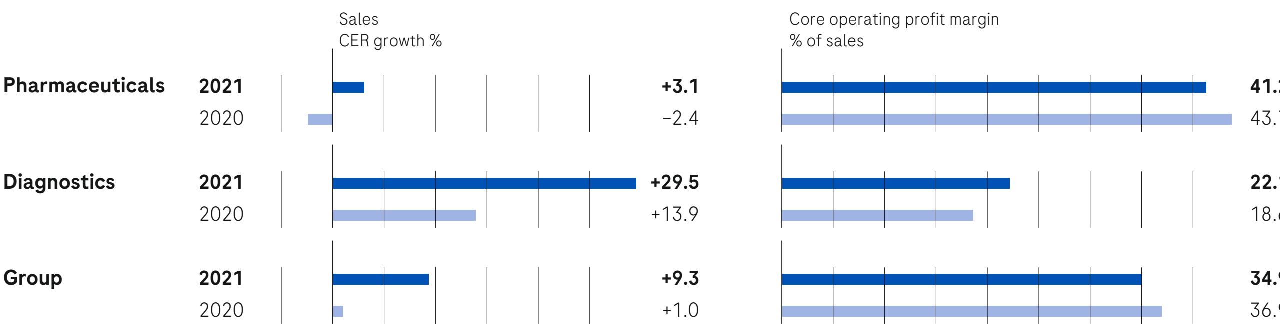
Roche

Finance Report 2021

Finance in Brief

Key results



	2021 (CHF m)	2020 (CHF m)	% change (CHF)	% change (CER)	% of sales 2021	% of sales 2020
IFRS results						
Sales	62,801	58,323	+8	+9		
Operating profit	18,155	18,543	–2	0	28.9	31.8
Net income	14,935	15,068	–1	+2	23.8	25.8
Net income attributable to Roche shareholders	13,930	14,295	–3	0	22.2	24.5
Diluted EPS (CHF)	16.20	16.52	–2	+1		
Dividend per share (CHF)	9.30[a]	9.10	+2			
Core results						
Research and development	13,708	12,153	+13	+14	21.8	20.8
Core operating profit	21,897	21,536	+2	+4	34.9	36.9
Core EPS (CHF)	19.81	19.16	+3	+6		
Free cash flow						
Operating free cash flow	19,411	14,815	+31	+34	30.9	25.4
Free cash flow	15,691	10,943	+43	+46	25.0	18.8

	2021 (CHF m)	2020 (CHF m)	% change (CHF)	% change (CER)
Net debt	(18,167)	(1,882)	Over +500	Over +500
Capitalisation	59,543	53,989	+10	+10
– Debt	31,198	14,216	+119	+113
– Equity	28,345	39,773	–29	–27

a) Proposed by the Board of Directors.

CER (Constant Exchange Rates): The percentage changes at constant exchange rates are calculated using simulations by reconsolidating both the 2021 and 2020 results at constant exchange rates (the average rates for the year ended 31 December 2020). For the definition of CER see page 171.

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 164–167 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 167–169 and reconciliations between the IFRS cash flow and free cash flow are given there.

Finance – 2021 in Brief

Roche in 2021

The **Roche Group** reported strong overall results in 2021, with the underlying business showing resilience in the continuing pandemic environment. Sales grew by 9% at constant exchange rates (CER). IFRS net income increased by 2% (CER) and core earnings per share increased by 6% (CER). The **appreciation of the Swiss franc** against almost all currencies had an adverse impact on the results expressed in Swiss francs.

Sales

Group sales increased by 9% (CER) to CHF 62.8 billion (8% increase in CHF terms). **Pharmaceuticals sales** increased by 3% (CER) driven by the growing demand for new medicines, including Hemlibra, Ocrevus, Tecentriq, Evrysdi, Phesgo and Ronapreve. **Diagnostics sales** showed growth of 29% (CER), due to both sales of COVID-19-related tests, notably the cobas SARS-CoV-2 PCR test and the SARS-CoV-2 Rapid Antigen test, and the recovery in the routine testing across the portfolio.

Operating results

Core operating profit increased by 4% (CER) to CHF 21.9 billion (2% increase in CHF terms). **Research and development** expenditure grew by 14% (CER) to CHF 13.7 billion on a core basis, with the growth mostly driven by late-stage investments in oncology, ophthalmology and personalised healthcare. Research and development costs represented 21.8% of Group sales. **IFRS operating results** included non-core expenses (pre-tax) of CHF 3.7 billion. The major factors were CHF 2.2 billion of amortisation and impairment charges for intangible assets and CHF 1.4 billion restructuring costs.

Non-operating results

Financing costs (IFRS) decreased by 22% at CER to CHF 0.4 billion due to lower interest expenses in 2021 following the repayment of debt in March 2021. **Income tax expenses** (IFRS) decreased by 12% at CER to CHF 2.5 billion. The effective core tax rate for 2021 decreased to 14.5% mainly due to the impacts from the resolution of several tax disputes.

Net income

IFRS net income was CHF 14.9 billion, an increase of 2% at CER (–1% in CHF terms), driven by the operating results. **Core earnings per share** increased by 6% at CER to CHF 19.81 (+3% in CHF terms).

Cash flows

Operating free cash flow was CHF 19.4 billion, an increase of 34% at CER. This was due to the operating performance in 2021 and the significant spending on in-licensing and alliance arrangements in 2020. **Free cash flow** increased by 46% at CER (43% in CHF terms) to CHF 15.7 billion, driven by the higher operating free cash flow.

Financial position

Net working capital increased by 4% (CER) driven by increases in trade receivables in both divisions. **Net debt** increased by CHF 16.3 billion to CHF 18.2 billion. The free cash flow was offset by the repurchase of Roche shares, dividends paid and cash payments for mergers and acquisitions. **Credit ratings** remained strong: AA by Standard & Poor’s, Aa3 by Moody’s and AA by Fitch. On 6 December 2021 the repurchase of 53.3 million Roche shares from Novartis was completed for a total consideration of CHF 19.0 billion.

Shareholder return

A proposal will be made to **increase dividends** by 2% to CHF 9.30 per share. This would represent the 35th consecutive year of dividend growth and would result in a pay-out ratio of 46.9%, subject to AGM approval. **Total Shareholder Return (TSR)** was 28.2% representing the combined performance of share and non-voting equity security.

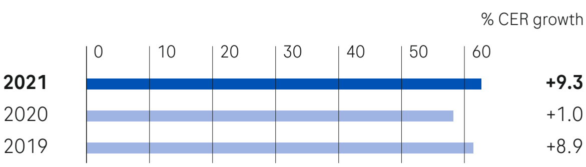
Roche Group

Roche Holding Ltd, Basel

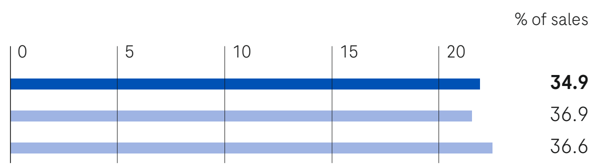
Financial Review

Roche Group results

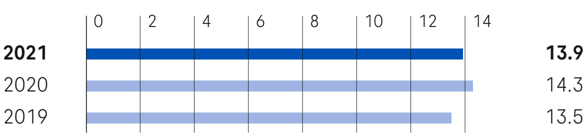
Sales in billions of CHF



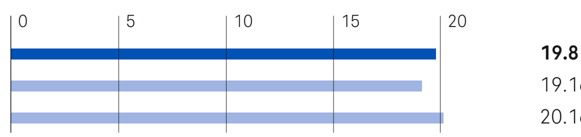
Core operating profit in billions of CHF



Net income attributable to Roche shareholders in billions of CHF



Core EPS in CHF



In 2021 the Roche Group achieved sales growth of 9% at constant exchange rates (CER) and core operating profit growth of 4%. IFRS net income increased by 2% (CER) while Core EPS increased by 6% (CER). The appreciation of the Swiss franc against most currencies had an adverse net impact on the results expressed in Swiss francs compared to constant exchange rates of 1 percentage point on sales, 2 percentage points on core operating profit and 3 percentage points on Core EPS and IFRS net income.

The 9% sales growth in CER was driven by the Diagnostics Division, where there was continued growth in the sales of COVID-19-related products coupled with a recovery in routine testing across all regions as pandemic measures eased. In the Pharmaceuticals Division sales were higher due to the continuing uptake of new medicines compensating for the biosimilar competition. The core operating profit growth of 4% reflects the sales growth offset by a mix impact from the increasing proportion of Diagnostics Division sales in the overall Group sales as well as an increase of 14% in research and development costs in the Pharmaceuticals Division.

Core EPS increased by 6% in CER (3% increase in CHF terms), driven by operating results. IFRS net income increased by 2% (1% decline in CHF terms) reflecting also the increase in spending on restructuring and the release of litigation provisions in the first half of 2020. Operating free cash flow was CHF 19.4 billion, an increase of 34%, due to the operating results and the base effect of the significant spending on in-licensing and alliance arrangements in 2020. The free cash flow was CHF 15.7 billion, an increase of 46%, as a result of the growth in the operating free cash flow. The acquisitions of GenMark and TIB Molbiol were completed for CHF 2.2 billion. The repurchase of 53.3 million Roche shares from Novartis was closed in December 2021 for a total consideration of CHF 19.0 billion.

Divisional operating results for 2021

	Pharmaceuticals (CHF m)	Diagnostics (CHF m)	Corporate (CHF m)	Group (CHF m)
Sales	45,041	17,760	–	62,801
Core operating profit	18,548	3,925	(576)	21,897
– Margin, % of sales	41.2	22.1	–	34.9
Operating profit	15,530	3,319	(694)	18,155
– Margin, % of sales	34.5	18.7	–	28.9
Operating free cash flow	16,639	3,370	(598)	19,411
– Margin, % of sales	36.9	19.0	–	30.9

Divisional operating results – Development of results compared to 2020

	Pharmaceuticals	Diagnostics	Corporate	Group
Sales				
– % change at CER	+3	+29	–	+9
Core operating profit				
– % change at CER	−2	+54	+15	+4
– Margin: percentage point change	−2.2	+3.5	–	−1.7
Operating profit				
– % change at CER	−7	+66	+14	0
– Margin: percentage point change	−3.7	+4.1	–	−2.6
Operating free cash flow				
– % change at CER	+23	+114	−1	+34
– Margin: percentage point change	+6.1	+7.5	–	+5.7

Sales in the Pharmaceuticals Division were CHF 45.0 billion (2020: CHF 44.5 billion), an increase of 3% at CER, which was driven by the growing demand for new medicines, including Hemlibra, Ocrevus, Tecentriq, Evrysdi, Phesgo and Ronapreve, which together contributed an additional CHF 4.9 billion (CER) of new sales. Overall, the COVID-19 pandemic continued to have some negative impact on the division's sales.

The Diagnostics Division reported sales of CHF 17.8 billion, an increase of 29% at CER. The growth is mainly due to sales of COVID-19-related products, notably the cobas SARS-CoV-2 PCR test and the SARS-CoV-2 Rapid Antigen test. Total sales of all the COVID-19-related tests at CER were CHF 4.7 billion (2020: CHF 2.6 billion). Routine testing, which was greatly affected by the pandemic during 2020, rebounded across all regions in 2021. As a direct result, sales grew in all regions, notably in the Europe, Middle East and Africa region by 37% and in the Asia-Pacific region by 29%.

The Pharmaceuticals Division's core operating profit decreased by 2% at CER, despite the sales growth of 3%, mainly due to an increase in research and development costs and higher cost of sales. Royalty and other operating income increased by CHF 1.0 billion due to higher profit-share income and higher income from the disposal of products than in the comparative period. Cost of sales increased by 18% driven by higher manufacturing costs, due to volume growth and incremental production costs arising from the response to the COVID-19 pandemic. Marketing and distribution costs remained stable as the increased spending for ongoing launches and rollouts was offset by reduced spending due to various restructuring initiatives and the COVID-19 pandemic. Research and development costs grew by 14%, with the growth mostly driven by late-stage investments in oncology and neuroscience and personalised healthcare. In addition there were COVID-19-related investments, notably for the co-development of Ronapreve with Regeneron, and there were investments across the research and development activities, notably in China.

In the Diagnostics Division, core operating profit increased by 54% at CER to CHF 3.9 billion, ahead of the sales growth of 29%. While cost of sales grew by 34%, above the sales growth due to an unfavourable product mix driven by the increased sales volumes of SARS-CoV-2 Rapid Antigen tests in 2021, marketing and distribution costs increased by 8% due to higher spending on distribution costs following increased sales volumes. Research and development costs increased by 14% due to increased spending in digital projects and COVID-19 products development coupled with projects in blood screening and Alzheimer disease. Additionally, the following acquisitions were completed in 2021: GenMark for CHF 1.7 billion and TIB Molbiol for CHF 0.5 billion, both paid in cash.

The IFRS operating profit decreased by 7% (CER) in the Pharmaceuticals Division, due to higher restructuring expenses and the base effect of a release of litigation provisions in 2020, and increased by 66% (CER) in the Diagnostics Division. The 2021 results include CHF 2.2 billion for the amortisation and impairment of intangible assets and CHF 1.4 billion of expenses for global restructuring plans.

Financing costs decreased by 22% (CER) on an IFRS basis to CHF 0.4 billion mainly due to lower interest expenses attributable to the repayment of debt in 2021. The Group's effective core tax rate decreased to 14.5% compared to 17.1% in 2020. The decrease was mainly due to the impact from the resolution of several tax disputes which reduced the Group's effective core tax rate by 3.3 percentage points in 2021 compared to a reduction of 1.5 percentage points in 2020, and the higher percentage of core profit contribution coming from tax jurisdictions with lower tax rates than the average Group tax rate.

Net income on an IFRS basis was CHF 14.9 billion, an increase of 2% at CER, while net income on a core basis increased by 6% at CER to CHF 18.1 billion, driven in both cases by the operating results. The amount of net income attributable to non-controlling interests increased by 33% on an IFRS basis and by 32% on a core basis due to the performance of Chugai.

Operating free cash flow was CHF 19.4 billion, an increase of 34% at CER. This was due to the operating performance in 2021 and the base effect of the significant spending on in-licensing and alliance arrangements in 2020. The free cash flow of CHF 15.7 billion, an increase of 46% at CER, was a result of the growth in the operating free cash flow.

Income statement

	2021 (CHF m)	2020 (CHF m)	% change (CHF)	% change (CER)
IFRS results				
Sales	62,801	58,323	+8	+9
Royalties and other operating income	3,049	2,020	+51	+53
Revenue	**65,850**	**60,343**	**+9**	**+11**
Cost of sales	(19,647)	(16,177)	+21	+22
Marketing and distribution	(9,920)	(9,572)	+4	+5
Research and development	(14,799)	(13,009)	+14	+15
General and administration	(3,329)	(3,042)	+9	+11
Operating profit	**18,155**	**18,543**	**−2**	**0**
Financing costs	(418)	(553)	−24	−22
Other financial income (expense)	(339)	(25)	Over +500	Over +500
Profit before taxes	**17,398**	**17,965**	**−3**	**−1**
Income taxes	(2,463)	(2,897)	−15	−12
Net income	**14,935**	**15,068**	**−1**	**+2**
Attributable to				
– Roche shareholders	13,930	14,295	−3	0
– Non-controlling interests	1,005	773	+30	+33
EPS – Basic (CHF)	16.38	16.73	−2	+1
EPS – Diluted (CHF)	16.20	16.52	−2	+1
Core results[a]				
Sales	62,801	58,323	+8	+9
Royalties and other operating income	3,049	2,020	+51	+53
Revenue	**65,850**	**60,343**	**+9**	**+11**
Cost of sales	(18,138)	(14,567)	+25	+25
Marketing and distribution	(9,444)	(9,361)	+1	+2
Research and development	(13,708)	(12,153)	+13	+14
General and administration	(2,663)	(2,726)	−2	−1
Operating profit	**21,897**	**21,536**	**+2**	**+4**
Financing costs	(412)	(539)	−24	−22
Other financial income (expense)	(339)	(25)	Over +500	Over +500
Profit before taxes	**21,146**	**20,972**	**+1**	**+3**
Income taxes	(3,075)	(3,594)	−14	−12
Net income	**18,071**	**17,378**	**+4**	**+6**
Attributable to				
– Roche shareholders	17,038	16,577	+3	+5
– Non-controlling interests	1,033	801	+29	+32
Core EPS – Basic (CHF)	20.04	19.40	+3	+6
Core EPS – Diluted (CHF)	19.81	19.16	+3	+6

a) See pages 164–167 for the definition of core results and Core EPS.

Impact of the COVID-19 pandemic

Revenues. The COVID-19 pandemic continued to have some negative impact on the Pharmaceuticals Division's sales in 2021. This was partly compensated by additional sales of Actemra/RoActemra, which received US FDA Emergency Use Authorization for the treatment of COVID-19 in hospitalised adults and children. In addition, Ronapreve, an investigational neutralising antibody combination developed with Regeneron, has been made available to patients in more than 40 countries across many geographies and economies. The Diagnostics Division's sales growth was due to the comprehensive portfolio of COVID-19-related tests and a global recovery in routine diagnostic testing. The sales of the various COVID-19-related diagnostic tests in 2021 were CHF 4.7 billion (CER) compared to CHF 2.6 billion in 2020.

Quarterly development of 2021 sales compared to 2020 year-on-year growth in % at CER

	Q1	Q2	Half Year	Q3	Q4	Full Year
Pharmaceuticals Division	–9	+4	**–3**	+5	+14	**+3**
Diagnostics Division	+55	+48	**+51**	+18	+8	**+29**
Roche Group	**+3**	**+14**	**+8**	**+8**	**+12**	**+9**

Manufacturing and supply. Despite some of the supply and logistics challenges due to the COVID-19 pandemic, the Roche Group has been able to continue to deliver medicines and diagnostics wherever possible for patients across a broad range of other disease areas under exceptional conditions. To date there has been limited disruption and the Group is continually monitoring the situation.

Research and development. The Roche Group's planned drug launches, filings, pivotal phase III trial readouts and pivotal trial starts are largely on track. The Group is continuously monitoring all ongoing studies, both in terms of missed doses and overall data integrity.

Operating results. The impact on operating profit was not major and came mainly from the above-mentioned factors for revenues. Overall operating expenses were impacted to some extent by the COVID-19 pandemic, but the various impacts were partly offsetting. While some additional costs were incurred for areas such as IT infrastructure and distribution costs, there was less spending on marketing activities, including lower travel costs and reduced attendance at congresses.

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

Competition from biosimilar and generic medicines

The Group's pharmaceutical products are generally protected by patent rights, which are intended to provide the Group with exclusive marketing rights in various countries. However, patent rights are of varying scope and duration, and the Group may be required to enter into costly litigation to enforce its patent and other intellectual property rights. Loss of market exclusivity for one or more major products – either due to patent expiration, challenges from generic medicines, biosimilars and non-comparable biologics or other reasons – could have a material adverse effect on the Group's business, results of operations or financial condition. The introduction of a generic, biosimilar or non-comparable biologic version of the same or a similar medicine usually results in a significant reduction in net sales for the relevant product, as other manufacturers typically offer their versions at lower prices.

Patents and their expiry are, and always have been, an integral part of the Group's business model and future growth will remain driven by innovation. The latest information from clinical studies is included in the Annual Report and details of the Group's Product Development Portfolio are available for download at:
http://www.roche.com/research_and_development/who_we_are_how_we_work/pipeline.htm

MabThera/Rituxan, Herceptin and Avastin. The Group's basic, primary patents for these three products have expired worldwide. Sales, including regional breakdowns, for MabThera/Rituxan, Herceptin and Avastin are disclosed below in the Pharmaceuticals Division's operating results and these are summarised in the table below. The year-on-year movements were also driven by regular price and volume changes. Biosimilar competition is only one factor in the overall picture. Sales for these three products in 2021 were CHF 4.5 billion lower (CER) than in the prior period, a decline of 35%.

Total MabThera/Rituxan, Herceptin and Avastin sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% divisional sales (2021)	% divisional sales (2020)
United States	3,110	6,015	–47	6.9	13.5
Europe	1,242	2,296	–47	2.8	5.2
Japan	798	921	–8	1.8	2.1
International	3,165	3,715	–15	7.0	8.3
Total sales	**8,315**	**12,947**	**–35**	**18.5**	**29.1**

The first biosimilar versions of Herceptin and Avastin were launched in the US from mid-2019 and the first biosimilar versions of MabThera/Rituxan in late 2019.

In Europe the first biosimilar versions of MabThera/Rituxan and Herceptin were launched from mid-2017 and from mid-2018, respectively, and are now marketed in most EU countries. The first biosimilar versions of Avastin came to market in Europe from mid-2020 and were the major factor in the 66% decrease in Avastin sales.

The first biosimilar versions of MabThera/Rituxan and Herceptin were launched in Japan in 2018. Biosimilar versions of Avastin were launched in late 2019 in the colorectal cancer indication and in 2020 in the non-small cell lung cancer indication. Sales of these three products were impacted by government price cuts as well as biosimilar competition.

In the International region, biosimilar versions of all three products have been launched in many countries and this, together with the impacts of regular price and volume changes, has led to the decline in sales. Sales of MabThera/Rituxan were 24% lower, Herceptin sales were down 9% and Avastin sales were 15% lower.

Lucentis. The Group's basic, primary patents have expired in the US. Based on publicly available information from competitor companies, the Group currently anticipates that the first biosimilar versions of Lucentis could come to the market in the US around mid-2022. US sales of Lucentis were CHF 1,353 million (2020: CHF 1,444 million).

Mergers and acquisitions

GenMark. On 22 April 2021 the Group acquired a 100% controlling interest in GenMark Diagnostics, Inc. ('GenMark'), a publicly owned US company based in Carlsbad, California, that had been listed on Nasdaq. GenMark provides multiplex molecular diagnostic solutions that are designed to detect multiple pathogens from a single patient sample. The addition of GenMark's proprietary multiplex technology complements the Group's diagnostic offering, addressing a broad range of infectious disease testing needs, including respiratory and bloodstream infections. GenMark is reported in the Diagnostics Division. The total consideration was USD 1.9 billion (equivalent to CHF 1.7 billion), which was paid in cash.

TIB Molbiol. On 1 December 2021 the Group acquired a 100% interest in TIB Molbiol Group ('TIB Molbiol'), a privately owned group based in Berlin, Germany. TIB Molbiol is a manufacturer of custom oligonucleotides that has been collaborating with the Group for more than 20 years. The acquisition of TIB Molbiol will enhance the Group's broad portfolio of molecular diagnostics solutions with a wide range of assays for infectious diseases. TIB Molbiol is reported in the Diagnostics Division. The total consideration was EUR 0.5 billion (equivalent to CHF 0.5 billion), which was paid in cash.

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

Alliance transactions

During 2021 in-licensing and alliance transactions resulted in intangible assets of CHF 1.0 billion being recognised (2020: CHF 3.1 billion). Of this amount CHF 0.5 billion related to payments made based upon the achievement of performance-related milestones for transactions completed in previous years. Typically, for in-licensing and alliance transactions, additional payments may be made based upon the achievement of performance-related milestones and from profit-sharing and royalty agreements.

Global restructuring plans

During 2021 the Group expanded the implementation of various global restructuring plans initiated in prior years, including an organisational transformation in the Diagnostics Division and various resourcing optimisation initiatives in the Pharmaceuticals Division.

Global restructuring plans: costs incurred in 2021 in millions of CHF

	Diagnostics	Site consolidation	Other plans	Total
Global restructuring costs				
– Employee-related costs	277	(17)	616	876
– Site closure costs	42	194	40	276
– Divestment of products and businesses	0	0	0	0
– Other reorganisation expenses	61	2	147	210
Total global restructuring costs	**380**	**179**	**803**	**1,362**
Additional costs				
– Impairment of goodwill	0	0	0	0
– Impairment of intangible assets	0	0	0	0
– Legal and environmental cases	0	0	0	0
Total costs	**380**	**179**	**803**	**1,362**

Diagnostics Division. Strategy plans in the Diagnostics Division, notably in Diabetes Care, incurred costs of CHF 249 million for employee-related matters.

Site consolidation. In 2021 initiatives for strategic and sustainable site development in Basel and Kaiseraugst incurred costs of CHF 176 million.

Other global restructuring plans. Employee-related costs mainly came from business transformation initiatives in the Pharmaceuticals Division and the outsourcing of IT and other functions to shared service centres and external providers.

In 2020 total global restructuring costs were CHF 0.9 billion. Further details are given in Note 7 to the Annual Financial Statements.

Impairment of goodwill and intangible assets

Pharmaceuticals Division. The Pharmaceuticals Division recorded impairment charges to intangible assets of CHF 0.7 billion. The major items were a charge of CHF 0.4 billion for the full impairment of the intangible asset following the planned return of the rights and licenses on AT-527 to Atea Pharmaceuticals after the announcement of the termination of the strategic collaboration and CHF 0.2 billion related to a partial impairment of two separate assets following reduced sales expectations.

Diagnostics Division. There were no impairments of goodwill or intangible assets.

In 2020 there were impairment charges of CHF 0.4 billion in the Pharmaceuticals Division and CHF 0.2 billion in the Diagnostics Division. Further details are given in Notes 9 and 10 to the Annual Financial Statements.

Legal and environmental cases

There were no significant developments in 2021. Further details are given in Note 20 to the Annual Financial Statements.

Share repurchase

On 6 December 2021, the Roche Group repurchased 53.3 million Roche shares held by Novartis for a total consideration of CHF 19.0 billion. The repurchased shares are reported as treasury shares as at 31 December 2021 and are scheduled to be cancelled in early 2022 when the necessary legal procedures have been completed.

The transaction was financed through a credit facility from banks for the total repurchase price. This was partly refinanced by a bond issue of USD 6.0 billion (CHF 5.5 billion) on 13 December 2021. As at 31 December 2021 CHF 13.5 billion of the credit facility was outstanding, and further refinancing in the bond market is planned for 2022.

The repurchase of shares and the consequent additional financing costs had an accretive effect on EPS of approximately 0.4% in 2021. Had the transaction taken place on 1 January 2021 then the full-year accretive effect, including the estimated additional financing costs, would have been approximately 5%.

Further details are given in Notes 21 and 22 to the Annual Financial Statements.

Net income and earnings per share

IFRS net income increased by 2% at CER and decreased by 1% in CHF terms while Core EPS increased by 6% at CER and by 3% 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 transactions. The amount of net income attributable to non-controlling interests increased by 33% on an IFRS basis, and by 32% on a core basis, due to the increased contribution of Chugai to the overall Group results.

Net income

	2021 (CHF m)	2020 (CHF m)	% change (CHF)	% change (CER)
IFRS net income	**14,935**	**15,068**	**–1**	**+2**
Reconciling items (net of tax)				
– Global restructuring plans	1,095	741	+48	+48
– Intangible asset amortisation	1,351	1,268	+7	+9
– Goodwill and intangible asset impairment	540	578	–7	–5
– Mergers and acquisitions and alliance transactions	47	4	Over +500	Over +500
– Legal and environmental cases	107	(271)	–	–
– Pension plan settlements	0	(2)	–100	–100
– Normalisation of equity compensation plan tax benefit	(4)	(8)	–50	–48
Core net income	**18,071**	**17,378**	**+4**	**+6**

Supplementary net income and EPS information is given on pages 164 to 167. This includes calculations of Core EPS and reconciles the core results to the Group's published IFRS results.

Financial position

Financial position

	2021 (CHF m)	2020 (CHF m)	% change (CHF)	% change (CER)
Pharmaceuticals				
Net working capital	2,405	2,454	–2	+4
Long-term net operating assets	31,010	31,017	0	–1
Diagnostics				
Net working capital	3,030	2,977	+2	+7
Long-term net operating assets	13,030	10,787	+21	+21
Corporate				
Net working capital	(314)	(229)	+37	+37
Long-term net operating assets	116	43	+170	+156
Net operating asset	**49,277**	**47,049**	**+5**	**+5**
Net debt	(18,167)	(1,882)	Over +500	Over +500
Lease liabilities	(1,354)	(1,195)	+13	+14
Pensions	(4,605)	(6,864)	–33	–30
Income taxes	2,273	1,576	+44	+47
Other non-operating assets, net	921	1,089	–15	–15
Total net assets	**28,345**	**39,773**	**–29**	**–27**

Compared to the start of the year the Swiss franc appreciated against the Japanese yen and the euro having a significant effect on the Group's net operating assets. This negative translation effect was partially compensated by the depreciation of the Swiss franc against the US dollar, net of effect of the natural hedge from the Group's US dollar-denominated debt. The exchange rates used are given on page 32.

Net working capital increased significantly in both divisions. In the Pharmaceuticals Division the trade receivables increased due to the underlying sales growth and was partially offset by high collections around the end of 2021. The increase in inventories was driven by the ramp-up of new products and by ensuring supply resilience. Trade payables increased due in part to an outstanding USD 150 million upfront payment. In the Diagnostics Division inventories increased due to the ongoing rollout of COVID-19-related products and the recovery of the base business and trade receivables increased as a result of the sales growth.

The increase in net debt was due to the repurchase of Roche shares of CHF 19.0 billion, dividend payments of CHF 8.1 billion and merger and acquisition payments of CHF 2.4 billion, partly offset by the free cash flow of CHF 15.7 billion. The net pension liability was 30% lower at CER following increases in the fair value of plan assets and increases in discount rates in most regions. The net tax assets increased mainly due to taxes paid exceeding the income tax expenses partially offset by the deferred tax effects of the pension plans. The lease liabilities increased to CHF 1.4 billion due to new office leases at Genentech, Chugai, Foundation Medicine and Spark Therapeutics.

Free cash flow

Free cash flow

	2021 (CHF m)	2020 (CHF m)	% change (CHF)	% change (CER)
Pharmaceuticals	16,639	13,853	+20	+23
Diagnostics	3,370	1,571	+115	+114
Corporate	(598)	(609)	–2	–1
Operating free cash flow	**19,411**	**14,815**	**+31**	**+34**
Treasury activities	(377)	(636)	–41	–38
Taxes paid	(3,343)	(3,236)	+3	+6
Free cash flow	**15,691**	**10,943**	**+43**	**+46**

See pages 167–169 for the definition of free cash flow and a detailed breakdown.

The Group's operating free cash flow for 2021 was CHF 19.4 billion, an increase of 34% at CER. This was due to the operating performance in 2021 and the base effect of significant spending on in-licensing and alliance arrangements in 2020, notably the payments to Sarepta Therapeutics of CHF 0.8 billion and to Blueprint Medicines of CHF 0.7 billion. The free cash flow of CHF 15.7 billion, an increase of 46% at CER, was a result of the growth in the operating free cash flow. The cash outflow for treasury activities was lower due to the higher cash received from the sale of long-term financial investments in 2021, while taxes paid increased due to higher payments in Japan.

Pharmaceuticals Division operating results

Pharmaceuticals Division operating results

	2021 (CHF m)	2020 (CHF m)	% change (CHF)	% change (CER)
IFRS results				
Sales	45,041	44,532	+1	+3
Royalties and other operating income	2,969	1,959	+52	+54
Revenue	**48,010**	**46,491**	**+3**	**+5**
Cost of sales	(10,634)	(9,483)	+12	+13
Marketing and distribution	(6,874)	(6,796)	+1	+3
Research and development	(12,993)	(11,421)	+14	+15
General and administration	(1,979)	(1,639)	+21	+23
Operating profit	**15,530**	**17,152**	**–9**	**–7**
– Margin, % of sales	34.5	38.5	–4.0	–3.7
Core results[a]				
Sales	45,041	44,532	+1	+3
Royalties and other operating income	2,969	1,959	+52	+54
Revenue	**48,010**	**46,491**	**+3**	**+5**
Cost of sales	(9,449)	(8,070)	+17	+18
Marketing and distribution	(6,517)	(6,633)	–2	0
Research and development	(11,952)	(10,597)	+13	+14
General and administration	(1,544)	(1,714)	–10	–8
Core operating profit	**18,548**	**19,477**	**–5**	**–2**
– Margin, % of sales	41.2	43.7	–2.5	–2.2
Financial position				
Net working capital	2,405	2,454	–2	+4
Long-term net operating assets	31,010	31,017	0	–1
Net operating assets	**33,415**	**33,471**	**0**	**–1**
Free cash flow[b]				
Operating free cash flow	16,639	13,853	+20	+23
– Margin, % of sales	36.9	31.1	+5.8	+6.1

a) See pages 164–167 for the definition of core results.
b) See pages 167–169 for the definition of free cash flow.

Sales overview

Pharmaceuticals Division – Sales by therapeutic area

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
Oncology	20,467	23,323	–11	45.4	52.4
Immunology	8,373	8,228	+4	18.6	18.5
Neuroscience	6,275	4,937	+29	13.9	11.1
Haemophilia A	3,022	2,190	+41	6.7	4.9
Infectious diseases	2,226	861	+162	4.9	1.9
Ophthalmology	1,355	1,444	–4	3.0	3.2
Other therapeutic areas	3,323	3,549	–4	7.5	8.0
Total sales	**45,041**	**44,532**	**+3**	**100**	**100**

Sales in the Pharmaceuticals Division were CHF 45.0 billion (2020: CHF 44.5 billion), an increase of 3% at CER. New product sales more than compensated for biosimilar competition to MabThera/Rituxan, Herceptin and Avastin. The sales growth was driven by growing demand for new medicines, including Hemlibra, Ocrevus, Tecentriq, Evrysdi, Phesgo and Ronapreve, which together contributed an additional CHF 4.9 billion (CER) of new sales. In the second half of the year the biosimilar impact was slowing down as expected. Overall the COVID-19 pandemic continued to have some negative impact on the division's sales. Actemra/RoActemra sales increased by 27% driven by the adoption in treatment guidelines for patients with severe COVID-19 pneumonia.

Hemlibra sales showed continued strong uptake across the US and major EU markets with sales reaching CHF 3.0 billion, an increase of 41%. Ocrevus continued its growth development, with a 19% sales increase to CHF 5.1 billion. Tecentriq sales grew by 24% to CHF 3.3 billion, mostly due to higher demand in Japan and the US. Evrysdi showed a high uptake mainly in the US, Russia and Germany since its launch. Phesgo sales showed a very strong uptake since launch, mainly in Europe and the US with sales reaching CHF 0.3 billion. Sales of Ronapreve were CHF 1.6 billion in total, notably in Japan, Germany, the UK, India and France.

The impact from Biosimilar competition was reduced, but continued to have a negative impact, with further erosion of sales of MabThera/Rituxan, Herceptin and Avastin, mostly in the US. Global sales of these three products fell by CHF 4.5 billion (CER) to CHF 8.3 billion, a decrease of 35%. The biosimilar competition for MabThera/Rituxan, Herceptin and Avastin had a negative impact of CHF 2.8 billion (CER) on 2021 sales in the US. Sales for Avastin and MabThera/Rituxan in China were also affected by biosimilar competition, while Herceptin sales in China increased by 6%. In Europe sales of MabThera/Rituxan, Herceptin and Avastin declined by CHF 1.1 billion (CER). The first biosimilar versions of Avastin were launched in Europe from mid-2020.

Sales in the oncology therapeutic area decreased by 11%, due to the biosimilar competition for MabThera/Rituxan, Herceptin and Avastin described above, which was partially compensated by growth of the new products Tecentriq, Phesgo and Kadcyla. Tecentriq sales grew in all regions, mostly due to the continued rollout in Japan and higher demand in the US and the International region. Phesgo showed strong uptake mainly in Europe and the US. Kadcyla showed continuing post-launch growth across all regions, with Europe being the key driver.

Sales in immunology increased by 4%. This was mainly driven by a 27% increase in sales of Actemra/RoActemra due to the adoption of this medicine by many countries in their guidelines to treat patients with severe COVID-19 pneumonia. This was partially offset by lower sales of MabThera/Rituxan in the US, due to biosimilar entry.

Lucentis sales declined by 4% in the US driven by continuing competition. Infectious diseases sales increased to CHF 2.2 billion due to sales of Ronapreve. In other therapeutic areas, sales of Activase/TNKase were 2% higher in the US.

