breast cancer adjuvant setting in the US, Europe and Japan. Kadcyla sales increased by 33% globally, and by 51% in the US, due to the launch of a new indication.

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

Ocrevus interim regional sales

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
United States	1,456	939	+50	83.9	90.3
Europe	211	78	+179	12.2	7.5
International	68	23	+204	3.9	2.2
Total sales	**1,735**	**1,040**	**+63**	**100**	**100**

There was continuously growing demand in both indications in the US, with growth driven both by new and returning patients. In Europe and the International region Ocrevus continues to show strong initial uptake where launched, notably in Germany, Italy, Switzerland and Australia.

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

Actemra/RoActemra interim regional sales

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
United States	460	411	+8	40.5	39.2
Europe	355	347	+6	31.3	33.1
Japan	188	164	+12	16.6	15.6
International	132	127	+13	11.6	12.1
Total sales	**1,135**	**1,049**	**+8**	**100**	**100**

Sales increased by 8%, with growth in all regions, driven by the uptake of the subcutaneous formulation. The US was the major contributor to the sales increase, along with Japan and Germany.

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

Xolair interim regional sales

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
United States	972	928	+1	100	100
Total sales	**972**	**928**	**+1**	**100**	**100**

Sales grew by 1%, driven by demand growth in chronic idiopathic urticaria and expansion of the overall asthma market. Xolair remains the market leader in the larger allergic asthma indication.

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

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
United States	508	219	+124	65.0	68.4
Europe	134	60	+129	17.1	18.8
Japan	75	15	+386	9.6	4.7
International	65	26	+173	8.3	8.1
Total sales	**782**	**320**	**+141**	**100**	**100**

Sales grew by 141% 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 due to launches in Spain and Italy. Sales in Japan increased due to the growth in the treatment of non-squamous NSCLC.

Hemlibra. For haemophilia A.

Hemlibra interim regional sales

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
United States	381	46	Over +500	71.2	80.7
Europe	63	7	Over +500	11.8	12.3
Japan	82	4	Over +500	15.3	7.0
International	9	0	–	1.7	0
Total sales	**535**	**57**	**Over +500**	**100**	**100**

Hemlibra was first approved for sale by the US Food and Drug Administration (FDA) in November 2017 and since then had been launched in Europe and Japan.

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 grew 10% in all approved indications.

Activase/TNKase. For acute ischaemic stroke (AIS) and acute myocardial infarction (AMI). Sales were 2% higher, led by the US, and mainly driven by broader use in hospitals and a higher number of patients being treated.

Alecensa. For ALK-positive non-small cell lung cancer (NSCLC). The global uptake continued with a 50% increase in sales across all regions with Europe and International as the main drivers.

Esbriet. For idiopathic pulmonary fibrosis (IPF). Sales grew by 11%, with continued growth in both the US and Europe, in part driven by the launch of a new tablet formulation.

Pharmaceuticals Division – Interim sales by region

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
United States	13,370	11,378	+14	55.3	52.1
Europe	4,221	4,528	–4	17.5	20.7
Japan	1,988	1,781	+9	8.2	8.2
International	4,615	4,160	+17	19.0	19.0
Total sales	**24,194**	**21,847**	**+10**	**100**	**100**

United States. Sales grew by 14% led by Ocrevus, Hemlibra and Tecentriq. Ocrevus sales increased by 50% and were driven by both new and returning patient demand. Hemlibra sales showed strong uptake since launched in November 2017. Tecentriq sales increased by 124% and were driven by the growth in the new indications. The HER2 franchise grew 8%, with sales increase of Perjeta in particular in the early breast cancer adjuvant setting as well as sales growth for Kadcyla. Avastin sales increased by 9% due to continued growth in all indications. Sales of Tamiflu fell by 82% mainly due to continued competition from generics.

Europe. Sales declined by 4% due to the competition from biosimilars for Herceptin (–45%) and MabThera/Rituxan (–36%). This decline was partially offset by the strong growth of Ocrevus and Perjeta, notably in Germany. Tecentriq sales continued to grow, also as a result of successful launches in Spain and Italy and uptake in the UK and Belgium. Alecensa showed strong uptake, in particular in France and Italy. The growth of Hemlibra sales was driven by France and Germany.

Japan. Interim sales increased by 9%, driven by the new products including Hemlibra and Tecentriq which were both launched in 2018. The HER2 franchise grew by 26%, with sales increase of Perjeta of 87% due to the launch of a new indication. This growth was partially offset by lower sales of MabThera/Rituxan (–46%) and Herceptin (–2%) which were negatively affected by biosimilar entry.

International. Sales increased by 17%, due to the 58% growth in China, where there was broader market penetration for Herceptin, Avastin and MabThera/Rituxan and new launches for Alecensa and Perjeta. Sales in the rest of the International region increased by 3% with growth in new products (Perjeta, Ocrevus, Tecentriq and Kadcyla) more than offsetting a decline in Herceptin and MabThera/Rituxan.

Pharmaceuticals Division – Interim sales for E7 leading emerging markets

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
Brazil	486	497	+6	2.0	2.3
China	1,587	1,031	+58	6.6	4.8
India	30	32	–5	0.1	0.1
Mexico	115	123	–9	0.5	0.6
Russia	84	68	+31	0.3	0.3
South Korea	184	162	+17	0.8	0.7
Turkey	120	153	+4	0.5	0.7
Total sales	**2,606**	**2,066**	**+33**	**10.8**	**9.5**

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.

2019 interim product sales affected by recent patent expiry

	2019 (CHF m)	2018 (CHF m)	% change (CER)	Comment
Tarceva	181	298	–39	Patent expiry in the US in 2018

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 currently estimates that some basic, primary patents for its major biologic medicines will begin to expire as follows:

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

The 'composition of matter' patents for MabThera/Rituxan and Herceptin in the EU have expired. The first biosimilar versions of MabThera/Rituxan were launched in Europe from mid-2017. They are now marketed in most EU countries and were the major factor in the sales decline of this product in Europe in 2019. The first biosimilar versions of Herceptin have been launched in major EU markets from mid-2018. In Japan, the first biosimilar versions of MabThera/Rituxan and Herceptin were launched in 2018 and sales were also adversely affected by government price cuts. In total, sales of MabThera/Rituxan and Herceptin fell by CHF 720 million (CER) in Europe and Japan during the first half of 2019.

2019 interim product sales affected by biosimilar launches

	2019 (CHF m)	2018 (CHF m)	% change (CER)	Comment
MabThera/Rituxan – Europe	323	525	–36	First biosimilar launches from mid-2017
Herceptin – Europe	568	1,076	–45	First biosimilar launches from mid-2018
MabThera/Rituxan – Japan	58	105	–46	First biosimilar launches from early 2018
Herceptin – Japan	123	123	–2	First biosimilar launches from mid-2018

Based on publicly available information from competitor companies, the Group currently anticipates the following further potential developments in 2019:

- The first biosimilar versions of MabThera/Rituxan, Herceptin and Avastin could come to market in the US in the second half of 2019.
- In Japan, the first biosimilar versions of Avastin could come to market in the second half of 2019.

Sales in the first half of 2019 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 are also driven by regular price and volume changes. Biosimilar competition is only one factor in the overall picture.

Total interim MabThera/Rituxan, Herceptin and Avastin sales

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% division sales (2019)	% division sales (2018)
United States	5,420	5,063	+3	22.4	23.1
Europe	1,811	2,534	–26	7.5	11.6
Japan	605	632	–6	2.5	2.9
International	2,426	2,267	+13	10.0	10.4
Total sales	**10,262**	**10,496**	**–2**	**42.4**	**48.0**

The Group derives royalty income from US Patent No. 6,331,415 (known as the Cabilly patent). This patent expired in December 2018 and therefore, while there will be certain residual income after the expiry, the Group expects that royalty income in 2019 will be significantly lower than in 2018. Royalty income in the first half of 2019 from the Cabilly patent was CHF 165 million. The annual royalty income in 2018 from this patent was CHF 929 million and the income for the first six months of 2018 was CHF 436 million.

Operating results

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

	2019 (CHF m)	2018 (CHF m)	% change (CER)
Royalty income	538	813	–36
Income from out-licensing agreements	56	119	–54
Income from disposal of products and other	655	443	+47
Total – IFRS and Core basis	**1,249**	**1,375**	**–11**

Royalties and other operating income decreased by 11% at CER. Royalty income was 36% lower mainly due to the expiry of the Cabilly patent at the end of 2018. The income related to this patent decreased by 63% to CHF 165 million. Income from product disposals and other increased to CHF 655 million driven by income of CHF 431 million from sale of rights for Lexotan, Bactrim and Dormicum and higher profit-share income of CHF 213 million from increased Venclexta and Xolair sales. In 2018 there was income of CHF 82 million from sale of the worldwide rights for Konakion and Cymevene (excluding Brazil) and in Japan there was CHF 209 million of other operating income, mainly from the sale of the rights for established products by Chugai.

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

	2019 (CHF m)	2018 (CHF m)	% change (CER)
Manufacturing cost of goods sold and period costs	(3,024)	(2,760)	+10
Royalty expenses	(683)	(504)	+34
Collaboration and profit-sharing agreements	(1,205)	(1,189)	–2
Impairment of property, plant and equipment and right-of-use assets	(27)	(23)	+16
Cost of sales – Core basis	**(4,939)**	**(4,476)**	**+10**
Global restructuring plans	(103)	(113)	–7
Amortisation of intangible assets	(555)	(472)	+15
Total – IFRS basis	**(5,597)**	**(5,061)**	**+10**

Core costs increased by 10% at CER. As a percentage of sales, cost of sales decreased by 0.1 percentage points to 20.4%. Manufacturing cost of sales grew by 10%, in line with the sales growth. There was a favourable product mix in the first half of 2019, which was offset by inventory write-offs. Royalty expenses were 34% higher due to increased sales for certain products, notably Ocrevus. Non-core costs include the amortisation of intangible assets, mainly related to the Esbriet product intangible assets acquired in the InterMune acquisition of 2014. The amortisation charges in the first half of 2019 were higher due to the Esbriet product intangible assets since the previous impairments were partially reversed at the end of 2018.

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

	2019 (CHF m)	2018 (CHF m)	% change (CER)
Marketing and distribution – Core basis	**(3,395)**	**(3,122)**	**+8**
Global restructuring plans	(52)	(20)	+151
Amortisation of intangible assets	(17)	(12)	+41
Total – IFRS basis	**(3,464)**	**(3,154)**	**+9**

Core costs increased by 8% at CER. As a percentage of sales, they decreased to 14.0% from 14.3% in the comparative period. Major marketing and distribution activities included supporting the launches and rollouts of Tecentriq, Ocrevus and Xofluza and supporting pre-launch activities.

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

	2019 (CHF m)	2018 (CHF m)	% change (CER)
Research and development – Core basis	**(4,873)**	**(4,598)**	**+5**
Global restructuring plans	(73)	(40)	+82
Amortisation of intangible assets	(102)	(58)	+70
Impairment of intangible assets	(324)	(166)	+91
Total – IFRS basis	**(5,372)**	**(4,862)**	**+9**

Core costs increased by 5% at CER and, as a percentage of sales, decreased by 0.9 percentage points to 20.1%. 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. In addition, the Pharmaceuticals Division in-licensed pipeline compounds and technologies which are capitalised as intangible assets. These had a total value of CHF 616 million, of which USD 300 million was an initial upfront payment to Adaptive Biotechnologies. Impairment charges of CHF 324 million were incurred for the full impairment of four different compounds due to either clinical data assessments or from decisions to stop the development of the respective compounds.

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

	2019 (CHF m)	2018 (CHF m)	% change (CER)
Administration	(696)	(644)	+7
Pensions – Past service costs	(3)	31	–
Gains (losses) on disposal of property, plant and equipment and right-of-use assets	0	(2)	–100
Business taxes and capital taxes	(62)	(129)	–53
Other general items	25	19	+42
General and administration – Core basis	**(736)**	**(725)**	**0**
Global restructuring plans	(19)	(26)	–26
Impairment of goodwill and intangible assets	0	(107)	–100
Mergers and acquisitions and alliance transactions	(40)	41	–
Legal and environmental cases	(47)	(18)	+165
Total – IFRS basis	**(842)**	**(835)**	**0**

Core costs were stable in CER and, as a percentage of sales, decreased to 3.0% from 3.3%. Administration costs were higher mainly due to increases at Foundation Medicine and the base effect from Flatiron Health which was acquired in April 2018. Business taxes and capital taxes fell by 53%, primarily due to decreased costs for the US Branded Prescription Drug Fee. Impairment charges in 2018 related to the full write-off of goodwill from the Trophos acquisition.

Roche Pharmaceuticals and Chugai subdivisional operating results

Pharmaceuticals subdivisional interim operating results in millions of CHF

	Roche Pharmaceuticals		Chugai		Pharmaceuticals Division	
	2019	2018	2019	2018	2019	2018
Sales						
– External customers	22,206	20,066	1,988	1,781	24,194	21,847
– Within division	781	686	578	491	1,359	1,177
Core operating profit	10,692	9,676	935	696	11,500	10,301
– margin, % of sales to external customers	48.1	48.2	47.0	39.1	47.5	47.2
Operating profit	9,418	8,727	877	654	10,168	9,310
– margin, % of sales to external customers	42.4	43.5	44.1	36.7	42.0	42.6
Operating free cash flow	7,599	7,313	592	587	8,191	7,900
– margin, % of sales to external customers	34.2	36.4	29.8	33.0	33.9	36.2

Pharmaceuticals Division total core operating profit and operating profit both include the elimination of minus CHF 127 million of unrealised intercompany gains between Roche Pharmaceuticals and Chugai (2018: minus CHF 71 million).

The increase in the exchange rate of the Japanese yen has a positive impact of approximately 3% 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 increased by 9% while sales within the division increased by 15%. Chugai core operating profit increased by 32% due to higher gross profit from sales within the division and sales to external customers as well as higher royalty income from Roche Pharmaceuticals. This was partially offset by lower income from the divestment of established products and higher research and development costs. Operating free cash flow at Chugai decreased by 1% at CER mainly as a result of a sales-driven increase in accounts receivable and higher inventories for newly launched products.