Product sales

Pharmaceuticals Division – Sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
Oncology					
Perjeta	3,955	3,883	+4	8.8	8.7
Tecentriq	3,315	2,738	+24	7.4	6.1
Avastin	3,056	4,992	–37	6.8	11.2
Herceptin	2,694	3,732	–28	6.0	8.4
MabThera/Rituxan[a)]	1,999	3,206	–37	4.4	7.2
Kadcyla	1,982	1,745	+16	4.4	3.9
Alecensa	1,356	1,160	+18	3.0	2.6
Gazyva/Gazyvaro	678	632	+9	1.5	1.4
Phesgo	340	23	Over +500	0.8	0.1
Erivedge	269	278	–1	0.6	0.6
Polivy	247	169	+48	0.5	0.4
Xeloda	194	301	–36	0.4	0.7
Others	382	464	–15	0.8	1.1
Total Oncology	**20,467**	**23,323**	**–11**	**45.4**	**52.4**
Immunology					
Actemra/RoActemra	3,562	2,858	+27	7.9	6.4
Xolair	1,942	1,904	+5	4.3	4.3
Esbriet	1,039	1,108	–5	2.3	2.5
CellCept	592	606	–2	1.3	1.4
MabThera/Rituxan[a)]	566	1,017	–43	1.3	2.3
Pulmozyme	566	642	–10	1.3	1.4
Others	106	93	+20	0.2	0.2
Total Immunology	**8,373**	**8,228**	**+4**	**18.6**	**18.5**
Neuroscience					
Ocrevus	5,055	4,326	+19	11.2	9.7
Evrysdi	602	55	Over +500	1.3	0.1
Madopar	394	361	+8	0.9	0.8
Others	224	195	+18	0.5	0.5
Total Neuroscience	**6,275**	**4,937**	**+29**	**13.9**	**11.1**
Haemophilia A					
Hemlibra	3,022	2,190	+41	6.7	4.9
Total Haemophilia A	**3,022**	**2,190**	**+41**	**6.7**	**4.9**
Infectious diseases					
Ronapreve	1,630	0	–	3.6	0.0
Rocephin	244	252	–5	0.5	0.6
Tamiflu	58	272	–78	0.1	0.6
Others	294	337	–11	0.7	0.7
Total Infectious diseases	**2,226**	**861**	**+162**	**4.9**	**1.9**
Ophthalmology					
Lucentis	1,353	1,444	–4	3.0	3.2
Others	2	0	–	0.0	0.0
Total Ophthalmology	**1,355**	**1,444**	**–4**	**3.0**	**3.2**

Pharmaceuticals Division – Sales *(continued)*

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
Other therapeutic areas					
Activase/TNKase	1,312	1,321	+2	2.9	3.0
Mircera	435	470	–5	1.0	1.1
Others	1,576	1,758	–8	3.6	3.9
Total other therapeutic areas	**3,323**	**3,549**	**–4**	**7.5**	**8.0**
Total sales	**45,041**	**44,532**	**+3**	**100**	**100**

a) Total MabThera/Rituxan sales of CHF 2,565 million (2020: CHF 4,223 million) split between oncology and immunology therapeutic areas.

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

Ocrevus regional sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	3,777	3,408	+14	74.7	78.8
Europe	916	674	+34	18.1	15.6
International	362	244	+50	7.2	5.6
Total sales	**5,055**	**4,326**	**+19**	**100**	**100**

Despite some negative impact from COVID-19, there was continuously growing demand in both indications in the US, with growth driven both by new and returning patients, with a higher proportion of sales coming from returning patients. In Europe and the International region, Ocrevus continues to show high uptake where launched, notably in Germany, France, Italy and Spain.

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

Perjeta regional sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	1,416	1,476	–1	35.8	38.0
Europe	1,112	1,150	–4	28.1	29.6
Japan	268	294	–4	6.8	7.6
International	1,159	963	+24	29.3	24.8
Total sales	**3,955**	**3,883**	**+4**	**100**	**100**

Herceptin regional sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	636	1,356	–52	23.6	36.3
Europe	544	665	–19	20.2	17.8
Japan	82	140	–38	3.0	3.8
International	1,432	1,571	–9	53.2	42.1
Total sales	**2,694**	**3,732**	**–28**	**100**	**100**

Kadcyla regional sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	813	807	+4	41.0	46.2
Europe	687	560	+21	34.7	32.1
Japan	130	90	+53	6.6	5.2
International	352	288	+29	17.7	16.5
Total sales	**1,982**	**1,745**	**+16**	**100**	**100**

Phesgo regional sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	151	23	Over +500	44.4	100
Europe	163	0	–	47.9	0
International	26	0	Over +500	7.7	0
Total sales	**340**	**23**	**Over +500**	**100**	**100**

Sales in the HER2 franchise decreased by 3% to CHF 9.0 billion. Herceptin sales were 28% lower, due to biosimilar launches which started in the second half of 2019 in the US, in mid-2018 in Europe and increasingly in many countries in the International region. Sales of Perjeta grew by 4% with increases mostly driven by China in both early breast cancer and metastatic breast cancer settings. In the US, sales of Perjeta declined by 1% due to patients with residual disease being switched to Kadcyla and due to the launch of Phesgo in 2020. Kadcyla sales increased by 16% across all regions, and by 4% in the US, notably in the early breast cancer setting. Kadcyla sales benefited from the positive readout from the KATHERINE study and by patients switching to the new standard of treatment.

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 (SCLC), PD-L1-positive triple-negative breast cancer and unresectable or metastatic hepatocellular carcinoma (HCC).

Tecentriq regional sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	1,688	1,566	+11	50.9	57.2
Europe	713	576	+22	21.5	21.0
Japan	518	330	+66	15.6	12.1
International	396	266	+53	12.0	9.7
Total sales	**3,315**	**2,738**	**+24**	**100**	**100**

Sales increased by 24% with growth in all regions, notably Japan, primarily due to the growth in the treatment of HCC. In the US, sales were higher driven by the new indications for HCC and first-line NSCLC. In the International region, the growth is mainly driven by China in the SCLC and HCC indications. In Europe, the sales growth was mainly driven by the SCLC and PD-L1-positive triple-negative breast cancer indications.

Hemlibra. For haemophilia A.

Hemlibra regional sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	1,815	1,388	+34	60.1	63.4
Europe	609	373	+61	20.2	17.0
Japan	365	313	+23	12.1	14.3
International	233	116	+102	7.6	5.3
Total sales	**3,022**	**2,190**	**+41**	**100**	**100**

Sales continued to show a strong uptake, especially in the US and Europe, with strong demand in the non-inhibitor segment.

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

Avastin regional sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	922	1,795	–47	30.2	36.0
Europe	430	1,252	–66	14.1	25.1
Japan	674	717	–1	22.1	14.4
International	1,030	1,228	–15	33.6	24.5
Total sales	**3,056**	**4,992**	**–37**	**100**	**100**

US sales decreased by 47% due to the continuing impact of biosimilars which first came to market in the US from mid-2019. In Europe sales declined by 66% due to the first full-year impact after the launch of biosimilars in the second half of 2020. In the International region, the main driver in the sales decline was biosimilar competition in China.

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

MabThera/Rituxan regional sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	1,552	2,864	–44	60.5	67.8
Europe	268	379	–30	10.4	9.0
Japan	42	64	–30	1.6	1.5
International	703	916	–24	27.5	21.7
Total sales	**2,565**	**4,223**	**–38**	**100**	**100**

Sales were 38% lower due to biosimilar erosion. US sales decreased by 44%, with a decline in both the oncology and immunology segments. Sales in the International region were lower with a 59% decline in Canada and a 13% decline in China due to biosimilar erosion.

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

Actemra/RoActemra regional sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	1,761	1,212	+49	49.4	42.4
Europe	915	783	+15	25.7	27.4
Japan	382	366	+10	10.7	12.8
International	504	497	+5	14.2	17.4
Total sales	**3,562**	**2,858**	**+27**	**100**	**100**

Sales increased by 27%, with growth driven by the adoption of Actemra/RoActemra by many countries in their treatment guidelines to treat patients with severe COVID-19 pneumonia. The US was the main driver for the sales, along with Europe. Various clinical studies have been initiated to evaluate the safety and efficacy of Actemra/RoActemra in patients with severe COVID-19 pneumonia and the results have been made available to healthcare authorities. Actemra/RoActemra has received US FDA Emergency Use Authorization for the treatment of COVID-19 in hospitalised adults and children. The European Commission has extended the marketing authorisation for Actemra/RoActemra to include the treatment of COVID-19 in adults who are receiving systemic corticosteroids and require supplemental oxygen or mechanical ventilation.

Xolair. For moderate to severe persistent allergic asthma (AA) and chronic spontaneous urticaria (CSU).

Xolair regional sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	1,942	1,904	+5	100	100
Total sales	**1,942**	**1,904**	**+5**	**100**	**100**

Sales increased by 5% as growth in the chronic spontaneous urticaria indication has offset additional competition in the allergic asthma indication. Xolair remains the market leader in the allergic asthma indication.

Ronapreve. For the treatment of recently diagnosed high-risk patients with mild to moderate COVID-19.

Ronapreve regional sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	0	0	–	0.0	0.0
Europe	727	0	–	44.6	0.0
Japan	645	0	–	39.6	0.0
International	258	0	–	15.8	0.0
Total sales	**1,630**	**0**	**–**	**100**	**0**

Roche is collaborating with Regeneron Pharmaceuticals, Inc. ('Regeneron') to develop, manufacture and distribute Ronapreve, an investigational neutralising antibody combination. Under the terms of the agreement, Regeneron is responsible for distribution in the US and the Roche Group is responsible for distribution outside the US. There were orders from multiple countries, notably from Japan, Germany, the UK, India, France and Italy.

Lucentis. For neovascular or 'wet' age-related macular degeneration (nAMD), macular oedema following retinal vein occlusion (RVO), diabetic macular oedema (DME) and diabetic retinopathy (DR).

Lucentis regional sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	1,353	1,444	–4	100	100
Total sales	**1,353**	**1,444**	**–4**	**100**	**100**

US sales decreased by 4% due to continuing competition.

Activase/TNKase. For acute ischaemic stroke (AIS) and acute myocardial infarction (AMI).

Activase/TNKase regional sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	1,255	1,268	+2	95.7	96.0
International	57	53	+5	4.3	4.0
Total sales	**1,312**	**1,321**	**+2**	**100**	**100**

Sales were 2% higher mainly driven by higher volume in the US due to a temporary stockpiling from distributors and end customers.

Alecensa. For ALK-positive non-small cell lung cancer (NSCLC).

Alecensa regional sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	366	343	+10	27.0	29.6
Europe	297	264	+11	21.9	22.8
Japan	247	240	+8	18.2	20.7
International	446	313	+40	32.9	26.9
Total sales	**1,356**	**1,160**	**+18**	**100**	**100**

The global uptake continued, led by the International region and the US. In the International region, the growth was mainly due to increased sales in China. The growth in the US was mainly driven by increased demand of first line treatment from continuing patients.

Esbriet. For idiopathic pulmonary fibrosis (IPF).

Esbriet regional sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	732	788	–4	70.5	71.1
Europe	269	266	+0	25.9	24.0
International	38	54	–28	3.6	4.9
Total sales	**1,039**	**1,108**	**–5**	**100**	**100**

Sales declined by 5% driven by reduced share of prescriptions from new patients.

Pharmaceuticals Division – Sales by region

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
United States	22,505	23,647	–2	50.0	53.1
Europe	8,876	8,198	+7	19.7	18.4
Japan	4,506	3,765	+26	10.0	8.5
International	9,154	8,922	+4	20.3	20.0
– *of which China*	*3,276*	*3,143*	*+0*	*7.3*	*7.2*
Total sales	**45,041**	**44,532**	**+3**	**100**	**100**

United States. Sales decreased by 2% driven by the impact of biosimilar erosion partly offset by sales growth of new medicines. There was a 47% decline in total MabThera/Rituxan, Herceptin and Avastin sales due to the launches of biosimilars. Offsetting this was growth from Hemlibra, Ocrevus, Evrysdi and Tecentriq. Hemlibra continued to show strong post-launch uptake with continued market share gains in the non-inhibitor segment. Ocrevus sales increased by 14% and were driven by both new and returning patient demand. Evrysdi, for the treatment of spinal muscular atrophy, showed a high uptake since its launch in the third quarter of 2020, with sales of CHF 0.4 billion. Tecentriq sales increased by 11% due to growth in new indications. Actemra/RoActemra sales increased by 49% mostly due to the use for hospitalised patients with severe COVID-19 pneumonia. Sales in the HER2 franchise decreased by 15%, mostly driven by lower Herceptin sales, partially offset by sales of Phesgo and a 4% sales increase for Kadcyla, notably in the early breast cancer setting. Lucentis sales decreased due to continuing competition.

Europe. Sales grew by 7% with new product sales more than compensating for biosimilar competition. A key driver of the new products growth was Ronapreve, with orders in Germany, the UK, France and Italy. Ocrevus (+34%) and Hemlibra (+61%) also reported growth, in particular in France and Germany. Kadcyla sales increased by 21% mainly driven by continued growth in France. Phesgo and Evrysdi sales showed strong uptake since launch, mainly in the UK and Germany respectively. Tecentriq sales continued to grow and increased by 22% driven by uptake across Europe. Actemra/RoActemra sales increased by 15% mostly due to the use for hospitalised patients with severe COVID-19 pneumonia. Biosimilar competition led to the combined sales of MabThera/Rituxan, Herceptin and Avastin falling by 47%.

Japan. Sales increased by 26% mainly driven by Ronapreve sales in the second half of the year. Sales also increased for Enspryng, Tecentriq and Hemlibra. There was a combined 8% fall in sales of MabThera/Rituxan, Herceptin and Avastin arising from biosimilar competition and government price cuts.

International. Sales increased by 4%. Sales in China were stable, with the uptake of Perjeta, Alecensa, Tecentriq and volume growth of Herceptin being offset by biosimilar erosion for Avastin and MabThera/Rituxan. Excluding China, sales in the International region increased by 6% mainly driven by orders of Ronapreve in India and sales growth of Ocrevus, Hemlibra and Evrysdi. This was partially offset by biosimilar erosion, notably in Canada and Brazil.

Operating results

Pharmaceuticals Division – Royalties and other operating income

	2021 (CHF m)	2020 (CHF m)	% change (CER)
Royalty income	1,064	1,012	+7
Income from out-licensing agreements	111	163	–29
Income from disposal of products, profit-sharing agreements and other	1,794	784	+132
Total – IFRS and Core basis	**2,969**	**1,959**	**+54**

Royalty income increased by 7% (at CER) mainly driven by higher royalty income from Venclexta/Venclyxto and Lucentis sales outside the US, partially compensated by the base effect of a settlement gain of CHF 128 million in 2020. Income from out-licensing agreements was lower due to the base effect of upfront and milestone income mostly in Japan in 2020. Income from profit-sharing agreements of CHF 1,282 million came mainly from the collaboration agreement with Regeneron, with income for CHF 654 million, and income from sales of Venclexta/Venclyxto in the US of CHF 400 million. In addition there was income from the sale of global rights for Rivotril for CHF 282 million and sale of global rights for Pegasys excluding China and Japan for CHF 191 million.

Pharmaceuticals Division – Cost of sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)
Manufacturing cost of goods sold and period costs	(6,030)	(5,021)	+20
Royalty expenses	(1,342)	(1,177)	+17
Collaboration and profit-sharing agreements	(2,189)	(1,864)	+20
Impairment of property, plant and equipment	112	(8)	–
Cost of sales – Core basis	**(9,449)**	**(8,070)**	**+18**
Global restructuring plans	(1)	(122)	–99
Amortisation of intangible assets	(1,083)	(1,210)	–9
Impairment of intangible assets	(101)	(81)	+28
Total – IFRS basis	**(10,634)**	**(9,483)**	**+13**

Core costs increased by 18% at CER. As a percentage of sales, cost of sales increased by 2.8 percentage points to 21.0%. Manufacturing cost of sales increased by 20% ahead of the sales increase of 3%. This was due to two main factors. Firstly, there was volume growth and various product mix factors across the portfolio. Secondly, there were incremental production costs in 2021 of CHF 575 million arising from the response to the COVID-19 pandemic. These arose from the at-risk manufacturing ramp-up and rollout of Ronapreve and AT-527, where the termination of the partnership with Atea Pharmaceuticals has been announced. Royalty expenses were 17% higher driven by increased sales for certain royalty-bearing products, notably Ocrevus and Evrysdi, partly offset by a decrease in royalty expenses related to the expired Cabilly patent. Collaboration and profit-sharing expenses increased by 20% driven by the launch of Ronapreve in 2021 partly offset by lower US sales of MabThera/Rituxan. An idle-plant impairment was reversed in the first half of 2021, resulting in an income of CHF 184 million. This was partially offset by impairments of property, plant and equipment including AT-527 related assets of CHF 38 million. The decrease in amortisation charges of intangible assets was primarily attributable to the Esbriet intangible asset becoming fully amortised in late 2021.

Pharmaceuticals Division – Marketing and distribution

	2021 (CHF m)	2020 (CHF m)	% change (CER)
Marketing and distribution – Core basis	**(6,517)**	**(6,633)**	**0**
Global restructuring plans	(324)	(139)	+136
Amortisation of intangible assets	(18)	(24)	–20
Impairment of intangible assets	(15)	0	–
Total – IFRS basis	**(6,874)**	**(6,796)**	**+3**

Core costs remained stable at CER. As a percentage of sales, they decreased to 14.5% from 14.9% in the comparative period. There was a continuing general slowdown in marketing activities, including a reduction in the field force from various restructuring initiatives and lower expenses for travel and congresses due to COVID-19 restrictions. Major marketing and distribution activities included supporting the ongoing launches and rollouts of Ocrevus and Tecentriq and also pre-launch activities. Restructuring costs were related to transformation initiatives in sales affiliates.

Pharmaceuticals Division – Research and development

	2021 (CHF m)	2020 (CHF m)	% change (CER)
Research and development – Core basis	**(11,952)**	**(10,597)**	**+14**
Global restructuring plans	(209)	(75)	+179
Amortisation of intangible assets	(297)	(405)	–25
Impairment of intangible assets	(535)	(344)	+57
Total – IFRS basis	**(12,993)**	**(11,421)**	**+15**

Core costs increased by 14% at CER and, as a percentage of sales, increased by 2.7 percentage points to 26.5%. Oncology remained the primary area of research and development with the cancer immunotherapy portfolio being a key driver. Neuroscience, immunology and ophthalmology represent significant areas of spending. The growth in spending was mostly driven by late-stage investments in oncology, neuroscience and personalised healthcare. The higher spend in oncology includes the first pivotal study for giredestrant, a next-generation selective oestrogen receptor degrader for people with hormone receptor-positive, HER2-negative breast cancer and investments in tiragolumab in lung cancer. In neuroscience, the higher spend was driven by investments in gantenerumab, an investigational anti-amyloid beta antibody in phase III development for the treatment of Alzheimer's disease, as well as on pivotal studies for fenebrutinib in multiple sclerosis. There was significant spending on COVID-19-related projects, notably for the co-development with Regeneron and the partnership with Atea Pharmaceuticals, and investments were made in advanced computation, data analytics and increased research and development activities in China.

Additionally, in-licensing transactions, business combinations and asset acquisitions resulted in intangible assets of CHF 1.1 billion (2020: CHF 3.9 billion) being recognised, mainly for payments made based upon the achievement of performance-related milestones for transactions completed in previous years. See the above sections on 'Mergers and acquisitions' and 'Alliance transactions' for further details. There were intangible asset impairment charges of CHF 535 million in the Pharmaceuticals Division. The major item related to a charge of CHF 364 million to fully write down the intangible asset for AT-527 following the announcement of the termination of the partnership with Atea Pharmaceuticals.

Pharmaceuticals Division – General and administration

	2021 (CHF m)	2020 (CHF m)	% change (CER)
Administration	(1,410)	(1,513)	–5
Pensions – past service costs	16	(1)	–
Gains (losses) on disposal of property, plant and equipment and right-of-use assets	(1)	(6)	–89
Business taxes and capital taxes	(209)	(231)	–7
Other general items	60	37	+75
General and administration – Core basis	**(1,544)**	**(1,714)**	**–8**
Global restructuring plans	(326)	(237)	+39
Mergers and acquisitions and alliance transactions	(23)	(34)	–30
Legal and environmental cases	(86)	344	–
Pensions plan settlements	0	2	–100
Total – IFRS basis	**(1,979)**	**(1,639)**	**+23**

Core costs decreased by 8% at CER and, as a percentage of sales, decreased to 3.4% from 3.8%. Administration costs were lower mainly due to decreases in general management expenses and lower legal expenses. Business taxes and capital taxes decreased primarily due to lower excise tax expense in 2021 in the US. On an IFRS basis, there were increased costs for restructuring, notably at the Basel/Kaiseraugst site in Switzerland. The change in legal and environmental cases was driven by the 2020 release of the Accutane US litigation provision.

Roche Pharmaceuticals and Chugai subdivisional operating results

Pharmaceuticals subdivisional operating results in millions of CHF

	Roche Pharmaceuticals 2021	2020	Chugai 2021	2020	Pharmaceuticals Division 2021	2020
Sales						
– External customers	40,535	40,767	4,506	3,765	45,041	44,532
– Within division	2,190	1,660	2,179	1,804	4,369	3,464
Core operating profit	15,523	17,029	3,621	2,715	18,548	19,477
– Margin, % of sales to external customers	38.3	41.8	80.4	72.1	41.2	43.7
Operating profit	12,601	14,765	3,525	2,654	15,530	17,152
– Margin, % of sales to external customers	31.1	36.2	78.2	70.5	34.5	38.5
Operating free cash flow	14,088	12,066	2,539	1,783	16,639	13,853
– Margin, % of sales to external customers	34.8	29.6	56.3	47.4	36.9	31.1

Pharmaceuticals Division total core operating profit and operating profit both include the elimination of CHF minus 596 million of unrealised intercompany gains between Roche Pharmaceuticals and Chugai (2020: CHF minus 267 million).

The increase in the exchange rate of the Japanese yen had an adverse impact of approximately 4 percentage points on the Chugai core 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 26% while sales within the division increased by 28%. Chugai core operating profit increased by 38% due to higher gross profit from sales within the division and higher gross profit from sales to external customers. This was partially offset by higher research and development costs. Operating free cash flow at Chugai increased by 45% mainly as a result of the strong operating performance and partially offset by an increase in net working capital.

Financial position

Pharmaceuticals Division – Net operating assets

	2021 (CHF m)	2020 (CHF m)	% change (CHF)	% change (CER)	Movement: Transactions (CHF m)	Movement: CTA and other (CHF m)
Trade receivables	7,478	6,992	+7	+8	535	(49)
Inventories	4,728	4,208	+12	+13	559	(39)
Trade payables	(2,421)	(1,958)	+24	+24	(456)	(7)
Net trade working capital	**9,785**	**9,242**	**+6**	**+7**	**638**	**(95)**
Other receivables (payables)	(7,380)	(6,788)	+9	+8	(573)	(19)
Net working capital	**2,405**	**2,454**	**−2**	**+4**	**65**	**(114)**
Property, plant and equipment	16,055	15,270	+5	+6	831	(46)
Right-of-use assets	916	801	+14	+14	113	2
Goodwill and intangible assets	15,987	16,539	−3	−6	(988)	436
Provisions	(2,704)	(2,108)	+28	+28	(604)	8
Other long-term assets, net	756	515	+47	+47	245	(4)
Long-term net operating assets	**31,010**	**31,017**	**0**	**−1**	**(403)**	**396**
Net operating assets	**33,415**	**33,471**	**0**	**−1**	**(338)**	**282**

The absolute amount of the movement between the 2021 and 2020 consolidated balances reported in Swiss francs is split between actual 2021 transactions (translated at average rates for 2020) and the currency translation adjustment (CTA) that arises on consolidation. The 2021 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 47 of the Annual Financial Statements, and a reconciliation between that balance sheet and the information given above is on pages 170.

Currency translation effects on balance sheet amounts. Compared to the start of the year the Swiss franc depreciated against the US dollar having a significant effect on the net operating assets of the Pharmaceuticals Division, which was partially compensated by the appreciation of the Swiss franc against the Japanese yen. This resulted in a net positive translation impact. The exchange rates used are given on page 32.

Net working capital. Net working capital increased by 4% at CER, due to a higher net liability for other receivables/payables, as well as a higher net trade working capital. The trade receivables increase of 8% was due to the underlying sales growth and was partially offset by favourable collections towards the end of 2021. The increase in inventories was driven by the ramp-up of new products and the need to ensure supply resilience. Trade payables increased due in part to an outstanding USD 150 million upfront payment. The net liability position for other receivables/payables increased due to higher accruals for rebates and chargebacks as well as higher accrued royalties.

Long-term net operating assets. Overall long-term net operating assets decreased by 1% at CER, due to lower intangible assets, partly offset by increased property, plant and equipment. Intangible assets decreased as the amortisation and impairment charges more than offset the additions. Capital expenditure includes manufacturing investments in the US, Switzerland, Japan and Germany, site developments in Switzerland and South San Francisco and Chugai's research facilities at Yokohama in Japan. Right-of-use assets increased due to new office leases at Genentech, Chugai, Foundation Medicine and Spark Therapeutics. Provisions increased due to the various factors, including those related to the at-risk manufacturing ramp-up and rollout of Ronapreve and AT-527 as well as the site development plans at the Basel/Kaiseraugst site. Other long-term assets increased and included accrued income for future milestone payments.

Free cash flow

Pharmaceuticals Division – Operating free cash flow

	2021 (CHF m)	2020 (CHF m)	% change (CHF)	% change (CER)
Operating profit	**15,530**	**17,152**	**-9**	**-7**
Depreciation, amortisation and impairment	3,458	3,535	-2	0
Provisions	661	(867)	–	–
Equity compensation plans	513	559	-8	-6
Other	308	86	+258	+264
Operating profit cash adjustments	**4,940**	**3,313**	**+49**	**+51**
Operating profit, net of operating cash adjustments	**20,470**	**20,465**	**0**	**+3**
(Increase) decrease in net working capital	(745)	(1,296)	-43	-40
Investments in property, plant and equipment	(2,008)	(1,981)	+1	+4
Principal portion of lease liabilities paid	(255)	(250)	+2	+5
Investments in intangible assets	(823)	(3,085)	-73	-73
Operating free cash flow	**16,639**	**13,853**	**+20**	**+23**
– as % of sales	36.9	31.1	+5.8	+6.1

See pages 167–169 for the definition of free cash flow and a detailed breakdown.

The Pharmaceuticals Division's operating free cash flow increased by 23% at CER to CHF 16.6 billion. The cash generation of the business, measured by the operating profit, net of operating cash adjustments, increased by 3% while core operating profit decreased by 2%. This difference was mainly due to the increased provisions for the at-risk manufacturing ramp-up and rollout of Ronapreve and AT-527. Net working capital absorbed an additional CHF 0.7 billion of cash, largely driven by higher trade receivables and inventories, partially offset by higher payables, for the reasons described above in the 'Financial position' section. The increase in net working capital was significantly lower than in the prior period, due to the settlement in 2020 of payables and accrual positions recorded at the end of 2019. Capital expenditure, with the major items also as described above in the 'Financial position' section, was 4% higher. Investments in intangible assets were significantly lower mainly due to the payments to Sarepta Therapeutics of CHF 0.8 billion and to Blueprint Medicines of CHF 0.7 billion in 2020.

Diagnostics Division operating results

Diagnostics Division operating results

	2021 (CHF m)	2020 (CHF m)	% change (CHF)	% change (CER)
IFRS results				
Sales	17,760	13,791	+29	+29
Royalties and other operating income	80	61	+31	+30
Revenue	**17,840**	**13,852**	**+29**	**+29**
Cost of sales	(9,013)	(6,694)	+35	+35
Marketing and distribution	(3,046)	(2,776)	+10	+10
Research and development	(1,806)	(1,588)	+14	+15
General and administration	(656)	(793)	−17	−17
Operating profit	**3,319**	**2,001**	**+66**	**+66**
– Margin, % of sales	18.7	14.5	+4.2	+4.1
Core results [a]				
Sales	17,760	13,791	+29	+29
Royalties and other operating income	80	61	+31	+30
Revenue	**17,840**	**13,852**	**+29**	**+29**
Cost of sales	(8,689)	(6,497)	+34	+34
Marketing and distribution	(2,927)	(2,728)	+7	+8
Research and development	(1,756)	(1,556)	+13	+14
General and administration	(543)	(507)	+7	+7
Core operating profit	**3,925**	**2,564**	**+53**	**+54**
– Margin, % of sales	22.1	18.6	+3.5	+3.5
Financial position				
Net working capital	3,030	2,977	+2	+7
Long-term net operating assets	13,030	10,787	+21	+21
Net operating assets	**16,060**	**13,764**	**+17**	**+18**
Free cash flow [b]				
Operating free cash flow	3,370	1,571	+115	+114
– Margin, % of sales	19.0	11.4	+7.6	+7.5

a) See pages 164–167 for the definition of core results.
b) See pages 167–169 for the definition of free cash flow.

Sales

The Diagnostics Division reported overall sales growth of 29% at CER to CHF 17.8 billion. The sales of the various COVID-19-related tests in 2021 (at CER) were CHF 4.7 billion (2020: CHF 2.6 billion), with the SARS-CoV-2 Rapid Antigen test launched in September 2020 accounting for approximately 40% of the COVID-19-related sales.

As part of an ongoing transformation initiative, the Diagnostics Division has replaced the previous business area structure with new customer areas. Sales are presented by customer area with the comparative information for 2020 being restated. Sales in the Point of Care and Molecular Lab customer areas grew due to COVID-19-related sales, while the rebound in routine testing is the main contributor to growth in the Core Lab and Pathology Lab customer areas. Diabetes Care sales growth was driven by an increase in blood glucose monitoring and the resolution of a dispute over the rebates applied by a distributor in the US.

Diagnostics Division – Sales by customer area

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
Core Lab	7,473	6,194	+21	42.1	44.9
Molecular Lab	4,812	3,760	+29	27.1	27.3
Point of Care	2,583	1,079	+138	14.5	7.8
Diabetes Care	1,690	1,670	+3	9.5	12.1
Pathology Lab	1,202	1,088	+12	6.8	7.9
Total sales	**17,760**	**13,791**	**+29**	**100**	**100**

Core Lab. This customer area focuses on central labs and provides diagnostics solutions in the areas of immunoassays, clinical chemistry and custom biotech. Sales increased by 21% due to the recovery of routine testing across the portfolio, with the main growth coming from immunoassays, with 25% higher sales, and clinical chemistry, with an increase of 16%. Routine testing recovered in all regions, with the largest contribution coming from Asia-Pacific and EMEA, which grew by 20% and 19% respectively, notably in China and Germany, where there was a 24% and 8% sales growth.

Molecular Lab. This customer area focuses on molecular labs and provides diagnostics solutions for the detection and monitoring of pathogens, donor screening, sexual health and genomics. Sales grew by 29% led by COVID-19-related sales from SARS-CoV-2 assays on the cobas 6800/8800 range and from the Liat business. The results included sales of CHF 114 million from GenMark, which was acquired effective 22 April 2021. Sales in the sequencing sample preparation and cervical cancer businesses grew by 43% and 17%, respectively, due to the recovery of routine testing. Sales were higher in all regions, led by the North America and Asia-Pacific regions.

Point of Care. This customer area provides diagnostics solutions immediately at the point of care such as in emergency rooms, general practitioners' practices and directly with patients and includes the SARS-CoV-2 rapid tests and blood gas and electrolyte (BGE) tests. Sales of the SARS-CoV-2 Rapid Antigen test are reported in this customer area and were the main driver of the high growth. Sales of these tests were concentrated in the EMEA region.

Diabetes Care. This customer area provides diagnostics solutions for people with diabetes and healthcare professionals enabling integrated personalised diabetes management. Sales increased by 3%, driven by an increase in blood glucose monitoring and the resolution of a dispute over a rebate in the North America region. The sales growth was driven by increased sales in emerging markets temporary offsetting the continued overall decline of the blood glucose monitoring market.

Pathology Lab. This customer area focuses on pathology labs and provides diagnostics solutions for tissue biopsies and companion diagnostics. These are targeted diagnostics to aid in the choice of specific therapies for each patient. Sales increased by 12%. This was mainly due to growth in the advanced staining business due to the recovery of routine testing, and growth in sales in the companion diagnostics business.

Diagnostics Division – Sales by region

	2021 (CHF m)	2020 (CHF m)	% change (CER)	% of sales (2021)	% of sales (2020)
Europe, Middle East and Africa (EMEA)	7,537	5,491	+37	42.4	39.5
North America	4,369	3,867	+16	24.6	28.4
– *of which US*	*3,941*	*3,522*	*+15*	*22.2*	*25.5*
Asia-Pacific	4,756	3,645	+29	26.8	26.4
– *of which China*	*2,430*	*1,914*	*+22*	*13.7*	*14.0*
Latin America	1,098	788	+48	6.2	5.7
Total sales	**17,760**	**13,791**	**+29**	**100**	**100**

Sales in the EMEA region grew by 37% mainly due to sales of the SARS-CoV-2 Rapid Antigen test and the rebound in routine testing. Asia-Pacific sales were 29% higher due to the baseline effect of the pandemic restrictions in 2020, specifically in China, where sales grew by 22%. In North America sales growth was driven by the 26% growth in the Molecular Lab customer area, mainly from the cobas SARS-CoV-2 tests, and by 14% growth in the Core Lab customer area due to the recovery in routine testing.

Operating results

Diagnostics Division – Royalties and other operating income

	2021 (CHF m)	2020 (CHF m)	% change (CER)
Royalty income	43	35	+25
Income from out-licensing agreements	18	8	+112
Income from disposal of products and other	19	18	+4
Total – IFRS and Core basis	**80**	**61**	**+30**

Royalties and other operating income increased due to an income from an out-licensing agreement of CHF 18 million in Diabetes Care.

Diagnostics Division – Cost of sales

	2021 (CHF m)	2020 (CHF m)	% change (CER)
Manufacturing cost of goods sold and period costs	(8,478)	(6,395)	+33
Royalty expenses	(116)	(100)	+17
Impairment of property, plant and equipment	(95)	(2)	Over +500
Cost of sales – Core basis	**(8,689)**	**(6,497)**	**+34**
Global restructuring plans	(191)	(103)	+84
Amortisation of intangible assets	(122)	(94)	+31
Mergers and acquisitions and alliance transactions	(11)	0	–
Total – IFRS basis	**(9,013)**	**(6,694)**	**+35**

Core costs increased by 34% at CER, due to higher COVID-19-related sales volumes of instruments and reagents. This increase was above the sales growth of 29% due to an unfavourable product mix driven by the increased sales volumes of SARS-CoV-2 Rapid Antigen tests in 2021. In addition impairments of property, plant and equipment were incurred in connection with the at-risk manufacturing ramp-up and rollout of COVID-19-related products. The core cost of sales ratio increased by 1.9 percentage points to 48.9%. Global restructuring costs increased due to more activities in strategy plans in Diabetes Care.

Diagnostics Division – Marketing and distribution

	2021 (CHF m)	2020 (CHF m)	% change (CER)
Marketing and distribution – Core basis	**(2,927)**	**(2,728)**	**+8**
Global restructuring plans	(100)	(39)	+158
Amortisation of intangible assets	(19)	(9)	+113
Total – IFRS basis	**(3,046)**	**(2,776)**	**+10**

Core costs increased by 8% at CER, due to higher spending on distribution costs following increased sales volumes as well as higher personnel expenses. On a core basis, marketing and distribution costs as a percentage of sales decreased to 16.5% compared to 19.8% in 2020, due to the sales growth in 2021.

Diagnostics Division – Research and development

	2021 (CHF m)	2020 (CHF m)	% change (CER)
Research and development – Core basis	**(1,756)**	**(1,556)**	**+14**
Global restructuring plans	(33)	(24)	+41
Amortisation of intangible assets	(17)	(8)	+111
Total – IFRS basis	**(1,806)**	**(1,588)**	**+15**

Core costs increased by 14% at CER, due to increased spending for digital projects and COVID-19 products development coupled with projects in blood screening and Alzheimer's disease. As a percentage of sales, research and development core costs decreased to 9.9% from 11.3% in 2020.

Diagnostics Division – General and administration

	2021 (CHF m)	2020 (CHF m)	% change (CER)
Administration	(598)	(520)	+15
Pensions – past service costs	9	0	–
Gains (losses) on disposal of property, plant and equipment and right-of-use assets	(1)	4	–
Gains (losses) on divestment of subsidiaries	4	8	–52
Business taxes and capital taxes	(20)	(16)	+27
Other general items	63	17	+294
General and administration – Core basis	**(543)**	**(507)**	**+7**
Global restructuring plans	(63)	(56)	+13
Impairment of goodwill and intangible assets	0	(247)	–100
Mergers and acquisitions and alliance transactions	(21)	25	–
Legal and environmental cases	(29)	(8)	+265
Total – IFRS basis	**(656)**	**(793)**	**–17**

Core costs increased by 7% at CER, and, as a percentage of sales, core costs decreased to 3.1% from 3.7% in 2020. Administration costs were 15% higher due to the shift of the reporting lines of certain support functions. The gain in the other general items was partly due to a sales tax refund that compensates overpayments made over the past several years. The impairment charges of CHF 247 million in 2020 are due to the goodwill impairment related to the AVL Medical Instruments and GeneWeave acquisitions.

Financial position

Diagnostics Division – Net operating assets

	2021 (CHF m)	2020 (CHF m)	% change (CHF)	% change (CER)	Movement: Transactions (CHF m)	Movement: CTA and other (CHF m)
Trade receivables	3,454	3,279	+5	+7	232	(57)
Inventories	2,987	2,986	0	+2	67	(66)
Trade payables	(1,250)	(1,233)	+1	+3	(32)	15
Net trade working capital	**5,191**	**5,032**	**+3**	**+5**	**267**	**(108)**
Other receivables (payables)	(2,161)	(2,055)	+5	+4	(87)	(19)
Net working capital	**3,030**	**2,977**	**+2**	**+7**	**180**	**(127)**
Property, plant and equipment	6,852	6,640	+3	+5	324	(112)
Right-of-use assets	273	276	–1	0	1	(4)
Goodwill and intangible assets	6,939	4,727	+47	+45	2,145	67
Provisions	(1,062)	(932)	+14	+13	(127)	(3)
Other long-term assets, net	28	76	–63	–58	(49)	1
Long-term net operating assets	**13,030**	**10,787**	**+21**	**+21**	**2,294**	**(51)**
Net operating assets	**16,060**	**13,764**	**+17**	**+18**	**2,474**	**(178)**

The absolute amount of the movement between the 2021 and 2020 consolidated balances reported in Swiss francs is split between actual 2021 transactions (translated at average rates for 2020) and the currency translation adjustment (CTA) that arises on consolidation. The 2021 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 47 of the Annual Financial Statements, and a reconciliation between that balance sheet and the information given above is on pages 170.

Currency translation effects on balance sheet amounts. Compared to the start of the year the Swiss franc appreciated against the euro having a negative effect on the net operating assets of the Diagnostics Division, which was partially offset by the depreciation of the Swiss franc against the US dollar. This resulted in a negative net translation impact. The exchange rates used are given on page 32.

Net working capital. Net working capital increased by 7% due to higher accounts receivable and inventories. The 7% increase in trade receivables is due to higher sales in 2021 as compared to 2020. Inventories increased by 2% due to the ongoing rollout of COVID-19-related products and the recovery of the underlying business. Trade payables increased by 3% due to higher manufacturing purchases to support higher sales. The increase in net liability for other receivables/payables came from higher employee-related accruals and customer incentives accruals.

Long-term net operating assets. Overall long-term net operating assets increased by 21% at CER, mainly attributable to the increase in goodwill and intangible assets resulting from the acquisition of a 100% controlling interest in GenMark and TIB Molbiol. Property, plant and equipment increased due to site investments in Germany and the US.

Free cash flow

Diagnostics Division – Operating free cash flow

	2021 (CHF m)	2020 (CHF m)	% change (CHF)	% change (CER)
Operating profit	**3,319**	**2,001**	**+66**	**+66**
Depreciation, amortisation and impairment	1,568	1,604	–2	–2
Provisions	125	22	+468	+471
Equity compensation plans	98	102	–4	–3
Other	371	264	+41	+40
Operating profit cash adjustments	**2,162**	**1,992**	**+9**	**+9**
Operating profit, net of operating cash adjustments	**5,481**	**3,993**	**+37**	**+38**
(Increase) decrease in net working capital	(342)	(738)	–54	–51
Investments in property, plant and equipment	(1,621)	(1,497)	+8	+9
Principal portion of lease liabilities paid	(115)	(110)	+5	+5
Investments in intangible assets	(33)	(77)	–57	–57
Operating free cash flow	**3,370**	**1,571**	**+115**	**+114**
– as % of sales	19.0	11.4	+7.6	+7.5

For the definition of free cash flow and a detailed breakdown see pages 167–169.

The operating free cash flow of the Diagnostics Division was CHF 3.4 billion, an increase of 114% (CER) compared to 2020 with the sales growth having a positive impact on the operating free cash flow. The cash generation of the business, measured by the operating profit, net of operating cash adjustments, increased by CHF 1.5 billion (+38%) in line with the core operating profit which increased by CHF 1.4 billion (+54%). Net working capital increased and absorbed CHF 0.3 billion of cash in 2021 which was attributable to the increase in trade receivables and inventories described above in the 'Financial position' section. Capital expenditure increased by 9% due to the site investments in Germany and the US.

Corporate operating results

Corporate operating results summary

	2021 (CHF m)	2020 (CHF m)	% change (CER)
Administration	(536)	(506)	+6
Business taxes and capital taxes	(9)	(18)	–46
Other general items	(31)	19	–
General and administration costs – Core basis[a]	**(576)**	**(505)**	**+15**
Global restructuring plans	(115)	(114)	+1
Legal and environmental cases	(3)	9	–
Total costs – IFRS basis	**(694)**	**(610)**	**+14**
Financial position			
Net working capital	(314)	(229)	+37
Long-term net operating assets	116	43	+156
Net operating assets	**(198)**	**(186)**	**+8**
Free cash flow[b]			
Operating free cash flow	(598)	(609)	–1

a) See pages 164–167 for the definition of core results.
b) See pages 167–169 for the definition of free cash flow and a detailed breakdown.

General and administration costs increased by 15% at CER on a core basis with administration costs higher by 6%. This increase is due to the build-up of the shared service centre network which provides services to both divisions. Other general items decreased due to higher IT project costs within the overall net amount. The change in net working capital was due to higher payables. The change in long-term net operating assets was due to lower provisions and due to higher assets as a result of the shared service centre build-up. Corporate operating free cash flow was 1% lower at CER.

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 CHF)

	% change (CER) 2021	% change (CER) 2020	% change (CHF) 2021	% change (CHF) 2020
Pharmaceuticals Division				
Sales	+3	−2	+1	−8
Core operating profit	−2	0	−5	−7
Diagnostics Division				
Sales	+29	+14	+29	+6
Core operating profit	+54	+50	+53	+30
Group				
Sales	+9	+1	+8	−5
Core operating profit	+4	+4	+2	−4

Exchange rates against the Swiss franc

	31 December 2021	Average 2021	31 December 2020	Average 2020
1 USD	0.91	0.91	0.88	0.94
1 EUR	1.03	1.08	1.08	1.07
100 JPY	0.79	0.83	0.85	0.88

The results expressed in Swiss francs were negatively impacted by the appreciation of the Swiss franc against many currencies. The net impact expressed in Swiss francs compared to constant exchange rates was 1 percentage point on sales, 2 percentage points on core operating profit and 3 percentage points on Core EPS. The sensitivity of Group sales and core operating profit to a 1% change in average foreign currency exchange rates against the Swiss franc during 2021 is shown in the table below.

Currency sensitivities

Impact of 1% increase in average exchange rate versus the Swiss franc	Sales (CHF m)	Core operating profit (CHF m)
US dollar	273	111
Euro	111	40
Japanese yen	52	43
All other currencies	176	90

The Group's revenues are primarily generated from sales of products to customers. Such revenues are mainly received in the local currency of the customer's home market, although in certain emerging markets invoicing is made in major international currencies such as the US dollar and euro. Cost of sales, marketing and some administration costs follow the same currency pattern as sales. The majority of research and development activities are incurred at the Group's global research facilities, and therefore the costs are mainly concentrated in US dollars, Swiss francs and euros. General and administration costs tend to be incurred mainly at central locations in the US, Switzerland and Germany. Chugai's revenues and costs are denominated in Japanese yen.

Treasury and taxation results

Treasury and taxation results

	2021 (CHF m)	2020 (CHF m)	% change (CHF)	% change (CER)
IFRS results				
Operating profit	18,155	18,543	–2	0
Financing costs	(418)	(553)	–24	–22
Other financial income (expense)	(339)	(25)	Over +500	Over +500
Profit before taxes	**17,398**	**17,965**	**–3**	**–1**
Income taxes	(2,463)	(2,897)	–15	–12
Net income	**14,935**	**15,068**	**–1**	**+2**
Attributable to				
– Roche shareholders	13,930	14,295	–3	0
– Non-controlling interests	1,005	773	+30	+33
Core results[a]				
Operating profit	21,897	21,536	+2	+4
Financing costs	(412)	(539)	–24	–22
Other financial income (expense)	(339)	(25)	Over +500	Over +500
Profit before taxes	**21,146**	**20,972**	**+1**	**+3**
Income taxes	(3,075)	(3,594)	–14	–12
Net income	**18,071**	**17,378**	**+4**	**+6**
Attributable to				
– Roche shareholders	17,038	16,577	+3	+5
– Non-controlling interests	1,033	801	+29	+32
Financial position				
Net debt	(18,167)	(1,882)	Over +500	Over +500
Lease liabilities	(1,354)	(1,195)	+13	+14
Pensions	(4,605)	(6,864)	–33	–30
Income taxes	2,273	1,576	+44	+47
Equity investments	738	1,274	–42	–42
Derivatives, net	(73)	112	–	–
Collateral, net	(17)	(161)	–89	–89
Interest payable	(102)	(160)	–36	–38
Associated companies and other, net	375	24	Over +500	Over +500
Total net assets (liabilities)	**(20,932)**	**(7,276)**	**+188**	**+172**
Free cash flow[b]				
Treasury activities	(377)	(636)	–41	–38
Taxes paid	(3,343)	(3,236)	+3	+6
Total	**(3,720)**	**(3,872)**	**–4**	**–1**

a) See pages 164–167 for the definition of core results.
b) See pages 167–169 for the definition of free cash flow.

Financing costs

Core financing costs were CHF 412 million, a decrease of 22% at CER compared to 2020. Interest expenses on debt decreased by 20% at CER to CHF 325 million mainly due to the repayment of debt in 2021. The net interest cost of defined benefit pension plans decreased by 30% at CER due to lower discount rates in Germany and the US at the end of 2020. A full analysis of financing costs is given in Note 4 to the Annual Financial Statements.

Other financial income (expense)

Core other financial income (expense) was a net expense of CHF 339 million, an increase of CHF 314 million compared to 2020. Income from equity securities, which reflects the fair value changes in the Roche Venture Fund investments, reported a net loss of CHF 87 million (2020: net gain of CHF 170 million), mainly due to a fall in the value of the Allakos investment in December 2021. The net foreign exchange results, which reflect hedging costs and losses on unhedged positions, were losses of CHF 232 million (2020: net losses of CHF 206 million). A full analysis of other financial income (expense) is given in Note 4 to the Annual Financial Statements.

Income taxes

The Group's effective core tax rate decreased by 2.6 percentage points to 14.5% in 2021. The decrease was mainly due to the impact from the resolution of several tax disputes which reduced the Group's effective core tax rate by 3.3 percentage points in 2021 compared to a reduction of 1.5 percentage points in 2020, and the higher percentage of core profit contribution coming from tax jurisdictions with lower tax rates than the average Group tax rate.

The IFRS results saw the effective tax rate decrease by 1.9 percentage points mainly due to the higher effect from the resolution of several tax disputes in 2021 compared to 2020 as mentioned above.

Further details of the Group's income tax expenses and related balance sheet positions are given in Note 5 to the Annual Financial Statements.

Analysis of the Group's effective tax rate

			2021			2020
	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	**21,146**	**(3,075)**	**14.5**	**20,972**	**(3,594)**	**17.1**
Global restructuring plans	(1,362)	267	19.6	(909)	168	18.5
Goodwill and intangible assets	(2,207)	316	14.3	(2,422)	576	23.8
Mergers and acquisitions and alliance transactions	(57)	10	17.5	(16)	12	75.0
Legal and environmental cases	(122)	15	12.3	338	(67)	19.8
Pension plan settlements	0	0	–	2	0	–
Normalisation of equity compensation plan tax benefit	0	4	–	0	8	–
Group's effective tax rate – IFRS basis	**17,398**	**(2,463)**	**14.2**	**17,965**	**(2,897)**	**16.1**

Financial position

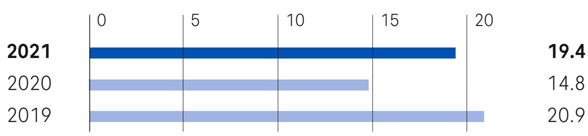
The increase in net debt at the end of 2021 was due to the issuance of bonds of CHF 5.5 billion and a bridging facility of CHF 13.5 billion which financed the repurchase in December 2021 of Roche shares held by Novartis. In addition there were dividend payments of CHF 8.1 billion and payments for mergers and acquisitions, notably the acquisitions of GenMark for CHF 1.7 billion and TIB Molbiol for CHF 0.5 billion. This was offset by the free cash flow of CHF 15.7 billion. The net pension liability was lower following increases in the fair value of plan assets and increases in discount rates in most regions. The net tax assets increased mainly due to taxes paid exceeding the income tax expenses partially offset by the deferred tax effects of the pension plans. At 31 December 2021 the Group held equity investments with a market value of CHF 0.7 billion, which consist mostly of holdings in biotechnology and other pharmaceuticals companies which were acquired as part of licensing transactions and scientific collaborations or as investments of the Roche Venture Fund. In December 2021, the Group made an investment equivalent to CHF 0.3 billion in Freenome Holdings, Inc. ('Freenome'), which has been accounted for as an investment in an associated company.

Free cash flow

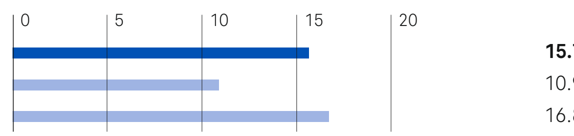
The net cash outflow from treasury activities was CHF 0.4 billion compared to an outflow of CHF 0.6 billion in 2020. This was due to the higher cash received from the sale of long-term financial investments in 2021. There were separate CHF 0.3 billion equity investments paid in 2021 for Freenome and in 2020 for Sarepta Therapeutics. Total taxes paid of CHF 3.3 billion were 6% higher at CER, with higher payments in Japan being partly offset by lower payments in the US, driven by the respective business results.

Cash flows and net debt

Operating free cash flow in billions of CHF



Free cash flow in billions of CHF



Free cash flow in millions of CHF

	Pharmaceuticals	Diagnostics	Corporate	Group
2021				
Operating profit – IFRS basis	15,530	3,319	(694)	18,155
Operating profit cash adjustments	4,940	2,162	79	7,181
Operating profit, net of operating cash adjustments	**20,470**	**5,481**	**(615)**	**25,336**
(Increase) decrease in net working capital	(745)	(342)	93	(994)
Investments in property, plant and equipment	(2,008)	(1,621)	(64)	(3,693)
Principal portion of lease liabilities paid	(255)	(115)	(12)	(382)
Investments in intangible assets	(823)	(33)	0	(856)
Operating free cash flow	**16,639**	**3,370**	**(598)**	**19,411**
Treasury activities				(377)
Taxes paid				(3,343)
Free cash flow				**15,691**
2020				
Operating profit – IFRS basis	17,152	2,001	(610)	18,543
Operating profit cash adjustments	3,313	1,992	86	5,391
Operating profit, net of operating cash adjustments	**20,465**	**3,993**	**(524)**	**23,934**
(Increase) decrease in net working capital	(1,296)	(738)	(26)	(2,060)
Investments in property, plant and equipment	(1,981)	(1,497)	(50)	(3,528)
Principal portion of lease liabilities paid	(250)	(110)	(9)	(369)
Investments in intangible assets	(3,085)	(77)	0	(3,162)
Operating free cash flow	**13,853**	**1,571**	**(609)**	**14,815**
Treasury activities				(636)
Taxes paid				(3,236)
Free cash flow				**10,943**

For the definition of free cash flow and a detailed breakdown see pages 167–169.

Operating free cash flow increased by 34% at CER to CHF 19.4 billion. This was due to the operating performance in 2021 and the base effect of significant spending on in-licensing and alliance arrangements in 2020, notably the payments to Sarepta Therapeutics of CHF 0.8 billion and to Blueprint Medicines of CHF 0.7 billion. The increase in net working capital in the prior period was driven by the settlement of payables and accrual positions recorded at the end of 2019. The free cash flow was CHF 15.7 billion, an increase of 46% at CER, following the growth in the operating free cash flow. The appreciation of the Swiss franc had a significant negative impact on the free cash flows measures expressed in CHF terms.

Net debt in millions of CHF

At 1 January 2021	
Cash and cash equivalents	5,727
Marketable securities	6,607
Long-term debt	(10,220)
Short-term debt	(3,996)
Net debt at beginning of period	**(1,882)**
Change in net debt during 2021	
Free cash flow	15,691
Dividend payments	(8,132)
Share repurchase	(18,991)
Transactions in own equity instruments	(1,406)
Mergers and acquisitions, net of divestments of subsidiaries	(2,407)
Hedging and collateral arrangements	(522)
Currency translation, fair value and other movements	(518)
Change in net debt	**(16,285)**
At 31 December 2021	
Cash and cash equivalents	6,850
Marketable securities	6,181
Long-term debt	(16,076)
Short-term debt	(15,122)
Net debt at end of period	**(18,167)**

For the definition of net debt see page 171.

Net debt – currency profile in millions of CHF

	Cash and marketable securities		Debt	
	2021	2020	2021	2020
US dollar	1,923	1,848	(16,454)	(9,221)
Euro	2,666	2,642	(1,704)	(1,787)
Swiss franc	4,104	4,046	(12,314)	(2,503)
Japanese yen	3,710	3,165	0	0
Other	628	633	(726)	(705)
Total	**13,031**	**12,334**	**(31,198)**	**(14,216)**

The net debt position of the Group at 31 December 2021 was CHF 18.2 billion, an increase of CHF 16.3 billion from 31 December 2020. The increase was due to the financing of the repurchase of Roche shares held by Novartis. Excluding this, the free cash flow of CHF 15.7 billion exceeded the payment of CHF 8.1 billion for dividends and the CHF 2.4 billion of cash payments for mergers and acquisitions. Mergers and acquisitions, net of divestments of subsidiaries, included the acquisitions of GenMark and TIB Molbiol, as described in the above section on 'Mergers and acquisitions'. Transactions in own equity instruments relate to purchases in connection with the Group's equity compensation plans.

Contractual obligations and commitments

The Group has obligations and commitments, as set out in the table below. Carrying values are as shown in the consolidated balance sheet. The potential obligations shown are not discounted and are not risk-adjusted, unless otherwise noted below. Any amounts denominated in foreign currencies are translated into Swiss francs at the 31 December 2021 exchange rates. Provisions for legal and environmental matters are not included as the timing and amount of any cash outflow is uncertain and contingent on the development of the matters in question.

Contractual obligations and commitments as at 31 December 2021 in millions of CHF

	Potential obligation (undiscounted)					
	Less than 1 year	1–2 years	2–5 years	Over 5 years	Total	Carrying value
On-balance sheet						
Debt [21]						
– Bonds and notes	876	1,494	6,535	12,443	21,348	16,579
– Other debt	14,619	0	0	0	14,619	14,619
Contingent consideration [20, 31]	92	57	169	41	359	141
Accounts payable [17]	4,637	0	0	0	4,637	4,637
Other non-current liabilities [18]	0	526	438	424	1,388	1,307
– *of which lease liabilities*	*0*	*270*	*435*	*401*	*1,106*	*1,025*
Other current liabilities [19]	13,084	33	19	0	13,136	13,129
– *of which lease liabilities*	*336*	*0*	*0*	*0*	*336*	*329*
Unfunded defined benefit plans [26]	201	201	631	6,086	7,119	5,582
Total on-balance sheet commitments	**33,509**	**2,311**	**7,792**	**18,994**	**62,606**	**55,994**
Off-balance sheet						
Capital commitments for property, plant and equipment [8]	1,104	546	217	6	1,873	0
Leasing commitments [28]	0	6	158	630	794	0
Contract manufacturing commitments [31]	615	382	366	0	1,363	0
Alliance collaboration commitments [10]	1,040	974	1,645	1,162	4,821	0
Total off-balance sheet commitments	**2,759**	**1,908**	**2,386**	**1,798**	**8,851**	**0**
Total contractual commitments	**36,268**	**4,219**	**10,178**	**20,792**	**71,457**	**55,994**

References are to the Notes in the Annual Financial Statements.

Debt. This consists mainly of bonds and notes and includes the principal and interest on the Group's debt instruments. Other debt is mainly commercial paper. The carrying values are discounted based on the interest rates inherent in the instruments.

Contingent consideration. These are potential payments arising from mergers and acquisitions. The carrying values are risk-adjusted and discounted.

Lease liabilities. These are the future obligations under non-cancellable lease contracts.

Unfunded defined benefit plans. These are mainly the pension plans in the Group's German affiliates, where the fully reserved pension obligations are used for self-financing of the local affiliates' operations. The carrying values are discounted. Future company contributions to the Group's funded plans are not shown in the above table.

Capital commitments for property, plant and equipment. These are non-cancellable commitments for the purchase and construction mainly at the Roche sites in Basel, Switzerland, South San Francisco, US, and Mannheim, Germany, and also at the Chugai research and development site in Yokohama, Japan.

Leasing commitments. These are the major non-cancellable commitments for signed lease agreements where the lease term has not yet started. These mainly relate to Foundation Medicine's site in Boston, US and Genentech's site in South San Francisco, US.

Contract manufacturing commitments. These are the future minimum take-or-pay commitments to purchase inventories arising from the Group's major long-term agreements with external Contract Manufacturing Organisations (CMOs).

Alliance collaboration commitments. These are potential upfront and milestone payments that may become due from the Group's in-licensing and alliance arrangements and intangible asset purchase agreements, including asset acquisitions. Potential payments to alliance partners and for asset purchase agreements within the next three years are included assuming all projects currently in development are successful. Potential payments beyond three years are only included for asset purchase agreements.

Pensions and other post-employment benefits

Post-employment benefit plans are classified for IFRS as 'defined contribution plans' if the Group pays fixed contributions into a separate fund or to a third-party financial institution and will have no further legal or constructive obligation to pay further contributions. In 2021 expenses for the Group's defined contribution plans were CHF 419 million (2020: CHF 409 million). All other plans are classified as 'defined benefit plans', even if the Group's potential obligation is minor or has a relatively remote possibility of arising. Plans are usually established as trusts which are independent of the Group and are funded by payments from the Group and by employees, but in some cases the plan is unfunded and the Group pays pensions to retired employees directly from its own financial resources. In 2021 expenses for the Group's defined benefit plans were CHF 749 million (2020: CHF 757 million).

Defined benefit plans

Funding status and balance sheet position

	2021 (CHF m)	2020 (CHF m)
Funded plans		
– Fair value of plan assets	19,164	17,967
– Defined benefit obligation	(18,292)	(19,047)
Over (under) funding	**872**	**(1,080)**
Unfunded plans		
– Defined benefit obligation	(5,582)	(5,902)
Total funding status	**(4,710)**	**(6,982)**
Limit on asset recognition	(3)	0
Reimbursement rights	108	118
Net recognised asset (liability)	**(4,605)**	**(6,864)**

Overall the funding status on an IFRS basis of the Group's funded defined benefit plans increased to 105% compared to 94% at the start of the year. This came from an increase in the fair value of plan assets in Switzerland and an increase in discount rates in most regions compared to the end of 2020. The funding status of the pension funds is monitored by the local pension fund governance bodies as well as being closely reviewed at a Group level.

The unfunded plans are mainly those in the Group's German affiliates, where the fully reserved pension obligations are invested in the local affiliate's operations. The unfunded liabilities for these plans decreased in Swiss franc terms during 2021 due to movements in exchange rates.

Full details of the Group's pensions and other post-employment benefits are given in Note 26 to the Annual Financial Statements.

Roche shares

Share price and market capitalisation (at 31 December)

	2021	2020	% change (CHF)
Share price (CHF)	408.80	310.00	+32
Non-voting equity security *(Genussschein)* price (CHF)	379.10	309.00	+23
Market capitalisation (billions of CHF)	307	264	+16

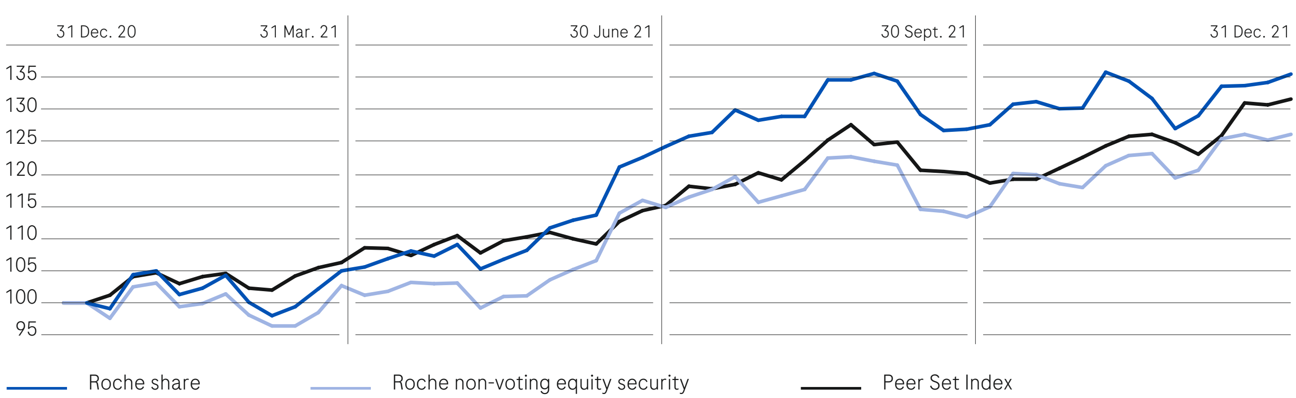
In 2021 Roche ranked number 8 among a peer group consisting of Roche and 15 other healthcare companies[a] for Total Shareholder Return (TSR), defined as share price growth plus dividends, measured in Swiss francs at actual exchange rates. At constant exchange rates (CER) Roche ranked number 7, with the year-end return being +35.7% for Roche shares and +26.3% for Roche non-voting equity securities. The combined performance of share and non-voting equity security was +28.2% compared to a weighted average return for the peer group of +31.8% in CHF terms and +29.5% at CER.

On 6 December 2021, Roche repurchased 53.3 million Roche shares held by Novartis for a total consideration of CHF 19.0 billion. The repurchased shares are reported as treasury shares as at 31 December 2021 and are scheduled to be cancelled in early 2022 when the necessary legal procedures have been completed.

In 2021 strong growth pushed world equity markets including the healthcare sector to record highs. Growth of the Swiss Market Index (SMI) slightly trailed major US indices. Roche outperformed the SMI with strong sales growth in Diagnostics and launches of new products.

a) Peer group for 2021: Abbott, AbbVie, Amgen, AstraZeneca, Bristol-Myers Squibb, Danaher, GlaxoSmithKline, Johnson & Johnson, Lilly, Medtronic, Merck & Co., Novartis, Novo Nordisk, Pfizer, Roche and Sanofi.

Total Shareholder Return development



Source: Refinitiv Eikon. Data for Roche and the peer index has been re-based to 100 at 1 January 2021. The Peer Index was converted into Swiss francs at daily actual exchange rates. Currency fluctuations have an influence on the representation of the relative performance of Roche versus the peer index.

Proposed dividend

The Board of Directors is proposing an increase of 2% in the dividend for 2021 to CHF 9.30 per share and non-voting equity security (2020: CHF 9.10) for approval at the Annual General Meeting. This would be the 35th consecutive increase in the dividend. If the dividend proposal is approved by shareholders, dividend payments on the total shares and non-voting equity securities will amount to CHF 7.5 billion (2020: CHF 7.8 billion), taking into account that no dividend distributions are made for the repurchased shares that are scheduled to be cancelled in early 2022. This dividend proposal would result in a pay-out ratio (based on core net income) of 46.9% (2020: 47.5%). Based on the prices at the end of 2021, the dividend yield on the Roche share was 2.3% (2020: 2.9%) and the yield on the non-voting equity security was 2.5% (2020: 2.9%). Further information on the Roche securities is given on pages 172 to 174.

The repurchase of shares in December 2021 and the consequent additional financing costs had an accretive effect on earnings per share numbers of approximately 0.4% in 2021. Had the transaction taken place on 1 January 2021, then the full-year accretive effect, including the estimated additional financing costs, would have been approximately 5%.

Information per share and non-voting equity security

	2021 (CHF)	2020 (CHF)	% change (CHF)
EPS – Basic	16.38	16.73	–2
EPS – Diluted	16.20	16.52	–2
Core EPS – Basic	20.04	19.40	+3
Core EPS – Diluted	19.81	19.16	+3
Equity attributable to Roche shareholders per share	30.60	42.60	–28
Dividend per share	9.30	9.10	+2

For further details please refer to Notes 22 and 29 of the Annual Financial Statements and page 167. The pay-out ratio is calculated as dividend per share divided by core earnings per share.

Debt

On 5 March 2021 the Group completed an offering of USD 500 million and USD 650 million of fixed rate notes with a coupon of 0.45% and 0.991%, respectively. The notes will mature on 5 March 2024 and 5 March 2026, respectively. The Group received CHF 1,066 million aggregate net proceeds from the issuance and sale of these fixed rate notes.

On 5 March 2021 the Group completed an offering of USD 350 million floating rate notes at a rate equal to Secured Overnight Financing Rate (SOFR) plus a margin of 0.24%. The notes will mature on 5 March 2024. The Group received CHF 325 million aggregate net proceeds from the issuance and sale of these floating rate notes.

On the due date of 4 March 2021 the Group redeemed notes with an outstanding amount of EUR 1,140 million. The effective interest rate of these notes was 6.66%. The cash outflow was CHF 1,266 million and there was no gain or loss recorded on the redemption.

On 29 July 2021 the Group resolved to exercise its option to call for early redemption of the 2.875% fixed rate notes with an outstanding amount of USD 640 million at par, two months before the scheduled due date of 29 September 2021. The cash outflow was CHF 586 million, plus accrued interest, and there was no gain or loss recorded on the redemption. The effective interest rate of these notes was 2.98%.

On 13 December 2021 the Group completed an offering of USD 2,000 million of fixed rate notes with a coupon of 1.93%, USD 2,000 million of fixed rate notes with a coupon of 2.076% and USD 2,000 million of fixed rate notes with a coupon of 2.607%. The notes will mature on 13 December 2028, 13 December 2031 and 13 December 2051, respectively. The Group received CHF 5,509 million aggregate net proceeds from the issuance and sale of these fixed rate notes.

On 28 December 2021 the Group resolved to exercise its option to call for early redemption of the 1.75% fixed rate notes with an outstanding amount of USD 650 million at par, one month before the scheduled due date of 28 January 2022. The cash outflow was CHF 596 million, plus accrued interest, and there was no gain or loss recorded on the redemption. The effective interest rate of these notes was 1.87%.

The maturity schedule of the Group's bonds and notes outstanding at 31 December 2021 is shown in the table below.

Bonds and notes: nominal amounts at 31 December 2021 by contractual maturity

	US dollar (USD m)	Euro (EUR m)	Pound sterling (GBP m)	Swiss franc (CHF m)	Total[a] (USD m)	Total[a] (CHF m)
2022	0	0	0	500	547	500
2023	390	650	77	0	1,230	1,124
2024	1,439	0	0	750	2,260	2,065
2025	506	1,000	0	500	2,186	1,997
2026	1,650	0	0	0	1,650	1,507
2027–2031	5,500	0	0	750	6,321	5,775
2032 and beyond	4,054	0	0	0	4,054	3,704
Total	**13,539**	**1,650**	**77**	**2,500**	**18,248**	**16,672**

a) Total translated at 31 December 2021 exchange rates.

The Group plans to meet its debt obligations using existing liquid funds as well as cash generated from business operations. In 2021 the free cash flow was CHF 15.7 billion (2020: CHF 10.9 billion), which included the cash generated from operations, as well as payment of interest and tax.

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 0.5 billion were outstanding as of 31 December 2021 (2020: USD 1.8 billion). For longer-term financing the Group maintains high long-term investment-grade credit ratings of AA by Standard & Poor's, Aa3 by Moody's and AA by Fitch which should facilitate efficient access to international capital markets.

The repurchase of 53.3 million Roche shares held by Novartis for a total consideration of CHF 19.0 billion was financed through a credit facility from banks for the total repurchase price. This was partly refinanced by a bond issue on 13 December 2021 and CHF 13.5 billion of the credit facility was outstanding at 31 December 2021. Further refinancing in the bond market is planned for 2022.

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

Financial risks

At 31 December 2021 the Group had a net debt position of CHF 18.2 billion (2020: CHF 1.9 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 used for debt repayment. 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

	2021 (CHF m)	2021 (% of total)	2020 (CHF m)	2020 (% of total)
Cash and cash equivalents	6,850	53	5,727	46
Money market instruments	5,614	43	6,006	49
Debt securities	565	4	590	5
Equity securities	2	0	11	0
Total cash and marketable securities	**13,031**	**100**	**12,334**	**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 13.0 billion of cash and fixed income marketable securities remained high with 94% being invested in the A–AAA range. The Group has signed netting and collateral agreements with the counterparties in order to mitigate counterparty risk on derivative positions. The Group did not observe a significant increase in credit risk due to the COVID-19 pandemic. Bad debt expenses and overdue receivables remained at a relatively low level.

Liquidity risk. Liquidity risk arises through a surplus of financial obligations over available financial assets due at any point in time. The Group's approach to liquidity risk is to maintain sufficient readily available reserves in order to meet its liquidity requirements at any point in time. In addition to the current liquidity position, the Group has strong cash generation ability. Those future cash flows will be used to repay debt instruments in the coming years. The Group did not observe a significant increase in liquidity risk due to the COVID-19 pandemic. Free cash flow was CHF 15.7 billion as compared to CHF 10.9 billion in 2020.

The Roche Group continues to enjoy high long-term investment-grade credit ratings of AA by Standard & Poor's, Aa3 by Moody's and AA by Fitch. At the same time Roche is rated at the highest available short-term ratings by those agencies. These ratings have not changed since the onset of the COVID-19 pandemic. In the event of financing requirements, the credit ratings of the Roche Group 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 31 December 2021 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 increased since 31 December 2020 reflecting bond issuances during 2021.

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

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

New and revised standards applied in 2021

In 2021 the Group implemented various minor amendments to existing standards and interpretations which have no material impact on the Group's overall results and financial position.