Financial position

Pharmaceuticals Division – Net operating assets

	30 June 2019 (CHF m)	31 Dec. 2018 (CHF m)	% change (CHF)	% change (CER)	Movement: Transactions (CHF m)	Movement: CTA and other (CHF m)
Trade receivables	8,724	6,746	+29	+30	2,057	(79)
Inventories	3,969	4,284	–7	–7	(311)	(4)
Trade payables	(1,640)	(1,642)	0	0	(2)	4
Net trade working capital	**11,053**	**9,388**	**+18**	**+18**	**1,744**	**(79)**
Other receivables/(payables)	(6,212)	(6,916)	–10	–10	695	9
Net working capital	**4,841**	**2,472**	**+96**	**+95**	**2,439**	**(70)**
Property, plant and equipment	15,337	15,123	+1	+2	257	(43)
Right-of-use assets	758	–	–	–	(41)	799
Goodwill and intangible assets	11,719	12,180	–4	–3	(382)	(79)
Provisions	(2,535)	(2,508)	+1	+2	(67)	40
Other long-term assets, net	475	420	+13	+14	30	25
Long-term net operating assets	**25,754**	**25,215**	**+2**	**+3**	**(203)**	**742**
Net operating assets	**30,595**	**27,687**	**+11**	**+11**	**2,236**	**672**

The absolute amount of the movement between the 30 June 2019 and 31 December 2018 consolidated balances reported in Swiss francs is split between actual 2019 transactions (translated at average rates for 2018) and the currency translation adjustment (CTA) that arises on consolidation. The 2019 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 42 of the Interim Financial Statements, and a reconciliation between that balance sheet and the information given above is on page 76.

Currency translation effects on balance sheet amounts. Compared to the start of the year the Swiss franc appreciated against the US dollar and depreciated against the Japanese yen, resulting in a net negative translation impact on net operating assets. The exchange rates used are given on page 30.

Net working capital. Net working capital increased by 95%, mainly due to higher trade receivables and a lower net liability for other receivables/payables. Trade receivables were higher due to the underlying sales growth in the business and the continued growth of Ocrevus, which has extended payment terms in the US. In addition, there were temporary extended payment terms in the US for certain products, notably MabThera/Rituxan, which are expected to normalise by the end of 2019. Inventories decreased primarily due to write-offs. Trade payables were stable as a result of the settlement of year-end positions offset by payables related to the investment for the new research facilities at Yokohama, Japan. The net liability position for other receivables/payables decreased following the settlement of the accruals recorded at the end of 2018.

Long-term net operating assets. Overall long-term net operating assets increased by 3% largely attributable to right-of-use assets following the implementation of IFRS 16 at the beginning of the year. The major item in capital expenditure was Chugai's new research facilities at Yokohama, Japan. At Roche, capital expenditure includes manufacturing investments in Switzerland, the US and Germany as well as investments at the Basel/Kaiseraugst site in Switzerland and at the South San Francisco campus in the US. Intangible assets decreased due to impairments and regular amortisation more than offsetting the additions.

Free cash flow

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

	2019 (CHF m)	2018 (CHF m)	% change (CHF)	% change (CER)
Operating profit	**10,168**	**9,310**	**+9**	**+9**
– Depreciation, amortisation and impairment	1,716	1,392	+23	+21
– Provisions	140	22	Over +500	+483
– Equity compensation plans	199	181	+10	+6
– Other	246	38	Over +500	–
Operating profit cash adjustments	**2,301**	**1,633**	**+41**	**+27**
Operating profit, net of operating cash adjustments	**12,469**	**10,943**	**+14**	**+12**
(Increase) decrease in net working capital	(2,691)	(1,652)	+63	+64
Investments in property, plant and equipment	(795)	(1,134)	–30	–31
Principal portion of lease liabilities paid	(120)	–	–	–
Investments in intangible assets	(672)	(257)	+161	+155
Operating free cash flow	**8,191**	**7,900**	**+4**	**+1**
– as % of sales	33.9	36.2	–2.3	–3.0

See pages 73–75 for definition of free cash flow and a detailed breakdown.

The Pharmaceuticals Division's operating free cash flow increased by 1% at CER to CHF 8.2 billion. Operating profit, net of operating cash adjustments increased by 12%, broadly in line with the core operating profit growth of 11%. Net working capital absorbed an additional CHF 2.7 billion of cash, largely driven by higher receivables, for the reasons described above in the 'Financial position' section. Capital expenditure was lower than in the prior year mainly due to the final payment of the Genentech property lease option exercise in the first half of 2018. Investments in intangible assets were higher than in 2018 and include USD 300 million for an initial upfront payment to Adaptive Biotechnologies.

Diagnostics operating results

Diagnostics Division interim operating results

	2019 (CHF m)	2018 (CHF m)	% change (CHF)	% change (CER)
IFRS results				
Sales	6,275	6,264	0	+2
Royalties and other operating income	33	41	–20	–19
Revenue	**6,308**	**6,305**	**0**	**+2**
Cost of sales	(3,053)	(2,985)	+2	+4
Marketing and distribution	(1,442)	(1,446)	0	+1
Research and development	(750)	(750)	0	0
General and administration	(104)	(293)	–65	–63
Operating profit	**959**	**831**	**+15**	**+22**
– margin, % of sales	15.3	13.3	+2.0	+2.5
Core results[1]				
Sales	6,275	6,264	0	+2
Royalties and other operating income	33	39	–15	–16
Revenue	**6,308**	**6,303**	**0**	**+2**
Cost of sales	(2,929)	(2,846)	+3	+5
Marketing and distribution	(1,405)	(1,429)	–2	0
Research and development	(688)	(715)	–4	–4
General and administration	(222)	(239)	–7	–6
Core operating profit	**1,064**	**1,074**	**–1**	**+4**
– margin, % of sales	17.0	17.1	–0.1	+0.3
Financial position				
Net working capital	3,621	2,697	+34	+35
Long-term net operating assets	12,264	11,625	+5	+6
Net operating assets	**15,885**	**14,322**	**+11**	**+12**
Free cash flow[2]				
Operating free cash flow	(380)	429	–	–
– margin, % of sales	(6.1)	6.8	–	–

1) See pages 70–73 for definition of core results.
2) See pages 73–75 for definition of free cash flow.

Sales

The Diagnostics Division continued to increase sales with growth of 2% at CER to CHF 6.3 billion. Centralised and Point of Care Solutions, with 3% sales growth, was the main contributor, led by its immunodiagnostics business. Molecular Diagnostics sales increased by 6%, with growth of 5% in the underlying molecular business, due to the blood screening business. Diabetes Care sales increased by 1% driven by growth in North America, with continued challenging market conditions in Europe. Sales in Tissue Diagnostics fell by 3% due to instrument shipment delays.

Diagnostics Division – Interim sales by business area

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
Centralised and Point of Care Solutions	3,762	3,755	+3	59.9	60.0
Molecular Diagnostics	1,029	979	+6	16.4	15.6
Diabetes Care	958	991	+1	15.3	15.8
Tissue Diagnostics	526	539	–3	8.4	8.6
Total sales	**6,275**	**6,264**	**+2**	**100**	**100**

Centralised and Point of Care Solutions. With an increase in sales of 3%, the business area was the major contributor to the divisional performance, with growth being primarily driven by the immunodiagnostics business (+7%), due to instrument launches and the ongoing rollouts, mainly in China, the US and South Korea. The Centralised and Point of Care Solutions business is growing especially in Asia-Pacific (+4%) due to sales growth in China, South Korea and Vietnam, as well as in the Europe, Middle East and Africa (EMEA) region (+3%).

Molecular Diagnostics. Overall sales rose by 6%, with 5% growth in the underlying molecular business as well as an increase in the sequencing business. The sales growth in the molecular business came from an increased demand in blood screening which grew by 16%, mainly in the Middle Eastern countries, China and the US. Regional growth was led by EMEA (+10%) and Asia-Pacific (+18%), notably China.

Diabetes Care. Sales increased by 1%, driven by North America (+5%). Sales growth mainly came from the Accu-Chek Guide and Accu-Chek Instant product lines. In the EMEA region sales decreased by 2% mainly in Italy, UK and Germany.

Tissue Diagnostics. Sales decreased by 3%, due to delays in the shipment of instruments. Regionally, the decline in sales was led by North America, which was 9% lower. Asia-Pacific sales increased by 15%, with China being the main growth market.

Diagnostics Division – Interim sales by region

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
Europe, Middle East and Africa (EMEA)	2,456	2,492	+3	39.2	39.8
Asia-Pacific	1,606	1,573	+5	25.6	25.1
North America	1,589	1,570	–2	25.3	25.1
Latin America	398	413	+8	6.3	6.6
Japan	226	216	+2	3.6	3.4
Total sales	**6,275**	**6,264**	**+2**	**100**	**100**

The immunodiagnostics business in Centralised and Point of Care Solutions was the global driver of sales growth, with increased sales in all regions. The sales increase in Asia-Pacific was mainly in China, South Korea and Vietnam following increased hospital placements. In North America sales decreased by 2% due to a decline in the coagulation monitoring business.

Diagnostics Division – Interim sales for E7 leading emerging markets

	2019 (CHF m)	2018 (CHF m)	% change (CER)	% of sales (2019)	% of sales (2018)
Brazil	116	124	+1	1.8	2.0
China	1,045	1,028	+5	16.7	16.3
India	92	88	+7	1.5	1.4
Mexico	59	60	–3	0.9	1.0
Russia	81	80	+8	1.3	1.3
South Korea	120	110	+13	1.9	1.8
Turkey	62	64	+29	1.0	1.0
Total sales	**1,575**	**1,554**	**+6**	**25.1**	**24.8**

Operating results

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

	2019 (CHF m)	2018 (CHF m)	% change (CER)
Royalty income	23	30	–21
Income from out-licensing agreements	0	2	–100
Income from disposal of products and other	10	7	+30
Total – Core basis	**33**	**39**	**–16**
Global restructuring plans	0	2	–100
Total – IFRS basis	**33**	**41**	**–19**

Core royalties and other operating income decreased by 16% at CER driven by lower royalty income due to the settlement of expiring agreements in 2018.

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

	2019 (CHF m)	2018 (CHF m)	% change (CER)
Manufacturing cost of goods sold and period costs	(2,875)	(2,750)	+7
Royalty expenses	(54)	(96)	–44
Cost of sales – Core basis	**(2,929)**	**(2,846)**	**+5**
Global restructuring plans	(68)	(64)	+8
Amortisation of intangible assets	(56)	(75)	–28
Total – IFRS basis	**(3,053)**	**(2,985)**	**+4**

Core costs increased by 5% at CER, above the sales growth of 2%. This was in part due to higher costs from external suppliers as well as increased costs for technical customer and engineering services. Royalty expenses were significantly lower as a result of the renegotiation of a licensing agreement. The core cost of sales ratio increased by 1.1 percentage points to 46.6%. Amortisation of intangible assets is lower following the impairments of intangible assets recognised in the second half of 2018.

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

	2019 (CHF m)	2018 (CHF m)	% change (CER)
Marketing and distribution – Core basis	**(1,405)**	**(1,429)**	**0**
Global restructuring plans	(33)	(15)	+133
Amortisation of intangible assets	(4)	(2)	+74
Total – IFRS basis	**(1,442)**	**(1,446)**	**+1**

Core costs were stable at CER, due to higher spending in Asia-Pacific offset by lower bad debt expenses in the Europe, Middle East and Africa (EMEA) region. On a core basis, marketing and distribution costs as a percentage of sales decreased to 22.4% compared to 22.8% in 2018.

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

	2019 (CHF m)	2018 (CHF m)	% change (CER)
Research and development – Core basis	**(688)**	**(715)**	**–4**
Global restructuring plans	(59)	(26)	+120
Amortisation of intangible assets	(3)	(9)	–63
Total – IFRS basis	**(750)**	**(750)**	**0**

Core costs decreased by 4% at CER, due to lower spending in development projects, notably in Molecular Diagnostics as well as in Diabetes Care. This was partly offset by increased spending in Solution Integration & Services. As a percentage of sales, research and development core costs decreased to 11.0% from 11.4% in 2018. Global restructuring costs were due to strategy plans, notably in Diabetes Care.

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

	2019 (CHF m)	2018 (CHF m)	% change (CER)
Administration	(258)	(270)	–3
Pensions – Past service costs	0	7	–100
Gains (losses) on disposal of property, plant and equipment and right-of-use assets	12	0	–
Gains (losses) on divestment of businesses	1	0	–
Business taxes and capital taxes	(9)	(8)	+11
Other general items	32	32	+2
General and administration – Core basis	**(222)**	**(239)**	**–6**
Global restructuring plans	5	(9)	–
Mergers and acquisitions and alliance transactions	124	5	Over +500
Legal and environmental cases	(11)	(50)	–79
Total – IFRS basis	**(104)**	**(293)**	**–63**

Core costs were lower than 2018 and decreased by 6% at CER due to lower personnel and project costs as well as a gain on property disposal. As a percentage of sales, core costs decreased to 3.5% from 3.8% in 2018. Mergers and acquisitions and alliance transactions include income from the reversal of contingent consideration provisions. Legal and environmental costs were lower due to litigation costs in the sequencing business in 2018.

Financial position

Diagnostics Division – Net operating assets

	30 June 2019 (CHF m)	31 Dec. 2018 (CHF m)	% change (CHF)	% change (CER)	Movement: Transactions (CHF m)	Movement: CTA and other (CHF m)
Trade receivables	3,132	3,154	–1	0	6	(28)
Inventories	2,604	2,336	+11	+12	299	(31)
Trade payables	(883)	(1,108)	–20	–20	219	6
Net trade working capital	**4,853**	**4,382**	**+11**	**+12**	**524**	**(53)**
Other receivables/(payables)	(1,232)	(1,685)	–27	–27	453	0
Net working capital	**3,621**	**2,697**	**+34**	**+35**	**977**	**(53)**
Property, plant and equipment	6,464	6,413	+1	+2	118	(67)
Right-of-use assets	297	–	–	–	(22)	319
Goodwill and intangible assets	6,237	6,114	+2	+3	169	(46)
Provisions	(744)	(948)	–22	–21	201	3
Other long-term assets, net	10	46	–78	–83	(36)	0
Long-term net operating assets	**12,264**	**11,625**	**+5**	**+6**	**430**	**209**
Net operating assets	**15,885**	**14,322**	**+11**	**+12**	**1,407**	**156**

The absolute amount of the movement between the 30 June 2019 and 31 December 2018 consolidated balances reported in Swiss francs is split between actual 2019 transactions (translated at average rates for 2018) and the currency translation adjustment (CTA) that arises on consolidation. The 2019 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 42 of the Interim Financial Statements, and a reconciliation between that balance sheet and the information given above is on page 76.