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

Roche Group Consolidated Financial Statements

Roche Group consolidated income statement for the year ended 31 December 2021 in millions of CHF

	Pharmaceuticals	Diagnostics	Corporate	Group
Sales [2, 3]	45,041	17,760	–	62,801
Royalties and other operating income [2, 3]	2,969	80	–	3,049
Revenue [2, 3]	**48,010**	**17,840**	**–**	**65,850**
Cost of sales	(10,634)	(9,013)	–	(19,647)
Marketing and distribution	(6,874)	(3,046)	–	(9,920)
Research and development [2]	(12,993)	(1,806)	–	(14,799)
General and administration	(1,979)	(656)	(694)	(3,329)
Operating profit [2]	**15,530**	**3,319**	**(694)**	**18,155**
Financing costs [4]				(418)
Other financial income (expense) [4]				(339)
Profit before taxes				**17,398**
Income taxes [5]				(2,463)
Net income				**14,935**
Attributable to				
– Roche shareholders [22]				13,930
– Non-controlling interests [24]				1,005
Earnings per share and non-voting equity security [29]				
Basic (CHF)				16.38
Diluted (CHF)				16.20

Roche Group consolidated income statement for the year ended 31 December 2020 in millions of CHF

	Pharmaceuticals	Diagnostics	Corporate	Group
Sales [2, 3]	44,532	13,791	–	58,323
Royalties and other operating income [2, 3]	1,959	61	–	2,020
Revenue [2, 3]	**46,491**	**13,852**	**–**	**60,343**
Cost of sales	(9,483)	(6,694)	–	(16,177)
Marketing and distribution	(6,796)	(2,776)	–	(9,572)
Research and development [2]	(11,421)	(1,588)	–	(13,009)
General and administration	(1,639)	(793)	(610)	(3,042)
Operating profit [2]	**17,152**	**2,001**	**(610)**	**18,543**
Financing costs [4]				(553)
Other financial income (expense) [4]				(25)
Profit before taxes				**17,965**
Income taxes [5]				(2,897)
Net income				**15,068**
Attributable to				
– Roche shareholders [22]				14,295
– Non-controlling interests [24]				773
Earnings per share and non-voting equity security [29]				
Basic (CHF)				16.73
Diluted (CHF)				16.52

Roche Group consolidated statement of comprehensive income in millions of CHF

	Year ended 31 December 2021	2020
Net income recognised in income statement	**14,935**	**15,068**
Other comprehensive income (OCI)		
Remeasurements of defined benefit plans [22]	1,873	(187)
Fair value changes on equity investments at fair value through OCI [22]	(155)	99
Items that will never be reclassified to the income statement	**1,718**	**(88)**
Fair value changes on debt securities at fair value through OCI [22]	(13)	7
Cash flow hedges [22]	(47)	(39)
Currency translation of foreign operations [22]	(476)	(1,657)
Items that are or may be reclassified to the income statement	**(536)**	**(1,689)**
Other comprehensive income, net of tax	**1,182**	**(1,777)**
Total comprehensive income	**16,117**	**13,291**
Attributable to		
– Roche shareholders [22]	15,359	12,656
– Non-controlling interests [24]	758	635
Total	**16,117**	**13,291**

Roche Group consolidated balance sheet in millions of CHF

	31 December 2021	31 December 2020	31 December 2019
Non-current assets			
Property, plant and equipment [8]	23,163	22,158	22,173
Right-of-use assets [28]	1,249	1,112	1,145
Goodwill [9]	10,809	9,249	10,295
Intangible assets [10]	12,117	12,017	10,751
Deferred tax assets [5]	5,583	5,459	4,979
Defined benefit plan assets [26]	1,498	967	945
Other non-current assets [15]	2,271	2,234	1,549
Total non-current assets	**56,690**	**53,196**	**51,837**
Current assets			
Inventories [11]	7,715	7,194	6,055
Accounts receivable [12]	10,806	10,154	10,440
Current income tax assets [5]	320	149	237
Other current assets [16]	3,755	3,111	2,664
Marketable securities [13]	6,181	6,607	5,783
Cash and cash equivalents [14]	6,850	5,727	6,075
Total current assets	**35,627**	**32,942**	**31,254**
Total assets	**92,317**	**86,138**	**83,091**
Non-current liabilities			
Long-term debt [21]	(16,076)	(10,220)	(12,668)
Deferred tax liabilities [5]	(628)	(353)	(298)
Defined benefit plan liabilities [26]	(6,103)	(7,831)	(7,480)
Provisions [20]	(1,442)	(1,453)	(1,515)
Other non-current liabilities [18]	(1,307)	(1,107)	(1,144)
Total non-current liabilities	**(25,556)**	**(20,964)**	**(23,105)**
Current liabilities			
Short-term debt [21]	(15,122)	(3,996)	(1,695)
Current income tax liabilities [5]	(3,002)	(3,679)	(3,838)
Provisions [20]	(2,526)	(1,836)	(2,885)
Accounts payable [17]	(4,637)	(4,121)	(3,822)
Other current liabilities [19]	(13,129)	(11,769)	(11,879)
Total current liabilities	**(38,416)**	**(25,401)**	**(24,119)**
Total liabilities	**(63,972)**	**(46,365)**	**(47,224)**
Total net assets	**28,345**	**39,773**	**35,867**
Equity			
Capital and reserves attributable to Roche shareholders [22]	24,489	36,341	32,747
Equity attributable to non-controlling interests [24]	3,856	3,432	3,120
Total equity	**28,345**	**39,773**	**35,867**

Roche Group consolidated statement of cash flows in millions of CHF

	Year ended 31 December 2021	2020
Cash flows from operating activities		
Cash generated from operations [30]	26,600	25,614
(Increase) decrease in net working capital	(994)	(2,060)
Payments made for defined benefit plans [26]	(619)	(601)
Utilisation of provisions [20]	(1,166)	(1,390)
Disposal of products	496	239
Other operating cash flows	2	0
Income taxes paid [5]	(3,343)	(3,236)
Total cash flows from operating activities	**20,976**	**18,566**
Cash flows from investing activities		
Purchase of property, plant and equipment	(3,693)	(3,528)
Purchase of intangible assets	(856)	(3,162)
Disposal of property, plant and equipment	61	70
Disposal of intangible assets	0	0
Business combinations [6]	(2,258)	(11)
Asset acquisitions [6]	(103)	(1,168)
Divestment of subsidiaries	7	3
Interest received (paid) and dividends received on marketable securities and other investments [30]	(2)	16
Sales of equity securities and debt securities	235	353
Purchases of equity securities and debt securities	(201)	(169)
Sales (purchases) of money market instruments and time accounts over three months, net	329	(1,181)
Other investing cash flows	(71)	(290)
Total cash flows from investing activities	**(6,552)**	**(9,067)**
Cash flows from financing activities		
Proceeds from issue of bonds and notes [21]	6,900	0
Redemption and repurchase of bonds and notes [21]	(2,448)	0
Increase (decrease) in commercial paper [21]	(1,134)	318
Increase (decrease) in other debt [21]	13,412	341
Hedging and collateral arrangements	(522)	557
Interest paid	(405)	(422)
Principal portion of lease liabilities paid [30]	(382)	(369)
Dividends paid [30]	(8,132)	(7,964)
Share repurchase [22]	(18,991)	–
Equity-settled equity compensation plans, net of transactions in own equity [27]	(1,406)	(2,126)
Other financing cash flows	0	(1)
Total cash flows from financing activities	**(13,108)**	**(9,666)**
Net effect of currency translation on cash and cash equivalents	(193)	(181)
Increase (decrease) in cash and cash equivalents	**1,123**	**(348)**
Cash and cash equivalents at 1 January	5,727	6,075
Cash and cash equivalents at 31 December [14]	**6,850**	**5,727**

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
Year ended 31 December 2020								
At 1 January 2020	160	40,524	15	13	(7,965)	32,747	3,120	35,867
Net income recognised in income statement	–	14,295	–	–	–	14,295	773	15,068
Net change in fair value – financial assets at fair value through OCI	–	13	93	–	–	106	0	106
Cash flow hedges	–	–	–	(29)	–	(29)	(10)	(39)
Currency translation of foreign operations	–	–	(2)	0	(1,515)	(1,517)	(140)	(1,657)
Remeasurements of defined benefit plans	–	(199)	–	–	–	(199)	12	(187)
Total comprehensive income	**–**	**14,109**	**91**	**(29)**	**(1,515)**	**12,656**	**635**	**13,291**
Dividends	–	(7,700)	–	–	–	(7,700)	(330)	(8,030)
Equity compensation plans, net of transactions in own equity	–	(1,360)	–	–	–	(1,360)	5	(1,355)
Changes in non-controlling interests [24]	–	(2)	–	–	–	(2)	2	–
At 31 December 2020	**160**	**45,571**	**106**	**(16)**	**(9,480)**	**36,341**	**3,432**	**39,773**
Year ended 31 December 2021								
At 1 January 2021	160	45,571	106	(16)	(9,480)	36,341	3,432	39,773
Net income recognised in income statement	–	13,930	–	–	–	13,930	1,005	14,935
Net change in fair value – financial assets at fair value through OCI	–	0	(167)	–	–	(167)	(1)	(168)
Cash flow hedges	–	–	–	(46)	–	(46)	(1)	(47)
Currency translation of foreign operations	–	–	1	2	(232)	(229)	(247)	(476)
Remeasurements of defined benefit plans	–	1,871	–	–	–	1,871	2	1,873
Total comprehensive income	**–**	**15,801**	**(166)**	**(44)**	**(232)**	**15,359**	**758**	**16,117**
Dividends	–	(7,773)	–	–	–	(7,773)	(338)	(8,111)
Share repurchase [22]	–	(18,991)	–	–	–	(18,991)	–	(18,991)
Equity compensation plans, net of transactions in own equity	–	(445)	–	–	–	(445)	2	(443)
Changes in non-controlling interests [24]	–	(2)	–	–	–	(2)	2	–
At 31 December 2021	**160**	**34,161**	**(60)**	**(60)**	**(9,712)**	**24,489**	**3,856**	**28,345**

Notes to the Roche Group Consolidated Financial Statements

1. General accounting principles

Basis of preparation

The consolidated financial statements (hereafter 'the Annual Financial Statements') of the Roche Group have been prepared in accordance with International Financial Reporting Standards (IFRS) and comply with Swiss law. They have been prepared using the historical cost convention except for items that are required to be accounted for at fair value. They were approved for issue by the Board of Directors on 1 February 2022 and are subject to approval by the Annual General Meeting of shareholders on 15 March 2022.

These financial statements are the Annual Financial Statements of Roche Holding Ltd, a company registered in Switzerland, and its subsidiaries ('the Group').

The Group's significant accounting policies and changes in accounting policies are disclosed in Note 34.

Key accounting judgements, estimates and assumptions

The preparation of the Annual Financial Statements requires management to make judgements, estimates and assumptions that affect the reported amounts of revenues, expenses, assets, liabilities and contingent amounts. Actual outcomes could differ from those management estimates. The estimates and underlying assumptions are reviewed on an ongoing basis and are based on historical experience and various other factors. Revisions to estimates are recognised in the period in which the estimate is revised. The following are considered to be the key accounting judgements, estimates and assumptions made and are believed to be appropriate based upon currently available information.

Revenue. The nature of the Group's business is such that many sales transactions do not have a simple structure and may consist of various performance obligations that are satisfied at different times. Contracts entered into in the Diagnostics Division typically include performance obligations for instruments (including those provided under leasing arrangements), reagents and other consumables, and services. Instruments may be sold in cash sales transactions at discounted prices. Where instruments are provided under operating lease arrangements, some or the entire lease revenue may be variable and subject to subsequent reagents sales. Major sources of estimation uncertainty are related to measurement of sales, net of discounts, for the related obligations, including their stand-alone selling prices. It requires judgement to determine when different obligations are satisfied, including whether enforceable purchase commitments for further obligations exist and when they arise. Out-licensing agreements may be entered into with no further obligation or may include commitments to conduct research, late-stage development, regulatory approval, co-marketing or manufacturing. These may be settled by a combination of upfront payments, milestone payments, other licensing fees, and reimbursements for services provided. Whether to consider these commitments as a single performance obligation or separate ones, or even being in scope of IFRS 15 'Revenues from Contracts with Customers', is not straightforward and requires some judgement. Depending on the conclusion, this may result in all revenue being calculated at inception and either being recognised at once or spread over the term of a longer performance obligation.

Major sources of estimation uncertainty are related to the measurement of sales, which are recorded net of allowances for estimated rebates, chargebacks, cash discounts and estimates of product returns, all of which are established at the time of sale. All product sales allowances are based on estimates of the amounts earned or to be claimed on the related sales. At 31 December 2021 the Group had CHF 4,720 million in provisions and accruals for expected sales returns, chargebacks and other rebates, including Medicaid in the US and similar rebates in other countries. The provisions and accruals relating to the US Pharmaceuticals business amounted to CHF 2,182 million, of which CHF 432 million were associated with expected sales returns. These estimates take into consideration historical experience, current contractual and statutory requirements, specific known market events and trends such as competitive pricing and new product introductions, estimated inventory levels, and the shelf life of products. If actual future results vary, these estimates need to be adjusted, with an effect on sales and earnings in the period of the adjustment.

Business combinations. The Group initially recognises the fair value of identifiable assets acquired, the liabilities assumed, any non-controlling interest and the consideration transferred in a business combination. Management judgement is particularly involved in the assessment of whether or not the net assets acquired constitute a business and in the recognition and fair value measurement of intellectual property, inventories, contingent liabilities and contingent consideration. In making this assessment, management applies judgement in considering the underlying economic substance of the items concerned in addition to the contractual terms. When considered appropriate as a result from its judgement, management also applies the optional ‘concentration test’ as set out in IFRS 3 ‘Business Combinations’ to aid the assessment of whether a transaction represents a business combination or is simply in substance the purchase of a single asset or group of similar assets.

Impairment of property, plant and equipment, right-of-use assets, goodwill and intangible assets. At 31 December 2021 the Group had CHF 23,163 million in property, plant and equipment (see Note 8), CHF 1,249 million in right-of-use assets (see Note 28), CHF 10,809 million in goodwill (see Note 9) and CHF 12,117 million in intangible assets (see Note 10). Goodwill and intangible assets not yet available for use are reviewed annually for impairment. Property, plant and equipment, right-of-use assets and intangible assets in use are assessed for impairment when there is a triggering event that provides evidence that an asset may be impaired. To assess whether any impairment exists, estimates of expected future cash flows are used. Actual outcomes could vary significantly from such estimates. Other estimates relate to factors such as changes in discount rates, the planned use of buildings, machinery or equipment or closure of facilities, the presence of competition, technical obsolescence and lower-than-anticipated product sales, which could lead to shorter useful lives or impairment.

Impairment of financial assets. At 31 December 2021 the Group had CHF 538 million in allowance for doubtful accounts for trade and lease receivables (see Note 12). Key estimates for the allowance for doubtful accounts are mainly related to risk of default and expected loss rates. For making these estimates, inputs selected to calculate the allowance for doubtful accounts are based on the company’s past experience, existing market conditions as well as forward-looking estimates at the end of each reporting period.

Pensions and other post-employment benefits. The Group operates a number of defined benefit plans, and the fair values of the recognised plan assets and liabilities are based upon statistical and actuarial calculations. Key estimates are required for the measurement of the net defined benefit obligation, which is particularly sensitive to changes in the discount rate, inflation rate, expected mortality and medical cost trend rate assumptions. At 31 December 2021 the present value of the Group’s defined benefit obligation was CHF 23,874 million (see Note 26). The actuarial assumptions used for those estimates may differ materially from actual results due to changes in market and economic conditions, longer or shorter lifespans of participants, and other changes in the factors being assessed. These differences could impact the defined benefit plan assets and liabilities recognised in the balance sheet in future periods.

Legal provisions. The Group provides for anticipated legal settlement costs when there is a probable outflow of resources that can be reliably estimated. Where no reliable estimate can be made, no provision is recorded and contingent liabilities are disclosed where material. At 31 December 2021 the Group had CHF 372 million in legal provisions. The status of significant legal cases is disclosed in Note 20. These estimates consider the specific circumstances of each legal case, relevant legal advice and are inherently uncertain due to the highly complex nature of legal cases. The estimates could change substantially over time as new facts emerge and each legal case progresses.

Environmental provisions. The Group provides for anticipated environmental remediation costs when there is a probable outflow of resources that can be reasonably estimated. At 31 December 2021 the Group had CHF 447 million in environmental provisions (see Note 20). Environmental provisions consist primarily of costs to fully clean and refurbish contaminated sites, including landfills, and to treat and contain contamination at certain other sites. These estimates are inherently uncertain as assumptions are required related to the detection of previously unknown contamination, the method and extent of remediation, the percentage of the problematic materials attributable to the Group at the remediation sites, and the financial capabilities of other potentially responsible parties. The estimates could change substantially over time as new facts emerge and each environmental remediation progresses.

Contingent consideration provisions. The Group makes provision for the estimated fair value of contingent consideration arrangements arising from business combinations. At 31 December 2021 the Group had CHF 141 million in contingent consideration provisions (see Note 20) and the total potential payments under contingent consideration arrangements from business combinations could be up to CHF 359 million (see Note 31). Key estimates are required to determine the amounts of the expected payments to be provided for, 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, which is then discounted to a net present value. These estimates could change substantially over time as new facts emerge and each scenario develops.

Income taxes. At 31 December 2021 the Group had a current income tax net liability of CHF 2,682 million and a deferred tax net asset of CHF 4,955 million (see Note 5). Major sources of estimation uncertainty are related to the calculation of current and deferred tax assets and liabilities. Some of these estimates are based on interpretations of existing tax laws or regulations. Where tax positions are uncertain, accruals are recorded within income tax liabilities for management's best estimate of the ultimate liability that is expected to arise based on the specific circumstances and the Group's historical experience. Factors that may have an impact on the estimates of current and deferred tax balances include changes in tax laws, regulations or rates, changing interpretations of existing tax laws or regulations, future levels of research and development spending and changes in pre-tax earnings.

Leases. Where the Group is the lessee, key judgements include assessing whether arrangements contain a lease and determining the lease term. To assess whether a contract contains a lease requires judgement about whether it depends on a specified asset, whether the Group obtains substantially all the economic benefits from the use of that asset, and whether the Group has a right to direct the use of the asset. In order to determine the lease term, judgement is required as extension and termination options have to be assessed 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. At 31 December 2021 the Group has CHF 1,249 million in right-of-use assets and CHF 1,354 million in lease liabilities (see Note 28).

Where the Group is the lessor, the treatment of leasing transactions is mainly determined by whether the lease is considered to be an operating or finance lease, which requires judgement. In making this assessment, management looks at the substance of the lease, as well as the legal form, and makes a judgement about whether substantially all of the risks and rewards of ownership are transferred. Arrangements which do not take the legal form of a lease but that nevertheless convey the right to use an asset are also covered by such judgemental assessments.

Consolidation. The Group periodically undertakes transactions that may involve obtaining control or significant influence over other companies. These transactions include equity acquisitions, asset purchases and alliance agreements. In all such cases it requires judgement for management to make an assessment as to whether the Group has control or significant influence over the other company, and whether it should be consolidated as a subsidiary or accounted for as an associated company. In making this judgemental assessment, management considers the underlying economic substance of the transaction in addition to the contractual terms.

Impact of the COVID-19 pandemic

The Group has assessed certain accounting matters that generally require consideration of forecast financial information taking into account the potential future impacts of the COVID-19 pandemic. The accounting matters assessed included, but were not limited to, the Group's provisions for product returns, allowances for doubtful accounts for trade and lease receivables, inventory allowances, the carrying value of goodwill, intangible assets, property, plant and equipment and defined benefit pension plan assets and liabilities. Any continued negative impacts from the pandemic in 2022 may have an impact on these, or other, matters.

In 2021 no impairment issues related to the COVID-19 pandemic were noted for goodwill and intangible assets. In 2020 intangible asset impairment charges of CHF 342 million were incurred as a result of a delay in clinical trials, partly impacted by the COVID-19 pandemic (see Note 10).

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

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	
	2021	2020	2021	2020	2021	2020	2021	2020
Revenues from external customers								
Sales	45,041	44,532	17,760	13,791	–	–	62,801	58,323
Royalties and other operating income	2,969	1,959	80	61	–	–	3,049	2,020
Total	**48,010**	**46,491**	**17,840**	**13,852**	**–**	**–**	**65,850**	**60,343**
Revenues from other operating segments								
Sales	–	–	20	17	–	–	20	17
Royalties and other operating income	–	–	–	–	–	–	–	–
Elimination of interdivisional revenue							(20)	(17)
Total	**–**	**–**	**20**	**17**	**–**	**–**	**–**	**–**
Segment results								
Operating profit	15,530	17,152	3,319	2,001	(694)	(610)	18,155	18,543
Capital expenditure								
Business combinations	56	0	2,339	0	0	0	2,395	0
Asset acquisitions	36	914	0	322	0	0	36	1,236
Additions to property, plant and equipment	2,134	2,141	1,628	1,502	64	50	3,826	3,693
Additions to right-of-use assets	412	344	124	119	39	7	575	470
Additions to intangible assets	969	3,002	28	77	–	–	997	3,079
Total	**3,607**	**6,401**	**4,119**	**2,020**	**103**	**57**	**7,829**	**8,478**
Research and development								
Research and development costs	12,993	11,421	1,806	1,588	–	–	14,799	13,009
Other segment information								
Depreciation of property, plant and equipment	1,278	1,263	1,188	1,127	58	61	2,524	2,451
Depreciation of right-of-use assets	234	236	117	112	12	9	363	357
Amortisation of intangible assets	1,398	1,639	158	111	–	–	1,556	1,750
Impairment (reversal) of property, plant and equipment	(108)	(30)	105	4	0	0	(3)	(26)
Impairment (reversal) of right-of-use assets	5	2	0	3	0	0	5	5
Impairment of goodwill	0	0	0	247	–	–	0	247
Impairment of intangible assets	651	425	0	0	–	–	651	425
Inventory fair value adjustments	0	0	11	0	–	–	11	0
Equity compensation plan expenses	513	559	98	102	52	52	663	713

Pharmaceuticals subdivisional information in millions of CHF

	Roche Pharmaceuticals 2021	Roche Pharmaceuticals 2020	Chugai 2021	Chugai 2020	Pharmaceuticals Division 2021	Pharmaceuticals Division 2020
Revenues from external customers						
Sales	40,535	40,767	4,506	3,765	45,041	44,532
Royalties and other operating income	2,899	1,860	70	99	2,969	1,959
Total	**43,434**	**42,627**	**4,576**	**3,864**	**48,010**	**46,491**
Revenues from other operating segments						
Sales	2,190	1,660	2,179	1,804	4,369	3,464
Royalties and other operating income	85	47	1,603	1,267	1,688	1,314
Elimination of income within division					(6,057)	(4,778)
Total	**2,275**	**1,707**	**3,782**	**3,071**	**–**	**–**
Segment results						
Operating profit	12,601	14,765	3,525	2,654	16,126	17,419
Elimination of results within division					(596)	(267)
Operating profit	**12,601**	**14,765**	**3,525**	**2,654**	**15,530**	**17,152**
Capital expenditure						
Business combinations	56	0	0	0	56	0
Asset acquisitions	36	914	0	0	36	914
Additions to property, plant and equipment	1,535	1,479	599	662	2,134	2,141
Additions to right-of-use assets	293	275	119	69	412	344
Additions to intangible assets	960	2,988	9	14	969	3,002
Total	**2,880**	**5,656**	**727**	**745**	**3,607**	**6,401**
Research and development						
Research and development costs	11,909	10,515	1,162	1,047	13,071	11,562
Elimination of costs within division					(78)	(141)
Total	**11,909**	**10,515**	**1,162**	**1,047**	**12,993**	**11,421**
Other segment information						
Depreciation of property, plant and equipment	1,104	1,070	174	193	1,278	1,263
Depreciation of right-of-use assets	185	188	49	48	234	236
Amortisation of intangible assets	1,372	1,620	26	19	1,398	1,639
Impairment (reversal) of property, plant and equipment	(108)	(33)	0	3	(108)	(30)
Impairment (reversal) of right-of-use assets	5	2	0	0	5	2
Impairment of goodwill	0	0	0	0	0	0
Impairment of intangible assets	627	425	24	0	651	425
Inventory fair value adjustments	0	0	0	0	0	0
Equity compensation plan expenses	510	556	3	3	513	559

Net assets in millions of CHF

At 31 December	Assets 2021	Assets 2020	Assets 2019	Liabilities 2021	Liabilities 2020	Liabilities 2019	Net assets 2021	Net assets 2020	Net assets 2019
Net operating assets									
Pharmaceuticals	48,677	46,357	45,215	(15,262)	(12,886)	(14,426)	33,415	33,471	30,789
Diagnostics	21,459	18,751	18,287	(5,399)	(4,987)	(4,509)	16,060	13,764	13,778
Corporate	420	381	362	(618)	(567)	(607)	(198)	(186)	(245)
Total	**70,556**	**65,489**	**63,864**	**(21,279)**	**(18,440)**	**(19,542)**	**49,277**	**47,049**	**44,322**
Current income tax net assets (liabilities)							(2,682)	(3,530)	(3,601)
Deferred tax net assets (liabilities)							4,955	5,106	4,681
Defined benefit plan net assets (liabilities)							(4,605)	(6,864)	(6,535)
Lease liabilities							(1,354)	(1,195)	(1,219)
Marketable securities							6,181	6,607	5,783
Cash and cash equivalents							6,850	5,727	6,075
Debt							(31,198)	(14,216)	(14,363)
Other net assets (liabilities)							921	1,089	724
Total net assets							**28,345**	**39,773**	**35,867**

Net operating assets – Pharmaceuticals subdivisional information in millions of CHF

At 31 December	Assets 2021	Assets 2020	Assets 2019	Liabilities 2021	Liabilities 2020	Liabilities 2019	Net assets 2021	Net assets 2020	Net assets 2019
Roche Pharmaceuticals	44,860	42,387	41,333	(15,808)	(13,224)	(14,462)	29,052	29,163	26,871
Chugai	7,892	6,923	6,098	(1,700)	(1,325)	(1,133)	6,192	5,598	4,965
Elimination within division	(4,075)	(2,953)	(2,216)	2,246	1,663	1,169	(1,829)	(1,290)	(1,047)
Pharmaceuticals Division	**48,677**	**46,357**	**45,215**	**(15,262)**	**(12,886)**	**(14,426)**	**33,415**	**33,471**	**30,789**

Information by geographical area in millions of CHF

	Revenues from external customers: Sales	Revenues from external customers: Royalties and other operating income	Non-current assets: Property, plant and equipment	Non-current assets: Right-of-use assets	Non-current assets: Goodwill and intangible assets
2021					
Switzerland	731	1,386	6,351	91	2,670
Germany	4,292	27	3,980	36	1,339
Rest of Europe	11,375	6	975	210	886
Europe	**16,398**	**1,419**	**11,306**	**337**	**4,895**
United States	26,519	1,546	7,141	551	17,853
Rest of North America	915	1	20	18	20
North America	**27,434**	**1,547**	**7,161**	**569**	**17,873**
Latin America	2,746	0	284	44	5
Japan	4,999	70	2,798	127	138
Rest of Asia	9,749	13	1,518	123	15
Asia	**14,748**	**83**	**4,316**	**250**	**153**
Africa, Australia and Oceania	1,475	0	96	49	0
Total	**62,801**	**3,049**	**23,163**	**1,249**	**22,926**
2020					
Switzerland	670	431	6,125	125	3,030
Germany	3,323	29	4,012	40	916
Rest of Europe	9,780	5	990	220	919
Europe	**13,773**	**465**	**11,127**	**385**	**4,865**
United States	27,187	1,443	6,496	422	16,173
Rest of North America	882	1	74	20	19
North America	**28,069**	**1,444**	**6,570**	**442**	**16,192**
Latin America	2,393	0	268	42	0
Japan	4,156	98	2,587	92	190
Rest of Asia	8,614	13	1,520	110	19
Asia	**12,770**	**111**	**4,107**	**202**	**209**
Africa, Australia and Oceania	1,318	0	86	41	0
Total	**58,323**	**2,020**	**22,158**	**1,112**	**21,266**

Sales are allocated to geographical areas by destination according to the location of the customer. Royalties and other operating income are allocated according to the location of the Group company that receives the revenue.

Major customers

In total three US national wholesale distributors represent approximately a third of the Group's revenues in 2021. The three US national wholesale distributors are McKesson Corp. with CHF 8 billion (2020: CHF 9 billion), AmerisourceBergen Corp. with CHF 7 billion (2020: CHF 7 billion) and Cardinal Health, Inc. with CHF 4 billion (2020: CHF 5 billion). Approximately 97% of these revenues were in the Roche Pharmaceuticals operating segment, with the residual in the Diagnostics operating segment.

3. Revenue

Disaggregated revenue information

Disaggregation of revenue in millions of CHF

	2021 Revenue from contracts with customers	2021 Revenue from other sources	2021 Total	2020 Revenue from contracts with customers	2020 Revenue from other sources	2020 Total
Pharmaceuticals Division						
Sales by therapeutic area						
Oncology	20,467	–	20,467	23,323	–	23,323
Immunology	8,373	–	8,373	8,228	–	8,228
Neuroscience	6,275	–	6,275	4,937	–	4,937
Haemophilia A	3,022	–	3,022	2,190	–	2,190
Infectious diseases	2,226	–	2,226	861	–	861
Ophthalmology	1,355	–	1,355	1,444	–	1,444
Other therapeutic areas	3,323	–	3,323	3,549	–	3,549
Sales	**45,041**	**–**	**45,041**	**44,532**	**–**	**44,532**
Royalty income	1,064	–	1,064	1,012	–	1,012
Income from out-licensing agreements	111	–	111	163	–	163
Income from disposal of products, profit-sharing agreements and other	512	1,282	1,794	244	540	784
Royalties and other operating income	**1,687**	**1,282**	**2,969**	**1,419**	**540**	**1,959**
Diagnostics Division						
Sales by customer area[a]						
Core Lab	6,830	643	7,473	5,568	626	6,194
Molecular Lab	4,685	127	4,812	3,643	117	3,760
Point of Care	2,565	18	2,583	1,062	17	1,088
Diabetes Care	1,688	2	1,690	1,666	4	1,670
Pathology Lab	1,126	76	1,202	1,011	77	1,079
Sales	**16,894**	**866**	**17,760**	**12,950**	**841**	**13,791**
Royalty income	43	–	43	35	–	35
Income from out-licensing agreements	18	–	18	8	–	8
Income from disposal of products and other	0	19	19	0	18	18
Royalties and other operating income	**61**	**19**	**80**	**43**	**18**	**61**
Total	**63,683**	**2,167**	**65,850**	**58,944**	**1,399**	**60,343**

a) Comparative information for 2020 restated to align with new customer areas.

As part of an ongoing transformation initiative, the Diagnostics Division has replaced the previous business area structure with new customer areas as follows:

Core Lab. This customer area focuses on central labs and provides diagnostics solutions in the areas of immunoassays, clinical chemistry and custom biotech.

Molecular Lab. This customer area focuses on molecular labs and provides diagnostics solutions for the detection and monitoring of pathogens, donor screening, sexual health and genomics.

Point of Care. This customer area provides diagnostics solutions immediately at the point of care such as in emergency rooms, general practitioners' practices and directly with patients and includes the SARS-CoV-2 rapid tests and blood gas and electrolyte (BGE) tests.

Diabetes Care. This customer area provides diagnostics solutions for people with diabetes and healthcare professionals enabling integrated personalised diabetes management.

Pathology Lab. This customer area focuses on pathology labs and provides diagnostics solutions for tissue biopsies and companion diagnostics. These are targeted diagnostics to aid in the choice of specific therapies for each patient.

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 agreements.

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

	2021	2020
Gross sales	56,132	55,105
Government and regulatory mandatory price reductions	(6,050)	(6,159)
Contractual price reductions	(3,996)	(3,478)
Cash discounts	(336)	(304)
Customer returns reserves	(316)	(266)
Others	(393)	(366)
Net sales	**45,041**	**44,532**

Government and regulatory mandatory price reductions. These consist of mandatory price reductions. The major elements are the 340B Drug Discount Program, Medicaid, and other plans in the US, which totalled USD 5.5 billion, equivalent to CHF 5.0 billion (2020: USD 5.5 billion, equivalent to CHF 5.2 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 (see Note 12). Sales reductions that are separately payable to customers, governmental health authorities or healthcare regulatory authorities are recorded in the balance sheet as accrued liabilities (see Note 19). Provisions for sales returns are recorded in the balance sheet as other provisions (see Note 20).

Contract balances

Receivables in millions of CHF

	2021	2020	2019
Accounts receivable [12]	10,806	10,154	10,440
Other current receivables – contracts with customers [16]	646	492	541
Other non-current receivables – contracts with customers [15]	36	37	38
Total receivables	**11,488**	**10,683**	**11,019**

Other current receivables mainly include royalty and licensing receivables. At 31 December 2021 total receivables included lease receivables of 2% (2020: 2%) which are not considered receivables from contracts with customers.

Contract assets in millions of CHF

	2021	2020	2019
Accrued income and contract costs	763	144	114
Total contract assets	**763**	**144**	**114**

Contract liabilities in millions of CHF

	2021	2020	2019
Deferred income – non-current	233	146	162
Deferred income – current	560	439	487
Total contract liabilities	**793**	**585**	**649**

Movement in contract liabilities in millions of CHF

	2021	2020
At 1 January	585	649
Business combinations	1	0
Revenue recognised that was included in the contract liability balance at the beginning of the year	(392)	(567)
Increases due to cash received or receivable, excluding amounts recognised as revenue during the year	579	538
Currency translation effects	20	(35)
At 31 December	**793**	**585**

Revenue recognised in relation to performance obligations satisfied in previous years

In 2021 there was a decrease in revenue recognised of CHF 28 million (2020: increase of CHF 94 million) relating to performance obligations that had been satisfied in previous periods, mainly due to adjustments of sales deduction provisions and accruals for expected sales returns, chargebacks and other allowances in respect of previous years.

Remaining performance obligations in (partially) unsatisfied long-term contracts

Remaining performance obligations in (partially) unsatisfied long-term contracts are either included in deferred income or are related to amounts the Group expects to receive for goods and services that have not yet been transferred to customers under existing, non-cancellable or otherwise enforceable contracts. These are mainly associated with contracts in the Diagnostics Division that have minimum purchase commitments related to reagents and consumables for previously sold instruments as well as monitoring and maintenance services. For contracts that have an original duration of one year or less, the Group has elected the practical expedient to not disclose the transaction price for remaining performance obligations at the end of each reporting period and at which point in time the Group expects to recognise these sales.

Transaction price allocated to contracts with (partially) unsatisfied performance obligations in millions of CHF

	2021	2020
No contract liability held	3,080	2,519
Contract liability held	793	585
Total	**3,873**	**3,104**
Thereof expected to be recognised as revenue		
– Within one year	1,780	1,497
– Between one and five years	2,006	1,529
– More than five years	87	78
Total	**3,873**	**3,104**

4. Net financial expense

Financing costs in millions of CHF

	2021	2020
Interest expense	(317)	(411)
Amortisation of debt discount [21]	(8)	(9)
Net gains (losses) on redemption and repurchase of bonds and notes [21]	0	0
Discount unwind [20]	(6)	(14)
Net interest cost of defined benefit plans [26]	(71)	(101)
Interest expense on lease liabilities [28]	(16)	(18)
Total financing costs	**(418)**	**(553)**

Other financial income (expense) in millions of CHF

	2021	2020
Net gains (losses) on equity investments / securities at fair value through profit or loss	(87)	170
Dividend income from equity investments / securities at fair value through profit or loss	0	0
Dividend income from equity investments / securities at fair value through OCI	0	0
Net income (expense) from equity investments / securities	**(87)**	**170**
Interest income (expense) from debt securities at fair value through OCI and at amortised cost	(1)	16
Net gains (losses) on sale of debt securities at fair value through OCI	0	1
Net gains (losses) on debt securities at fair value through profit or loss	(2)	0
Net interest income (expense) and income from debt securities	**(3)**	**17**
Net foreign exchange gains (losses)	261	(624)
Net gains (losses) on foreign currency derivatives	(493)	418
Foreign exchange gains (losses)	**(232)**	**(206)**
Gains (losses) on net monetary position in hyperinflationary economies	(20)	(14)
Net other financial income (expense)	5	9
Associates	(2)	(1)
Total other financial income (expense)	**(339)**	**(25)**

Net financial expense in millions of CHF

	2021	2020
Financing costs	(418)	(553)
Other financial income (expense)	(337)	(25)
Net financial expense	**(755)**	**(578)**
Financial result from Treasury management	(684)	(476)
Financial result from Pension management	(71)	(101)
Associates	(2)	(1)
Net financial expense	**(757)**	**(578)**

Hyperinflationary economies

Since 1 July 2018 the Group has considered Argentina to be a hyperinflationary economy in the context of IAS 29 'Financial Reporting in Hyperinflationary Economies'. The cumulative inflation index over the last three years exceeds 100%, as measured by the National Wholesaler Price Index (Sistema de Índices de Precios Mayoristas).

Accordingly the Group has reviewed the reporting from its affiliates in Argentina, and where necessary restated them in line with IAS 29. The potential adjustments resulting from the application of IAS 29 do not have a significant impact on the Group's operating results and balance sheet. An adjustment is recorded for the gains (losses) on the net monetary position, which is a loss of CHF 20 million resulting from the loss in purchasing power of the positive net monetary position during 2021 of the Group's Argentinian affiliates (2020: loss of CHF 14 million).

5. Income taxes

Income tax expenses in millions of CHF

	2021	2020
Current income taxes	(2,619)	(3,507)
Deferred taxes	156	610
Total income tax (expense)	**(2,463)**	**(2,897)**

Since the Group operates internationally, it is subject to income taxes in many different tax jurisdictions. The Group calculates its average expected tax rate as a weighted average of the tax rates in the tax jurisdictions in which the Group operates. This rate changes from year to year due to changes in the mix of the Group's taxable income and changes in local tax rates.

The Group's average expected tax rate was stable at 18.7% in 2021 (2020: 18.8%). During 2021 there were no significant changes to local tax rates in the tax jurisdictions in which the Group operates.

The Group's effective tax rate decreased to 14.2% in 2021 (2020: 16.1%). This was mainly due to the higher effect from the resolution of several tax disputes in 2021 compared to 2020.

The Group's effective tax rate can be reconciled to the Group's average expected tax rate as follows:

Reconciliation of the Group's effective tax rate

	2021	2020
Average expected tax rate	18.7%	18.8%
Tax effect of		
– Non-taxable income/non-deductible expenses	+0.7%	+0.8%
– Equity compensation plans	0.0%	0.0%
– Research and development tax credits and other deductions	–2.1%	–2.1%
– US state tax impacts	+0.5%	+0.5%
– Tax on unremitted earnings	+0.2%	+0.6%
– Resolution of several tax disputes	–4.0%	–1.8%
– Prior-year and other differences	+0.2%	–0.7%
Group's effective tax rate	**14.2%**	**16.1%**

The income tax benefit recorded in respect of equity compensation plans, which varies according to the price of the underlying equity, was CHF 117 million (2020: CHF 132 million). Had the income tax benefits been recorded solely on the basis of the IFRS 2 expense multiplied by the applicable tax rate, then a benefit of approximately CHF 113 million (2020: CHF 124 million) would have been recorded.

Tax effects of other comprehensive income in millions of CHF

			2021			2020
	Pre-tax amount	Tax	After-tax amount	Pre-tax amount	Tax	After-tax amount
Remeasurements of defined benefit plans	2,222	(349)	1,873	(315)	128	(187)
Equity investments at fair value through OCI	(179)	24	(155)	113	(14)	99
Debt securities at fair value through OCI	(13)	0	(13)	7	0	7
Cash flow hedges	(56)	9	(47)	(54)	15	(39)
Currency translation of foreign operations	(476)	–	(476)	(1,657)	–	(1,657)
Other comprehensive income	**1,498**	**(316)**	**1,182**	**(1,906)**	**129**	**(1,777)**

Income tax assets (liabilities) in millions of CHF

	2021	2020	2019
Current income taxes			
– Assets	320	149	237
– Liabilities	(3,002)	(3,679)	(3,838)
Net current income tax assets (liabilities)	**(2,682)**	**(3,530)**	**(3,601)**
Deferred taxes			
– Assets	5,583	5,459	4,979
– Liabilities	(628)	(353)	(298)
Net deferred tax assets (liabilities)	**4,955**	**5,106**	**4,681**

Current income tax liabilities include accruals for uncertain tax positions.

Current income taxes: movements in recognised net assets (liabilities) in millions of CHF

	2021	2020
Net current income tax asset (liability) at 1 January	(3,530)	(3,601)
Income taxes paid	3,343	3,236
(Charged) credited to the income statement	(2,619)	(3,507)
(Charged) credited to equity from equity compensation plans and other transactions with shareholders	121	103
Currency translation effects and other movements	3	239
Net current income tax asset (liability) at 31 December	**(2,682)**	**(3,530)**

Deferred taxes: movements in recognised net assets (liabilities) in millions of CHF

	Property, plant and equipment and right-of-use assets	Intangible assets	Defined benefit plans	Other temporary differences	Total
Year ended 31 December 2020					
At 1 January 2020	(854)	(754)	1,136	5,153	4,681
Business combinations	0	0	0	0	0
Asset acquisitions [6]	0	0	0	40	40
(Charged) credited to the income statement	(4)	442	23	149	610
(Charged) credited to other comprehensive income [22]	–	–	128	1	129
(Charged) credited to equity from equity compensation plans and other transactions with shareholders	–	–	–	(45)	(45)
Currency translation effects and other movements	42	54	(22)	(383)	(309)
At 31 December 2020	**(816)**	**(258)**	**1,265**	**4,915**	**5,106**
Year ended 31 December 2021					
At 1 January 2021	(816)	(258)	1,265	4,915	5,106
Business combinations	0	(244)	0	87	(157)
Asset acquisitions	0	0	0	0	0
(Charged) credited to the income statement	(145)	69	57	175	156
(Charged) credited to other comprehensive income [22]	–	–	(349)	33	(316)
(Charged) credited to equity from equity compensation plans and other transactions with shareholders	–	–	–	179	179
Currency translation effects and other movements	19	(15)	(33)	16	(13)
At 31 December 2021	**(942)**	**(448)**	**940**	**5,405**	**4,955**

The net deferred tax assets for other temporary differences mainly relate to accrued and other liabilities, including lease liabilities, provisions and unrealised profit in inventory.

Deferred tax assets are recognised for tax losses carried forward only to the extent that realisation of the related tax benefit is probable. The Group has unrecognised tax losses, including valuation allowances, as follows:

Unrecognised tax losses: expiry

		2021		2020
	Amount (CHF m)	Applicable tax rate	Amount (CHF m)	Applicable tax rate
Within one year	669	12%	1,871	12%
Between one and five years	2,696	12%	1,350	12%
More than five years	8,142	7%	7,802	7%
Total unrecognised tax losses	**11,507**	**8%**	**11,023**	**9%**

The 'More than five years' category includes losses that cannot be used for US state income tax purposes in those states which only permit tax reporting on a separate entity basis.

Deferred tax liabilities have not been established for the withholding tax and other taxes that would be payable on the remittance of earnings of foreign subsidiaries, where such amounts are currently regarded as permanently reinvested for the purpose of these financial statements. The total unremitted earnings of the Group, regarded as permanently reinvested for the purpose of these financial statements, were CHF 31.9 billion at 31 December 2021 (2020: CHF 40.6 billion).

6. Mergers and acquisitions

This note includes both transactions accounted for as business combinations and asset acquisitions. Asset acquisitions are acquisitions of legal entities that do not qualify as business combinations under IFRS 3 and include those acquisitions where the value in these acquired companies largely consists of the rights to a single asset, e.g. a product or technology, or to a group of similar assets. Cash consideration paid for asset acquisitions at the transaction date and subsequent additional contingent payments made upon the achievement of performance-related development milestones are presented in the line 'Cash flows from asset acquisitions' as disclosed separately below. Subsequent consideration for performance-related development milestones for transactions treated as asset acquisitions is recognised as intangible assets when the specific milestones have been achieved and other recognition criteria are met.

Business combinations – 2021

GenMark Diagnostics, Inc. On 22 April 2021 the Group acquired a 100% controlling interest in GenMark Diagnostics, Inc. ('GenMark'), a publicly owned US company based in Carlsbad, California, that had been listed on Nasdaq. GenMark provides multiplex molecular diagnostic solutions that are designed to detect multiple pathogens from a single patient sample. The addition of GenMark's proprietary multiplex technology complements the Group's diagnostic offering, addressing a broad range of infectious disease testing needs, including respiratory and bloodstream infections. GenMark is reported in the Diagnostics Division. The total consideration was USD 1,865 million, which was paid in cash.

TIB Molbiol Group. On 1 December 2021 the Group acquired a 100% interest in TIB Molbiol Group ('TIB Molbiol'), a privately owned group based in Berlin, Germany. TIB Molbiol is a manufacturer of custom oligonucleotides that has been collaborating with the Group for more than 20 years. The acquisition of TIB Molbiol will enhance the Group's broad portfolio of molecular diagnostics solutions with a wide range of assays for infectious diseases. TIB Molbiol is reported in the Diagnostics Division. The total consideration was EUR 492 million, which was paid in cash.

Protocol First, Inc. On 14 December 2021 the Group acquired a 100% controlling interest in Protocol First, Inc. ('Protocol First'), a privately owned US company based in Salt Lake City, Utah. The acquisition provides the Group access to Protocol First's software solutions which enhance clinical research efficiency. Protocol First is reported in the Pharmaceuticals Division. The total consideration was USD 55 million, which was paid in cash.

The identifiable assets acquired and liabilities assumed are set out in the table below. The acquisition accounting for GenMark was finalised in these Annual Financial Statements. This led to an increase in deferred tax assets and a decrease in goodwill of CHF 39 million compared to the corresponding amounts disclosed in the 2021 Interim Financial Statements. The amounts for TIB Molbiol and Protocol First are based on preliminary information and valuations of the assets and liabilities and are therefore provisional and subject to adjustment in 2022.

Business combinations – 2021: net assets acquired in millions of CHF

	GenMark	TIB Molbiol	Protocol First	Total
Property, plant and equipment [8]	41	2	0	43
Right-of-use assets [28]	17	5	0	22
Intangible assets				
– Product intangibles: in use [10]	757	158	0	915
– Other intangibles [10]	37	9	30	76
Deferred tax assets	89	0	1	90
Inventories	38	2	0	40
Cash and cash equivalents	14	29	0	43
Marketable securities	43	0	0	43
Long-term debt	(55)	0	0	(55)
Deferred tax liabilities	(193)	(47)	(7)	(247)
Other non-current liabilities				
– Lease liabilities	(18)	(4)	0	(22)
– Other long-term liabilities	(1)	0	0	(1)
Other net assets (liabilities)	(25)	11	1	(13)
Net identifiable assets	**744**	**165**	**25**	**934**
Goodwill [9]	967	346	26	1,339
Total consideration	**1,711**	**511**	**51**	**2,273**
Cash	1,711	511	51	2,273
Total consideration	**1,711**	**511**	**51**	**2,273**

GenMark's intangible assets are mainly related to the ePlex systems that are designed to support a broad range of molecular diagnostics sample-to-answer tests with compact, easy-to-use workstations and self-contained, disposable test cartridges.

The fair value of the intangible assets is determined using an excess earnings method that is based on management forecasts and observable market data for discount rates, tax rates and foreign exchange rates. The present value of the product intangible asset for GenMark's ePlex technology was calculated using a risk-adjusted discount rate of 10.0%. The present value of TIB Molbiol's product intangible assets and Protocol First's other intangibles was calculated using a risk-adjusted discount rate of 7.8% and 10.0%, respectively. The valuations were performed by independent valuers.

The GenMark goodwill represents the technological capabilities in multiplex molecular diagnostic solutions. Furthermore, it represents a control premium, the acquired workforce and the expected synergies, notably in the areas of manufacturing as well as commercialisation. Both the TIB Molbiol and Protocol First goodwill represent a control premium, the acquired workforce and the expected synergies. The goodwill from the GenMark and TIB Molbiol transactions is allocated to the Diagnostics customer areas as cash-generating units. The goodwill from the Protocol First transaction is allocated to Roche Pharmaceuticals as cash-generating unit. None of the goodwill is expected to be deductible for income tax purposes.

The accounts receivable is comprised of gross contractual amounts due of CHF 18 million from the GenMark acquisition and CHF 7 million from the TIB Molbiol acquisition which were all expected to be collectable at the date of the acquisition.

Directly attributable transaction costs of CHF 8 million were reported in the Diagnostics operating segment and CHF 1 million in the Roche Pharmaceuticals operating segment, both within general and administration expenses.

In the eight months ended 31 December 2021 GenMark contributed revenue of CHF 114 million and a net loss (after tax) of CHF 75 million to the results reported for the Diagnostics Division, where it is reported in the Molecular Lab customer area, and the Group. The impact of the TIB Molbiol acquisition on the 2021 results for the Diagnostics Division, where it is reported in the Molecular Lab customer area, and the Group were not material. If both acquisitions had occurred on 1 January 2021 management estimates that GenMark and TIB Molbiol would have contributed revenue of approximately CHF 210 million and a net loss (including intangible asset amortisation and after tax) of approximately CHF 80 million in 2021. This information is provided for illustrative purposes only and is not necessarily indicative of the results of the combined Group that would have occurred had GenMark and TIB Molbiol actually been acquired at the beginning of the year, or indicative of the future results of the combined Group. The impact of the Protocol First acquisition on the 2021 results for the Pharmaceuticals Division and the Group were not material.

Business combinations – 2020

The Group did not complete any business combinations in 2020.

Cash flows from business combinations

Business combinations: net cash outflow in millions of CHF

	Pharmaceuticals	Diagnostics	2021 Total	Pharmaceuticals	Diagnostics	2020 Total
Cash consideration paid	(51)	(2,222)	(2,273)	0	0	0
Deferred consideration paid	0	(5)	(5)	0	(2)	(2)
Contingent consideration paid [20]	(23)	0	(23)	(9)	0	(9)
Cash in acquired company	0	43	43	0	0	0
Total net cash outflow	**(74)**	**(2,184)**	**(2,258)**	**(9)**	**(2)**	**(11)**

Asset acquisitions – 2021

The Group did not complete any asset acquisitions in 2021.

Asset acquisitions – 2020

Promedior, Inc. On 13 February 2020 the Group acquired a 100% controlling interest in Promedior, Inc. ('Promedior'), a privately owned US company based in Lexington, Massachusetts. Promedior is reported in the Pharmaceuticals Division. The cash consideration paid at the acquisition date was USD 414 million. Additional contingent payments may be made based upon the achievement of performance-related milestones.

Stratos Genomics, Inc. On 20 May 2020 the Group acquired a 100% controlling interest in Stratos Genomics, Inc. ('Stratos Genomics'), a privately owned US company based in Seattle, Washington. Stratos Genomics is reported in the Diagnostics Division. The cash consideration paid at the acquisition date was USD 250 million. Additional contingent payments may be made based upon the achievement of performance-related milestones.

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

Inflazome Ltd. On 18 September 2020 the Group acquired a 100% controlling interest in Inflazome Ltd. ('Inflazome'), a privately owned company based in Dublin, Ireland. Inflazome is reported in the Pharmaceuticals Division. The cash consideration paid at the acquisition date was EUR 376 million. Additional contingent payments may be made based upon the achievement of performance-related milestones.

TMEM16A Ltd. On 6 October 2020 the Group acquired a 100% controlling interest in TMEM16A Ltd. ('TMEM16A'), a privately owned company based in Brighton, United Kingdom. TMEM16A is reported in the Pharmaceuticals Division. The cash consideration paid at the acquisition date was GBP 76 million. Additional contingent payments may be made based upon the achievement of performance-related milestones.

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

	Promedior	Stratos Genomics	Lexent Bio	Inflazome	TMEM16A	Total
Intangible assets						
– Product intangibles: not available for use	360	255	25	413	93	1,146
Deferred tax assets [5]	25	12	3	0	0	40
Cash and cash equivalents	18	6	0	4	1	29
Other net assets (liabilities)	2	0	0	(12)	0	(10)
Net identifiable assets	**405**	**273**	**28**	**405**	**94**	**1,205**
Fair value of previously held equity interest	–	(25)	–	–	–	(25)
Total consideration	**405**	**248**	**28**	**405**	**94**	**1,180**
Cash	405	243	28	405	94	1,175
Deferred consideration	–	5	–	–	–	5
Total cash consideration	**405**	**248**	**28**	**405**	**94**	**1,180**

Cash flows from asset acquisitions

Asset acquisitions: net cash outflow in millions of CHF

	Pharmaceuticals	Diagnostics	2021 Total	Pharmaceuticals	Diagnostics	2020 Total
Cash consideration paid	0	0	0	(932)	(243)	(1,175)
Cash in acquired company	0	0	0	23	6	29
Contingent payments related to previous acquisitions	(36)	(67)	(103)	(22)	0	(22)
Total net cash outflow	**(36)**	**(67)**	**(103)**	**(931)**	**(237)**	**(1,168)**

For asset acquisitions previously closed the Group recorded additions to product intangible assets related to contingent payments for the achievement of performance-related milestones of CHF 36 million in 2021 (2020: CHF 88 million, thereof CHF 22 million paid in 2020). Furthermore, the Group made contingent payments of CHF 67 million in 2021 related to product intangible assets recognised already at 31 December 2020.

7. Global restructuring plans

During 2021 the Group expanded the implementation of various global restructuring plans initiated in prior years, including an organisational transformation in the Diagnostics Division and various resourcing optimisation initiatives in the Pharmaceuticals Division.

Global restructuring plans: costs incurred in millions of CHF

	Diagnostics	Site consolidation	Other plans	Total
Year ended 31 December 2021				
Global restructuring costs				
– Employee-related costs	277	(17)	616	876
– Site closure costs	42	194	40	276
– Divestment of products and businesses	0	0	0	0
– Other reorganisation expenses	61	2	147	210
Total global restructuring costs	**380**	**179**	**803**	**1,362**
Additional costs				
– Impairment of goodwill	0	0	0	0
– Impairment of intangible assets	0	0	0	0
– Legal and environmental cases	0	0	0	0
Total costs	**380**	**179**	**803**	**1,362**
Year ended 31 December 2020				
Global restructuring costs				
– Employee-related costs	83	143	427	653
– Site closure costs	46	(34)	44	56
– Divestment of products and businesses	(3)	0	0	(3)
– Other reorganisation expenses	56	20	127	203
Total global restructuring costs	**182**	**129**	**598**	**909**
Additional costs				
– Impairment of goodwill	0	0	0	0
– Impairment of intangible assets	0	0	0	0
– Legal and environmental cases	0	0	0	0
Total costs	**182**	**129**	**598**	**909**

Diagnostics Division

In 2021 strategy plans in the Diagnostics Division, notably in Diabetes Care, incurred costs of CHF 249 million for employee-related matters.

Site consolidation

In 2021 initiatives for strategic and sustainable site development in Basel and Kaiseraugst incurred costs of CHF 176 million.

Other global restructuring plans

In 2021 employee-related costs mainly came from business transformation initiatives in the Pharmaceuticals Division and the outsourcing of IT and other functions to shared service centres and external providers.

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

	2021	2020
Employee-related costs		
– Termination costs	742	517
– Defined benefit plans	(5)	0
– Other employee-related costs	139	136
Total employee-related costs	**876**	**653**
Site closure costs		
– Impairment (reversal) of property, plant and equipment and right-of-use assets	13	(35)
– Accelerated depreciation of property, plant and equipment and right-of-use assets	81	77
– (Gains) losses on disposal of property, plant and equipment and right-of-use assets	5	3
– Other site closure costs	177	11
Total site closure costs	**276**	**56**
Divestment of products and businesses		
– (Gains) losses on divestment of subsidiaries	0	(3)
– Other (gains) losses on divestment of products and businesses	0	0
Total costs on divestment of products and businesses	**0**	**(3)**
Other reorganisation expenses	210	203
Total global restructuring costs	**1,362**	**909**
Additional costs		
– Impairment of goodwill	0	0
– Impairment of intangible assets	0	0
– Legal and environmental cases	0	0
Total costs	**1,362**	**909**

Global restructuring plans: classification of costs in millions of CHF

			2021			2020
	Depreciation, amortisation and impairment	Other costs	Total	Depreciation, amortisation and impairment	Other costs	Total
Cost of sales						
– Pharmaceuticals	23	(22)	1	(35)	157	122
– Diagnostics	25	166	191	33	70	103
Marketing and distribution						
– Pharmaceuticals	0	324	324	8	131	139
– Diagnostics	0	100	100	1	38	39
Research and development						
– Pharmaceuticals	28	181	209	31	44	75
– Diagnostics	0	33	33	1	23	24
General and administration						
– Pharmaceuticals	18	308	326	2	235	237
– Diagnostics	0	63	63	1	55	56
– Corporate	0	115	115	0	114	114
Total	**94**	**1,268**	**1,362**	**42**	**867**	**909**
Total by operating segment						
– Roche Pharmaceuticals	36	778	814	(33)	565	532
– Chugai	33	13	46	39	2	41
– Diagnostics	25	362	387	36	186	222
– Corporate	0	115	115	0	114	114
Total	**94**	**1,268**	**1,362**	**42**	**867**	**909**

8. Property, plant and equipment

Property, plant and equipment: movements in carrying value of assets in millions of CHF

	Land	Buildings and land improvements	Machinery and equipment	Construction in progress	Total
At 1 January 2020					
Cost	1,426	17,353	21,189	3,604	43,572
Accumulated depreciation and impairment	0	(7,293)	(13,889)	(217)	(21,399)
Net book value	**1,426**	**10,060**	**7,300**	**3,387**	**22,173**
Year ended 31 December 2020					
At 1 January 2020	1,426	10,060	7,300	3,387	22,173
Asset acquisitions	0	0	1	0	1
Additions	0	111	1,047	2,535	3,693
Disposals	0	(11)	(82)	(5)	(98)
Transfers	1	827	1,109	(1,937)	–
Depreciation charge	–	(803)	(1,648)	–	(2,451)
Impairment reversal (charge)	0	0	35	(9)	26
Other	0	0	(229)	0	(229)
Currency translation effects	(77)	(424)	(345)	(111)	(957)
At 31 December 2020	**1,350**	**9,760**	**7,188**	**3,860**	**22,158**
Cost	1,350	17,456	21,127	4,052	43,985
Accumulated depreciation and impairment	0	(7,696)	(13,939)	(192)	(21,827)
Net book value	**1,350**	**9,760**	**7,188**	**3,860**	**22,158**
Year ended 31 December 2021					
At 1 January 2021	1,350	9,760	7,188	3,860	22,158
Business combinations [6]	0	0	36	7	43
Additions	4	56	1,037	2,729	3,826
Disposals	(12)	(12)	(71)	(2)	(97)
Transfers	(3)	861	1,089	(1,947)	–
Depreciation charge	–	(812)	(1,712)	–	(2,524)
Impairment reversal (charge)	0	0	(74)	77	3
Other	0	(7)	(81)	(3)	(91)
Currency translation effects	(23)	40	(105)	(67)	(155)
At 31 December 2021	**1,316**	**9,886**	**7,307**	**4,654**	**23,163**
Cost	1,316	18,175	21,998	4,756	46,245
Accumulated depreciation and impairment	0	(8,289)	(14,691)	(102)	(23,082)
Net book value	**1,316**	**9,886**	**7,307**	**4,654**	**23,163**

Classification of impairment of property, plant and equipment in millions of CHF

	2021	2020
Cost of sales	5	30
Marketing and distribution	0	0
Research and development	(1)	(1)
General and administration	(1)	(3)
Total impairment reversal (charge)	**3**	**26**

In 2021 the Pharmaceuticals Division reported impairment reversals of property, plant and equipment of CHF 108 million, net. An idle-plant impairment was reversed in the first half of 2021, resulting in an income of CHF 184 million. This was partially offset by impairments of property, plant and equipment including AT-527 related assets of CHF 38 million. Impairment charges of CHF 105 million were incurred in the Diagnostics Division, mainly in connection with the at-risk manufacturing ramp-up and rollout of COVID-19-related products. In 2020 impairment reversals for property, plant and equipment mainly related to global restructuring plans (see Note 7).

In 2021 no reimbursements were received from insurance companies in respect of impairments to property, plant and equipment (2020: none). In 2021 no borrowing costs were capitalised as property, plant and equipment (2020: none).

At 31 December 2021 machinery and equipment with an original cost of CHF 5.6 billion (2020: CHF 5.5 billion) and a net book value of CHF 1.6 billion (2020: CHF 1.7 billion) was being leased to third parties (see Note 28).

Capital commitments

The Group has non-cancellable capital commitments for the purchase or construction of property, plant and equipment totalling CHF 1.9 billion (2020: CHF 2.1 billion).

9. Goodwill

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

	2021	2020
At 1 January		
Cost	13,390	14,782
Accumulated impairment	(4,141)	(4,487)
Net book value	**9,249**	**10,295**
Year ended 31 December		
At 1 January	9,249	10,295
Business combinations[6]	1,339	0
Impairment charge recorded within general and administration	0	(247)
Currency translation effects	221	(799)
At 31 December	**10,809**	**9,249**
Cost	14,900	13,390
Accumulated impairment	(4,091)	(4,141)
Net book value	**10,809**	**9,249**
Allocated to the following cash-generating units		
Roche Pharmaceuticals	5,345	5,148
Roche Pharmaceuticals product transactions	342	333
Chugai	88	94
Total Pharmaceuticals Division	**5,775**	**5,575**
Diagnostics customer areas	3,735	2,344
Diabetes Care customer area	89	93
Divisional goodwill	1,210	1,237
Total Diagnostics Division	**5,034**	**3,674**

Cash-generating units used for allocating goodwill

Pharmaceuticals Division. The basis for the use of the cash-generating units for allocating goodwill in the Pharmaceuticals Division is as follows:

- Within the Roche Pharmaceuticals operating segment, goodwill arises from three broad types of transactions:
  - Strategic transactions that have a transformative effect across the whole division.
  - Technology transactions, where the acquired technologies can have a range of areas of applications.
  - Product transactions, where the acquired products typically have more limited synergistic benefits outside of the immediate product therapeutic area.
- The cash-generating unit for the goodwill arising from strategic transactions is the Roche Pharmaceuticals operating segment.
- The cash-generating unit for the goodwill arising from technology transactions is also the Roche Pharmaceuticals operating segment. However, if the acquired technologies permanently cease to operate then this will be treated as a disposal of the business; in such cases the goodwill will be deemed to have been disposed of and will be fully impaired.
- The cash-generating unit for the goodwill arising from product transactions is the smallest identifiable group of assets related to the revenues and related costs that arise from the development and commercialisation of the product(s) in question. Where there are synergistic benefits to other products in the same therapeutic area, then the revenues, costs and corresponding assets of these other products are also taken into account. If the acquired products permanently cease to generate economic benefits then this will be treated as a disposal of the business; in such cases the goodwill will be deemed to have been disposed of and will be fully impaired.
- Chugai is a separate operating segment in the Group's financial reporting and a separate cash-generating unit to which goodwill is allocated.

The Group allocated the goodwill in the Roche Pharmaceuticals operating segment as listed below.
- Strategic transactions consist of Genentech (1990/1999), Foundation Medicine (2015), Flatiron Health (2018) and Spark Therapeutics (2019).
- Technology transactions consist of Therapeutic Human Polyclonals (2007), Dutalys (2014) and Santaris (2014).
- Product transactions consist of GlycArt (2005) and Tanox (2007).

Diagnostics Division. The basis for the use of the cash-generating units for allocating goodwill in the Diagnostics Division is as follows:
- Within the Diagnostics Division, goodwill arises from three broad types of transactions:
  - Strategic transactions that have a transformative effect across the whole division.
  - Technology transactions, where the acquired technologies can have a range of areas of applications.
  - Product transactions, where the acquired products either have synergistic benefits across the wider business or where they have more limited synergistic benefits outside of the immediate product therapeutic area.
- The cash-generating unit for the goodwill arising from strategic transactions will be the Diagnostics Division.
- The cash-generating unit for the goodwill arising from technology transactions will be either the Diagnostics customer areas or the Diabetes Care customer area. However, if the acquired technologies permanently cease to operate then this will be treated as a disposal of the business; in such cases the goodwill will be deemed to have been disposed of and will be fully impaired.
- The cash-generating unit for the goodwill arising from product transactions will be the smallest identifiable group of assets related to the revenues and related costs that arise from the development and commercialisation of the product(s) in question. Where there are synergistic benefits to other products in the same business, then the revenues, costs and corresponding assets of these other products will also be taken into account and the cash-generating unit will be either the Diagnostics customer areas or the Diabetes Care customer area. If the acquired products permanently cease to generate economic benefits then this will be treated as a disposal of the business; in such cases the goodwill will be deemed to have been disposed of and will be fully impaired.

The Group allocated the goodwill in the Roche Diagnostics operating segment as listed below.
- Strategic transactions consist of Corange/Boehringer Mannheim (1997).
- Technology transactions consist of Viewics (2017) in the Diagnostics customer areas and mySugr (2017) in the Diabetes Care customer area.
- Product transactions in the Diagnostics customer areas consist of Igen (2004), BioVeris (2007), Ventana (2008), PVT (2011), IQuum (2014), GenMark (2021) and TIB Molbiol (2021).
- Product transactions in the Diabetes Care customer area consist of Disetronic (2003) and Medingo (2010).

Impairment charge – 2021

There were no impairments of goodwill during 2021.

Impairment charge – 2020

Diagnostics Division. The assessment for the potential impairment of goodwill in the Diagnostics Division was carried out using the cash-generating units as set out above. During 2020 impairment charges totalling CHF 247 million were recorded in the Diagnostics Division.

AVL Medical Instruments acquisition. A charge of CHF 169 million was recorded for the full write-off of goodwill from the AVL Medical Instruments acquisition made in 2000. When acquired, AVL Medical Instruments was a leading supplier of blood gas and electrolyte analysers for point-of-care testing. The blood gas business was loss-making and was expected to continue to be loss-making according to the latest business plans. The Diagnostics customer areas are developing a replacement product and are planning substantial research and development investments in this area. The knowledge around the blood gas business and the synergies gained from AVL Medical Instruments acquisition, reflected in the current goodwill amount, will only play a very minor incidental role in the future Diagnostics customer areas strategy and the development of the next-generation product. Accordingly the goodwill was deemed to have been disposed of and was fully impaired. The intangible assets relating to this acquisition were fully amortised in previous years.

GeneWeave Biosciences acquisition. A charge of CHF 78 million was recorded for the full write-off of goodwill from the GeneWeave Biosciences acquisition made in 2015. When acquired, GeneWeave Biosciences focused on advancing clinical microbiology with diagnostic solutions supporting healthcare providers in the fight against drug-resistant bacteria. At the acquisition date product intangible assets, not available for use, totalling CHF 412 million were recorded. Impairment charges were recorded in 2017 and 2019 to fully write off these intangible assets. The factors leading to these impairments were a decrease in forecasted cash flows following a change in the timelines for future product development, pricing and penetration rate due to updated market size assumptions, and further updated assumptions on timelines, research and development expenses and production costs. During 2020 the timelines were further delayed, in part due to a reprioritisation of resources to COVID-19-related projects. It was unclear when and whether there would have been any future revenues to support the carrying value of the goodwill, and any synergistic benefits to other products in the same business would have been incidental. Accordingly the goodwill was deemed to have been disposed of and was fully impaired.

Value in use

Value in use is calculated using a discounted expected cash flow approach, with a post-tax discount rate applied to the projected risk-adjusted post-tax cash flows and terminal value. The discount rate is the Group's weighted average cost of capital as the cash-generating units have integrated operations across large parts of the Group. It is derived from a capital asset pricing model using data from capital markets, including government twenty-year bonds. For assessing value in use, the cash flow projections are based on the most recent long-term forecasts approved by management. The long-term forecasts include management's latest estimates on sales volume and pricing, as well as production and other operating costs and assume no significant changes in the organisation. Other key assumptions used in the calculations are the period of cash flow projections included in the long-term forecasts, the terminal value growth rate and the discount rate.

Key assumptions used in value-in-use calculations

			2021			2020
	Period of cash flow projections [1]	Terminal value growth rate	Discount rate (after tax)	Period of cash flow projections	Terminal value growth rate	Discount rate (after tax)
Pharmaceuticals Division	5 years	n/a	5.8%	5 years	n/a	6.5%
Diagnostics Division	5 years	1.5%	5.8%	5 years	1.5%	6.5%

1) For goodwill relating to Roche Pharmaceuticals product transactions, product-specific periods of cash flow projections are used.

For cash-generating units with a terminal value growth, the respective rate does not exceed the long-term projected growth rate for the relevant market.

Fair value less costs of disposal

For goodwill arising from the Chugai acquisition, the fair value less costs of disposal is determined with reference to the publicly quoted price of Chugai shares.

Sensitivity analysis

Management has performed sensitivity analyses for Roche Pharmaceuticals and the Diagnostics Division, which increased the discount rate by 1% combined with decreasing the forecast cash flows by 5%, and for Chugai, which decreased the publicly quoted share prices by 5%. The results of the sensitivity analyses demonstrated that the above changes in the key assumptions would not cause the carrying values of goodwill to exceed the recoverable amounts at 31 December 2021.

10. Intangible assets

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

	Product intangibles: in use	Product intangibles: not available for use	Other intangibles	Total
At 1 January 2020				
Cost	26,009	6,338	1,783	34,130
Accumulated amortisation and impairment	(19,486)	(2,682)	(1,211)	(23,379)
Net book value	**6,523**	**3,656**	**572**	**10,751**
Year ended 31 December 2020				
At 1 January 2020	6,523	3,656	572	10,751
Business combinations	0	0	0	0
Asset acquisitions	0	1,234	0	1,234
Additions	678	2,336	65	3,079
Disposals	0	0	0	0
Transfers	627	(627)	0	–
Amortisation charge	(1,603)	–	(147)	(1,750)
Impairment charge	(81)	(344)	0	(425)
Currency translation effects	(475)	(357)	(40)	(872)
At 31 December 2020	**5,669**	**5,898**	**450**	**12,017**
Cost	25,544	8,701	1,717	35,962
Accumulated amortisation and impairment	(19,875)	(2,803)	(1,267)	(23,945)
Net book value	**5,669**	**5,898**	**450**	**12,017**
Allocated by operating segment				
Roche Pharmaceuticals	4,984	5,562	322	10,868
Chugai	15	29	52	96
Diagnostics	670	307	76	1,053
Total Group	**5,669**	**5,898**	**450**	**12,017**
Year ended 31 December 2021				
At 1 January 2021	5,669	5,898	450	12,017
Business combinations [6]	915	0	76	991
Asset acquisitions	0	36	0	36
Additions	304	515	178	997
Disposals	0	0	0	0
Transfers	525	(525)	0	–
Amortisation charge	(1,461)	–	(95)	(1,556)
Impairment charge	(125)	(510)	(16)	(651)
Currency translation effects	163	112	8	283
At 31 December 2021	**5,990**	**5,526**	**601**	**12,117**
Cost	27,202	8,029	2,001	37,232
Accumulated amortisation and impairment	(21,212)	(2,503)	(1,400)	(25,115)
Net book value	**5,990**	**5,526**	**601**	**12,117**
Allocated by operating segment				
Roche Pharmaceuticals	4,496	5,190	476	10,162
Chugai	5	21	24	50
Diagnostics	1,489	315	101	1,905
Total Group	**5,990**	**5,526**	**601**	**12,117**

Significant intangible assets at 31 December 2021 in millions of CHF

	Operating segment	Net book value	Remaining amortisation period
Product intangibles in use			
Rozlytrek (Ignyta acquisition)	Roche Pharmaceuticals	1,281	10 years
GenMark acquisition	Diagnostics	717	13 years
Gavreto (Blueprint Medicines in-licensing transaction)	Roche Pharmaceuticals	692	15 years
Xofluza (Shionogi in-licensing transaction)	Roche Pharmaceuticals	451	14 years
Flatiron Health acquisition	Roche Pharmaceuticals	402	11 years
Kapa acquisition	Diagnostics	170	9 years
Brahms in-licensing transaction	Diagnostics	167	9 years
Foundation Medicine acquisition	Roche Pharmaceuticals	161	3 years
Luxturna (Spark Therapeutics acquisition)	Roche Pharmaceuticals	157	6 years
TIB Molbiol acquisition	Diagnostics	156	12 years
Product intangibles not available for use			
SPK-8011 haemophilia A gene therapy (Spark Therapeutics acquisition)	Roche Pharmaceuticals	1,021	n/a
Sarepta in-licensing transaction	Roche Pharmaceuticals	815	n/a
Inflazome acquisition	Roche Pharmaceuticals	397	n/a
Promedior acquisition	Roche Pharmaceuticals	346	n/a
Stratos Genomics acquisition	Diagnostics	303	n/a
SPK-9001 haemophilia B gene therapy (Spark Therapeutics acquisition)	Roche Pharmaceuticals	279	n/a
BioNTech in-licensing transaction	Roche Pharmaceuticals	212	n/a
Dicerna in-licensing transaction	Roche Pharmaceuticals	207	n/a
Other intangibles – Technology intangibles in use			
Adaptive in-licensing transaction	Roche Pharmaceuticals	233	17 years

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

	Amortisation		Impairment	
	2021	2020	2021	2020
Cost of sales				
– Pharmaceuticals	(1,083)	(1,210)	(101)	(81)
– Diagnostics	(122)	(94)	0	0
Marketing and distribution				
– Pharmaceuticals	(18)	(24)	(15)	0
– Diagnostics	(19)	(9)	0	0
Research and development				
– Pharmaceuticals	(297)	(405)	(535)	(344)
– Diagnostics	(17)	(8)	0	0
Total	**(1,556)**	**(1,750)**	**(651)**	**(425)**

Internally generated intangible assets

At 31 December 2021 internally generated intangible assets relating to commercial software amounted to CHF 20 million (2020: CHF 6 million) and are included in other intangibles. Other than that the Group has no internally generated intangible assets from development as the criteria for the recognition as an asset are not met.