Currency translation effects on balance sheet amounts. Compared to the start of the year the Swiss franc appreciated against the US dollar and the euro, resulting in a negative translation impact on net operating assets. The Diagnostics Division does not have a significant net asset position in Japanese yen and so the depreciation of the Swiss franc against the Japanese yen had only a minor impact. The exchange rates used are given on page 30.

Net working capital. Net working capital increased by 35% at CER. While trade receivables remained stable, inventories increased by 12% due to expected demand in emerging markets, especially in the Asia-Pacific region, driving higher purchase of instruments. Trade payables decreased by 20% compared to the start of the year following the settlement of year-end positions. The decrease in net liability for other receivables/payables since the end of 2018 was the result of settlement of significant year-end accounts payable and accruals.

Long-term net operating assets. Overall long-term net operating assets increased by 6% at CER, mainly attributable to the right-of-use assets recorded following the implementation of IFRS 16. The 3% increase in goodwill and intangible assets was mainly due to an in-licensing agreement. Provisions decreased by 21% mainly due to the reversal of contingent consideration provisions and lower restructuring provisions. Capital expenditure relates mainly to a site consolidation project in the US and manufacturing expansion projects in Germany and China.

Free cash flow

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

	2019 (CHF m)	2018 (CHF m)	% change (CHF)	% change (CER)
Operating profit	**959**	**831**	**+15**	**+22**
– Depreciation, amortisation and impairment	672	630	+7	+9
– Provisions	(137)	100	–	–
– Equity compensation plans	37	35	+6	+3
– Other	58	102	–43	–38
Operating profit cash adjustments	**630**	**867**	**–27**	**–25**
Operating profit, net of operating cash adjustments	**1,589**	**1,698**	**–6**	**–3**
(Increase) decrease in net working capital	(977)	(708)	+38	+43
Investments in property, plant and equipment	(696)	(559)	+25	+27
Principal portion of lease liabilities paid	(54)	–	–	–
Investments in intangible assets	(242)	(2)	Over +500	Over +500
Operating free cash flow	**(380)**	**429**	**–**	**–**
– as % of sales	(6.1)	6.8	–	–

See pages 73–75 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 380 million compared to a net cash inflow of CHF 429 million in the first half of 2018. The cash generation of the business, measured by the operating profit, net of operating cash adjustments, decreased by 3% while the core operating profit increased by 4%. This difference was due to higher cash spending on restructuring and litigation cases. Net working capital movement increased and absorbed CHF 977 million of cash in the first half of 2019, which was due to increases in inventories, especially in instruments pending placement in emerging markets, and also the settlement of payables. Capital expenditure was mainly due to site consolidation and expansion projects as mentioned above in the 'Financial position' section. Investment in intangible assets of CHF 242 million were mainly related to an in-licensing deal.

Corporate operating results

Corporate interim operating results summary

	2019 (CHF m)	2018 (CHF m)	% change (CER)
Administration	(222)	(225)	–2
Pensions – Past service costs	0	5	–100
Business taxes and capital taxes	(11)	(11)	–4
Other general items	32	18	+22
General and administration costs – Core basis[1)]	**(201)**	**(213)**	**–2**
Global restructuring plans	(75)	(116)	–36
Legal and environmental cases	(10)	0	–
Total costs – IFRS basis	**(286)**	**(329)**	**–11**
Financial position			
Net working capital	(159)	(214)	–26
Long-term net operating assets	(24)	(44)	–38
Net operating assets	**(183)**	**(258)**	**–28**
Free cash flow[2)]			
Operating free cash flow	(303)	(287)	+6

1) See pages 70–73 for definition of core results.
2) See pages 73–75 for definition of free cash flow and a detailed breakdown.

General and administration costs decreased by 2% at CER on a core basis, driven by lower administration costs in most corporate functions. Total costs on IFRS basis have decreased by 11% due to less restructuring activities in procurement and IT. 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.

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 (CER)		% change (CHF)	
	2019	2018	2019	2018
Pharmaceuticals Division				
Sales	+10	+7	+11	+6
Core operating profit	+11	+11	+12	+11
Diagnostics Division				
Sales	+2	+6	0	+8
Core operating profit	+4	0	–1	+1
Group				
Sales	+9	+7	+8	+7
Core operating profit	+11	+10	+11	+10

Exchange rates against the Swiss franc

	30 June 2019	Average to 30 June 2019	31 December 2018	Average to 30 June 2018
1 USD	0.98	1.00	0.98	0.97
1 EUR	1.11	1.13	1.13	1.17
100 JPY	0.91	0.91	0.89	0.89

The results expressed in Swiss francs were negatively impacted by the stronger Swiss franc against Latin American currencies and the euro, partly offset by the appreciation of the US dollar against the Swiss franc. The net impact on the results expressed in Swiss francs compared to constant exchange rates was negligible on sales, core operating profit and 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 2019 is shown in the table below.

Currency sensitivities for the six months ended 30 June 2019

Impact of 1% increase in average exchange rate versus the Swiss franc	Sales (CHF m)	Core operating profit (CHF m)
US dollar	152	70
Euro	46	19
Japanese yen	22	17
All other currencies	77	43

Treasury and taxation results

Treasury and taxation interim results

	2019 (CHF m)	2018 (CHF m)	% change (CHF)	% change (CER)
IFRS results				
Operating profit	10,841	9,812	+10	+11
Financing costs	(414)	(383)	+8	+7
Other financial income (expense)	(73)	65	–	–
Profit before taxes	**10,354**	**9,494**	**+9**	**+9**
Income taxes	(1,450)	(1,978)	–27	–27
Net income	**8,904**	**7,516**	**+18**	**+19**
Attributable to				
– Roche shareholders	8,619	7,309	+18	+19
– Non-controlling interests	285	207	+38	+36
Core results[1]				
Operating profit	12,363	11,162	+11	+11
Financing costs	(403)	(369)	+9	+8
Other financial income (expense)	(73)	65	–	–
Profit before taxes	**11,887**	**10,858**	**+9**	**+10**
Income taxes	(1,991)	(2,179)	–9	–9
Net income	**9,896**	**8,679**	**+14**	**+14**
Attributable to				
– Roche shareholders	9,595	8,451	+14	+14
– Non-controlling interests	301	228	+32	+30
Financial position				
Net debt	(8,399)	(5,652)	+49	+52
Pensions	(6,810)	(6,140)	+11	+12
Lease liabilities	(1,156)	–	–	–
Income taxes	612	(89)	–	–
Financial non-current assets	532	570	–7	–7
Derivatives, net	(76)	(15)	+407	+390
Collateral, net	41	6	Over +500	Over +500
Interest payable	(163)	(221)	–26	–25
Other non-operating assets, net	138	156	–12	–12
Total net assets (liabilities)	**(15,281)**	**(11,385)**	**+34**	**+36**
Free cash flow[2]				
Treasury activities	(320)	(228)	+40	+34
Taxes paid	(1,911)	(1,848)	+3	+2
Total	**(2,231)**	**(2,076)**	**+7**	**+5**

1) See pages 70–73 for definition of core results.
2) See pages 73–75 for definition of free cash flow.

Financing costs

Core financing costs were CHF 403 million, an increase of 8% at CER compared to the first half of 2018. Interest expenses on debt increased by 6% at CER to CHF 318 million due to US interest rates being higher than in the comparative period. The net interest cost of defined benefit pension plans remained stable at CHF 71 million. A full analysis of financing costs is given in Note 4 to the Interim Financial Statements.

Other financial income (expense)

Core other financial income (expense) was a net expense of CHF 73 million compared to a net income of CHF 65 million in the first half of 2018. Net income from equity securities was a loss of CHF 38 million driven by losses on the equity investments compared to a net gain of CHF 117 million in the first half of 2018, when the Group realised a gain on sale of Avexis shares of CHF 100 million.

The net foreign exchange results, which reflect hedging costs and losses on unhedged positions, were losses of CHF 66 million compared to net losses of CHF 85 million in 2018. 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 3.4 percentage points to 16.7% in the first half of 2019. This was mainly due to the impacts from the resolution of several tax disputes, which resulted in a positive income statement impact of CHF 242 million, equivalent to 2.0 percentage points on the effective core tax rate for the first half of 2019.

The IFRS results saw the effective tax rate decrease by 6.8 percentage points. In addition to the core impacts mentioned above, the non-core impacts from the Swiss tax reform, as described below, and the deferred tax impact from equity compensation plans further decreased the 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.

In Switzerland changes to the Swiss federal and canton Basel-Stadt tax laws were enacted during the first half of 2019. The relevant changes for the Roche Group include a decrease in the Basel-Stadt tax rate, effective from 1 January 2019, and new limitations. These changes do not reduce the Group's effective tax rate in Basel-Stadt. The Group has carried out a remeasurement of its deferred tax positions which resulted in a transitional deferred tax income of CHF 235 million in the first half of 2019. This is reported as a non-core item and has no impact on tax payments. Changes in the tax laws in other Swiss cantons where the Group operates are currently under discussion.

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

	2019			2018		
	Profit before tax (CHF m)	Income taxes (CHF m)	Tax rate (%)	Profit before tax (CHF m)	Income taxes (CHF m)	Tax rate (%)
Group's effective tax rate – Core basis	**11,887**	**(1,991)**	**16.7**	**10,858**	**(2,179)**	**20.1**
Global restructuring plans	(478)	95	19.9	(428)	73	17.1
Goodwill and intangible assets	(1,061)	115	10.8	(901)	145	16.1
Mergers and acquisitions and alliance transactions	78	12	–	38	7	–
Legal and environmental cases	(72)	6	8.3	(73)	12	16.4
Transitional effect of Swiss tax reform	–	235	–	–	–	–
Normalisation of equity compensation plan tax benefit	–	78	–	–	(36)	–
Group's effective tax rate – IFRS basis	**10,354**	**(1,450)**	**14.0**	**9,494**	**(1,978)**	**20.8**

Financial position

The increase in net debt was mainly due to dividend payments of CHF 7.6 billion, partly offset by the free cash flow of CHF 5.3 billion. The net pension liability increased due to lower discount rates. The net tax assets increased mainly due to the deferred tax effects of the Swiss tax reform, the change in net pension liabilities and the equity compensation plans that are variable according to the price of the underlying equity. At 30 June 2019 the Group held equity investments with a market value of CHF 0.5 billion, which consist mostly of holdings in biotechnology and other pharmaceuticals companies which were acquired as part of licensing transactions or scientific collaborations.

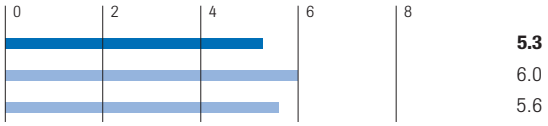
Free cash flow

The net cash outflow from treasury activities increased to CHF 0.3 billion due to lower proceeds from sales of equity securities. Total taxes paid in the first half of 2019 were up by 2% to CHF 1.9 billion due to higher payments in the US partly offset by refunds received for the resolution of several tax disputes.

Cash flows and net debt

Operating free cash flow in billions of CHF

Free cash flow in billions of CHF



Free cash flow for the six months ended 30 June

	Pharmaceuticals (CHF m)	Diagnostics (CHF m)	Corporate (CHF m)	Group (CHF m)
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**
2018				
Operating profit – IFRS basis	9,310	831	(329)	9,812
Operating profit cash adjustments	1,633	867	90	2,590
Operating profit, net of operating cash adjustments	**10,943**	**1,698**	**(239)**	**12,402**
(Increase) decrease in net working capital	(1,652)	(708)	(28)	(2,388)
Investments in property, plant and equipment	(1,134)	(559)	(20)	(1,713)
Investments in intangible assets	(257)	(2)	0	(259)
Operating free cash flow	**7,900**	**429**	**(287)**	**8,042**
Treasury activities				(228)
Taxes paid				(1,848)
Free cash flow				**5,966**

See pages 73–75 for definition of free cash flow and a detailed breakdown.

Operating free cash flow decreased by 9% at CER to CHF 7.5 billion. This was due to the higher increase in net working capital, notably the increase in receivables and the higher investments in intangible assets. This was partly offset by the higher growth in the underlying cash generated from operations, as cash revenues grew more than cash expenses.

The free cash flow of CHF 5.3 billion was 13% lower than in the first half of 2018, as a result of lower operating free cash flow, higher net cash outflow from treasury operations and higher tax payments.

Effective 1 January 2019 the Group has implemented IFRS 16 'Leases' and the comparative 2018 results have not been restated. The main impact of the new standard is to bring operating leases onto the balance sheet. The application of the new standard does not materially impact operating free cash flow, as repayment of the principal portion of the lease liabilities paid in the 2019 presentation almost entirely matches the operating lease expenses that were included in operating profit in the 2018 presentation. Net debt is unaffected as the Group's definition of net debt does not include lease liabilities.

Net debt – Movement in carrying value in millions of CHF

At 1 January 2019	
Cash and cash equivalents	6,681
Marketable securities	6,437
Long-term debt	(16,077)
Short-term debt	(2,693)
Net debt at beginning of period	**(5,652)**
Change in net debt during interim period 2019	
Free cash flow	5,277
Dividend payments	(7,574)
Transactions in own equity instruments	(401)
Mergers and acquisitions, net of divestments of subsidiaries	(150)
Hedging and collateral arrangements	(16)
Changes in ownership interests in subsidiaries	(21)
Currency translation, fair value and other movements	138
Change in net debt	**(2,747)**
At 30 June 2019	
Cash and cash equivalents	5,689
Marketable securities	5,483
Long-term debt	(15,398)
Short-term debt	(4,173)
Net debt at end of period	**(8,399)**

Net debt – Currency profile in millions of CHF

	Cash and marketable securities		Debt	
	30 June 2019	31 Dec. 2018	30 June 2019	31 Dec. 2018
US dollar[1)]	2,899	2,598	(14,801)	(14,169)
Euro	2,998	4,553	(1,829)	(1,855)
Swiss franc	2,435	3,106	(2,506)	(2,504)
Japanese yen	2,313	2,214	0	(2)
Pound sterling	32	140	(95)	(95)
Other	495	507	(340)	(145)
Total	**11,172**	**13,118**	**(19,571)**	**(18,770)**

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 2019 was CHF 8.4 billion, an increase of CHF 2.7 billion from 31 December 2018, but a decrease from the CHF 11.7 billion of net debt at 30 June 2018. The increase during the first half of 2019 was mainly due to CHF 7.6 billion for the annual dividend payments which exceeded the free cash flow of CHF 5.3 billion.