Intangible assets with indefinite useful lives

The Group currently has no intangible assets with indefinite useful lives.

Intangible assets not available for use

These mostly represent in-process research and development assets acquired either through in-licensing arrangements, business combinations, asset acquisitions or separate purchases. At 31 December 2021 approximately 74% (2020: 70%) of the projects in the Pharmaceuticals Division have known decision points within the next twelve months which in certain circumstances could lead to impairment. Due to the inherent uncertainties in the research and development processes, intangible assets not available for use are particularly at risk of impairment if the project is not expected to result in a commercialised product.

Intangible asset impairment

Impairment charges arise from changes in the estimates of the future cash flows expected to result from the use of the asset and its eventual disposal. Factors such as the presence or absence of competition, technical obsolescence or lower-than-anticipated sales for products with capitalised rights could result in shortened useful lives or impairment.

Impairment charges – 2021

Pharmaceuticals Division. Impairment charges totalling CHF 651 million were recorded. The major items related to:

- A charge of CHF 364 million for the full impairment of the intangible asset following the planned return of the rights and licences on AT-527 to Atea Pharmaceuticals after the announcement of the termination of the strategic collaboration. The asset concerned, which was not yet being amortised, was fully written down.
- A charge of CHF 107 million for the partial impairment of a compound developed together with an alliance partner, mainly driven by reduced sales expectations. The asset concerned, which was not yet being amortised, was written down to its estimated recoverable amount of CHF 62 million.
- A charge of CHF 101 million for the partial impairment of the product intangible asset for Luxturna, acquired as part of the Spark Therapeutics acquisition. The impairment is a result of reduced sales expectations. The asset concerned was written down to its estimated recoverable amount of CHF 157 million. The intangible asset continues to be amortised over its remaining estimated useful life of six years.
- A charge of CHF 42 million for the partial impairment of the intangible asset for SPK-9001, acquired as part of the Spark Therapeutics acquisition. This impairment was a result of change in planned regulatory timelines and revised sales expectations. The asset concerned, which was not yet being amortised, was written down to its estimated recoverable amount of CHF 279 million.
- A charge of CHF 37 million due to the decision to stop the development of a compound with an alliance partner. The asset concerned, which was not yet being amortised, was fully written down.
- A charge of CHF 29 million due to the decision to stop a collaboration project with an alliance partner following a data assessment. The asset concerned, which was not yet being amortised, was fully written down.
- A charge of CHF 19 million due to the decision to stop a collaboration project with an alliance partner. The asset concerned, which was being amortised, was fully written down.
- The previously recorded impairment for a compound in development was partially reversed and an income of CHF 101 million was recorded for this. The asset concerned was written up to its estimated recoverable value of CHF 110 million following a clinical data assessment. The asset concerned is not yet being amortised.
- Following a clinical data assessment in the first half of 2021, an impairment charge of CHF 76 million was recorded for a compound in development. After a full review of the clinical data results in the second half of 2021 and its impact on the programme, this impairment was fully reversed.

Impairment charges – 2020

Pharmaceuticals Division. Impairment charges totalling CHF 425 million were recorded. The major items related to:
- A charge of CHF 342 million for the partial impairment of the intangible asset for SPK-8011, a novel gene therapy for the treatment of haemophilia A, acquired as part of the Spark Therapeutics acquisition. This impairment was a result of a delay in clinical trials, partly impacted by the COVID-19 pandemic, leading to reduced sales expectations. The asset concerned, which was not yet being amortised, was written down to its estimated recoverable amount of CHF 985 million.
- A charge of CHF 81 million for the partial impairment of the intangible asset for Luxturna, a marketed gene therapy for the treatment of patients with inherited retinal disease due to mutations in both copies of the RPE65 gene, which was acquired as part of the Spark Therapeutics acquisition. This impairment was a result of reduced sales expectations. The asset concerned was written down to its estimated recoverable amount of CHF 287 million. The intangible asset continues to be amortised over its remaining estimated useful life of eight years.

Potential commitments from alliance collaborations and intangible asset purchase agreements within the next three years

The Group is party to in-licensing and alliance arrangements and intangible asset purchase agreements, including asset acquisitions. These arrangements and purchase agreements may require the Group to make certain milestone or other similar payments dependent upon the achievement of agreed objectives or performance targets as defined in the collaboration and purchase agreements.

The Group's current estimate of future third-party commitments for such potential payments within the next three years is set out in the table below. These figures are undiscounted and are not risk-adjusted, meaning that they include all such potential payments that can arise assuming all projects currently in development are successful. The timing is based on the Group's current best estimate. These figures do not include any potential commitments within the Group, such as may arise between the Roche and Chugai businesses.

Potential future third-party collaboration and purchase payments at 31 December 2021 in millions of CHF

	Pharmaceuticals	Diagnostics	Group
Within one year	967	73	1,040
Between one and two years	969	5	974
Between two and three years	1,231	86	1,317
Total	**3,167**	**164**	**3,331**

11. Inventories

Inventories in millions of CHF

	2021	2020	2019
Raw materials and supplies	1,547	1,354	1,296
Work in process	100	90	105
Intermediates	5,738	4,369	3,960
Finished goods	1,202	1,956	1,426
Provision for slow-moving and obsolete inventory	(872)	(575)	(732)
Total inventories	**7,715**	**7,194**	**6,055**

Inventories expensed through cost of sales totalled CHF 14.7 billion (2020: CHF 11.7 billion). Inventory write-downs during the year resulted in an expense of CHF 620 million (2020: CHF 257 million).

12. Accounts receivable

Accounts receivable in millions of CHF

	2021	2020	2019
Trade receivables	11,965	11,023	11,349
Notes receivable	45	53	51
Other receivables	54	54	64
Allowances for doubtful accounts	(538)	(515)	(532)
Chargebacks and other allowances to be withheld upon settlement [3]	(720)	(461)	(492)
Total accounts receivable [3]	**10,806**	**10,154**	**10,440**

Allowances for doubtful accounts: movements in recognised allowance in millions of CHF

	2021	2020
At 1 January	(515)	(532)
Additional allowances created	(140)	(113)
Unused amounts reversed	93	90
Utilised during the year	11	10
Currency translation effects	13	30
At 31 December	**(538)**	**(515)**

Bad debt expenses recorded as marketing and distribution costs totalled CHF 44 million (2020: expense of CHF 54 million).

13. Marketable securities

Marketable securities in millions of CHF

	2021	2020	2019
Equity securities at fair value through profit or loss	2	11	13
Debt securities at fair value through OCI	494	590	807
Debt securities at fair value through profit or loss	71	0	0
Money market instruments at fair value through OCI	2,816	2,734	1,491
Time accounts over three months at amortised costs	2,798	3,272	3,472
Total marketable securities	**6,181**	**6,607**	**5,783**

Marketable securities are held for fund management purposes and are primarily denominated in US dollars, euros and in Swiss francs. Money market instruments are contracted to mature within one year of 31 December 2021.

Debt securities – contracted maturity in millions of CHF

	2021	2020	2019
Within one year	130	158	276
Between one and five years	358	403	508
More than five years	77	29	23
Total debt securities	**565**	**590**	**807**

14. Cash and cash equivalents

Cash and cash equivalents in millions of CHF

	2021	2020	2019
Cash – cash in hand and in current or call accounts	5,028	4,536	4,769
Cash equivalents – time accounts with a maturity of three months or less	1,822	1,191	1,306
Total cash and cash equivalents	**6,850**	**5,727**	**6,075**

15. Other non-current assets

Other non-current assets in millions of CHF

	2021	2020	2019
Equity investments at fair value through OCI [31]	328	506	41
Equity investments at fair value through profit or loss [31]	410	768	696
Loans receivable	7	8	8
Restricted cash	1	2	2
Other receivables – contracts with customers [3]	36	37	38
Other receivables	90	80	82
Total financial non-current assets	**872**	**1,401**	**867**
Long-term employee benefits	234	214	229
Other assets	834	617	451
Total non-financial non-current assets	**1,068**	**831**	**680**
Associates	331	2	2
Total other non-current assets	**2,271**	**2,234**	**1,549**

Equity investments designated at fair value through OCI are mainly investments in private companies from the pharmaceutical sector, which are held as part of the Group's strategic alliance efforts.

16. Other current assets

Other current assets in millions of CHF

	2021	2020	2019
Accrued interest income	12	9	18
Derivative financial instruments [31]	189	398	178
Cash collateral receivables	23	41	186
Other receivables – contracts with customers [3]	646	492	541
Other receivables	211	145	198
Total financial current assets	**1,081**	**1,085**	**1,121**
Prepaid expenses and accrued income	1,869	1,153	795
Other taxes recoverable	633	750	530
Other assets	172	123	218
Total non-financial current assets	**2,674**	**2,026**	**1,543**
Total other current assets	**3,755**	**3,111**	**2,664**

17. Accounts payable

Accounts payable in millions of CHF

	2021	2020	2019
Trade payables	3,844	3,317	3,176
Other taxes payable	519	480	428
Dividends payable	3	3	3
Other payables	271	321	215
Total accounts payable	**4,637**	**4,121**	**3,822**

18. Other non-current liabilities

Other non-current liabilities in millions of CHF

	2021	2020	2019
Deferred income	246	156	172
Lease liabilities [28]	1,025	876	879
Other long-term liabilities	36	75	93
Total other non-current liabilities	**1,307**	**1,107**	**1,144**

Other long-term liabilities are mainly related to accrued employee benefits.

19. Other current liabilities

Other current liabilities in millions of CHF

	2021	2020	2019
Deferred income	560	439	487
Lease liabilities [28]	329	319	340
Accrued payroll and related items	3,399	2,794	3,316
Interest payable	102	160	176
Derivative financial instruments [31]	262	286	266
Cash collateral payables	40	202	38
Accrued chargebacks and other allowances separately payable [3]	3,486	3,231	3,049
Accrued royalties and commissions	1,294	877	1,106
Other accrued liabilities	3,657	3,461	3,101
Total other current liabilities	**13,129**	**11,769**	**11,879**

20. Provisions and contingent liabilities

Provisions: movements in recognised liabilities in millions of CHF

	Legal provisions	Environmental provisions	Restructuring provisions	Contingent consideration provisions	Other provisions	Total
Year ended 31 December 2020						
At 1 January 2020	882	503	1,194	205	1,616	4,400
Additional provisions created	77	10	579	10	699	1,375
Unused amounts reversed	(423)	(9)	(82)	(56)	(345)	(915)
Utilised	(96)	(53)	(489)	(9)	(754)	(1,401)
Discount unwind [4]	0	7	0	7	0	14
Business combinations						
– Acquired companies	0	0	0	0	0	0
– Deferred consideration	–	–	–	–	0	0
– Contingent consideration	–	–	–	0	–	0
Asset acquisitions	0	0	0	–	5	5
Currency translation effects	(45)	(15)	(30)	(7)	(92)	(189)
At 31 December 2020	**395**	**443**	**1,172**	**150**	**1,129**	**3,289**
Current	373	102	531	46	784	1,836
Non-current	22	341	641	104	345	1,453
At 31 December 2020	**395**	**443**	**1,172**	**150**	**1,129**	**3,289**
Year ended 31 December 2021						
At 1 January 2021	395	443	1,172	150	1,129	3,289
Additional provisions created	90	68	942	10	1,152	2,262
Unused amounts reversed	(12)	(1)	(147)	(2)	(232)	(394)
Utilised	(111)	(56)	(526)	(23)	(478)	(1,194)
Discount unwind [4]	0	4	0	2	0	6
Business combinations						
– Acquired companies	1	0	1	0	0	2
– Deferred consideration	–	–	–	–	0	0
– Contingent consideration	–	–	–	0	–	0
Asset acquisitions	0	0	0	–	0	0
Currency translation effects	9	(11)	(15)	4	10	(3)
At 31 December 2021	**372**	**447**	**1,427**	**141**	**1,581**	**3,968**
Current	349	142	722	57	1,256	2,526
Non-current	23	305	705	84	325	1,442
At 31 December 2021	**372**	**447**	**1,427**	**141**	**1,581**	**3,968**
Expected outflow of resources						
Within one year	349	142	722	57	1,256	2,526
Between one and two years	18	120	288	46	115	587
Between two and three years	2	65	198	20	50	335
More than three years	3	120	219	18	160	520
At 31 December 2021	**372**	**447**	**1,427**	**141**	**1,581**	**3,968**

In 2021 CHF 1,194 million of provisions were utilised (2020: CHF 1,401 million), of which CHF 1,166 million (2020: CHF 1,390 million) are included in the cash flows from operating activities and CHF 28 million (2020: CHF 11 million) are included in the cash flows from business combinations for payments made from deferred and contingent consideration arrangements (see Note 6).

Legal provisions

Legal provisions relate to a number of separate legal matters, including claims arising from trade, in various Group companies. By their nature the amounts and timings of any outflows are difficult to predict.

As part of the regular review of litigation matters, management has reassessed the provisions recorded for certain litigation matters. Based on the development of the various litigations, there was a net increase of legal provisions of CHF 78 million in 2021. In 2020, notably due to the development of the Accutane case in the US, some of the provisions previously held were released which resulted in an income of CHF 423 million. In 2021 the net expenses for legal cases included in general and administration were CHF 52 million (2020: net income of CHF 345 million). Details of the major legal cases outstanding are disclosed below.

Environmental provisions

Provisions for environmental matters relate to various separate environmental issues in a number of countries. By their nature the amounts and timings of any outflows are difficult to predict. Significant provisions are discounted by between 1% and 3% where the time value of money is material. The significant provisions relate to the US site in Nutley, New Jersey, which was divested in September 2016, the estimated remediation costs for a landfill site near Grenzach, Germany, which was used by manufacturing operations that were closed some years ago, and the estimated remediation costs for the manufacturing site at Clarecastle, Ireland, which was shut down in the meantime. In 2021 the expected costs of the environmental remediation at the Clarecastle site and other matters were reassessed. Accordingly, in 2021 environmental provisions increased by CHF 67 million, net. In 2021 the net environmental expenses were CHF 66 million (2020: none).

The Group's procedures on environmental protection are included in the Annual Report on pages 96 to 107. These include the actions taken by the Group with regard to climate change, notably the Group's commitment to reduce greenhouse gas emissions.

Restructuring provisions

These arise from planned programmes that materially change the scope of business undertaken by the Group or the manner in which business is conducted. Such provisions include only the costs necessarily entailed by the restructuring which are not associated with the recurring activities of the Group. The timings of these cash outflows are reasonably certain. These provisions are not discounted as the time value of money is not material in these matters.

In the Pharmaceuticals Division the significant provisions relate to various business transformation initiatives, including the resourcing flexibility plans and the site development plans at the Basel and Kaiseraugst site, as well as to the redesign and the strategic realignment of its manufacturing network. In the Diagnostics Division the significant provisions are associated with programmes to address long-term strategy, while in Corporate they relate to initiatives for the outsourcing of IT and other functions to shared service centres and external providers. Further details are given in Note 7.

Contingent consideration provisions

The Group is party to certain contingent consideration arrangements arising from business combinations. Significant provisions are discounted using an average discount rate of 2.7% (2020: 2.1%) where the time value of money is material. Additional details on measurement and on the total potential payments under these arrangements are provided in Note 31.

Other provisions

Other provisions relate to the items shown in the table below. With the exception of employee provisions, the timing of cash outflows is by its nature uncertain.

Other provisions in millions of CHF

	2021	2020	2019
Sales returns [3]	514	473	616
Employee provisions	384	380	389
Other items	683	276	611
Total other provisions	**1,581**	**1,129**	**1,616**

Contingent liabilities

The operations and earnings of the Group continue, from time to time and in varying degrees, to be affected by political, legislative, fiscal and regulatory developments, including those relating to environmental protection, in the countries in which it operates. The industries in which the Group operates are also subject to other risks of various kinds. The nature and frequency of these developments and events, not all of which are covered by insurance, as well as their effect on future operations and earnings, are not predictable.

The Group has entered into in-licensing and alliance arrangements and intangible asset purchase agreements, including asset acquisitions, in order to gain access to potential new products or to utilise other companies to help develop the Group's own potential new products. These arrangements and purchase agreements may require the Group to make certain milestone or other similar payments dependent upon the achievement of agreed objectives or performance targets as defined in the collaboration and purchase agreements. The Group's current estimate of future third-party commitments for such potential payments within the next three years are given in Note 10.

Legal cases

At 31 December 2021 legal provisions included provisions for legal cases of CHF 269 million (2020: CHF 317 million), mainly related to legal cases in the Pharmaceuticals Division of CHF 49 million (2020: CHF 53 million) and in the Diagnostics Division of CHF 220 million (2020: CHF 264 million). Provisions have been recorded, and in some cases settled, mainly relating to Meso, a Diagnostics legal case, and to the Pharmaceuticals legal matters listed below.

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. 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 had been 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. Roche filed an appeal with the Corte Suprema di Cassazione, which was rejected on 5 October 2021. In addition, Roche filed a motion for revocation with the Consiglio di Stato which is still pending. The Italian Ministry of Health and some Italian regions notified the Group of their intention to seek damages related to this matter. On 24 January 2019 the French Competition Authority ('FCA') issued a Statement of Objections against Roche, Genentech and Novartis regarding anticompetitive practices concerning the commercialisation of Avastin and Lucentis in France. The FCA alleges that Roche, Genentech and Novartis abused their collective dominant position on the French market for the treatment of wet age-related macular degeneration between 2008 and 2013. On 9 September 2020 the FCA issued a decision finding that Roche, Genentech and Novartis had infringed competition law and imposed a fine of EUR 60 million against Roche and Genentech. Roche and Genentech appealed this decision. At 31 December 2020 a liability was held for the amount of the fine, which was included in accounts payable within the line item other payables (see Note 17). In January 2021 the fine was paid under protest to avoid additional penalty fees. In September 2021 Roche received an administrative fine letter from the Turkish Competition Authority ('TCA'). In its investigation the TCA alleges that Roche and Novartis entered into a cartel aiming at preventing off-label applications of Avastin in order to foster on-label applications of Lucentis. In October 2021 the fine of Turkish lira 85 million was paid under protest to avoid additional penalty fees. Roche filed an appeal against the decision. In addition, the Group is challenging policies and regulations allowing off-label/unlicensed use and reimbursement for economic reasons in various countries. The Group is vigorously defending itself in these matters. The outcome of these matters cannot be determined at this time.

Average Wholesale Prices litigation. Hoffmann-La Roche, Inc. ('HLR') and Roche Laboratories Inc. ('RLI'), along with approximately 50 other brand and generic pharmaceutical companies, have been named as defendants in several legal actions in the US relating to the pricing of pharmaceutical drugs and state Medicaid reimbursement. The primary allegation in these litigations is that the pharmaceutical companies misrepresented or otherwise reported inaccurate Average Wholesale Prices ('AWP') and/or Wholesale Acquisition Costs ('WAC') for their drugs, which prices were allegedly relied upon by the states in calculating Medicaid reimbursements to entities such as retail pharmacies. The states, through their respective Attorney General, are seeking repayment of the amounts they claim were over-reimbursed. The time period associated with these cases is 1991 through 2005. At 31 December 2021 HLR and RLI are defending one AWP action filed in the state of New Jersey. HLR and RLI are vigorously defending themselves and no trial date has been set. The outcome of this matter cannot be determined at this time.

Boniva litigation. Hoffmann-La Roche, Inc. ('HLR'), Genentech and various other Roche affiliates (collectively 'Roche') have been named as defendants in numerous legal actions in the US and one now dismissed case in Canada relating to the post-menopausal osteoporosis medication Boniva. In these litigations, the plaintiffs allege that Boniva caused either osteonecrosis of the jaw or atypical femoral fractures. At 31 December 2021 Roche is defending approximately 248 actions involving approximately 288 plaintiffs brought in federal and state courts throughout the US for personal injuries allegedly resulting from the use of Boniva. All of these cases are in the early discovery stages of litigation. Individual trial results depend on a variety of factors, including many that are unique to the particular case. Roche is vigorously defending itself in these matters. The outcome of these matters cannot be determined at this time.

Meso litigation. In February 2017 Roche Diagnostics Corporation ('Roche') filed a lawsuit in the US District Court for the District of Delaware against Meso Scale Diagnostics, LLC ('Meso'). This is a patent infringement case involving certain US patents owned by BioVeris Corporation ('BioVeris'), a company acquired by the Group in 2007. Meso holds a limited exclusive licence to use certain aspects of the electrochemiluminescence ('ECL') detection technology. Roche and Meso disagree on the scope of the licence. The lawsuit is seeking a declaratory judgment to get judicial clarification that Roche is not infringing Meso's licence. On 25 November 2019 the jury found that Roche's use of the patents infringed the scope of Meso's licence. There was no injunction granted and the jury awarded Meso USD 137 million in damages. In 2020 post-trial motions were filed by both parties and Meso moved for enhancement, pre-judgment interest and post-judgment royalties. The court hearing took place on 6 May 2020. On 23 December 2020 the US District Court issued the final order of judgment in which the jury award was confirmed and Meso's request for enhanced damages was denied. The Group appealed this decision. On 2 November 2021 there was a hearing before the US Court of Appeals with the court decision expected in 2022.

In addition, the Pharmaceuticals legal cases listed below do not currently have provisions recorded, but there are potential future obligations which will be confirmed only by the occurrence or non-occurrence of uncertain future events or where the obligation cannot be measured with sufficient reliability.

Hemlibra litigation. On 4 May 2017 Baxalta Inc. and Baxalta GmbH (both together 'Baxalta'), subsidiaries of Takeda Pharmaceutical Company Limited, filed a patent infringement and declaratory judgment of patent infringement suit in the US District Court for the District of Delaware, alleging that Genentech and Chugai Pharmaceutical Co., Ltd. ('Chugai') currently or imminently would manufacture, use, sell, offer for sale, or import into the US Hemlibra, which would infringe Baxalta's US Patent No. 7,033,590. Baxalta is seeking a judgment of infringement, injunctive and monetary relief, attorneys' fees, costs and expenses. On 11 May 2017 Genentech was served with the complaint. Genentech's response and counterclaims to the complaint were filed on 30 June 2017. On 19 June 2017 Chugai waived service. On 13 September 2017 Chugai filed a motion to dismiss the complaint for lack of personal jurisdiction. On 14 December 2017 Baxalta filed a request for a preliminary injunction against Genentech only, in which some inhibitor patients would not be subject to any injunction. A hearing was held in the US District Court for the District of Delaware on 13 and 14 June 2018 and during that hearing Baxalta withdrew its request for a preliminary injunction as to the inhibitor patients. On 25 June 2018 Baxalta submitted a new proposed preliminary injunction order, in which Genentech would be permitted to sell Hemlibra to all inhibitor patients, all non-inhibitor patients currently on Hemlibra whether through clinical trials or not, and selected non-inhibitor patients who have an additional 'medically diagnosed condition' which rendered factor VIII therapies impracticable. On 7 August 2018 the US District Court ruled against Baxalta, denying their request for an injunction. On 19 September 2018 Chugai was dismissed from this case. 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. On 27 August 2020 the Appeals Court reversed the claim construction ruling of the US District Court in favour of Genentech and remanded the case back to the US District Court. On 3 September 2021 Genentech filed a motion for summary judgment on multiple grounds. On 19 November 2021 the US District Court heard Genentech's motions for summary judgment of invalidity, non-infringement under the doctrine of equivalence, and no wilful infringement. On 13 January 2022 the US District Court granted Genentech's motion for summary judgment of no enablement, which means that the previously scheduled trial will be cancelled. Baxalta is expected to appeal this decision. The Group is vigorously defending itself in this matter. The outcome of this matter cannot be determined at this time.

Iraqi Ministry of Health. In October 2017 F. Hoffmann-La Roche Ltd ('FHLR'), Hoffmann-La Roche Inc. ('HLR') and Genentech and certain other pharmaceutical and/or medical device companies were named as defendants in a complaint filed in the Federal District Court for the District of Columbia, US, on behalf of US service members and their relatives who allege that they were killed or injured in Iraq between 2005 and 2009 (the 'Iraq lawsuit'). The complaint alleges that the defendants violated the US Anti-Terrorism Act and various state laws by providing funding for terrorist organisations through their sales practices pursuant to pharmaceutical and/or medical device contracts with the Iraqi Ministry of Health. In addition FHLR received an inquiry in July 2018 from the US Department of Justice in connection with an anti-corruption investigation relating to activities in Iraq, including interactions with the Iraqi government and certain of the same matters alleged in the Iraq lawsuit. On 29 October 2019 the US Department of Justice closed its inquiry against FHLR. On 17 July 2020 the Federal District Court granted the defendants' motions to dismiss. The plaintiffs appealed this decision. On 4 January 2022 the US Court of Appeals for the District of Columbia Circuit reversed the decision of the Federal District Court and remanded the case for further proceedings. The Group is vigorously defending itself in this matter. The outcome of this matter cannot be determined at this time.

Tamiflu Qui tam litigation. In 2019, Roche Holding Ltd ('Roche Holding'), Hoffmann-La Roche, Inc. ('HLR') and Genentech, Inc. ('Genentech') were served with a lawsuit filed by a relator in the US District Court for the District of Maryland under the qui tam (whistleblower) provisions of the False Claims Act. The lawsuit was originally filed under seal years earlier on behalf of the US government and various US state governments. The lawsuit alleges certain improper conduct by the Group with respect to sales of Tamiflu to the US government and various US state governments. The US Department of Justice declined to intervene in the lawsuit. On 17 January 2020 the Group filed a motion to dismiss. On 28 September 2020 the plaintiff dismissed the complaint as to Roche Holding and Genentech and the District Court denied HLR's motion for summary judgment. On 6 October 2021 the District Court granted the parties' joint motion to stay discovery and to amend the scheduling order, staying discovery for six months. The Group is vigorously defending itself in this matter. The outcome of this matter cannot be determined at this time.

Novartis litigation related to Cabilly royalties. On 25 May 2021 Novartis Vaccines and Diagnostics, Inc. and Novartis Pharma AG (collectively 'Novartis') filed a lawsuit against Genentech, Inc. ('Genentech') in California state court of San Mateo County. Novartis alleges that it mistakenly overpaid, and is entitled to the return of, certain Cabilly royalties for its products Cosentyx and Ilaris, totalling USD 210 million. Following the expiry of the Cabilly patent, Genentech and Novartis have had discussions regarding Cabilly royalties owed for Cosentyx and Ilaris manufactured in, or imported into, the US prior to patent expiry but sold after patent expiry. On 24 June 2021 Genentech filed a notice of removal, seeking to move the case from state court to federal court. On 1 July 2021 Genentech filed a motion to dismiss all the claims on various grounds. In response to Genentech's motion, Novartis filed an amended complaint on 20 August 2021. On 3 September 2021 Genentech filed a motion to dismiss the amended complaint on similar grounds. The hearing is scheduled to take place on 10 February 2022. The parties have agreed to engage in a voluntary private mediation on 11 February 2022. The Group is vigorously defending itself in this matter. The outcome of this matter cannot be determined at this time.

21. Debt

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

	2021	2020
At 1 January	14,216	14,363
Proceeds from issue of bonds and notes	6,900	0
Redemption and repurchase of bonds and notes	(2,448)	0
Increase (decrease) in commercial paper	(1,134)	318
Increase (decrease) in other debt	13,412	341
Changes from financing cash flows	**16,730**	**659**
Net (gains) losses on redemption and repurchase of bonds and notes [4]	0	0
Amortisation of debt discount [4]	8	9
Financing costs	**8**	**9**
Business combinations	69	0
Asset acquisitions	0	10
Net foreign currency transaction (gains) losses	(17)	112
Currency translation effects	218	(938)
Changes in foreign exchange rates	**201**	**(826)**
Changes in fair values of hedging instruments	(27)	1
Other changes	1	0
At 31 December	**31,198**	**14,216**
Bonds and notes	16,579	12,024
Commercial paper	500	1,576
Amounts due to banks and other financial institutions	14,118	613
Other borrowings	1	3
Total debt	**31,198**	**14,216**
Long-term debt	16,076	10,220
Short-term debt	15,122	3,996
Total debt	**31,198**	**14,216**

There are no pledges on the Group's assets in connection with debt.

Bonds and notes

Recognised liabilities and effective interest rates of bonds and notes in millions of CHF

	Effective interest rate Underlying instrument	Effective interest rate Including hedging	2021	2020	2019
US dollar notes – fixed rate					
2.875% notes due 29 September 2021, principal USD 1.3 billion (ISIN: US771196BB71)	2.98%	2.81%	–	569	625
1.75% notes due 28 January 2022, principal USD 0.65 billion (ISIN: US771196BM37)	1.87%	1.86%	–	572	629
3.25% notes due 17 September 2023, principal USD 0.75 billion, outstanding USD 0.39 billion (ISIN: US771196BN10)	3.32%	3.26%	354	343	378
0.45% notes due 5 March 2024, principal USD 0.5 billion (ISIN: US771196BQ41)	0.49%	0.33%	451	–	–
3.35% notes due 30 September 2024, principal USD 1.65 billion, outstanding USD 0.59 billion (ISIN: US771196BE11)	3.40%	n/a	538	519	571
3.0% notes due 10 November 2025, principal USD 1.0 billion, outstanding USD 0.51 billion (ISIN: US771196BJ08)	3.14%	n/a	461	444	488
0.991% notes due 5 March 2026, principal USD 0.65 billion (ISIN: US771196BS07)	1.03%	0.47%	582	–	–
2.625% notes due 15 May 2026, principal USD 1.0 billion (ISIN: US771196BK70)	2.78%	n/a	909	876	962
2.375% notes due 28 January 2027, principal USD 0.85 billion (ISIN: US771196BL53)	2.54%	n/a	771	743	816
3.625% notes due 17 September 2028, principal USD 0.65 billion (ISIN: US771196BP67)	3.69%	n/a	593	572	628
1.93% notes due 13 December 2028, principal USD 2.0 billion (ISIN: US771196BW19)	1.97%	n/a	1,824	–	–
2.076% notes due 13 December 2031, principal USD 2.0 billion (ISIN: US771196BX91)	2.11%	2.16%	1,823	–	–
7.0% notes due 1 March 2039, principal USD 2.5 billion, outstanding USD 1.12 billion (ISIN: USU75000AN65 and US771196AU61)	7.43%	7.39%	990	954	1,048
4.0% notes due 28 November 2044, principal USD 0.65 billion (ISIN: US771196BH42)	4.16%	n/a	585	563	619
2.607% notes due 13 December 2051, principal USD 2.0 billion (ISIN: US771196BY74)	2.65%	2.74%	1,818	–	–
US dollar notes – floating rate					
Notes due 5 March 2024, principal USD 0.35 billion (ISIN: US771196BR24)	0.45%	n/a	319	–	–
Euro Medium Term Note programme – fixed rate					
6.5% notes due 4 March 2021, principal EUR 1.75 billion (ISIN: XS0415624716)	6.66%	6.96%	–	1,236	1,236
0.5% notes due 27 February 2023, principal EUR 0.65 billion (ISIN: XS1371715118)	0.63%	0.62%	672	702	703
5.375% notes due 29 August 2023, principal GBP 0.25 billion, outstanding GBP 0.08 billion (ISIN: XS0175478873)	5.46%	n/a	95	92	97
0.875% notes due 25 February 2025, principal EUR 1.0 billion (ISIN: XS1195056079)	0.93%	0.93%	1,032	1,082	1,083
Swiss franc bonds – fixed rate					
1.625% bonds due 23 September 2022, principal CHF 0.5 billion (ISIN: CH0180513183)	1.64%	1.39%	501	502	504
0.1% bonds due 23 September 2024, principal CHF 0.75 billion (ISIN: CH0358654975)	0.11%	0.02%	748	751	750
0.25% bonds due 24 September 2025, principal CHF 0.5 billion (ISIN: CH0433761308)	0.25%	n/a	500	500	500
0.45% bonds due 23 March 2029, principal CHF 0.35 billion (ISIN: CH0359915409)	0.46%	n/a	350	350	350
0.75% bonds due 24 September 2030, principal CHF 0.4 billion (ISIN: CH0433761316)	0.74%	n/a	400	400	400
Genentech Senior Notes					
5.25% Senior Notes due 15 July 2035, principal USD 0.5 billion, outstanding USD 0.29 billion (ISIN: US368710AC32)	5.39%	n/a	263	254	279
Total bonds and notes			**16,579**	**12,024**	**12,666**

Bonds and notes maturity in millions of CHF

	2021	2020	2019
Within one year	501	1,804	0
Between one and two years	1,121	1,074	1,861
Between two and three years	2,057	1,138	1,132
Between three and four years	1,993	1,270	1,178
Between four and five years	1,490	2,026	1,320
More than five years	9,417	4,712	7,175
Total bonds and notes	**16,579**	**12,024**	**12,666**

Unamortised discount included in carrying value of bonds and notes in millions of CHF

	2021	2020	2019
US dollar notes	72	56	67
Euro notes	3	4	7
Total unamortised discount	**75**	**60**	**74**

Issuance of bonds and notes – 2021

On 5 March 2021 the Group completed an offering of USD 0.5 billion and USD 0.65 billion fixed rate notes with a coupon of 0.45% and 0.991%, respectively. The notes will mature on 5 March 2024 and 5 March 2026, respectively. The Group received CHF 1,066 million aggregate net proceeds from the issuance and sale of these fixed rate notes.

On 5 March 2021 the Group completed an offering of USD 0.35 billion floating rate notes at a rate equal to Secured Overnight Financing Rate (SOFR) plus a margin of 0.24%. The notes will mature on 5 March 2024. The Group received CHF 325 million aggregate net proceeds from the issuance and sale of these floating rate notes.

On 13 December 2021 the Group completed an offering of USD 2.0 billion fixed rate notes with a coupon of 1.93%, USD 2.0 billion fixed rate notes with a coupon of 2.076%, and USD 2.0 billion fixed rate notes with a coupon of 2.607%. The notes will mature on 13 December 2028, 13 December 2031 and 13 December 2051, respectively. The Group received CHF 5,509 million aggregate net proceeds from the issuance and sale of these fixed rate notes.

Issuance of bonds and notes – 2020

In 2020 the Group did not issue any bonds or notes.

Redemption and repurchase of bonds and notes – 2021

On the due date of 4 March 2021 the Group redeemed notes with an outstanding amount of EUR 1.14 billion. The effective interest rate of these notes was 6.66%. The cash outflow was CHF 1,266 million and there was no gain or loss recorded on the redemption.

On 29 July 2021 the Group resolved to exercise its option to call for early redemption of the 2.875% fixed rate notes with an outstanding amount of USD 0.64 billion at par, two months before the scheduled due date of 29 September 2021. The cash outflow was CHF 586 million, plus accrued interest, and there was no gain or loss recorded on the redemption. The effective interest rate of these notes was 2.98%.

On 28 December 2021 the Group resolved to exercise its option to call for early redemption of the 1.75% fixed rate notes with an outstanding amount of USD 0.65 billion at par, one month before the scheduled due date of 28 January 2022. The cash outflow was CHF 596 million, plus accrued interest, and there was no gain or loss recorded on the redemption. The effective interest rate of these notes was 1.87%.

Redemption and repurchase of bonds and notes – 2020

In 2020 the Group did not repay any bonds or notes.

Cash flows from issuance, redemption and repurchase of bonds and notes

Cash inflows from issuance of bonds and notes in millions of CHF

	2021	2020
US dollar notes	6,900	0
Total cash inflows from issuance of bonds and notes	**6,900**	**0**

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

	2021	2020
Euro Medium Term Note programme – Euro notes	(1,266)	0
US dollar notes	(1,182)	0
Total cash outflows from redemption and repurchase of bonds and notes	**(2,448)**	**0**

Commercial paper

Roche Holdings, Inc. commercial paper program. Roche Holdings, Inc. has an established commercial paper program under which it can issue up to USD 7.5 billion of unsecured commercial paper notes guaranteed by Roche Holding Ltd. The committed credit line that is available as a back-stop supporting the commercial paper program is USD 7.5 billion at 31 December 2021. On 3 July 2019 the previously existing committed credit lines were refinanced by one new committed credit line 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 31 December 2021 unsecured commercial paper notes with a principal amount of USD 0.5 billion and an average interest rate of 0.08% were outstanding.

Movements in commercial paper obligations in millions of CHF

	2021	2020
At 1 January	1,576	1,406
Net cash proceeds (payments)	(1,134)	318
Currency translation effects	58	(148)
At 31 December	**500**	**1,576**

Amounts due to banks and other financial institutions

At 31 December 2021 the amounts outstanding of CHF 14,118 million (2020: CHF 613 million) are due within one year. These amounts are denominated in various currencies and the average interest rate was 0.25% (2020: 3.80%). This position notably included the credit facility from banks used to finance the share repurchase transaction (see Note 22), of which CHF 13.5 billion was outstanding as at 31 December 2021.

22. Equity attributable to Roche shareholders

Changes in equity attributable to Roche shareholders in millions of CHF

	Share capital	Retained earnings	Fair value reserves	Hedging reserves	Translation reserves	Total
Year ended 31 December 2020						
At 1 January 2020	160	40,524	15	13	(7,965)	32,747
Net income recognised in income statement	–	14,295	–	–	–	14,295
Financial assets at fair value through OCI						
– Fair value gains (losses) – equity investments at fair value through OCI	–	–	113	–	–	113
– Fair value gains (losses) taken to retained earnings on disposal of equity investments at fair value through OCI	–	12	(12)	–	–	–
– Fair value gains (losses) – debt securities at fair value through OCI	–	–	7	–	–	7
– Fair value gains (losses) transferred to income statement – debt securities at fair value through OCI	–	–	0	–	–	0
– Income taxes [5]	–	1	(15)	–	–	(14)
– Non-controlling interests	–	0	0	–	–	0
Cash flow hedges						
– Gains (losses) taken to equity	–	–	–	34	–	34
– Transferred to income statement [a)]	–	–	–	(88)	–	(88)
– Income taxes [5]	–	–	–	15	–	15
– Non-controlling interests	–	–	–	10	–	10
Currency translation of foreign operations						
– Exchange differences	–	–	(2)	–	(1,647)	(1,649)
– Accumulated differences transferred to income statement on divestment of subsidiaries	–	–	–	–	(8)	(8)
– Non-controlling interests	–	–	–	–	140	140
Defined benefit plans						
– Remeasurement gains (losses) [26]	–	(315)	–	–	–	(315)
– Limit on asset recognition [26]	–	0	–	–	–	0
– Income taxes [5]	–	128	–	–	–	128
– Non-controlling interests	–	(12)	–	–	–	(12)
Other comprehensive income, net of tax	**–**	**(186)**	**91**	**(29)**	**(1,515)**	**(1,639)**
Total comprehensive income	**–**	**14,109**	**91**	**(29)**	**(1,515)**	**12,656**
Dividends	–	(7,700)	–	–	–	(7,700)
Equity compensation plans, net of transactions in own equity	–	(1,360)	–	–	–	(1,360)
Changes in non-controlling interests	–	(2)	–	–	–	(2)
At 31 December 2020	**160**	**45,571**	**106**	**(16)[b)]**	**(9,480)**	**36,341**

a) The entire amount transferred to the income statement was reported in other financial income (expense).
b) Cost of hedging reserve related to the EUR/USD cross-currency swap is included in the hedging reserve and amounted to CHF 3 million, net of tax.

Changes in equity attributable to Roche shareholders in millions of CHF

	Share capital	Retained earnings	Fair value reserves	Hedging reserves	Translation reserves	Total
Year ended 31 December 2021						
At 1 January 2021	160	45,571	106	(16)	(9,480)	36,341
Net income recognised in income statement	–	13,930	–	–	–	13,930
Financial assets at fair value through OCI						
– Fair value gains (losses) – equity investments at fair value through OCI	–	–	(179)	–	–	(179)
– Fair value gains (losses) taken to retained earnings on disposal of equity investments at fair value through OCI	–	0	0	–	–	–
– Fair value gains (losses) – debt securities at fair value through OCI	–	–	(13)	–	–	(13)
– Fair value gains (losses) transferred to income statement – debt securities at fair value through OCI	–	–	0	–	–	0
– Income taxes [5]	–	0	24	–	–	24
– Non-controlling interests	–	0	1	–	–	1
Cash flow hedges						
– Gains (losses) taken to equity	–	–	–	(56)	–	(56)
– Transferred to income statement [a)]	–	–	–	0	–	0
– Income taxes [5]	–	–	–	9	–	9
– Non-controlling interests	–	–	–	1	–	1
Currency translation of foreign operations						
– Exchange differences	–	–	1	2	(479)	(476)
– Accumulated differences transferred to income statement on divestment of subsidiaries	–	–	–	–	0	0
– Non-controlling interests	–	–	–	–	247	247
Defined benefit plans						
– Remeasurement gains (losses) [26]	–	2,225	–	–	–	2,225
– Limit on asset recognition [26]	–	(3)	–	–	–	(3)
– Income taxes [5]	–	(349)	–	–	–	(349)
– Non-controlling interests	–	(2)	–	–	–	(2)
Other comprehensive income, net of tax	**–**	**1,871**	**(166)**	**(44)**	**(232)**	**1,429**
Total comprehensive income	**–**	**15,801**	**(166)**	**(44)**	**(232)**	**15,359**
Dividends	–	(7,773)	–	–	–	(7,773)
Share repurchase	–	(18,991)	–	–	–	(18,991)
Equity compensation plans, net of transactions in own equity	–	(445)	–	–	–	(445)
Changes in non-controlling interests	–	(2)	–	–	–	(2)
At 31 December 2021	**160**	**34,161**	**(60)**	**(60)** [b)]	**(9,712)**	**24,489**

a) The entire amount transferred to the income statement was reported in other financial income (expense).
b) The remaining cross-currency swaps expired on 4 March 2021 (see Note 31) and therefore the hedging reserves no longer included any costs for hedging instruments at 31 December 2021.

Share repurchase

On 4 November 2021, the Roche Group and Novartis announced an agreement whereby Roche would repurchase 53.3 million Roche shares, with a nominal value of CHF 1.00 each, held by Novartis for a total consideration of CHF 19.0 billion. The repurchased shares would subsequently be cancelled by Roche. On 26 November 2021, an Extraordinary General Meeting of Roche shareholders approved a share capital reduction by CHF 53.3 million from CHF 160.0 million to CHF 106.7 million through the cancellation of all such shares to be repurchased from Novartis. The share repurchase transaction closed on 6 December 2021. At 31 December 2021, the repurchased shares are reported as treasury shares at the repurchase price, including transaction costs, and are scheduled to be cancelled in early 2022 when the necessary legal procedures have been completed.

The transaction was financed through a credit facility from banks for the total repurchase price. This was partly refinanced by a bonds issue of CHF 5.5 billion on 13 December 2021 (see Note 21). As at 31 December 2021 CHF 13.5 billion of the credit facility was outstanding, and further refinancing in the bond market is planned for 2022.

Share capital

At 31 December 2021 the authorised and issued share capital of Roche Holding Ltd, which is the Group's parent company, consisted of 160 million shares with a nominal value of CHF 1.00 each, as in the preceding year. Following the closing of the share repurchase transaction described above on 6 December 2021, 53.3 million shares held by the Group are scheduled to be cancelled in early 2022 when the necessary legal procedures have been completed. Upon cancellation of the shares, the share capital will decrease by CHF 53.3 million from CHF 160.0 million to CHF 106.7 million. The shares are bearer shares and the Group does not maintain a register of shareholders. At 31 December 2021 and 2020, based on information supplied to the Group, a shareholder group with pooled voting rights owned 72,018,000 shares representing 45.01% (2020: 45.01%) of the issued shares (67.50% of the voting power excluding the treasury shares held by the Group on 31 December 2021 and scheduled to be cancelled early 2022). These figures do not include any shares without pooled voting rights that are held outside this group by individual members of the group. On 5 December 2019 the shareholder group announced that it would continue the shareholder pooling agreement existing since 1948 with a modified shareholder composition. The duration of the pool was extended for an indefinite period in 2009. At 31 December 2021 and 2020, based on information supplied to the Group, Ms Maja Oeri, formerly a member of the pool, held 8,091,900 shares independently of the pool, representing 5.057% (2020: 5.057%) of the issued shares (7.58% of the voting power excluding the treasury shares held by the Group on 31 December 2021 and scheduled to be cancelled early 2022). This is further described in Note 32. At 31 December 2020, based on information supplied to the Group, 53,332,863 shares were owned by Novartis Holding AG, Basel (participation below 33⅓%).

Non-voting equity securities *(Genussscheine)*

At 31 December 2021 702,562,700 non-voting equity securities have been authorised and were in issue as in the preceding year. Under Swiss company law these non-voting equity securities have no nominal value, are not part of the share capital and cannot be issued against a contribution which would be shown as an asset in the balance sheet of Roche Holding Ltd. Each non-voting equity security confers the same rights as any of the shares to participate in the net profit and any remaining proceeds from liquidation following repayment of the nominal value of the shares and, if any, participation certificates. In accordance with the law and the Articles of Incorporation of Roche Holding Ltd, the Company is entitled at all times to exchange shares or participation certificates for all or some of the non-voting equity securities without the consent of the bearers thereof.

Dividends

On 16 March 2021 the shareholders approved the distribution of a dividend of CHF 9.10 per share and non-voting equity security (2020: CHF 9.00) in respect of the 2020 business year. The distribution to holders of outstanding shares and non-voting equity securities totalled CHF 7,773 million (2020: CHF 7,700 million) and has been recorded against retained earnings in 2021. The Board of Directors has proposed dividends for the 2021 business year of CHF 9.30 per share and non-voting equity security. This dividend proposal is subject to approval at the Annual General Meeting on 15 March 2022. If approved, this would result in a total distribution to shareholders of CHF 7,526 million, taking into account that no dividend distributions are made for the repurchased shares that are scheduled to be cancelled in early 2022.

Own equity instruments

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

	2021 (millions)	2020 (millions)
Shares	53.3	0
Non-voting equity securities	8.8	9.4
Total	**62.1**	**9.4**

Own equity instruments are recorded within equity at original purchase cost. At 31 December 2021 the fair value of shares was CHF 21.8 billion and the fair value of non-voting equity securities was CHF 3.3 billion. Own equity instruments are held for the Group's potential conversion obligations that may arise from the Group's equity compensation plans (see Note 27). In addition, as described above, 53.3 million repurchased shares are reported as treasury shares as at 31 December 2021 and are scheduled to be cancelled in early 2022 when the necessary legal procedures have been completed.

Reserves

Fair value reserve. At 31 December 2021 the fair value reserve represents the cumulative net change in the fair value of financial assets at fair value through OCI until the asset is sold, impaired or otherwise disposed of.

Hedging reserve. The hedging reserve represents the effective portion of the cumulative net change in the fair value of cash flow hedging instruments related to hedged transactions that have not yet occurred.

Translation reserve. The translation reserve represents the cumulative currency translation differences relating to the consolidation of Group companies that use functional currencies other than Swiss francs.

23. Subsidiaries and associates

Chugai

Effective 1 October 2002 the Roche Group and Chugai completed an alliance to create a leading research-driven Japanese pharmaceutical company, which was formed by the merger of Chugai and Roche's Japanese pharmaceuticals subsidiary, Nippon Roche. The merged company is known as Chugai.

Consolidated subsidiary. Chugai is a fully consolidated subsidiary of the Group. This is based on the Group's interest in Chugai at 31 December 2021 of 61.2% (2020: 61.2%) and the Roche relationship with Chugai that is founded on the Basic Alliance, Licensing and Research Collaboration Agreements.

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. Due to certain consolidation entries there are minor differences between Chugai's stand-alone IFRS results and the results of Chugai as consolidated by the Roche Group in accordance with IFRS.

Chugai summarised financial information in millions of CHF

	2021	2020
Income statement		
Sales [2]	6,685	5,569
Royalties and other operating income [2]	1,673	1,366
Total revenues	**8,358**	**6,935**
Operating profit [2]	3,525	2,654
Balance sheet		
Non-current assets	3,718	3,447
Current assets	8,584	7,211
Non-current liabilities	(208)	(191)
Current liabilities	(2,596)	(2,012)
Total net assets	**9,498**	**8,455**
Cash flows		
Cash flows from operating activities	2,328	1,803
Cash flows from investing activities	(990)	(864)
Cash flows from financing activities	(894)	(875)

Dividends. The dividends distributed to third parties holding Chugai shares during 2021 totalled CHF 319 million (2020: CHF 312 million) and have been recorded against non-controlling interests (see Note 24). Dividends paid by Chugai to Roche are eliminated on consolidation as intercompany items.

Roche's relationship with Chugai. Chugai has entered into certain agreements with Roche, which are discussed below:

(1) Basic Alliance Agreement – As part of the Basic Alliance Agreement signed in December 2001, Roche and Chugai entered into certain arrangements covering the future operation and governance of Chugai. Amongst other matters these cover the following areas:
- The structuring of the alliance.
- Roche's rights as a shareholder.
- Roche's rights to nominate members of Chugai's Board of Directors.
- Certain limitations to Roche's ability to buy or sell Chugai's common stock.

Chugai issues additional shares of common stock in connection with its convertible debt and equity compensation plans, and may issue additional shares for other purposes, which affects Roche's percentage ownership interest. The Basic Alliance Agreement provides, amongst other matters, that Chugai will guarantee Roche's right to maintain its shareholding percentage in Chugai at not less than 50.1%.

(2) Licensing Agreements – Under the Japan Umbrella Rights Agreement signed in December 2001, Chugai has exclusive rights to market Roche's pharmaceutical products in Japan. Chugai has the right of first refusal on the development and marketing in Japan of all development compounds advanced by Roche.

The Rest of the World Umbrella Rights Agreement (excluding Japan and South Korea) signed in May 2002 was revised and the Amended and Restated Rest of the World Umbrella Rights Agreement (excluding Japan, South Korea and Taiwan) was signed in August 2014. Under this Agreement Chugai shall offer and Roche has the right of first refusal on the development and marketing of Chugai's development compounds in markets outside Japan, excluding South Korea and Taiwan.

Further to these agreements, Roche and Chugai have signed a series of separate agreements for certain specific products. Depending on the specific circumstances and the terms of the agreement, this may result in payments on an arm's length basis between Roche and Chugai, for any or all of the following matters:
- Upfront payments, if a right of first refusal to license a product is exercised.
- Milestone payments, dependent upon the achievement of agreed performance targets.
- Royalties on future product sales.

These specific product agreements may also cover the manufacture and supply of the respective products to meet the other party's clinical and/or commercial requirements on an arm's length basis.

(3) Research Collaboration Agreements – Roche and Chugai have entered into research collaboration agreements in the areas of small-molecule synthetic drug research and biotechnology-based drug discovery.

Associates

On 21 December 2021 the Group acquired an interest in Freenome Holdings, Inc. ('Freenome'), a privately owned US company based in South San Francisco, California. The Group's interest in Freenome at 31 December 2021 was 16.3%. This investment has been assessed and is treated as an associate of the Group. The Group accounts for Freenome using the equity method based on Freenome's financial statements that are made available to the Group. The carrying value of the Group's share of Freenome's net assets at 31 December 2021, an asset of CHF 329 million, is included in other non-current assets (see Note 15). There was no impact to the Group from its share of Freenome's results from 21 December to 31 December 2021 included in other financial income (expense) (see Note 4).

24. Non-controlling interests

Changes in equity attributable to non-controlling interests in millions of CHF

	2021	2020
At 1 January	3,432	3,120
Net income recognised in income statement		
– Chugai	985	735
– Other non-controlling interests	20	38
Total net income recognised in income statement	**1,005**	**773**
Equity investments at fair value through OCI	(1)	0
Debt securities at fair value through OCI	0	0
Cash flow hedges	(1)	(10)
Currency translation of foreign operations	(247)	(140)
Remeasurements of defined benefit plans	2	12
Other comprehensive income, net of tax	**(247)**	**(138)**
Total comprehensive income	**758**	**635**
Business combinations	0	0
Dividends to non-controlling shareholders		
– Chugai [23]	(319)	(312)
– Other non-controlling interests	(19)	(18)
Equity compensation plans, net of transactions in own equity	2	5
Changes in non-controlling interests	2	2
At 31 December	**3,856**	**3,432**
Chugai	3,634	3,223
Other non-controlling interests	222	209
Total non-controlling interests	**3,856**	**3,432**

25. Employee benefits

Employee remuneration in millions of CHF

	2021	2020
Wages and salaries	12,144	11,287
Social security costs	1,202	1,105
Defined contribution plans [26]	419	409
Operating expenses for defined benefit plans [26]	678	656
Equity compensation plans [27]	663	713
Termination costs [7]	742	517
Other employee benefits	875	940
Employee remuneration included in operating results	**16,723**	**15,627**
Net interest cost of defined benefit plans [26]	71	101
Total employee remuneration	**16,794**	**15,728**

Other employee benefits consist mainly of life insurance schemes and certain other insurance schemes providing medical coverage and other long-term and short-term disability benefits.

26. Pensions and other post-employment benefits

The Group's objective is to provide attractive and competitive post-employment benefits to employees, while at the same time ensuring that the various plans are appropriately financed and managing any potential impacts on the Group's long-term financial position. Most employees are covered by pension plans sponsored by Group companies. The nature of such plans varies according to legal regulations, fiscal requirements and market practice in the countries in which the employees are employed. Post-employment benefit plans are classified for IFRS as 'defined contribution plans' if the Group pays fixed contributions into a separate fund or to a third-party financial institution and will have no further legal or constructive obligation to pay further contributions. All other plans are classified as 'defined benefit plans'.

Defined contribution plans

Defined contribution plans are funded through payments by employees and by the Group to funds administered by third parties. The Group's expenses for these plans were CHF 419 million (2020: CHF 409 million). No assets or liabilities are recognised in the Group's balance sheet in respect of such plans, apart from regular prepayments and accruals of the contributions withheld from employees' wages and salaries and of the Group's contributions. The Group's major defined contribution plan is the US Roche 401(k) Savings Plan.

Defined benefit plans

Plans are usually established as trusts independent of the Group and are funded by payments from Group companies and by employees. In some cases, notably for the major defined benefit plans in Germany, the plans are unfunded and the Group pays pensions to retired employees directly from its own financial resources. Plans are usually governed by a senior governing body, such as a Board of Trustees, which is typically composed of both employee and employer representatives. Funding of these plans is determined by local regulations using independent actuarial valuations. Separate independent actuarial valuations are prepared in accordance with the requirements of IAS 19 for use in the Group's financial statements. The Group's major pension plans are located in Switzerland, the US and Germany, which in total account for 85% of the Group's defined benefit obligation (2020: 85%).

Pension plans in Switzerland. Current pension arrangements for employees in Switzerland are made through plans governed by the Swiss Federal Occupational Old Age, Survivors and Disability Pension Act ('BVG'). The Group's pension plans are administered by separate legal foundations, which are funded by regular employee and company contributions. The final benefit is contribution based with certain minimum guarantees. Due to these minimum guarantees, the Swiss plans are treated as defined benefit plans for the purposes of these IFRS financial statements, although they have many of the characteristics of defined contribution plans. Where there is an underfunding, this may be remedied by various measures such as increasing employee and company contributions, lowering the interest rate on retirement account balances, reducing prospective benefits and a suspension of the early withdrawal facility.

Pension plans in the US. The Group's major defined benefit plans in the US have been closed to new members since 2007. New employees in the US now join the defined contribution plan. The largest of the remaining defined benefit plans are funded pension plans together with smaller unfunded supplementary retirement plans. The benefits are based on the highest average annual rate of earnings during a specified period and length of employment. The plans are non-contributory for employees, with the Group making periodic contributions to the plans. Where there is an underfunding, this would normally be remedied by additional company contributions. In 2021 and 2020 no such contributions were made by the Group.

Pension plans in Germany. The Group's major pension arrangements in Germany are governed by the Occupational Pensions Act ('BetrAVG'). These plans are unfunded and the Group pays pensions to retired employees directly from its own financial resources. These plans are non-contributory for employees. The benefits are based on final salary and length of employment. These plans have been closed to new members since 2007. They have been replaced by a new plan which is funded by regular employee and company contributions and administered through a contractual trust agreement. The final benefit is contribution based with a minimum guarantee. Due to this minimum guarantee, this plan is treated as a defined benefit plan for the purposes of these IFRS financial statements, although it has many of the characteristics of a defined contribution plan.

Pension plans in the Rest of the World. These represent approximately 10% of the Group's defined benefit obligation (2020: 10%) and consist of a number of smaller plans in various countries. Of these the largest are the pension plans at Chugai, which are independently managed by Chugai, and the main pension plan in the United Kingdom. In 2021 Chugai has made additional voluntary contributions of JPY 1.2 billion to its pension plans (2020: JPY 2.3 billion). The Chugai plans are fully described in Chugai's own IFRS financial statements. The UK pension plan is funded by regular employee and company contributions, with benefits based on final salary and length of employment. This plan has been closed to new members since 2003 and has been replaced with a defined contribution plan.

Other post-employment benefit ('OPEB') plans. These represent approximately 5% of the Group's defined benefit obligation (2020: 5%) and consist of post-employment healthcare and life insurance schemes, mainly in the US. These plans are mainly unfunded and/or are contributory for employees, with the Group reimbursing retired employees directly from its own financial resources. The Group's major OPEB plans in the US have been closed to new members since 2011. Part of the costs of these plans is reimbursable under the Medicare Prescription Drug, Improvement, and Modernization Act of 2003. There is no statutory funding requirement for these plans. The Group is funding these plans to the extent that it is tax efficient. In 2021 and 2020 no contributions were made by the Group to these plans. At 31 December 2021 the IFRS funding status was 65% (2020: 57%), including reimbursement rights, for the funded OPEB plans in the US.

Defined benefit plans: income statement in millions of CHF

			2021			2020
	Pension plans	Other post-employment benefit plans	Total expense	Pension plans	Other post-employment benefit plans	Total expense
Current service cost	695	13	708	644	13	657
Past service (income) cost	(30)	0	(30)	1	0	1
Settlement (gain) loss	0	0	0	(2)	0	(2)
Total operating expenses	**665**	**13**	**678**	**643**	**13**	**656**
Net interest cost of defined benefit plans	53	18	71	78	23	101
Total expense recognised in income statement	**718**	**31**	**749**	**721**	**36**	**757**

Funding status

The funding of the Group's various defined benefit plans is the responsibility of the respective senior governing body, such as a Board of Trustees, and the sponsoring employer, and is managed based on local statutory valuations, which follow the legislation and requirements of the respective jurisdiction in which the plan is established. Qualified independent actuaries carry out statutory actuarial valuations on a regular basis. The actuarial assumptions determining the funding status on the statutory basis are regularly assessed by the local senior governing body. The funding status is closely monitored at a corporate level. The unfunded plans are mainly those in the Group's German affiliates, where the fully reserved pension obligations are used for self-financing of the local affiliate's operations.

The IFRS funding status of the funded defined benefit plans increased to 105% (2020: 94%).

Reimbursement rights are linked to the post-employment medical plans in the US and represent the expected reimbursement of the medical expenditure provided under the Medicare Prescription Drug, Improvement, and Modernization Act of 2003.

Defined benefit plans: funding status in millions of CHF

			2021			2020
	Pension plans	Other post-employment benefit plans	Total	Pension plans	Other post-employment benefit plans	Total
Funded plans						
– Fair value of plan assets	18,817	347	19,164	17,639	328	17,967
– Defined benefit obligation	(17,609)	(683)	(18,292)	(18,290)	(757)	(19,047)
Over (under) funding	**1,208**	**(336)**	**872**	**(651)**	**(429)**	**(1,080)**
Unfunded plans						
– Defined benefit obligation	(5,211)	(371)	(5,582)	(5,506)	(396)	(5,902)
Total funding status	**(4,003)**	**(707)**	**(4,710)**	**(6,157)**	**(825)**	**(6,982)**
Limit on asset recognition	(3)	0	(3)	0	0	0
Reimbursement rights	–	108	108	–	118	118
Net recognised asset (liability)	**(4,006)**	**(599)**	**(4,605)**	**(6,157)**	**(707)**	**(6,864)**
Reported in balance sheet						
– Defined benefit plan assets	1,390	108	1,498	849	118	967
– Defined benefit plan liabilities	(5,396)	(707)	(6,103)	(7,006)	(825)	(7,831)

Plan assets

The responsibility for the investment strategies of funded plans is with the respective senior governance body, such as the Board of Trustees. Asset-liability studies are performed regularly for all major pension plans. These studies examine the obligations from post-employment benefit plans, and evaluate various investment strategies with respect to key financial measures such as expected returns, expected risks, expected contributions, and expected funded status of the plan in an interdependent way. The goal of an asset-liability study is to select an appropriate asset allocation for the funds held within the plan. The investment strategy is developed to optimise expected returns, to manage risks and to contain fluctuations in the statutory funded status. Asset-liability studies include strategies to match the cash flows of the assets with the plan obligations. The Group currently does not use longevity swaps to manage longevity risk.

Plan assets are managed using internal and external asset managers. The actual performance is continually monitored by the pension fund governance bodies as well as being closely monitored at a corporate level. In these financial statements the difference between the interest income and actual return on plan assets is a remeasurement that is recorded directly to other comprehensive income. In 2021 the actual return on plan assets was a gain of CHF 1,264 million (2020: gain of CHF 1,452 million), which excludes the actual return on reimbursement rights.

The recognition of plan assets is limited to the present value of any economic benefits available from refunds from the plans or reductions in future contributions to the plans.

Defined benefit plans: fair value of plan assets and reimbursement rights in millions of CHF

			2021			2020
	Pension plans	Other post-employment benefit plans	Total	Pension plans	Other post-employment benefit plans	Total
At 1 January	17,639	446	18,085	16,835	485	17,320
Interest income on plan assets and reimbursement rights	124	11	135	155	15	170
Remeasurements on plan assets and reimbursement rights	1,088	30	1,118	1,228	53	1,281
Currency translation effects	83	13	96	(467)	(45)	(512)
Employer contributions	413	0	413	412	(2)	410
Employee contributions	161	7	168	157	8	165
Benefits paid – funded plans	(687)	(50)	(737)	(621)	(66)	(687)
Benefits paid – settlements	0	0	0	(56)	0	(56)
Administration costs	(4)	(2)	(6)	(4)	(2)	(6)
At 31 December	**18,817**	**455**	**19,272**	**17,639**	**446**	**18,085**

Defined benefit plans: composition of plan assets in millions of CHF

	2021	2020
Equity securities	6,036	5,059
Debt securities	7,642	7,577
Property	2,587	2,444
Cash and money market instruments	282	432
Other investments	2,617	2,455
At 31 December	**19,164**	**17,967**

Assets are invested in a variety of different classes in order to maintain a balance between risk and return as follows:
- Equity and debt securities which mainly have quoted market prices (Level 1 fair value hierarchy).
- Property which is primarily in private and commercial property funds which mainly have other observable inputs (Level 2 fair value hierarchy).
- Cash and money market instruments which are mainly invested with financial institutions with a credit rating no lower than A.
- Other investments which mainly consist of alternatives, mortgages, commodities and insurance contracts. These are used for risk management purposes and mainly have other observable inputs (Level 2 fair value hierarchy) and unobservable inputs (Level 3 fair value hierarchy).

Included within the fair value of plan assets are the Group's shares and non-voting securities with a fair value of CHF 191 million (2020: CHF 156 million) and debt instruments issued by the Group with a fair value of CHF 13 million (2020: CHF 5 million).

Defined benefit obligation

The defined benefit obligation is calculated using the projected unit credit method. This reflects service rendered by employees to the dates of valuation and incorporates actuarial assumptions primarily regarding discount rates used in determining the present value of benefits, projected rates of remuneration growth and mortality rates. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds or government bonds in countries where there is not a deep market in corporate bonds. The corporate or government bonds are denominated in the currency in which the benefits will be paid, and have maturity terms approximating to the terms of the related pension obligation.

The Group's final salary-based defined benefit pension plans in the US, Germany and the United Kingdom have been closed to new participants. Active employees that had been members of these pension plans at the time these were closed to new participants continue to accrue benefits in the final salary-based defined benefit pension plans. New employees in the US and UK now join the Group's defined contribution plans, while new employees in Germany join the contribution-based plan with a minimum guarantee. As a result, the proportion of the defined benefit obligation which relates to these closed plans is expected to decrease in the future. The defined benefit pension plans in Switzerland, where the final benefit is contribution based with a minimum guarantee, remain open to new employees.

Defined benefit plans: defined benefit obligation in millions of CHF

			2021			2020
	Pension plans	Other post-employment benefit plans	Total	Pension plans	Other post-employment benefit plans	Total
At 1 January	23,796	1,153	24,949	22,581	1,274	23,855
Current service cost	695	13	708	644	13	657
Interest cost	177	29	206	233	38	271
Remeasurements:						
– Demographic assumptions	(452)	(14)	(466)	(27)	(35)	(62)
– Financial assumptions	(725)	(134)	(859)	1,288	62	1,350
– Experience adjustments	203	18	221	312	(4)	308
Currency translation effects	(122)	42	(80)	(537)	(123)	(660)
Employee contributions	161	7	168	157	8	165
Benefits paid – funded plans	(687)	(50)	(737)	(621)	(66)	(687)
Benefits paid – unfunded plans	(196)	(10)	(206)	(177)	(14)	(191)
Benefits paid – settlements	0	0	0	(56)	0	(56)
Past service (income) cost	(30)	0	(30)	1	0	1
Settlement (gain) loss	0	0	0	(2)	0	(2)
At 31 December	**22,820**	**1,054**	**23,874**	**23,796**	**1,153**	**24,949**
Composition of plan						
Active members	11,841	282	12,123	12,530	323	12,853
Deferred vested members	1,942	7	1,949	1,975	8	1,983
Retired members	9,037	765	9,802	9,291	822	10,113
At 31 December	**22,820**	**1,054**	**23,874**	**23,796**	**1,153**	**24,949**
Plans by geography						
Switzerland	11,195	–	11,195	11,683	–	11,683
United States	4,233	1,013	5,246	4,290	1,111	5,401
Germany	4,920	–	4,920	5,221	–	5,221
Rest of the World	2,472	41	2,513	2,602	42	2,644
At 31 December	**22,820**	**1,054**	**23,874**	**23,796**	**1,153**	**24,949**
Duration in years	14.7	12.2	14.6	15.9	12.7	15.8

Actuarial assumptions

The actuarial assumptions used in these financial statements are based on the requirements set out in IAS 19 'Employee Benefits'. They are unbiased and mutually compatible estimates of variables that determine the ultimate cost of providing post-employment benefits. They are set on an annual basis by local management, based on advice from actuaries, and are subject to approval by corporate management and the Group's actuaries. Actuarial assumptions consist of demographic assumptions on matters such as mortality and employee turnover, and financial assumptions on matters such as interest rates, salary and benefit levels, inflation rates and costs of medical benefits. The actuarial assumptions vary based upon local economic and social conditions. The actuarial assumptions used in the various statutory valuations may differ from these based on local legal and regulatory requirements.

Demographic assumptions. The most significant demographic assumptions relate to mortality rates. The Group's actuaries use mortality tables which take into account historic patterns and expected changes, such as further increases in longevity. Rates of employee turnover, disability and early retirement are based on historical behaviour. The average life expectancy assumed now for an individual at the age of 65 is as follows:

Defined benefit plans: average life expectancy at the age of 65 for major schemes in years

			Male		Female
Country	Mortality table	2021	2020	2021	2020
Switzerland	BVG 2020 projected with CMI model	21.7	21.6	23.4	23.6
United States	Pri-2012 projected with MP-2020	21.8	22.0	23.2	23.4
Germany	Heubeck tables 2018 G projected with CMI model	19.6	19.5	23.0	22.9

In 2021 the mortality assumptions used for the pension plans in Switzerland were based on BVG 2020 (2020: BVG 2015) applying the Continuous Mortality Investigation ('CMI') model. A long-term rate of 1.25% (2020: 1.25%) was used for longevity improvements.

The Group used as mortality assumptions for the pension plans in Germany Heubeck tables 2018 G applying the CMI model with a long-term rate of 1.25% for longevity improvements (2020: 1.25%).

Financial assumptions. These are based on market expectations for the period over which the obligations are to be settled. The assumptions used in the actuarial valuations are shown below.

Defined benefit plans: financial actuarial assumptions

		2021		2020
	Weighted average	Range	Weighted average	Range
Discount rates	1.14%	0.20%-3.40%	0.82%	0.00%-6.10%
Expected rates of salary increases	2.41%	0.00%-4.25%	2.37%	0.00%-4.50%
Expected rates of pension increases	0.69%	0.00%-3.00%	0.55%	0.00%-3.00%
Expected inflation rates	2.24%	2.00%-3.20%	1.97%	1.25%-3.50%
Immediate medical cost trend rate	5.79%	5.54%-5.80%	5.63%	5.61%-5.80%
Ultimate medical cost trend rate (in 2038)	4.00%	4.00%-4.00%	4.35%	4.00%-4.50%

Discount rates are determined with reference to interest rates on high-quality corporate bonds or government bonds in countries where there is not a deep market in corporate bonds. Expected rates of salary increases are based on expected inflation rates with an adjustment to reflect the Group's latest expectation of long-term real salary increases taking into account expected inflation rates, amongst other factors. Expected rates of pension increases are generally linked to the expected inflation rate or the funding status of the plan. Expected inflation rates are derived by looking at the level of inflation implied by the financial markets in conjunction with the economists' price inflation forecasts, historic price inflation as well as other economic variables and circumstances. Medical cost trend rates take into account the benefits set out in the plan terms and expected future changes in medical costs. Since the Group's major post-employment medical plans are for US employees, these rates are driven by developments in the US.

Sensitivity analysis. The measurement of the net defined benefit obligation is particularly sensitive to changes in the discount rate, inflation rate, expected mortality and medical cost trend rate assumptions. The following table summarises the impact of a change in those assumptions on the present value of the defined benefit obligation.

Defined benefit plans: sensitivity of defined benefit obligation to actuarial assumptions in millions of CHF

	2021	2020
Increase (decrease) in defined benefit obligation		
Life expectancy		
– 1 year increase	735	775
Discount rates		
– 0.25% increase	(817)	(942)
– 0.25% decrease	869	1,005
Expected inflation rates		
– 0.25% increase	247	264
– 0.25% decrease	(235)	(250)
Immediate medical cost trend rate		
– 1.00% increase	109	127
– 1.00% decrease	(91)	(107)

Each sensitivity analysis considers the change in one assumption at a time leaving the other assumptions unchanged. This approach shows the isolated effect of changing one individual assumption but does not take into account that some assumptions are related. The method used to carry out the sensitivity analysis is the same as in the prior year.

Cash flows

The Group incurred cash flows from its defined benefit plans as shown in the table below.

Defined benefit plans: cash flows in millions of CHF

	2021	2020
Employer contributions, net of reimbursements – funded plans	(413)	(410)
Benefits paid – unfunded plans	(206)	(191)
Total cash inflow (outflow)	**(619)**	**(601)**

Based on the most recent actuarial valuations, the Group expects that employer contributions for funded plans in 2022 will be approximately CHF 411 million, which includes an estimated CHF 10 million of additional voluntary contributions related to the Chugai benefit plans. Benefits paid for unfunded plans in 2022 are estimated to be approximately CHF 204 million, which mostly relate to the German defined benefit plans.