Pensions and other post-employment benefits

Funding status and balance sheet position in millions of CHF

	30 June 2019	31 December 2018
Funded plans		
– Fair value of plan assets	16,277	15,264
– Defined benefit obligation	(17,677)	(16,500)
Over (under) funding	**(1,400)**	**(1,236)**
Unfunded plans		
– Defined benefit obligation	(5,523)	(5,020)
Total funding status	**(6,923)**	**(6,256)**
Limit on asset recognition	(2)	(2)
Reimbursement rights	115	118
Net recognised asset (liability)	**(6,810)**	**(6,140)**

Overall the funding status on an IFRS basis of the Group's funded defined benefit plans decreased to 92% compared to 93% at the start of the year. This came mainly from a decrease in the discount rates globally since the end of 2018, partially offset by an increase in the fair value of the plan assets in Switzerland, the US and the UK. 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 increased during the first half of 2019 due to a decrease in the eurozone discount rate.

Further information on the Group's pensions and other post-employment benefits is given in Note 26 to the 2018 Annual Financial Statements.

Debt

During the first half of 2019 the Group issued no debt and there was no redemption of bonds.

Bonds and notes: nominal amounts at 30 June 2019 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)
2019	2,000	–	–	–	2,000	1,953
2020	600	–	–	–	600	586
2021	1,300	1,140[2]	–	–	2,597	2,536
2022	650	–	–	500	1,162	1,135
2023	750	650	77	–	1,586	1,549
2023–2028	5,150	1,000	–	1,250	7,567	7,389
2029 and beyond	2,164	–	–	750	2,932	2,863
Total	**12,614**	**2,790**	**77**	**2,500**	**18,444**	**18,011**

1) Total translated at 30 June 2019 exchange rates.
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.

The Group plans to meet its debt obligations using existing liquid funds as well as cash generated from business operations. In the full year 2018 the free cash flow was CHF 14.8 billion, which included the cash generated from operations, as well as payment of interest and tax. In the first half of 2019 free cash flow was CHF 5.3 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 1.3 billion were outstanding as of 30 June 2019 (31 December 2018: USD 0.6 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 2018 Annual Financial Statements.

Financial risks

As at 30 June 2019 the Group has a net debt position of CHF 8.4 billion (31 December 2018: CHF 5.7 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. A considerable portion of the cash and marketable securities the Group currently holds is being held for debt redemptions. 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

	30 June 2019		31 December 2018	
	(CHF m)	(% of total)	(CHF m)	(% of total)
Cash and cash equivalents	5,689	51	6,681	51
Money market instruments	4,823	43	5,381	41
Debt securities	649	6	1,047	8
Equity securities	11	0	9	0
Total cash and marketable securities	**11,172**	**100**	**13,118**	**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 11.2 billion of cash and fixed income marketable securities remained strong with 90% 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 has trade receivables of CHF 12.7 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 2019 has trade receivables of EUR 0.6 billion (CHF 0.6 billion) with public customers in these countries. This is an increase of 14% compared to 31 December 2018 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 62% 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.

Roche enjoys 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. 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 2019 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 2018 mainly reflecting the reduction in US interest rates during the first six months of 2019.

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 30 to the 2018 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 2019 the Group implemented IFRS 16 'Leases', including any consequential amendments to other standards. The Group has also implemented various minor amendments to existing standards and interpretations, including IFRIC 23 'Uncertainty over Income Tax Treatments', which have no material impact on the Group's overall results and financial position.

New and revised standards applied in 2019

IFRS 16 'Leases'. The Group has implemented the new standard effective 1 January 2019 and has applied the cumulative catch-up method option for the transition, meaning that the comparative 2018 results have not been restated. The main impact of the new standard is to bring operating leases onto the balance sheet. The new standard results in the carrying value of leased assets ('right-of-use assets') being increased by CHF 1.2 billion as of 1 January 2019, with lease liabilities increased by a similar amount. The application of the new standard results in part of what has been previously reported as operating lease costs being recorded as interest expenses. Given the leases involved and the prevailing low interest rate environment, the Group does not currently expect this effect to be material, with the amount in the interim period of 2019 being CHF 8 million.

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 69.

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

As disclosed in Note 1, the Group has changed its accounting policies for leases following the implementation of IFRS 16 'Leases', effective 1 January 2019. The Group has applied the cumulative catch-up method for the transition, meaning that the comparative income statement for the six months ended 30 June 2018 has not been restated. The changes do not have a material impact on the income statement (see Note 1).

Roche Group consolidated income statement for the six months ended 30 June 2018 in millions of CHF

	Pharmaceuticals	Diagnostics	Corporate	Group
Sales [2, 3]	21,847	6,264	–	28,111
Royalties and other operating income [2, 3]	1,375	41	–	1,416
Revenue [2, 3]	**23,222**	**6,305**	**–**	**29,527**
Cost of sales	(5,061)	(2,985)	–	(8,046)
Marketing and distribution	(3,154)	(1,446)	–	(4,600)
Research and development [2]	(4,862)	(750)	–	(5,612)
General and administration	(835)	(293)	(329)	(1,457)
Operating profit [2]	**9,310**	**831**	**(329)**	**9,812**
Financing costs [4]				(383)
Other financial income (expense) [4]				65
Profit before taxes				**9,494**
Income taxes [5]				(1,978)
Net income				**7,516**
Attributable to				
– Roche shareholders				7,309
– Non-controlling interests				207
Earnings per share and non-voting equity security [14]				
Basic (CHF)				8.56
Diluted (CHF)				8.51

As disclosed in Note 1, the Group has changed its accounting policies for leases following the implementation of IFRS 16 'Leases', effective 1 January 2019. The Group has applied the cumulative catch-up method for the transition, meaning that the comparative income statement for the six months ended 30 June 2018 has not been restated. The changes do not have a material impact on the income statement (see Note 1).

Roche Group consolidated statement of comprehensive income in millions of CHF

	Six months ended 30 June	
	2019	2018
Net income recognised in income statement	**8,904**	**7,516**
Other comprehensive income (OCI)		
Remeasurements of defined benefit plans	(514)	535
Fair value changes on equity investments at fair value through OCI	(1)	81
Items that will never be reclassified to the income statement	**(515)**	**616**
Fair value changes on debt investments at fair value through OCI	10	(7)
Cash flow hedges	(21)	(3)
Currency translation of foreign operations	(110)	200
Items that are or may be reclassified to the income statement	**(121)**	**190**
Other comprehensive income, net of tax	**(636)**	**806**
Total comprehensive income	**8,268**	**8,322**
Attributable to		
– Roche shareholders	7,954	8,024
– Non-controlling interests	314	298
Total	**8,268**	**8,322**

As disclosed in Note 1, the Group has changed its accounting policies for leases following the implementation of IFRS 16 'Leases', effective 1 January 2019. The Group has applied the cumulative catch-up method for the transition, meaning that the comparative statement of comprehensive income for the six months ended 30 June 2018 has not been restated. The changes do not have a material impact on the statement of comprehensive income (see Note 1).

Roche Group consolidated balance sheet in millions of CHF

	30 June 2019	31 December 2018
Non-current assets		
Property, plant and equipment	22,065	21,818
Right-of-use assets	1,098	–
Goodwill [8]	8,878	8,948
Intangible assets [9]	9,078	9,346
Deferred tax assets	4,568	3,895
Defined benefit plan assets	887	877
Other non-current assets	1,305	1,389
Total non-current assets	**47,879**	**46,273**
Current assets		
Inventories	6,574	6,621
Accounts receivable	11,760	9,776
Current income tax assets	191	208
Other current assets	2,618	2,521
Marketable securities	5,483	6,437
Cash and cash equivalents	5,689	6,681
Total current assets	**32,315**	**32,244**
Total assets	**80,194**	**78,517**
Non-current liabilities		
Long-term debt [11]	(15,398)	(16,077)
Deferred tax liabilities	(246)	(384)
Defined benefit plan liabilities	(7,697)	(7,017)
Provisions [10]	(1,415)	(1,452)
Other non-current liabilities	(976)	(188)
Total non-current liabilities	**(25,732)**	**(25,118)**
Current liabilities		
Short-term debt [11]	(4,173)	(2,693)
Current income tax liabilities	(3,901)	(3,808)
Provisions [10]	(2,193)	(2,329)
Accounts payable	(3,250)	(3,526)
Other current liabilities	(9,929)	(10,677)
Total current liabilities	**(23,446)**	**(23,033)**
Total liabilities	**(49,178)**	**(48,151)**
Total net assets	**31,016**	**30,366**
Equity		
Capital and reserves attributable to Roche shareholders	28,059	27,622
Equity attributable to non-controlling interests	2,957	2,744
Total equity	**31,016**	**30,366**

As disclosed in Note 1, the Group has changed its accounting policies for leases following the implementation of IFRS 16 'Leases', effective 1 January 2019. The Group has applied the cumulative catch-up method for the transition, meaning that the comparative balance sheet as at 31 December 2018 has not been restated. The transition impact and details of the additional assets and liabilities reported effective 1 January 2019 are provided in Note 1.

Roche Group consolidated statement of cash flows in millions of CHF

	Six months ended 30 June	
	2019	2018
Cash flows from operating activities		
Cash generated from operations [15]	14,092	12,711
(Increase) decrease in net working capital	(3,723)	(2,388)
Payments made for defined benefit plans	(294)	(358)
Utilisation of provisions	(485)	(364)
Disposal of products	436	307
Income taxes paid	(1,911)	(1,848)
Total cash flows from operating activities	**8,115**	**8,060**
Cash flows from investing activities		
Purchase of property, plant and equipment	(1,508)	(1,713)
Purchase of intangible assets	(914)	(259)
Disposal of property, plant and equipment	33	20
Business combinations [6]	(99)	(1,548)[a]
Asset acquisitions [6]	0	(1,675)[a]
Divestment of subsidiaries	2	0
Interest and dividends received	26	9
Sales of equity securities and debt securities	531	389
Purchases of equity securities and debt securities	(123)	(297)
Sales (purchases) of money market instruments and time accounts over three months, net	556	3,582
Other investing cash flows	(12)	184
Total cash flows from investing activities	**(1,508)**	**(1,308)**
Cash flows from financing activities		
Proceeds from issue of bonds and notes [11]	0	0
Redemption and repurchase of bonds and notes [11]	0	(1,152)
Increase (decrease) in commercial paper [11]	741	2,545
Increase (decrease) in other debt	206	151
Hedging and collateral arrangements	(16)	24
Changes in ownership interest in subsidiaries	(21)	0
Equity contribution by non-controlling interests	13	0
Interest paid	(358)	(348)
Principal portion of lease liabilities paid	(178)	–
Dividends paid [15]	(7,574)	(7,178)
Equity-settled equity compensation plans, net of transactions in own equity	(401)	(202)
Other financing cash flows	0	1
Total cash flows from financing activities	**(7,588)**	**(6,159)**
Net effect of currency translation on cash and cash equivalents	(11)	(19)
Increase (decrease) in cash and cash equivalents	**(992)**	**574**
Cash and cash equivalents at beginning of period	6,681	4,719
Cash and cash equivalents at end of period	**5,689**	**5,293**

a) As a result of the amendments to IFRS 3 'Business Combinations' issued in October 2018, which the Group implemented in 2018, the acquisition of Ignyta, Inc. was reassessed and accounted for as an asset acquisition in the 2018 Annual Financial Statements rather than as a business combination as disclosed in the 2018 Interim Financial Statements. The relating cash flows are included in the line 'Asset acquisitions' rather than in the line 'Business combinations'.

As disclosed in Note 1, the Group has changed its accounting policies for leases following the implementation of IFRS 16 'Leases', effective 1 January 2019. The Group has applied the cumulative catch-up method for the transition, meaning that the comparative statement of cash flows for the six months ended 30 June 2018 has not been restated. During the six months ended 30 June 2018, finance lease liabilities paid are included in 'Increase (decrease) in other debt'.

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

	Share capital	Retained earnings	Fair value reserves	Hedging reserves	Translation reserves	Total	Non-controlling interests	Total equity
Six months ended 30 June 2018								
At 1 January 2018	**160**	**33,371**	**48**	**61**	**(7,204)**	**26,436**	**2,566**	**29,002**
Net income recognised in income statement	–	7,309	–	–	–	7,309	207	7,516
Net change in fair value – financial assets at fair value through OCI	–	86	(12)	–	–	74	0	74
Cash flow hedges	–	–	–	(1)	–	(1)	(2)	(3)
Currency translation of foreign operations	–	–	1	1	105	107	93	200
Remeasurements of defined benefit plans	–	535	–	–	–	535	0	535
Total comprehensive income	**–**	**7,930**	**(11)**	**–**	**105**	**8,024**	**298**	**8,322**
Dividends	–	(7,094)	–	–	–	(7,094)	(69)	(7,163)
Equity compensation plans, net of transactions in own equity	–	(12)	–	–	–	(12)	6	(6)
Changes in non-controlling interests	–	(5)	–	–	–	(5)	5	–
At 30 June 2018	**160**	**34,190**	**37**	**61**	**(7,099)**	**27,349**	**2,806**	**30,155**
Six months ended 30 June 2019								
At 1 January 2019	160	34,935	28	47	(7,548)	27,622	2,744	30,366
Implementation of IFRS 16 'Leases' [1]	–	(4)	–	–	–	(4)	0	(4)
At 1 January 2019 (revised)	**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 transactions in own equity	–	(53)	–	–	–	(53)	2	(51)
Changes in ownership interest in 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**

As disclosed in Note 1, the Group has changed its accounting policies for leases following the implementation of IFRS 16 'Leases', effective 1 January 2019. The Group has applied the cumulative catch-up method for the transition, meaning that the comparative statement of changes in equity for the six months ended 30 June 2018 has not been restated. Details of the additional assets and liabilities reported effective 1 January 2019 are provided in Note 1.

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 2019 (hereafter 'the interim period'). These Interim Financial Statements should be read in conjunction with the consolidated financial statements for the year ended 31 December 2018 (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 23 July 2019.

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, except for new significant judgements and key sources of estimation uncertainty related to the application of IFRS 16, which are described in the section 'Changes in accounting policies' below.

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 2019.

Changes in accounting policies

In 2019 the Group has adopted IFRS 16 'Leases', including any consequential amendments to other standards, effective 1 January 2019. The nature and the effects of the changes from implementing IFRS 16 'Leases' most relevant to the Group's financial statements are given below.

The Group has also implemented various other minor amendments to existing standards and interpretations, including IFRIC 23 'Uncertainty over Income Tax Treatments', which have no material impact on the Group's overall results and financial position.

IFRS 16 'Leases'

Effective 1 January 2019 the Group has implemented IFRS 16 'Leases'. IFRS 16 replaces existing leases guidance, including IAS 17 'Leases', and sets out the principles for recognition and measurement of leases. The new standard results in an increased volume of disclosure information in the Annual Financial Statements.

The main effect on the Group as a lessee is that IFRS 16 introduces a single, on-balance sheet lease accounting model. It requires a lessee to recognise assets and liabilities for its leases. The lease liability reflects the present value of the remaining lease payments, and the right-of-use asset corresponds to the lease liability, adjusted for payments made before the lease commencement date, lease incentives and other items related to the lease agreement. As a result right-of-use assets totalling CHF 1,162 million and lease liabilities totalling CHF 1,194 million have been recorded on the balance sheet, effective 1 January 2019.

All transition impacts on the balance sheet are shown in the table below.

Transition impact of IFRS 16 on Roche Group consolidated balance sheet (selected items) in millions of CHF

	As originally published for 31 December 2018	Application of IFRS 16	Revised for 1 January 2019
Property, plant and equipment	21,818	(3)	21,815
Right-of-use assets	–	1,162	1,162
Other current assets	2,521	(24)	2,497
Long-term debt [11]	(16,077)	2	(16,075)
Non-current provisions	(1,452)	16	(1,436)
Other non-current liabilities	(188)	(839)	(1,027)
Short-term debt [11]	(2,693)	2	(2,691)
Current provisions	(2,329)	6	(2,323)
Other current liabilities	(10,677)	(326)	(11,003)
Total net assets	**30,366**	**(4)**	**30,362**
Capital and reserves attributable to Roche shareholders	27,622	(4)	27,618
Equity attributable to non-controlling interests	2,744	0	2,744
Total equity	**30,366**	**(4)**	**30,362**

The weighted average incremental borrowing rate applied to lease liabilities recognised on transition was 1.49%.

The operating lease commitments and finance lease liabilities reported in the 2018 Annual Financial Statements, applying the previous leasing standard IAS 17 can be reconciled to the lease liabilities recognised on transition to IFRS 16 as shown in the table below.

Reconciliation of lease liabilities recognised on transition on 1 January 2019 in millions of CHF

Operating lease commitments (undiscounted) as reported at 31 December 2018 applying IAS 17	1,330
Finance lease liabilities as reported at 31 December 2018 applying IAS 17	4
Recognition exemption for short-term leases and leases of low-value assets	(57)
Lease arrangements with commencement date after 31 December 2018	(89)
Discounting	(56)
Other	62
Lease liabilities recognised on transition on 1 January 2019 applying IFRS 16	**1,194**

The application of the new standard results in part of what has been previously reported as operating lease costs being recorded as interest expenses. Given the leases involved and the prevailing low interest rate environment the Group does not currently expect this effect to be material, with the amount during the six months ended 30 June 2019 being CHF 8 million.

The main impact of the new standard on the statement of cash flows is that cash flows in respect of leases previously reported as operating leases are reported as part of cash flows from financing activities from 1 January 2019. Previously these were included within cash flows from operating activities.

The impact of the new standard on operating segment information is given in Note 2.

Key judgements made in calculating the initial application impact of the new standard include assessing whether arrangements contain a lease and determining the lease term. For determining the lease term extension and termination options have to be considered along with all facts and circumstances that may create an economic incentive to exercise an extension option, or not exercise a termination option. Estimates include calculating the discount rate which is based on the incremental borrowing rate.

For the Group as a lessor the application of the new standard does not have any material effects.

Transition approach and use of practical expedients. The Group has applied the cumulative catch-up method for the transition. The cumulative effect of adopting IFRS 16 has been recognised as an adjustment to the opening balance of retained earnings at 1 January 2019, with no restatement of comparative information. Right-of-use assets are generally measured at an amount equal to the lease liability, adjusted for payments made before the lease commencement date, lease incentives and other items related to the lease agreement that were recognised on the balance sheet immediately before the date of initial application. Some right-of-use assets are measured at their carrying amount as if IFRS 16 had been applied since the lease commencement date, but discounted using the Group's incremental borrowing rate at 1 January 2019. Some practical expedients permitted by the standard are used, notably:

- To not reassess upon transition whether an existing contract contains a lease. The definition of a lease under IFRS 16 has been applied only to contracts entered into or changed on or after 1 January 2019.
- The recognition exemptions for short-term leases and leases of low-value assets.
- For motor vehicles to not separate non-lease components and instead to account for the lease and non-lease components as a single lease component.

Presentational changes. As a result of implementing IFRS 16, the Group has made a number of presentational changes in 2019, notably to present 'Right-of-use assets' as a separate line item in the balance sheet and to include lease liabilities in other current and non-current liabilities. A new note for 'Leases' will be created to include the increased volume of required disclosure information in the Annual Financial Statements.

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 2020 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 2020.

As disclosed in the Annual Financial Statements the Group has early implemented the amendments to IFRS 3 'Business Combinations' issued in October 2018 by the International Accounting Standards Board.

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

	Pharmaceuticals		Diagnostics		Corporate		Group	
Six months ended 30 June	2019	2018	2019	2018	2019	2018	2019	2018
Revenue from external customers								
Sales	24,194	21,847	6,275	6,264	–	–	30,469	28,111
Royalties and other operating income	1,249	1,375	33	41	–	–	1,282	1,416
Total	**25,443**	**23,222**	**6,308**	**6,305**	**–**	**–**	**31,751**	**29,527**
Revenue from other operating segments								
Sales	–	–	5	7	–	–	5	7
Royalties and other operating income	–	–	–	–	–	–	–	–
Elimination of interdivisional revenue							(5)	(7)
Total	**–**	**–**	**5**	**7**	**–**	**–**	**–**	**–**
Segment results								
Operating profit	10,168	9,310	959	831	(286)	(329)	10,841	9,812
Capital expenditure[a]								
Business combinations	0	1,826	0	0	–	–	0	1,826
Asset acquisitions	0	1,581	0	0	–	–	0	1,581
Additions to property, plant and equipment	904	845	695	553	17	21	1,616	1,419
Additions to right-of-use assets	114	–	52	–	6	–	172	–
Additions to intangible assets	616	270	232	2	–	–	848	272
Total	**1,634**	**4,522**	**979**	**555**	**23**	**21**	**2,636**	**5,098**
Research and development								
Research and development costs	5,372	4,862	750	750	–	–	6,122	5,612
Other segment information								
Depreciation of property, plant and equipment	580	556	549	544	35	30	1,164	1,130
Depreciation of right-of-use assets	111	–	54	–	5	–	170	–
Amortisation of intangible assets	674	542	63	86	–	–	737	628
Impairment of property, plant and equipment	27	21	6	0	0	2	33	23
Impairment of right-of-use assets	0	–	0	–	0	–	0	–
Impairment of goodwill	0	107	0	0	–	–	0	107
Impairment of intangible assets	324	166	0	0	–	–	324	166
Equity compensation plan expenses	205	188	41	39	19	19	265	246

a) As a result of the amendments to IFRS 3 'Business Combinations' issued in October 2018, which the Group implemented in 2018, the acquisition of Ignyta, Inc. was reassessed and accounted for as an asset acquisition in the 2018 Annual Financial Statements rather than as a business combination as disclosed in the 2018 Interim Financial Statements. This led to a decrease in capital expenditure for goodwill of CHF 267 million and intangible assets of CHF 103 million, respectively. The relating capital expenditure is included in the line 'Asset acquisitions' rather than in the line 'Business combinations'.

Pharmaceuticals subdivisional information in millions of CHF

Six months ended 30 June	Roche Pharmaceuticals 2019	Roche Pharmaceuticals 2018	Chugai 2019	Chugai 2018	Pharmaceuticals Division 2019	Pharmaceuticals Division 2018
Revenue from external customers						
Sales	22,206	20,066	1,988	1,781	24,194	21,847
Royalties and other operating income	1,208	1,132	41	243	1,249	1,375
Total	**23,414**	**21,198**	**2,029**	**2,024**	**25,443**	**23,222**
Revenue from other operating segments						
Sales	781	686	578	491	1,359	1,177
Royalties and other operating income	11	37	303	89	314	126
Elimination of income within division					(1,673)	(1,303)
Total	**792**	**723**	**881**	**580**	**–**	**–**
Segment results						
Operating profit	9,418	8,727	877	654	10,295	9,381
Elimination of results within division					(127)	(71)
Operating profit	**9,418**	**8,727**	**877**	**654**	**10,168**	**9,310**
Capital expenditure[a]						
Business combinations	0	1,826	0	0	0	1,826
Asset acquisitions	0	1,581	0	0	0	1,581
Additions to property, plant and equipment	624	709	280	136	904	845
Additions to right-of-use assets	72	–	42	–	114	–
Additions to intangible assets	595	263	21	7	616	270
Total	**1,291**	**4,379**	**343**	**143**	**1,634**	**4,522**
Research and development						
Research and development costs	4,957	4,435	455	441	5,412	4,876
Elimination of costs within division					(40)	(14)
Total	**4,957**	**4,435**	**455**	**441**	**5,372**	**4,862**
Other segment information						
Depreciation of property, plant and equipment	512	491	68	65	580	556
Depreciations of right-of-use assets	83	–	28	–	111	–
Amortisation of intangible assets	665	536	9	6	674	542
Impairment of property, plant and equipment	16	21	11	0	27	21
Impairment of right-of-use assets	0	–	0	–	0	–
Impairment of goodwill	0	107	0	0	0	107
Impairment of intangible assets	324	130	0	36	324	166
Equity compensation plan expenses	204	187	1	1	205	188

a) As a result of the amendments to IFRS 3 'Business Combinations' issued in October 2018, which the Group implemented in 2018, the acquisition of Ignyta, Inc. was reassessed and accounted for as an asset acquisition in the 2018 Annual Financial Statements rather than as a business combination as disclosed in the 2018 Interim Financial Statements. This led to a decrease in capital expenditure for goodwill of CHF 267 million and intangible assets of CHF 103 million, respectively. The relating capital expenditure is included in the line 'Asset acquisitions' rather than in the line 'Business combinations'.

Net operating assets in millions of CHF

	Assets		Liabilities		Net assets	
	30 June 2019	31 December 2018	30 June 2019	31 December 2018	30 June 2019	31 December 2018
Pharmaceuticals	42,517	40,246	(11,922)	(12,559)	30,595	27,687
Diagnostics	19,646	18,898	(3,761)	(4,576)	15,885	14,322
Corporate	358	322	(541)	(580)	(183)	(258)
Total operating	**62,521**	**59,466**	**(16,224)**	**(17,715)**	**46,297**	**41,751**
Non-operating	17,673	19,051	(32,954)	(30,436)	(15,281)	(11,385)
Group	**80,194**	**78,517**	**(49,178)**	**(48,151)**	**31,016**	**30,366**

Net operating assets – Pharmaceuticals subdivisional information in millions of CHF

	Assets		Liabilities		Net assets	
	30 June 2019	31 December 2018	30 June 2019	31 December 2018	30 June 2019	31 December 2018
Roche Pharmaceuticals	38,300	36,421	(11,837)	(12,524)	26,463	23,897
Chugai	6,236	5,627	(1,173)	(1,042)	5,063	4,585
Elimination within division	(2,019)	(1,802)	1,088	1,007	(931)	(795)
Pharmaceuticals Division	**42,517**	**40,246**	**(11,922)**	**(12,559)**	**30,595**	**27,687**

Following the implementation of IFRS 16 'Leases' (see Note 1), the Group has changed its accounting policies with respect to leases. The Group has applied the cumulative catch-up method for the transition, meaning that the comparative 2018 results have not been restated.

For the operating segment disclosures the main impact of the new standard is to include right-of-use assets for leases previously reported as operating leases as part of segment operating assets, effective 1 January 2019. Details of the additional segment net operating assets reported, which total to CHF 1,186 million, are given below.

Transition impact of IFRS 16 on segment net operating assets in millions of CHF

	Assets	Liabilities	1 January 2019 Net assets
Roche Pharmaceuticals	647	53	700
Chugai	127	1	128
Pharmaceuticals Division	**774**	**54**	**828**
Diagnostics Division	319	(3)	316
Corporate	42	0	42
Total operating	**1,135**	**51**	**1,186**
Non-operating	–	(1,190)	(1,190)
Group	**1,135**	**(1,139)**	**(4)**

A consequence of the application of the new standard is that the interest element of leases previously reported as operating lease (and reported as part of operating lease costs within the segment results) is recorded as interest expenses, effective 1 January 2019. Given the leases involved and the prevailing low interest rate environment the Group does not currently expect this effect to be material, with the amount during the six months ended 30 June 2019 being CHF 8 million.

3. Revenue

Disaggregated revenue information

Disaggregation of revenue in millions of CHF

	Six months ended 30 June 2019			Six months ended 30 June 2018		
	Revenue from contracts with customers	Revenue from other sources	Total	Revenue from contracts with customers	Revenue from other sources	Total
Pharmaceuticals Division						
Sales by therapeutic area						
Oncology	13,938	–	13,938	13,171	–	13,171
Immunology	4,234	–	4,234	3,928	–	3,928
Neuroscience	2,069	–	2,069	1,383	–	1,383
Ophthalmology	928	–	928	818	–	818
Infectious diseases	594	–	594	684	–	684
Haemophilia A	535	–	535	57	–	57
Other therapeutic areas	1,896	–	1,896	1,806	–	1,806
Sales	**24,194**	**–**	**24,194**	**21,847**	**–**	**21,847**
Royalty income	538	–	538	813	–	813
Income from out-licensing agreements	56	–	56	119	–	119
Income from disposal of products and other	442	213	655	315	128	443
Royalties and other operating income	**1,036**	**213**	**1,249**	**1,247**	**128**	**1,375**
Diagnostics Division						
Sales by business area						
Centralised and Point of Care Solutions	3,449	313	3,762	3,420	335	3,755
Molecular Diagnostics	975	54	1,029	926	53	979
Diabetes Care	957	1	958	989	2	991
Tissue Diagnostics	501	25	526	509	30	539
Sales	**5,882**	**393**	**6,275**	**5,844**	**420**	**6,264**
Royalty income	23	–	23	30	–	30
Income from out-licensing agreements	0	–	0	2	–	2
Income from disposal of products and other	1	9	10	2	7	9
Royalties and other operating income	**24**	**9**	**33**	**34**	**7**	**41**
Total	**31,136**	**615**	**31,751**	**28,972**	**555**	**29,527**

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 ended 30 June	
	2019	2018
Gross sales	29,346	26,359
Government and regulatory mandatory price reductions	(3,275)	(2,934)
Contractual price reductions	(1,400)	(1,133)
Cash discounts	(171)	(176)
Customer returns reserves	(112)	(155)
Others	(194)	(114)
Net sales	**24,194**	**21,847**

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 2.8 billion (six months ended 30 June 2018: USD 2.8 billion equivalent to CHF 2.7 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

	Six months ended 30 June	
	2019	2018
Interest expense	(318)	(293)
Amortisation of debt discount [11]	(6)	(5)
Net gains (losses) on redemption and repurchase of bonds and notes [11]	0	0
Discount unwind	(11)	(14)
Net interest cost of defined benefit plans	(71)	(71)
Interest expenses on lease liabilities	(8)	–
Total financing costs	**(414)**	**(383)**

Other financial income (expense) in millions of CHF

	Six months ended 30 June	
	2019	2018
Net gains (losses) on equity investments / securities at fair value through profit or loss	(39)	117
Dividend income from equity investments / securities at fair value through profit or loss	0	0
Dividend income from equity investments at fair value through OCI	1	0
Net income from equity securities	**(38)**	**117**
Interest income from debt securities at fair value through OCI and at amortised cost	36	15
Net gains (losses) on sale of debt securities at fair value through OCI	5	5
Net interest income and income from debt securities	**41**	**20**
Net foreign exchange gains (losses)	(33)	(124)
Net gains (losses) on foreign currency derivatives	(33)	39
Foreign exchange gains (losses)	**(66)**	**(85)**
Gains (losses) on net monetary position in hyperinflationary economies	(10)	0
Net other financial income (expense)	5	(3)
Associates	(5)	16
Total other financial income (expense)	**(73)**	**65**

Net financial expense in millions of CHF

	Six months ended 30 June	
	2019	2018
Financing costs	(414)	(383)
Other financial income (expense)	(73)	65
Net financial expense	**(487)**	**(318)**
Financial result from Treasury management	(411)	(263)
Financial result from Pension management	(71)	(71)
Associates	(5)	16
Net financial expense	**(487)**	**(318)**

As disclosed in Note 1, following the implementation of IFRS 16, the Group has changed its accounting policies with respect to leases. The Group has applied the cumulative catch-up method for the transition, meaning that the comparative 2018 results have not been restated. The application of the new standard results in part of what has been previously reported as operating lease costs being recorded as interest expenses. Given the leases involved and the prevailing low interest rate environment the Group does not expect this effect to be material, with the amount during the six months ended 30 June 2019 being CHF 8 million.

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 2019.

Income tax expenses in millions of CHF

	Six months ended 30 June	
	2019	2018
Current income taxes	(2,105)	(2,299)
Deferred taxes	655	321
Total income tax (expense)	**(1,450)**	**(1,978)**

The Group's effective tax rate for the six months ended 30 June 2019 decreased to 14.0% (six months ended 30 June 2018: 20.8%). The main drivers for the decrease were the resolution of several tax disputes, the impact from the Swiss tax reform and the deferred tax impact from equity compensation plans, which varies according to the price of the underlying equities.

The resolution of several tax disputes resulted in a positive income statement impact of CHF 242 million.

In Switzerland changes to the Swiss federal and canton Basel-Stadt tax laws were enacted during the six months ended 30 June 2019. The relevant changes for the Group include a decrease in the Basel-Stadt tax rate, effective from 1 January 2019, and new limitations. These changes do not reduce the Group's effective tax rate in Basel-Stadt. The Group has carried out a remeasurement of its deferred tax positions and the impacted net deferred tax liability positions on the balance sheet were reduced by CHF 207 million. The deferred tax remeasurement, which does not have an impact on tax payments, resulted in a transitional deferred tax income of CHF 235 million during the six months ended 30 June 2019. The remaining adjustments of CHF 28 million were recorded to other comprehensive income, in so far as they relate to temporary differences arising on items that were themselves recorded to other comprehensive income, such as actuarial gains/losses on Swiss pension plans. Changes in the tax laws in other Swiss cantons where the Group operates are currently under discussion.

6. Mergers and acquisitions

Future business combinations

Spark Therapeutics, Inc. On 25 February 2019 the Group announced that it had entered into a definitive merger agreement dated as of 22 February 2019 (as amended, the 'Merger Agreement') to fully acquire Spark Therapeutics, Inc. ('Spark Therapeutics') at a price of USD 114.50 per share in an all-cash transaction. This corresponds to a total transaction value of approximately USD 4.3 billion on a fully diluted basis. Spark Therapeutics has filed a recommendation statement containing the unanimous recommendation of the Spark Therapeutics board that Spark Therapeutics' shareholders tender their shares to Roche.

Spark Therapeutics is a publicly owned US company based in Philadelphia, Pennsylvania, that is listed on Nasdaq under the stock ticker 'ONCE', and is a fully integrated commercial company committed to discovering, developing and delivering gene therapies. The company challenges the inevitability of genetic diseases, including blindness, haemophilia, lysosomal storage disorders and neurodegenerative diseases.

The closing of the transaction is subject to a majority of Spark Therapeutics' outstanding shares being tendered in the tender offer. The offering period for the tender offer expires at 5:00 p.m., New York City time on 31 July 2019, unless it is extended further under the circumstances set forth in the Merger Agreement. In addition, the transaction is subject to the expiration or termination of the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976 and other customary closing conditions. Under the terms of the Merger Agreement, either the Group or Spark Therapeutics have the right to terminate the Merger Agreement if the tender offer has not been consummated on or before 31 December 2019; provided that either party may extend this date to 30 April 2020 if at such time certain regulatory conditions with respect to antitrust laws have not been satisfied. Regulatory review of the transaction is ongoing, and the parties are actively working with the US and UK authorities to facilitate that process. The closing of the transaction is currently expected to take place in 2019.

Business combinations – 2019

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

Business combinations – 2018

Flatiron Health, Inc. On 5 April 2018 the Group acquired a 100% controlling interest in Flatiron Health, Inc. ('Flatiron Health'), a US privately owned company based in New York City. Flatiron Health is reported in the Pharmaceuticals Division. The total consideration was USD 1,616 million, which was paid in cash.

Cash flows from business combinations

Business combinations: net cash outflow in millions of CHF

	Six months ended 30 June 2019			Six months ended 30 June 2018		
	Pharmaceuticals	Diagnostics	Total	Pharmaceuticals	Diagnostics	Total
Cash consideration paid	0	0	0	(1,553)	0	(1,553)
Deferred consideration paid	0	(3)	(3)	0	(1)	(1)
Contingent consideration paid [16]	(31)	(65)	(96)	(10)	(5)	(15)
Cash in acquired company	0	0	0	21	0	21
Total net cash outflow	**(31)**	**(68)**	**(99)**	**(1,542)**	**(6)**	**(1,548)**

During the six months ended 30 June 2018 directly attributable transaction costs for business combinations amounted to CHF 2 million and were included in the cash flow from operating activities. During the six months ended 30 June 2019 the Group did not incur any such costs.

Asset acquisitions – 2019

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

Asset acquisitions – 2018

Ignyta, Inc. On 8 February 2018 the Group acquired a 100% controlling interest in Ignyta, Inc. ('Ignyta'), a publicly owned US company based in San Diego, California, that had been listed on Nasdaq. Ignyta is reported in the Pharmaceuticals Division. The total consideration was USD 1,949 million, which was paid in cash.

As a result of the amendments to IFRS 3 'Business Combinations' issued in October 2018, which the Group implemented in 2018, the acquisition of Ignyta was reassessed and accounted for as an asset acquisition in the 2018 Annual Financial Statements rather than as a business combination as disclosed in the 2018 Interim Financial Statements. This led to a decrease in goodwill of CHF 267 million, a decrease in intangible assets of CHF 103 million and a decrease in deferred tax liabilities of CHF 370 million.

Cash flows from asset acquisitions

Asset acquisitions: net cash outflow in millions of CHF

	Six months ended 30 June 2019			Six months ended 30 June 2018		
	Pharmaceuticals	Diagnostics	Total	Pharmaceuticals	Diagnostics	Total
Cash consideration paid	0	0	0	(1,839)	0	(1,839)
Cash in acquired company	0	0	0	164	0	164
Total net cash outflow	**0**	**0**	**0**	**(1,675)**	**0**	**(1,675)**

During the six months ended 30 June 2018 directly attributable transaction costs for acquisitions other than business combinations amounted to CHF 7 million and were included in the cash flow from operating activities. During the six months ended 30 June 2019 the Group did not incur any such costs.

7. Global restructuring plans

During the six months ended 30 June 2019 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 [1]	Site consolidation [2]	Other plans [3]	Total
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	**155**	**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**
Six months ended 30 June 2018				
Global restructuring costs				
– Employee-related costs	61	82	118	261
– Site closure costs	16	46	5	67
– Divestment of products and businesses	(2)	0	0	(2)
– Other reorganisation expenses	37	7	57	101
Total global restructuring costs	**112**	**135**	**180**	**427**
Additional costs				
– Impairment of goodwill	0	0	0	0
– Impairment of intangible assets	0	0	0	0
– Legal and environmental cases	6	14	0	20
Total costs	**118**	**149**	**180**	**447**

1) Includes strategy plans in the Diagnostics Division.
2) Includes the Pharmaceuticals Division's strategic realignment of its manufacturing network and resourcing flexibility in biologics manufacturing network.
3) Includes plans for the outsourcing of IT and other functions to shared service centres and external providers.

Diagnostics Division

During the six months ended 30 June 2019 strategy plans in the Diagnostics Division incurred costs of CHF 88 million mainly for employee-related costs. IT process optimisation plans incurred costs of CHF 46 million.

Site consolidation

During the six months ended 30 June 2019 costs for the resourcing flexibility plan in the biologics manufacturing network were CHF 72 million which included the closure of the manufacturing plant in Rio de Janeiro in Brazil. The expected costs of the environmental remediation at the Clarecastle site were reassessed and resulted in an increase in the provisions by CHF 44 million.

Other global restructuring plans

During the six months ended 30 June 2019 the major items were CHF 46 million of employee-related costs at Chugai and CHF 42 million for plans for the outsourcing of IT and other functions to shared service centres and external providers. Other plans include the resourcing flexibility plans in the Pharmaceuticals Division, with costs of CHF 44 million.

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

	Six months ended 30 June	
	2019	2018
Termination costs	264	231
Defined benefit plans	10	(10)
Other employee-related costs	43	40
Total employee-related costs	**317**	**261**
Impairment of property, plant and equipment and right-of-use assets	0	(2)
Accelerated depreciation of property, plant and equipment and right-of-use assets	31	20
(Gains) losses on disposal of property, plant and equipment and right-of-use assets	2	3
Other site closure costs	18	46
Total site closure costs	**51**	**67**
Divestment of products and businesses		
– (Gains) losses on divestment of subsidiaries	(14)	0
– Other (gains) losses on divestment of products and businesses	(2)	(2)
Total costs on divestment of products and businesses	**(16)**	**(2)**
Other reorganisation expenses	125	101
Total global restructuring costs	**477**	**427**

Global restructuring plans: classification of costs in millions of CHF

	Six months ended 30 June 2019			Six months ended 30 June 2018		
	Depreciation, amortisation and impairment	Other	Total	Depreciation, amortisation and impairment	Other	Total
Royalties and other operating income						
– Pharmaceuticals	–	0	0	–	0	0
– Diagnostics	–	0	0	–	(2)	(2)
Cost of sales						
– Pharmaceuticals	18	85	103	13	100	113
– Diagnostics	4	64	68	5	59	64
Marketing and distribution						
– Pharmaceuticals	0	52	52	0	20	20
– Diagnostics	0	33	33	0	15	15
Research and development						
– Pharmaceuticals	3	70	73	0	40	40
– Diagnostics	5	54	59	0	26	26
General and administration						
– Pharmaceuticals	0	63	63	0	40	40
– Diagnostics	1	(6)	(5)	0	15	15
– Corporate	0	75	75	0	116	116
Total	**31**	**490**	**521**	**18**	**429**	**447**
Total by operating segment						
– Roche Pharmaceuticals	18	224	242	13	200	213
– Chugai	3	46	49	0	0	0
– Diagnostics	10	145	155	5	113	118
– Corporate	0	75	75	0	116	116
Total	**31**	**490**	**521**	**18**	**429**	**447**

8. Goodwill

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

Six months ended 30 June 2019	
At 1 January 2019	8,948
Currency translation effects	(70)
At 30 June 2019	**8,878**
Allocated by operating segment	
Roche Pharmaceuticals	3,753
Chugai	100
Diagnostics	5,025
Total Group	**8,878**

Impairment charges – 2019

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

Impairment charges – 2018

During the six months ended 30 June 2018 impairment charges totalling CHF 107 million were recorded which related to:

- A charge of CHF 107 million in the Pharmaceuticals Division for the full write-off of goodwill from the Trophos acquisition in 2015 which is deemed to have been disposed of.

9. Intangible assets

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

	Product intangibles: in use	Product intangibles: not available for use	Marketing intangibles: in use	Technology intangibles: in use	Total
Six months ended 30 June 2019					
At 1 January 2019	5,180	3,776	146	244	9,346
Additions	298	216	24	310	848
Transfers	379	(379)	0	0	–
Amortisation charge	(655)	–	(21)	(61)	(737)
Impairment charge	(2)	(322)	0	0	(324)
Currency translation effects	(29)	(19)	0	(7)	(55)
At 30 June 2019	**5,171**	**3,272**	**149**	**486**	**9,078**
Allocated by operating segment					
Roche Pharmaceuticals	4,015	3,238	56	454	7,763
Chugai	20	31	52	0	103
Diagnostics	1,136	3	41	32	1,212
Total Group	**5,171**	**3,272**	**149**	**486**	**9,078**

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

	Amortisation		Impairment	
Six months ended 30 June	2019	2018	2019	2018
Cost of sales				
– Pharmaceuticals	(555)	(472)	0	0
– Diagnostics	(56)	(75)	0	0
Marketing and distribution				
– Pharmaceuticals	(17)	(12)	0	0
– Diagnostics	(4)	(2)	0	0
Research and development				
– Pharmaceuticals	(102)	(58)	(324)	(166)
– Diagnostics	(3)	(9)	0	0
Total	**(737)**	**(628)**	**(324)**	**(166)**

Impairment charges – 2019

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

- A charge of CHF 125 million due to the decision to stop the development of a compound. The asset concerned, which was not yet being amortised, was fully written down.
- A charge of CHF 69 million following a clinical data assessment. The asset concerned, which was not yet being amortised, was fully written down.
- A charge of CHF 68 million due to clinical data assessment of a compound. 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.

Impairment charges – 2018

Pharmaceuticals Division. Impairment charges totalling CHF 166 million were recorded. The major items related to:

- A charge of CHF 100 million due to the decision to stop the development of the compound acquired as part of the Trophos acquisition. The asset concerned, which was not yet being amortised, was fully written down.
- A charge of CHF 36 million following a clinical data assessment. The asset concerned, which was not yet being amortised, was fully written down.
- A charge of CHF 24 million due to the decision to stop the development of one compound 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 2019	31 December 2018
Legal provisions	531	578
Environmental provisions	519	491
Restructuring provisions	865	868
Contingent consideration provisions [16]	286	511
Other provisions	1,407	1,333
Total provisions	**3,608**	**3,781**
Current	2,193	2,329
Non-current	1,415	1,452
Total provisions	**3,608**	**3,781**

During the six months ended 30 June 2019 CHF 584 million of provisions were utilised (six months ended 30 June 2018: CHF 380 million), of which CHF 485 million (six months ended 30 June 2018: CHF 364 million) are included in the cash flow from operating activities and mainly related to the utilisation of restructuring and other provisions, and CHF 99 million (six months ended 30 June 2018: CHF 16 million) are included in the cash flows from business combinations for payments made from deferred and contingent consideration arrangements (see Note 6).

During the six months ended 30 June 2019 there was CHF 135 million of income from the release of contingent consideration provisions, mainly due to the reversal of the remaining provisions related to the Ariosa and GeneWeave acquisitions (six months ended 30 June 2018: net income of CHF 75 million). Further information on the contingent consideration provisions is disclosed in Note 16.

As part of the regular review of litigation and environmental matters, management has reassessed the provisions recorded for certain of those matters. The legal and environmental cases include an increase in environmental provisions of CHF 54 million, mainly for the environmental remediation at the Clarecastle site, Ireland. This was a major element in the expenses for legal and environmental cases of CHF 68 million during the six months ended 30 June 2019 (six months ended 30 June 2018: 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.

Avastin/Lucentis investigations. On 14 February 2013 the Italian Antitrust Authority ('AGCM') announced an investigation to determine whether Roche, Genentech and Novartis had entered into an agreement to restrict competition in the Italian market for drugs, with reference in particular to Avastin (marketed by Roche) and Lucentis (marketed by Novartis). Avastin and Lucentis are two different drugs that were developed and approved for different therapeutic purposes and contain different active pharmaceutical ingredients. On 5 March 2014 the AGCM issued a verdict that alleges that Roche and Novartis colluded to artificially differentiate Avastin and Lucentis in order to foster the sales of Lucentis in Italy. The AGCM fined Roche EUR 90.5 million and Novartis EUR 92 million. Roche appealed the AGCM verdict to the Tribunale Amministrativo Regionale del Lazio ('TAR'). On 2 December 2014 the TAR upheld the decision by the AGCM. Roche appealed the verdict of the TAR to the Consiglio di Stato. On 30 May 2014 the Italian Ministry of Health notified Roche S.p.A. of its intention to seek damages related to this matter. In July 2014 Roche paid the EUR 90.5 million fine under protest to avoid additional penalty fees and recorded an expense within general and administration. On 23 January 2018 the European Court of Justice rendered its decision on five questions which were referred to the European Court of Justice by the Consiglio di Stato. On 15 July 2019 the Consiglio di Stato issued the final verdict on the case and upheld the verdicts of both the AGCM and the TAR. With respect to the fine of the AGCM, this matter is now concluded.

PDL-1 inhibitor litigation. The litigation related to the lawsuit filed by Bristol-Myers Squibb Co. ('BMS') against Genentech, Inc. ('Genentech') in 2017 is described in Note 20 to the Annual Financial Statements. In May 2019 BMS and Genentech agreed to drop the lawsuit without prejudice to the case being refiled at a later date. The outcome of this matter cannot be determined at this time.

Hemlibra (emicizumab) litigation. The litigation related to Hemlibra (emicizumab) is described in Note 20 to the Annual Financial Statements. On 1 February 2019 the US District Court issued a final judgment in favour of Genentech stating that Hemlibra does not infringe Baxalta's patent based on the Court's definition of key terms related to the patent. On 8 February 2019 Baxalta appealed this decision. The Group will vigorously defend itself in this matter. The outcome of this matter cannot be determined at this time.

Securities Litigation. The litigation related to claims under the federal securities laws is described in Note 20 to the Annual Financial Statements. On 17 June 2019 the US District Court granted the Group's motion to dismiss the third amended complaint concluding that there was nothing misleading in the public disclosures. The matter is now concluded.

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 2019	
At 1 January 2019	18,770
Reclassification to lease liabilities on implementation of IFRS 16 'Leases' [1]	(4)
Revised carrying value at 1 January 2019	**18,766**
Proceeds from issue of bonds and notes	0
Redemption and repurchase of bonds and notes	0
Increase (decrease) in commercial paper	741
Increase (decrease) in other debt	206
Changes from financing cash flows	**947**
Net (gains) losses on redemption and repurchase of bonds and notes [4]	0
Amortisation of debt discount [4]	6
Financing costs	**6**
Net foreign currency transaction (gains) losses	(7)
Currency translation effects	(167)
Changes in foreign exchange rates	**(174)**
Changes in fair values of hedging instruments	26
Other changes	0
At 30 June 2019	**19,571**
Bonds and notes	17,931
Commercial paper	1,297
Amounts due to banks and other financial institutions	340
Other borrowings	3
Total debt	**19,571**
Long-term debt	15,398
Short-term debt	4,173
Total debt	**19,571**

Issuance of bonds and notes – 2019

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

Issuance of bonds and notes – 2018

During the six months ended 30 June 2018 the Group did not issue 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.

Redemption and repurchase of bonds and notes – 2018

Redemption of Euro bonds. On the due date of 25 June 2018 the Group redeemed the 2.00% fixed rate bonds with a principal amount of EUR 1.0 billion. The cash outflow was CHF 1,152 million, plus accrued interest. The effective interest rate of these bonds was 2.07%.

Cash flows from redemption and repurchase of bonds and notes

Cash outflows from redemption and repurchase of bonds and notes in millions of CHF

	Six months ended 30 June	
	2019	2018
Euro Medium Term Note programme – Euro notes	0	(1,152)
Total cash outflows from redemption and repurchase of bonds and notes	**0**	**(1,152)**

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 total committed credit lines that are available as a back-stop supporting the commercial paper program are USD 7.5 billion at 30 June 2019. On 3 July 2019 the existing committed credit lines were refinanced by one new committed credit line of USD 7.5 billion with an initial maturity of five years. The maturity of the notes under the program cannot exceed 365 days from the date of issuance. At 30 June 2019 unsecured commercial paper notes with a principal amount of USD 1.3 billion and an average interest rate of 2.375% were outstanding.

Movements in commercial paper obligations in millions of CHF

Six months ended 30 June 2019	
At 1 January 2019	578
Net cash proceeds (payments)	741
Currency translation effects	(22)
At 30 June 2019	**1,297**

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 2019. The weighted average number of shares and non-voting equity securities in issue during the six months ended 30 June 2019 was 856 million (six months ended 30 June 2018: 854 million).

Dividends

On 5 March 2019 the shareholders approved the distribution of a dividend of CHF 8.70 per share and non-voting equity security (2018: CHF 8.30) in respect of the 2018 business year. The distribution to holders of outstanding shares and non-voting equity securities totalled CHF 7,449 million (2018: CHF 7,094 million) and has been recorded against retained earnings in the six months ended 30 June 2019.

Own equity instruments

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

	30 June 2019 (millions)	31 December 2018 (millions)
Shares	0	0
Non-voting equity securities	6.5	8.1
Total	**6.5**	**8.1**

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 8,619 million (six months ended 30 June 2018: CHF 7,309 million) and the dividend payments described above, retained earnings also include losses on remeasurements of defined benefit plans of CHF 514 million, after tax (six months ended 30 June 2018: gains of CHF 535 million, after tax). These were based on updated actuarial calculations for major plans and the losses were mainly due to changes in discount rates since the end of 2018.

13. Subsidiaries and associates

Chugai

Chugai is a fully consolidated subsidiary of the Group and at 30 June 2019 the Group's interest in Chugai was 61.2% (31 December 2018: 61.3%). The common stock of Chugai is publicly traded and is listed on the Tokyo Stock Exchange under the stock code 'TSE:4519'. 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 2019 totalled CHF 106 million (six months ended 30 June 2018: CHF 62 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

	Six months ended 30 June	
	2019	2018
Net income attributable to Roche shareholders (CHF millions)	**8,619**	**7,309**
Number of shares (millions)	160	160
Number of non-voting equity securities (millions)	703	703
Weighted average number of own shares and non-voting equity securities held (millions)	(7)	(9)
Weighted average number of shares and non-voting equity securities in issue used to calculate basic earnings per share (millions)	**856**	**854**
Basic earnings per share and non-voting equity security (CHF)	**10.07**	**8.56**

Diluted earnings per share and non-voting equity security

	Six months ended 30 June	
	2019	2018
Net income attributable to Roche shareholders (CHF millions)	8,619	7,309
Increase in non-controlling interests' share of Group net income, assuming all outstanding Chugai stock options exercised (CHF millions)	(1)	(1)
Net income used to calculate diluted earnings per share (CHF millions)	**8,618**	**7,308**
Weighted average number of shares and non-voting equity securities in issue (millions)	856	854
Adjustment for assumed exercise of equity compensation plans, where dilutive (millions)	7	5
Weighted average number of shares and non-voting equity securities in issue used to calculate diluted earnings per share (millions)	**863**	**859**
Diluted earnings per share and non-voting equity security (CHF)	**9.99**	**8.51**

15. Statement of cash flows

Cash generated from operations in millions of CHF

	Six months ended 30 June	
	2019	2018
Net income	8,904	7,516
Add back non-operating (income) expense		
– Financing costs [4]	414	383
– Other financial (income) expense [4]	73	(65)
– Income taxes [5]	1,450	1,978
Operating profit	**10,841**	**9,812**
Depreciation of property, plant and equipment [2]	1,164	1,130
Depreciation of right-of-use assets [2]	170	–
Amortisation of intangible assets [2]	737	628
Impairment of goodwill [2]	0	107
Impairment of intangible assets [2]	324	166
Impairment of property, plant and equipment [2]	33	23
Impairment of right-of-use assets [2]	0	–
Operating (income) expense for defined benefit plans	312	231
Operating expense for equity-settled equity compensation plans	253	234
Net (income) expense for provisions	440	539
Bad debt (reversal) expense	2	32
Inventory write-downs	313	133
Net (gain) loss on disposal of products	(436)	(307)
Other adjustments	(61)	(17)
Cash generated from operations	**14,092**	**12,711**

As disclosed in Note 1, the Group has changed its accounting policies for leases following the implementation of IFRS 16 'Leases', effective 1 January 2019. The Group has applied the cumulative catch-up method for the transition, meaning that the comparative statement of cash flows for the six months ended 30 June 2018 has not been restated. The main impact of the new standard on the statement of cash flows is that cash flows in respect of leases previously reported as operating leases are reported as part of cash flows from financing activities from 1 January 2019. Previously these were included within cash flows from operating activities.

Dividends paid in millions of CHF

	Six months ended 30 June	
	2019	2018
Dividends to Roche Group shareholders	(7,449)	(7,094)
Dividends to non-controlling shareholders		
– Chugai	(106)	(62)
– Other non-controlling interests	0	(7)
Increase (decrease) in dividends payable	1	8
Dividend withholding tax	(20)	(23)
Total	**(7,574)**	**(7,178)**

16. Financial risk management

The Group's financial risk management objectives and policies are consistent with those disclosed in Note 30 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 2019				
Marketable securities:				
– Equity securities at fair value through profit or loss	11	–	–	11
– Debt securities at fair value through OCI	572	77	–	649
– Money market instruments at fair value through OCI	–	3,315	–	3,315
Derivative financial instruments	–	79	–	79
Equity investments at fair value through OCI	–	97	–	97
Equity investments at fair value through profit or loss	216	210	–	426
Financial assets recognised at fair value	**799**	**3,778**	**–**	**4,577**
Derivative financial instruments	–	(155)	–	(155)
Contingent consideration	–	–	(286)	(286)
Financial liabilities recognised at fair value	**–**	**(155)**	**(286)**	**(441)**

At 30 June 2019 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 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 2019.

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 2019	
At 1 January 2019	(511)
Utilised for settlements [6]	96
Total gains and losses included in the income statement	
– Unused amounts reversed – recorded within general and administration	135
– Additional amounts created – recorded within general and administration	0
– Discount unwind included in financing costs	(6)
Total gains and losses included in other comprehensive income	
– Currency translation effects	0
At 30 June 2019	**(286)**

During the six months ended 30 June 2019 contingent consideration provisions decreased mainly due to the reversal of some of the provisions and to the payment of milestones. Payments of CHF 96 million were made for milestones related to the Dutalys, Santaris, Ariosa, GeneWeave and Genia acquisitions. There was CHF 135 million of income, mainly from the reversal of the remaining provisions related to the Ariosa and GeneWeave acquisitions.

Contingent consideration arrangements

The Group is party to certain contingent consideration arrangements arising from business combinations. The fair values are determined considering the expected payments, discounted to present value using risk-adjusted average discount rate of 3.1% at 30 June 2019 (31 December 2018: 3.6%). 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 2019 the total potential payments under contingent consideration arrangements could be up to CHF 0.7 billion (31 December 2018: CHF 1.0 billion).

Carrying value and fair value

At 30 June 2019 the carrying value of bonds and notes is CHF 17.9 billion compared to a fair value of CHF 19.3 billion and the carrying value of total debt is CHF 19.6 billion compared to a fair value of CHF 20.9 billion. The carrying values of financial assets are a reasonable approximation of the fair values at 30 June 2019.

KPMG

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 2019 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 39 to 68. 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

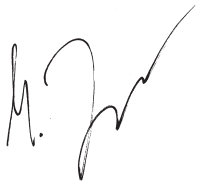
We conducted our review in accordance with the International Standard on Review Engagements 2410, 'Review of Interim Financial Information Performed by the Independent Auditor of the Entity'. A review of interim financial information consists of making inquiries, primarily of persons responsible for 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 2019 are not prepared, in all material respects, in accordance with International Accounting Standard 34 'Interim Financial Reporting'.

KPMG AG

Mark Baillache
Licensed Audit Expert



Marc Ziegler
Licensed Audit Expert

Basel, 23 July 2019

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

KPMG AG is a subsidiary of KPMG Holding AG, which is a member of the KPMG network of independent firms affiliated with KPMG International Cooperative ('KPMG International'), a Swiss legal entity. All rights reserved.

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 2019 in millions of CHF

	IFRS	Global restructuring	Intangibles amortisation	Intangibles impairment	M&A and alliance transactions	Legal & environmental	Pension plan settlements	Global issues	Normalisation of ECP tax 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	–	–	0	–	–	(7,868)
Marketing and distribution	(4,906)	85	21	0	–	–	0	–	–	(4,800)
Research and development	(6,122)	132	105	324	–	–	0	–	–	(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

Core results reconciliation – Six months ended 30 June 2018 in millions of CHF

	IFRS	Global restructuring	Intangibles amortisation	Intangibles impairment	M&A and alliance transactions	Legal & environmental	Pension plan settlements	Global issues	Normalisation of ECP tax benefit	Core
Sales	28,111	–	–	–	–	–	–	–	–	28,111
Royalties and other operating income	1,416	(2)	–	–	–	–	–	–	–	1,414
Cost of sales	(8,046)	177	547	0	–	–	0	–	–	(7,322)
Marketing and distribution	(4,600)	35	14	0	–	–	0	–	–	(4,551)
Research and development	(5,612)	66	67	166	–	–	0	–	–	(5,313)
General and administration	(1,457)	151	–	107	(46)	68	0	–	–	(1,177)
Operating profit	**9,812**	**427**	**628**	**273**	**(46)**	**68**	**0**	**–**	**–**	**11,162**
Financing costs	(383)	1	–	–	8	5	–	–	–	(369)
Other financial income (expense)	65	–	–	–	0	–	–	–	–	65
Profit before taxes	**9,494**	**428**	**628**	**273**	**(38)**	**73**	**0**	**–**	**–**	**10,858**
Income taxes	(1,978)	(73)	(106)	(39)	(7)	(12)	0	0	36	(2,179)
Net income	**7,516**	**355**	**522**	**234**	**(45)**	**61**	**0**	**0**	**36**	**8,679**
Attributable to										
– Roche shareholders	7,309	355	512	224	(45)	60	0	0	36	8,451
– Non-controlling interests	207	0	10	10	–	1	–	–	–	228

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	–	–	0	(4,939)
Marketing and distribution	(3,464)	52	17	0	–	–	0	(3,395)
Research and development	(5,372)	73	102	324	–	–	0	(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	–	–	0	(2,929)
Marketing and distribution	(1,442)	33	4	0	–	–	0	(1,405)
Research and development	(750)	59	3	0	–	–	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)**

Divisional core results reconciliation – Six months ended 30 June 2018 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	21,847	–	–	–	–	–	–	21,847
Royalties and other operating income	1,375	0	–	–	–	–	–	1,375
Cost of sales	(5,061)	113	472	0	–	–	0	(4,476)
Marketing and distribution	(3,154)	20	12	0	–	–	0	(3,122)
Research and development	(4,862)	40	58	166	–	–	0	(4,598)
General and administration	(835)	26	–	107	(41)	18	0	(725)
Operating profit	**9,310**	**199**	**542**	**273**	**(41)**	**18**	**0**	**10,301**
Diagnostics								
Sales	6,264	–	–	–	–	–	–	6,264
Royalties and other operating income	41	(2)	–	–	–	–	–	39
Cost of sales	(2,985)	64	75	0	–	–	0	(2,846)
Marketing and distribution	(1,446)	15	2	0	–	–	0	(1,429)
Research and development	(750)	26	9	0	–	–	0	(715)
General and administration	(293)	9	–	0	(5)	50	0	(239)
Operating profit	**831**	**112**	**86**	**0**	**(5)**	**50**	**0**	**1,074**
Corporate								
General and administration	(329)	116	–	–	0	0	0	(213)
Operating profit	**(329)**	**116**	**–**	**–**	**0**	**0**	**0**	**(213)**

Core EPS (basic)

	Six months ended 30 June	
	2019	2018
Core net income attributable to Roche shareholders (CHF millions)	9,595	8,451
Weighted average number of shares and non-voting equity securities in issue used to calculate basic earnings per share (millions) [14]	856	854
Core earnings per share (basic) (CHF)	**11.21**	**9.89**

Core EPS (diluted)

	Six months ended 30 June	
	2019	2018
Core net income attributable to Roche shareholders (CHF millions)	9,595	8,451
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)	**9,594**	**8,450**
Weighted average number of shares and non-voting equity securities in issue used to calculate diluted earnings per share (millions) [14]	**863**	**859**
Core earnings per share (diluted) (CHF)	**11.12**	**9.84**

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.

Effective 1 January 2019 the Group has implemented IFRS 16 'Leases' and the comparative 2018 results have not been restated. The main impact of the new standard is to bring operating leases onto the balance sheet. The application of the new standard does not materially impact operating free cash flow, as repayment of the principal portion of the lease liabilities paid in the 2019 presentation almost entirely matches the operating lease expenses that were included in operating profit in the 2018 presentation.

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

	Six months ended 30 June	
	2019	2018
Cash flows from operating activities (IFRS basis in accordance with IAS 7)	**8,115**	**8,060**
Add back		
– Income taxes paid	1,911	1,848
Deduct		
– Investments in property, plant and equipment	(1,508)	(1,713)
– Principal portion of lease liabilities paid	(178)	–
– Investments in intangible assets	(914)	(259)
– Disposal of property, plant and equipment	33	20
– Disposal of intangible assets	0	0
Pensions and other post-employment benefits		
– Add back total payments for defined benefit plans	294	358
– Deduct allocation of payments to operating free cash flow	(298)	(284)
Acquisition-related items, including transaction costs	53	12
Other operating items	0	0
Operating free cash flow	**7,508**	**8,042**

Free cash flow reconciliation in millions of CHF

	Six months ended 30 June	
	2019	2018
Cash flows from operating activities (IFRS basis in accordance with IAS 7)	**8,115**	**8,060**
Deduct		
– Investments in property, plant and equipment	(1,508)	(1,713)
– Principal portion of lease liabilities paid	(178)	–
– Investments in intangible assets	(914)	(259)
– Disposal of property, plant and equipment	33	20
– Disposal of intangible assets	0	0
– Interest paid	(358)	(348)
Other operating items, including acquisition-related items	53	12
Other treasury items	34	194
Free cash flow	**5,277**	**5,966**

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 CHF

Six months ended 30 June	Pharmaceuticals 2019	Pharmaceuticals 2018	Diagnostics 2019	Diagnostics 2018	Corporate 2019	Corporate 2018	Group 2019	Group 2018
Depreciation, amortisation and impairments								
Depreciation of property, plant and equipment	580	556	549	544	35	30	1,164	1,130
Depreciation of right-of-use assets	111	–	54	–	5	–	170	–
Amortisation of intangible assets	674	542	63	86	–	–	737	628
Impairment of property, plant and equipment	27	21	6	0	0	2	33	23
Impairment of right-of-use assets	0	–	0	–	0	–	0	–
Impairment of goodwill	0	107	0	0	–	–	0	107
Impairment of intangible assets	324	166	0	0	–	–	324	166
Total	**1,716**	**1,392**	**672**	**630**	**40**	**32**	**2,428**	**2,054**
Other adjustments								
Add back								
– Expenses for equity-settled equity compensation plans	199	181	37	35	17	18	253	234
– Net (income) expense for provisions	411	307	(2)	146	31	86	440	539
– Net (gain) loss from disposals	(431)	(298)	(27)	(1)	–	–	(458)	(299)
– Non-cash working capital and other items	238	29	55	83	(3)	(15)	290	97
Deduct								
– Utilisation of provisions	(271)	(285)	(135)	(46)	(26)	(31)	(432)	(362)
– Proceeds from disposals	439	307	30	20	–	–	469	327
Total	**585**	**241**	**(42)**	**237**	**19**	**58**	**562**	**536**
Operating profit cash adjustments	**2,301**	**1,633**	**630**	**867**	**59**	**90**	**2,990**	**2,590**

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.

For the EBITDA information, the main impact of the implementation of IFRS 16 'Leases' is to exclude depreciation and impairment of right-of-use assets for leases previously reported as operating leases, effective 1 January 2019. As a result the Group's EBITDA is increased by approximately CHF 0.2 billion during the six months ended 30 June 2019 as the costs and cash outflows for leased assets are now completely excluded from EBITDA.

EBITDA (using core results) in millions of CHF

Six months ended 30 June	Pharmaceuticals 2019	Pharmaceuticals 2018	Diagnostics 2019	Diagnostics 2018	Corporate 2019	Corporate 2018	Group 2019	Group 2018
EBITDA								
Core operating profit	11,500	10,301	1,064	1,074	(201)	(213)	12,363	11,162
Depreciation and impairment of property, plant and equipment – Core basis	587	564	544	539	35	32	1,166	1,135
Depreciation and impairment of right-of-use assets – Core basis	111	–	54	–	5	–	170	–
EBITDA	**12,198**	**10,865**	**1,662**	**1,613**	**(161)**	**(181)**	**13,699**	**12,297**
– margin, % of sales	50.4	49.7	26.5	25.8	–	–	45.0	43.7

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 main impact of the implementation of IFRS 16 'Leases' is to include right-of-use assets for leases previously reported as operating leases as part of segment operating assets, effective 1 January 2019. Details of all the additional assets and liabilities reported effective 1 January 2019 are provided in Note 1 with a divisional split in Note 2.

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

Net operating assets to balance sheet reconciliation – 30 June 2019 in millions of CHF

	Pharmaceuticals	Diagnostics	Corporate	Taxation and Treasury	Group
Property, plant and equipment	15,337	6,464	264	–	22,065
Right-of-use assets	758	297	43	–	1,098
Goodwill	3,853	5,025	–	–	8,878
Intangible assets	7,866	1,212	–	–	9,078
Inventories	3,969	2,604	1	–	6,574
Provisions	(2,535)	(744)	(329)	–	(3,608)
Current income tax net liabilities	–	–	–	(3,710)	(3,710)
Deferred tax net assets	–	–	–	4,322	4,322
Defined benefit plan net liabilities	–	–	–	(6,810)	(6,810)
Lease liabilities	–	–	–	(1,156)	(1,156)
Marketable securities	–	–	–	5,483	5,483
Cash and cash equivalents	–	–	–	5,689	5,689
Debt	–	–	–	(19,571)	(19,571)
Other net assets (liabilities)					
– Net working capital	872	1,017	(160)	–	1,729
– Other long-term net operating assets	475	10	(2)	–	483
– Other	–	–	–	472	472
Total net assets	**30,595**	**15,885**	**(183)**	**(15,281)**	**31,016**

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 is unaffected by the implementation of IFRS 16 'Leases' as the Group's definition of net debt does not include lease liabilities.

Net debt calculations, including details of movements during the current reported period, are shown in the table on page 34 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 22 (Pharmaceuticals Division), page 27 (Diagnostics Division) and page 29 (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 2019 line item and its 2018 equivalent is calculated using the average exchange rate for the year ended 31 December 2018 for both the 2019 line item and the 2018 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]

	30 June 2019	31 December 2018
Number of shares (nominal value: CHF 1.00)	160,000,000	160,000,000
Number of non-voting equity securities *(Genussscheine)* (no nominal value)	702,562,700	702,562,700
Total	**862,562,700**	**862,562,700**
Number of own shares and non-voting equity securities *(Genussscheine)* held	(6,501,439)	(8,134,699)
Total in issue	**856,061,261**	**854,428,001**

Data per share and non-voting equity security in CHF

		Six months ended 30 June 2019	2018
Earnings (basic)		10.07	8.56
Earnings (diluted)		9.99	8.51
Core earnings (basic)		11.21	9.89
Core earnings (diluted)		11.12	9.84
Stock price of share[b]	Opening	239.40	246.20
	High	280.60	254.20
	Low	239.40	211.60
	Period end	273.60	224.00
Stock price of non-voting equity security *(Genussscheine)*[b]	Opening	243.40	246.50
	High	280.65	252.20
	Low	243.40	207.70
	Period end	274.65	220.55

Market capitalisation in millions of CHF

	30 June 2019	31 December 2018	30 June 2018
Period end	234,949	207,328	188,940

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 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.

Published by
F. Hoffmann-La Roche Ltd
Group Communications
4070 Basel, Switzerland
Tel.: +41 (0)61 688 11 11
www.roche.com

To order/download publications
Internet: roche.com/publications
E-mail: basel.warehouse-services@roche.com
Fax: +41 (0)61 688 69 02

Media Relations
Tel.: +41 (0)61 688 88 88
E-mail: media.relations@roche.com

Investor Relations
Tel.: +41 (0)61 688 88 80
E-mail: investor.relations@roche.com

Corporate Sustainability Committee
Tel.: +41 (0)61 688 40 18
E-mail: corporate.sustainability@roche.com

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 2019 or any subsequent period will necessarily match or exceed the historical published earnings or earnings per share of Roche.

All trademarks are legally protected.

The Roche Half-Year Report is published in German and English. In case of doubt or differences of interpretation, the English version shall prevail over the German text.

F. Hoffmann-La Roche Ltd
4070 Basel, Switzerland

© 2019

All trademarks are legally protected.

www.roche.com