27. Equity compensation plans

The Group operates several equity compensation plans, including separate plans at Chugai. IFRS 2 'Share-based Payment' requires that the fair value of all equity compensation plan awards granted to employees be estimated at grant date and recorded as an expense over the vesting period.

Expenses for equity compensation plans in millions of CHF

	2021	2020
Cost of sales	106	110
Marketing and distribution	140	151
Research and development	277	300
General and administration	140	152
Total operating expenses	**663**	**713**
Equity compensation plans		
Roche Stock-settled Stock Appreciation Rights	122	131
Roche Restricted Stock Unit Plan	494	542
Roche Performance Share Plan	0	2
Roche Connect	36	27
Roche Option Plan	1	1
Bonus Stock Awards	7	7
Chugai plans	3	3
Total operating expenses	**663**	**713**
Of which		
– Equity-settled	663	713
– Cash-settled	–	–

Cash inflow (outflow) from equity compensation plans in millions of CHF

	2021	2020
Roche Option Plan exercises	43	28
Chugai plans' exercises	3	9
Roche Connect costs	(36)	(27)
Transactions in own equity	(1,416)	(2,136)
Total cash inflow (outflow) from equity-settled equity compensation plans, net of transactions in own equity	**(1,406)**	**(2,126)**

The net cash outflow from transactions in own equity mainly arises from sales and purchases of equity instruments which are held for the Group's potential conversion obligations that may arise from the Group's equity compensation plans (see Note 22).

Equity compensation plans

Roche Stock-settled Stock Appreciation Rights. The Group issues Stock-settled Stock Appreciation Rights (S-SARs) to certain directors, management and employees selected at the discretion of the Group. The S-SARs give employees the right to receive non-voting equity securities reflecting the value of any appreciation in the market price of the non-voting equity securities between the grant date and the exercise date. Under the Roche S-SAR Plan 180 million S-SARs will be available for issuance over a ten-year period, starting from 2013. The rights, which are non-tradable equity-settled awards, have a ten-year duration and vest on a phased basis over four years. Rights granted before 2019 have a seven-year duration and vested on a phased basis over three years.

Roche S-SARs – movement in number of rights outstanding

	2021		2020	
	Number of rights (thousands)	Weighted average exercise price (CHF)	Number of rights (thousands)	Weighted average exercise price (CHF)
Outstanding at 1 January	31,480	263.31	32,080	247.23
Granted	7,737	308.09	8,353	308.27
Forfeited	(1,683)	296.80	(847)	275.98
Exercised	(8,965)	252.08	(8,089)	244.74
Expired	(34)	263.90	(17)	216.71
Outstanding at 31 December	**28,535**	**277.00**	**31,480**	**263.31**
– of which exercisable	13,433	249.79	15,429	247.47

Roche S-SARs – terms of rights outstanding at 31 December 2021

Year of grant	Number outstanding (thousands)	Weighted average years remaining contractual life	Rights outstanding Weighted average exercise price (CHF)	Number exercisable (thousands)	Rights exercisable Weighted average exercise price (CHF)
2015	651	0.27	257.12	651	257.12
2016	2,078	1.27	250.91	2,078	250.91
2017	3,064	2.26	251.46	3,064	251.46
2018	4,561	3.26	221.35	4,561	221.35
2019	4,713	7.28	272.32	1,743	272.43
2020	6,424	8.27	308.30	1,286	308.32
2021	7,044	9.27	308.24	50	306.45
Total	**28,535**	**6.22**	**277.00**	**13,433**	**249.79**

Roche Restricted Stock Unit Plan. The Group issues Restricted Stock Units (RSUs) awards to certain directors, management and employees selected at the discretion of the Group. The RSUs, which are non-tradable, represent the right to receive non-voting equity securities. RSUs vest on a phased basis over four years, subject to performance conditions, if any. RSUs granted before 2019 vest after a three-year period. There are currently no performance conditions on outstanding RSUs at 31 December 2021. Under the Roche RSU Plan 20 million non-voting equity securities will be available for issuance over a ten-year period, starting from 2013. The Roche RSU Plan also includes a value adjustment which will be an amount equivalent to the sum of shareholder distributions made by the Group during the vesting period attributable to the number of non-voting equity securities for which an individual award has been granted.

Roche RSUs – movement in number of awards outstanding

	2021 Number of awards (thousands)	2020 Number of awards (thousands)
Outstanding at 1 January	4,245	4,162
Granted	2,125	2,022
Forfeited	(541)	(338)
Transferred to participants	(2,216)	(1,601)
Outstanding at 31 December	**3,613**	**4,245**
– of which vested and transferable	1	1

Roche Connect. This programme enables all employees worldwide, except for those in the US and certain other countries, to make regular deductions from their salaries to purchase non-voting equity securities. It is administered by independent third parties. The Group contributes to the programme, which allows the employees to purchase non-voting equity securities at a discount (usually 20%). The administrator purchases the necessary non-voting equity securities directly from the market. At 31 December 2021 the administrator held 3.4 million non-voting equity securities (2020: 3.3 million). In 2021 the cost of the plan was CHF 36 million (2020: CHF 27 million).

Roche Option Plan. This programme is used in countries where S-SARs are not used. Awards under this plan give employees the right to purchase non-voting equity securities at an exercise price specified at the grant date. The options, which are non-tradable equity-settled awards, have a ten-year duration and vest on a phased basis over four years. Options granted before 2019 have a seven-year duration and vested on a phased basis over three years.

Roche Option Plan – movement in number of options outstanding

	2021 Number of options (thousands)	2021 Weighted average exercise price (CHF)	2020 Number of options (thousands)	2020 Weighted average exercise price (CHF)
Outstanding at 1 January	446	251.14	540	246.52
Granted	28	311.03	28	308.01
Forfeited	(6)	270.75	(8)	252.23
Exercised	(173)	247.71	(113)	243.69
Expired	(1)	263.20	(1)	214.00
Outstanding at 31 December	**294**	**258.47**	**446**	**251.14**
– of which exercisable	208	244.45	302	246.67

Roche Option Plan – terms of options outstanding at 31 December 2021

Year of grant	Options outstanding Number outstanding (thousands)	Options outstanding Weighted average years remaining contractual life	Options outstanding Weighted average exercise price (CHF)	Options exercisable Number exercisable (thousands)	Options exercisable Weighted average exercise price (CHF)
2015	17	0.25	256.10	17	256.10
2016	32	1.26	250.27	32	250.27
2017	47	2.28	251.14	47	251.14
2018	80	3.28	222.62	80	222.62
2019	67	7.25	271.65	28	271.65
2020	24	8.25	308.01	4	308.05
2021	27	9.29	311.16	0	311.16
Total	**294**	**4.58**	**258.47**	**208**	**244.45**

The weighted average share price of Roche non-voting equity securities during the year was CHF 336.79 (2020: CHF 321.93).

Bonus Stock Awards. The Chairman of the Board of Directors and the Chief Executive Officer will be granted Bonus Stock Awards in lieu of their cash-settled bonus for the financial year 2021. These are subject to approval by the 2022 Annual General Meeting in March 2022 and will be issued in March 2022. The number of awards and fair value per award will be calculated at the grant date.

Fair value measurement

The inputs used in the measurement of the fair values at grant date of the equity compensation plans were as follows:

Fair value measurement in 2021

	Roche Stock-settled Stock Appreciation Rights	Roche Restricted Stock Unit Plan	Roche Option Plan
Vesting period	Progressively over 4 years	Progressively over 4 years	Progressively over 4 years
Contractual life	10 years	n/a	10 years
Number granted during year (thousands)	7,737	2,125	28
Weighted average fair value (CHF)	21	310	22
Model used	Binomial	Market price[a]	Binomial
Inputs to option pricing model			
– Share price at grant date (CHF)	308	310	311
– Exercise price (CHF)	308	–	311
– Expected volatility[b]	19.7%	n/a	19.7%
– Expected dividend yield	6.7%	n/a	6.7%
– Early exercise factor[c]	1.33	n/a	1.33
– Expected exit rate	7.7%	n/a	7.7%

a) The fair value of the Roche RSUs is equivalent to the share price on the date of grant.
b) Volatility was determined primarily by reference to historically observed prices of the underlying equity. Risk-free interest rates are derived from zero coupon swap rates at the grant date taken from Datastream.
c) The early exercise factor describes the ratio between the expected market price at the exercise date and the exercise price at which early exercises can be expected, based on historically observed behaviour.

28. Leases

The Group as a lessee

The Group enters into leasing transaction as a lessee mainly for reasons of convenience and flexibility. The Group has good cash generation ability and it enjoys strong long-term investment grade credit ratings. Therefore it typically does not enter into leasing arrangements for financing considerations. The main areas of leases that the Group has entered into are for:

- Property – offices and apartments. These are a small number of leases, but represent most of the value.
- Cars – mostly for sales representatives.
- Office equipment – photocopiers and similar.

The right-of-use assets reported for the Group's leases are shown in the table below.

Right-of-use assets: movements in carrying value of assets in millions of CHF

	Land	Buildings and land improvements	Machinery and equipment	Total
Year ended 31 December 2020				
At 1 January 2020	46	930	169	1,145
Business combinations	0	0	0	0
Asset acquisitions	0	1	0	1
Additions	0	360	110	470
Disposals	0	(42)	(14)	(56)
Depreciation	(3)	(266)	(88)	(357)
Impairment reversal (charge)	0	(5)	0	(5)
Other	0	(16)	0	(16)
Currency translation effects	(1)	(58)	(11)	(70)
At 31 December 2020	**42**	**904**	**166**	**1,112**
Cost	47	1,340	292	1,679
Accumulated depreciation and impairment	(5)	(436)	(126)	(567)
Net book value	**42**	**904**	**166**	**1,112**
Year ended 31 December 2021				
At 1 January 2021	42	904	166	1,112
Business combinations [6]	0	21	1	22
Additions	3	471	101	575
Disposals	0	(32)	(15)	(47)
Depreciation	(3)	(270)	(90)	(363)
Impairment reversal (charge)	0	(5)	0	(5)
Other	7	(50)	1	(42)
Currency translation effects	0	1	(4)	(3)
At 31 December 2021	**49**	**1,040**	**160**	**1,249**
Cost	63	1,587	310	1,960
Accumulated depreciation and impairment	(14)	(547)	(150)	(711)
Net book value	**49**	**1,040**	**160**	**1,249**

Classification of impairment reversal (charge) of right-of-use assets in millions of CHF

	2021	2020
Cost of sales	0	(1)
Marketing and distribution	0	0
Research and development	0	(1)
General and administration	(5)	(3)
Total impairment reversal (charge)	**(5)**	**(5)**

Impairment charges for right-of-use assets were mainly related to global restructuring plans (see Note 7) and in 2021 also to office closures.

Liabilities reported for the Group's leases are shown in the table below.

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

	2021	2020
At 1 January	1,195	1,219
Increase from new lease arrangements	570	469
Repayment of lease liabilities	(396)	(387)
Business combinations	26	0
Asset acquisitions	0	1
Disposals	(53)	(70)
Interest expense on lease liabilities [4]	16	18
Other	0	19
Currency translation effects	(4)	(74)
At 31 December	**1,354**	**1,195**
Non-current lease liabilities [18]	1,025	876
Current lease liabilities [19]	329	319
Total lease liabilities	**1,354**	**1,195**

The maturity analysis of lease liabilities is given in Note 31 in the 'Liquidity risk' section.

Short-term leases and leases of low-value assets are accounted for using the recognition exemption permitted by IFRS 16. Expenses for short-term leases are recognised on a straight-line basis. These mainly include short-term property leases for employee apartments. The amount reported in 2021 was CHF 37 million (2020: CHF 43 million). Expenses for leases of low-value assets are recognised on a straight-line basis. These mainly include certain office equipment. The amount reported in 2021 was CHF 15 million (2020: CHF 17 million).

Expenses for variable lease payments not included in the measurement of lease liabilities was CHF 35 million in 2021 (2020: CHF 34 million). In 2021 there was no income from subleasing right-of-use assets (2020: CHF 8 million). In 2021 and 2020 the Group did not enter into any sale and leaseback transactions.

The major cash flows in respect of leases where the Group is the lessee are shown in the table below.

Leases: cash flows in millions of CHF

	2021	2020
Included in cash flows from operating activities	(87)	(94)
Included in cash flows from financing activities	(398)	(387)
Total lease payments	**(485)**	**(481)**

Cash flows from operating activities include cash flows from short-term lease, leases of low-value assets and variable lease payments. Cash flows from financing activities include the payment of interest and the principal portion of lease liabilities as well as prepayments made before the lease commencement date.

Leases committed and not yet commenced. In July 2019 Foundation Medicine, Inc. ('FMI') entered into a binding lease agreement with a third party for the lease of laboratory and office space in a building in Boston, US, which is to be constructed by the landlord at the location currently known as 'Boston Seaport'. According to the agreement FMI is committed to lease the building for 15 years. The commencement date of the lease is currently expected to be in the first half of 2023. The initial right-of-use asset and lease liability related to this agreement are estimated to be approximately USD 637 million based on current assumptions.

In November 2021 Genentech, Inc. ('Genentech') entered into a binding lease agreement with a third party for the lease of laboratory and office space in a building in South San Francisco, US, which is to be constructed by the landlord at the location currently known as '751 Gateway'. According to the agreement Genentech is committed to lease the building for seven years. The commencement date of the lease is not yet defined as it is subject to landlord deliveries, but cannot be earlier than March 2024. The initial right-of-use asset and lease liability related to this agreement are estimated to be approximately USD 126 million based on current assumptions.

The Group as a lessor

In the Diagnostics Division the Group enters into certain contracts which include placement of diagnostics instruments, supply of reagents and other consumables, and servicing arrangements. Depending upon the term of the agreement, the instrument placement may result in either a finance lease or an operating lease. The Group performs a thorough customer assessment before new leasing agreements are signed. Usually the Group also retains rights to terminate or modify contracts if certain conditions are not met.

Finance leases. Certain assets, mainly diagnostics instruments, are leased to third parties through finance lease arrangements. Such assets are reported as receivables at an amount equal to the net investment in the lease. Income from finance leases is recognised as revenue at amounts that represent the fair value of the instrument, which approximates the present value of the minimum lease payments under the arrangement. Finance income for finance lease arrangements longer than twelve months is deferred and subsequently recognised based on a pattern that approximates the use of the effective interest method and recorded in royalty and other operating income.

The following amounts were recorded as income in respect of finance leases.

Finance leases: selected items of income in millions of CHF

	2021	2020
Selling profit as the difference between sales and cost of sales	6	7
Finance income on the net investment in the lease	6	6

Currently the Group does not have any income from the variable lease payments of finance leases. The carrying amount of the net investment in finance leases reported as receivables was CHF 144 million (2020: CHF 134 million).

Finance leases: future minimum lease receipts under non-cancellable leases in millions of CHF

	Gross investment in lease		Present value of minimum lease receipts	
	2021	2020	2021	2020
Within one year	61	60	54	54
Between one and two years	37	32	35	29
Between two and three years	27	25	25	23
Between three and four years	19	15	18	14
Between four and five years	9	10	8	9
More than five years	4	5	4	4
Total	**157**	**147**	**144**	**133**
Unearned finance income	(13)	(13)	n/a	n/a
Unguaranteed residual value	n/a	n/a	0	1
Net investment in lease	**144**	**134**	**144**	**134**

Operating leases. Certain assets, mainly diagnostics instruments, are leased to third parties through operating lease arrangements. Income from operating leases is recognised as revenue on a straight-line basis over the lease term or, when lease revenue is entirely based on variable lease payments and subject to subsequent reagent sales, as the performance obligations for reagents are satisfied.

Lease income in 2021 was CHF 817 million (2020: CHF 788 million) and was included in sales. Of this CHF 584 million (2020: CHF 596 million) relates to variable lease payments not depending upon an index or rate.

Leased assets are reported within property, plant and equipment, as shown in the table below.

Machinery and equipment subject to operating leases: movements in carrying value of assets in millions of CHF

	Leased out	Own use	2021 Total	Leased out	Own use	2020 Total
At 1 January						
Cost	5,508	15,619	21,127	5,458	15,731	21,189
Accumulated depreciation and impairment	(3,827)	(10,112)	(13,939)	(3,697)	(10,192)	(13,889)
Net book value	**1,681**	**5,507**	**7,188**	**1,761**	**5,539**	**7,300**
Year ended 31 December						
At 1 January	1,681	5,507	7,188	1,761	5,539	7,300
Business combinations	0	36	36	0	0	0
Asset acquisitions	0	0	0	0	1	1
Additions	714	323	1,037	739	308	1,047
Disposals	(42)	(29)	(71)	(45)	(37)	(82)
Transfers	0	1,089	1,089	1	1,108	1,109
Depreciation charge	(697)	(1,015)	(1,712)	(668)	(980)	(1,648)
Impairment reversal (charge)	0	(74)	(74)	0	35	35
Other	11	(92)	(81)	16	(245)	(229)
Currency translation effects	(40)	(65)	(105)	(123)	(222)	(345)
At 31 December	**1,627**	**5,680**	**7,307**	**1,681**	**5,507**	**7,188**
Cost	5,641	16,357	21,998	5,508	15,619	21,127
Accumulated depreciation and impairment	(4,014)	(10,677)	(14,691)	(3,827)	(10,112)	(13,939)
Net book value	**1,627**	**5,680**	**7,307**	**1,681**	**5,507**	**7,188**

The undiscounted amounts expected to be received from non-cancellable operating leases are shown in the table below.

Operating leases: future minimum lease receipts under non-cancellable leases in millions of CHF

	2021	2020
Within one year	160	165
Between one and two years	118	116
Between two and three years	92	80
Between three and four years	59	49
Between four and five years	24	26
More than five years	9	12
Total minimum receipts	**462**	**448**

29. Earnings per share and non-voting equity security

Basic earnings per share and non-voting equity security

	2021	2020
Net income attributable to Roche shareholders (CHF millions)	**13,930**	**14,295**
Number of shares (millions) [22]	160	160
Number of non-voting equity securities (millions) [22]	703	703
Weighted average number of own shares and non-voting equity securities held (millions)	(13)	(8)
Weighted average number of outstanding shares and non-voting equity securities used to calculate basic earnings per share (millions)	**850**	**855**
Basic earnings per share and non-voting equity security (CHF)	**16.38**	**16.73**

Diluted earnings per share and non-voting equity security

	2021	2020
Net income attributable to Roche shareholders (CHF millions)	13,930	14,295
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)	**13,929**	**14,294**
Weighted average number of shares and non-voting equity securities in issue (millions)	850	855
Adjustment for assumed exercise of equity compensation plans, where dilutive (millions)	10	10
Weighted average number of outstanding shares and non-voting equity securities used to calculate diluted earnings per share (millions)	**860**	**865**
Diluted earnings per share and non-voting equity security (CHF)	**16.20**	**16.52**

30. Statement of cash flows

Cash flows from operating activities

Cash flows from operating activities arise from the Group's primary activities in the Pharmaceuticals and Diagnostics Divisions. These are calculated using the indirect method by adjusting the Group's operating profit for any operating income and expenses that are not cash flows (for example depreciation, amortisation and impairment) in order to derive the cash generated from operations. This and other operating cash flows are shown in the statement of cash flows. Operating cash flows also include income taxes paid on all activities.

Cash generated from operations in millions of CHF

	2021	2020
Net income	14,935	15,068
Add back non-operating (income) expense		
– Financing costs [4]	418	553
– Other financial (income) expense [4]	339	25
– Income taxes [5]	2,463	2,897
Operating profit	**18,155**	**18,543**
Depreciation of property, plant and equipment [8]	2,524	2,451
Depreciation of right-of-use assets [28]	363	357
Amortisation of intangible assets [10]	1,556	1,750
Impairment of goodwill [9]	0	247
Impairment of intangible assets [10]	651	425
Impairment (reversal) of property, plant and equipment [8]	(3)	(26)
Impairment (reversal) of right-of-use assets [28]	5	5
Operating (income) expense for defined benefit plans [26]	678	656
Operating expense for equity-settled equity compensation plans [27]	663	713
Net (income) expense for provisions	1,864	459
Bad debt (reversal) expense	44	54
Inventory write-downs	620	257
Inventory fair value adjustments	11	0
Net (gain) loss on disposal of products	(496)	(239)
Other adjustments	(35)	(38)
Cash generated from operations	**26,600**	**25,614**

Cash flows from investing activities

Cash flows from investing activities are principally those arising from the Group's investments in property, plant and equipment and intangible assets, and from the acquisition and divestment of subsidiaries, associates and businesses. Cash flows connected with the Group's portfolio of marketable securities and other investments are also included, as are any interest and dividend payments received in respect of these securities and investments. These cash flows indicate the Group's net reinvestment in its operating assets and the cash flow effects of business combinations and divestments, as well as the cash generated by the Group's other investments.

Interest received (paid) and dividends received on marketable securities and other investments in millions of CHF

	2021	2020
Interest received (paid)	(2)	16
Dividends received	0	0
Total	**(2)**	**16**

Cash flows from financing activities

Cash flows from financing activities are primarily the proceeds from the issue and repayment of the Group's equity and debt instruments. They also include interest payments and dividend payments on these instruments. Cash flows from short-term financing are also included. These cash flows indicate the Group's transactions with the providers of its equity and debt financing. Cash flows from lease payments are also included within financing activities. Cash flows from short-term borrowings are shown as a net movement, as these consist of a large number of transactions with short maturity.

Dividends paid in millions of CHF

	2021	2020
Dividends to Roche Group shareholders	(7,773)	(7,700)
Dividends to non-controlling shareholders		
– Chugai	(319)	(312)
– Other non-controlling interests	(19)	(18)
Dividend withholding tax	(21)	66
Total	**(8,132)**	**(7,964)**

Liabilities arising from financing activities

Movements in carrying value of recognised assets (liabilities) in millions of CHF

	Debt [21]	Interest payable [19]	Principal portion of lease liabilities	Derivative financial instruments, net [16, 19, 31]	Cash collateral receivables (payables), net [16, 19, 31]	Total
Year ended 31 December 2020						
At 1 January 2020	(14,363)	(176)	(1,219)	(88)	148	(15,698)
Cash flows						
– Outflow (inflow)	(659)	422	369	(257)	(300)	(425)
Non-cash changes						
– Financing costs	(9)	(411)	(18)	0	0	(438)
– Business combinations	0	0	0	0	0	0
– Asset acquisitions	(10)	0	(1)	0	0	(11)
– Fair value and other	(1)	(8)	(399)	455	0	47
– Foreign exchange rates	826	13	75	2	(9)	907
At 31 December 2020	**(14,216)**	**(160)**	**(1,193)**	**112**	**(161)**	**(15,618)**
Year ended 31 December 2021						
At 1 January 2021	(14,216)	(160)	(1,193)	112	(161)	(15,618)
Cash flows						
– Outflow (inflow)	(16,730)	405	382	374	148	(15,421)
Non-cash changes						
– Financing costs	(8)	(317)	(16)	0	0	(341)
– Business combinations	(69)	(1)	(26)	0	0	(96)
– Asset acquisitions	0	0	0	0	0	0
– Fair value and other	26	(25)	(502)	(567)	(1)	(1,069)
– Foreign exchange rates	(201)	(4)	2	8	(3)	(198)
At 31 December 2021	**(31,198)**	**(102)**	**(1,353)**	**(73)**	**(17)**	**(32,743)**

Significant non-cash transactions

In 2021 there were no significant non-cash transactions (2020: none) except for the leasing transactions where the Group is a lessee (see Note 28).

31. Risk management

Group risk management

Risk management is a fundamental element of the Group's business practice on all levels and encompasses different types of risks. At Group level, risk management is an integral part of the long-term forecasting and controlling processes. Material risks are monitored and regularly discussed with the Corporate Executive Committee and the Audit Committee of the Board of Directors.

Financial risk management

The Group is exposed to various financial risks arising from its underlying operations and corporate finance activities. The Group's financial risk exposures are predominantly related to changes in foreign exchange rates, interest rates and equity prices as well as the creditworthiness and the solvency of the Group's counterparties.

Financial risk management within the Group is governed by policies reviewed by the boards of directors of Roche and Chugai as appropriate to their areas of statutory responsibility. These policies cover credit risk, liquidity risk and market risk. The policies provide guidance on risk limits, types of authorised financial instruments and monitoring procedures. As a general principle, the policies prohibit the use of derivative financial instruments for speculative trading purposes. Policy implementation and day-to-day risk management are carried out by the relevant treasury functions and regular reporting on these risks is performed by the relevant accounting and controlling functions within Roche and Chugai.

Credit risk

Credit risk arises from the possibility that counterparties to transactions may default on their obligations, causing financial losses for the Group. The objective of managing counterparty credit risk is to prevent losses of liquid funds deposited with or invested in such counterparties. The maximum exposure to credit risk resulting from financial activities, without considering netting agreements and without taking account of any collateral held or other credit enhancements, is equal to the carrying value of the Group's financial assets.

The Group considers a financial asset to be in default when the counterparty is unlikely to pay its obligations to the Group in full. In assessing whether a counterparty is in default, the Group considers both qualitative and quantitative indicators (e.g. overdue status) that are based on data developed internally and for certain financial assets are also obtained from external sources. A major part of the Group's receivables which are past due more than 90 days relate to public customers. Risk of default of public customers is considered low. The Group has reasonable and supportable information to demonstrate that a more lagging default criterion is more appropriate for this particular customer segment.

Accounts receivable. At 31 December 2021 the Group has trade receivables of CHF 12.0 billion (2020: CHF 11.0 billion). These are subject to a policy of active credit risk management which focuses on the assessment of country risk, credit availability, ongoing credit evaluation and account monitoring procedures. The objective of trade receivables management is to maximise the collection of unpaid amounts.

The Group uses an allowance matrix to estimate the allowance for doubtful accounts for all trade receivables. The expected credit loss ('ECL') rate is based on the Group's historical experience and the Group's expectation of economic conditions over the period until receivables are expected to be paid.

Customer credit risk exposure based on accounts receivable days overdue in millions of CHF

	Total	Current	Overdue 1–3 months	Overdue 3–12 months	Overdue more than 1 year	Credit impaired
At 31 December 2021						
Gross carrying amount	11,344	9,405	786	386	716	51
Group's expected credit loss rate	5%	0%	1%	6%	58%	100%
Allowance for doubtful accounts	(538)	(38)	(10)	(25)	(414)	(51)
At 31 December 2020						
Gross carrying amount	10,669	8,774	864	432	541	58
Group's expected credit loss rate	5%	0%	2%	7%	70%	100%
Allowance for doubtful accounts	(515)	(31)	(16)	(29)	(381)	(58)

At 31 December 2021 the Group's combined trade receivables balance with three US national wholesale distributors, McKesson Corp., AmerisourceBergen Corp. and Cardinal Health, Inc., was equivalent to CHF 2.8 billion representing 23% of the Group's consolidated trade receivables (2020: CHF 2.7 billion representing 25%). There is no other significant concentration of counterparty credit risk due to the Group's large number of customers and their wide geographical spread. Risk limits and exposures are continuously monitored by country and by the nature of counterparties. The Group obtains credit insurance and similar enhancements when appropriate to protect the collection of trade receivables. At 31 December 2021 no collateral was considered to measure expected credit losses for trade receivables (2020: none).

The nature and geographic location of counterparties to accounts receivable that are not overdue or impaired are shown in the table below. These include the balances with US national wholesalers described above.

Accounts receivable (not overdue), net of allowances for doubtful accounts and other allowances: nature and geographical location of counterparties in millions of CHF

				2021				2020
Regions	Total	Public	Whole-salers/ distributors	Private	Total	Public	Whole-salers/ distributors	Private
Switzerland	291	109	134	48	137	24	95	18
Europe	1,680	548	396	736	1,730	720	377	633
North America	3,409	135	2,893	381	3,318	70	3,237	11
Latin America	543	143	187	213	486	180	149	157
Japan	1,505	306	1,187	12	1,149	5	1,129	15
Asia, Australia and Oceania	1,493	248	1,105	140	1,407	262	958	187
Rest of the World	446	33	227	186	516	137	196	183
Total	**9,367**	**1,522**	**6,129**	**1,716**	**8,743**	**1,398**	**6,141**	**1,204**

Cash and marketable securities (excluding equity securities). At 31 December 2021 the Group has cash and marketable securities (excluding equity securities) of CHF 13.0 billion (2020: CHF 12.3 billion). These are subject to a policy of restricting exposures to high-quality counterparties and setting defined limits for individual counterparties. These limits and counterparty credit ratings are reviewed regularly.

Cash and cash equivalents are held with banks and financial institutions, which are predominantly rated as investment grade (98% in 2021 and 96% in 2020), based on Moody's and Standard & Poor's ratings. Cash and short-term time deposits are subject to rules which limit the Group's exposure to individual financial institutions.

Impairment on cash and cash equivalents is measured on a 12-month expected credit losses ('ECL') basis with a reference to external credit ratings of the counterparties. This reflects the short maturities of the exposures in cash and cash equivalents. The Group considers that its cash and cash equivalents have low credit risk based on these external credit ratings.

Investments in marketable securities (excluding equity securities) are entered into on the basis of guidelines with regard to liquidity, quality and maximum amount. As a general rule, the Group invests only in high-quality securities with adequate liquidity and with counterparties that have a credit rating of at least Baa3 from Moody's and BBB- from Standard & Poor's.

The credit risk of the counterparties with external ratings below investment grade or with no rating is closely monitored and reviewed on an individual basis.

Rating analysis of cash and marketable securities (excluding equity securities) – market values in millions of CHF

			2021			2020
	Total	Fair value through OCI (12-month ECL)	Amortised costs (12-month ECL)	Total	Fair value through OCI (12-month ECL)	Amortised costs (12-month ECL)
AAA range	1,051	457	594	1,269	640	629
AA range	2,122	444	1,678	2,225	827	1,398
A range	9,136	1,946	7,190	8,133	1,472	6,661
BBB range	557	527	30	453	378	75
Total investment grade	**12,866**	**3,374**	**9,492**	**12,080**	**3,317**	**8,763**
Below BBB range (below investment grade)	70	6	64	134	7	127
Unrated	93	1	92	109	0	109
Total gross carrying amounts	**13,029**	**3,381**	**9,648**	**12,323**	**3,324**	**8,999**
Loss allowance [a]	**1**	**0**	**1**	**1**	**0**	**1**

a) The loss allowance related to fair value through OCI does not affect the carrying amount of marketable securities (excluding equity securities) but is booked against corresponding OCI reserve instead.

Debt securities at amortised cost and those at fair value through OCI are investment grade and therefore considered to be low risk, and thus the impairment allowance is determined at 12-month expected credit losses ('ECL') with a reference to external credit ratings of the counterparties. There were no debt securities for which the Group observed a significant increase in the credit risk which would require the application of the lifetime expected credit losses impairment model. In addition, there were no material movements in the loss allowance in 2021 and 2020, respectively.

Master netting agreements. The Group enters into derivative transactions and collateral agreements under International Swaps and Derivatives Association (ISDA) master netting agreements with the respective counterparties in order to mitigate counterparty risk. Under such agreements the amounts owed by each counterparty on a single day in respect of all transactions outstanding in the same currency are aggregated into a single net amount that is payable by one party to the other. The ISDA agreements do not meet the criteria for offsetting in the balance sheet as the Group does not have a currently enforceable right to offset recognised amounts, because the right to offset is only enforceable on the occurrence of future events, such as a default or other credit events.

Contract terms. At 31 December 2021 there are no significant financial assets whose terms have been renegotiated (2020: none).

Impairment losses on financial assets excluding equity investments/securities. During 2021 there were no impairment losses (2020: none).

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. Roche and Chugai enjoy strong credit quality and are rated by at least one major credit rating agency. The ratings will permit efficient access to the international capital markets in the event of major financing requirements. At 31 December 2021 the Group has an unused committed credit line with various financial institutions totalling CHF 7.2 billion (2020: CHF 7.0 billion), of which CHF 6.9 billion (2020: CHF 6.6 billion) serve as a back-stop line for the commercial paper program. On 3 July 2019 the previously existing committed credit lines were refinanced by one new committed credit line with an initial maturity of five years.

The remaining undiscounted cash flow contractual maturities of financial liabilities, including estimated interest payments, are shown in the table below.

Contractual maturities of financial liabilities in millions of CHF

	Carrying value	Total	Less than 1 year	1–2 years	2–5 years	Over 5 years
At 31 December 2021						
Debt [21]						
– Bonds and notes	16,579	21,348	876	1,494	6,535	12,443
– Other debt	14,619	14,619	14,619	0	0	0
Contingent consideration [20]	141	149	58	48	34	9
Accounts payable [17]	4,637	4,637	4,637	–	–	–
Other non-current liabilities [18]	1,307	1,388	–	526	438	424
– *of which lease liabilities*	*1,025*	*1,106*	–	*270*	*435*	*401*
Other current liabilities [19]	13,129	13,136	13,084	33	19	0
– *of which lease liabilities*	*329*	*336*	*336*	–	–	–
– *of which derivative financial instruments*	*262*	*262*	*210*	*33*	*19*	*0*
Total financial liabilities	**50,412**	**55,277**	**33,274**	**2,101**	**7,026**	**12,876**
At 31 December 2020						
Debt [21]						
– Bonds and notes	12,024	14,977	2,194	1,319	5,081	6,383
– Other debt	2,192	2,192	2,192	0	0	0
Contingent consideration [20]	150	159	46	0	105	8
Accounts payable [17]	4,121	4,121	4,121	–	–	–
Other non-current liabilities [18]	1,107	1,147	–	455	372	320
– *of which lease liabilities*	*876*	*916*	–	*252*	*362*	*302*
Other current liabilities [19]	11,769	11,785	11,766	19	0	0
– *of which lease liabilities*	*319*	*335*	*335*	–	–	–
– *of which derivative financial instruments*	*286*	*286*	*267*	*19*	*0*	*0*
Total financial liabilities	**31,363**	**34,381**	**20,319**	**1,793**	**5,558**	**6,711**

Take-or-pay commitments. The Group has entered into contract manufacturing agreements with various companies to further develop manufacturing capacity and flexibility, mainly in the Pharmaceuticals Division. There are future minimum take-or-pay commitments within some of these agreements with a total potential commitment from the Group of CHF 1.4 billion at 31 December 2021 (2020: CHF 1.5 billion).

Market risk

Market risk arises from changing market prices, mainly foreign exchange rates and interest rates, of the Group's financial assets or financial liabilities which affect the Group's financial result and equity.

Value-at-Risk. The Group uses Value-at-Risk (VaR) to measure the impact of market risk on its financial instruments. VaR 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. VaR is calculated using a historical simulation approach and for each scenario, all financial instruments are fully valued and the total change in value and earnings is determined. VaR calculations are based on a 95% confidence level and a holding period of 20 trading days over the past ten years. This holding period reflects the time required to change the corresponding risk exposure, should this be deemed appropriate.

Actual future gains and losses associated with our treasury activities may differ materially from the VaR analyses due to the inherent limitations associated with predicting the timing and amount of changes to interest rates, foreign exchange rates and equity investment prices, particularly in periods of high market volatilities. Furthermore, VaR does not include the effect of changes in credit spreads.

Market risk of financial instruments in millions of CHF

	2021	2020
VaR – Interest rate component	191	107
VaR – Foreign exchange component	43	21
VaR – Other price component	48	59
Diversification	(100)	(55)
VaR – Total market risk	**182**	**132**

The interest rate component increased due to the bond issuances in December 2021. The foreign exchange component increased due to an unfavourable exposure mix. The other price component decreased mainly due to lower prices of equity investments and equity securities.

Foreign exchange risk

The Group uses the Swiss franc as its reporting currency and as a result is exposed to movements in foreign currencies, mainly the US dollar, Japanese yen and euro. The Group's foreign exchange risk management strategy is to preserve the economic value of its current and future assets and to minimise the volatility of the Group's financial result. The primary focus of the Group's foreign exchange risk management activities is on hedging transaction exposures arising through foreign currency flows or monetary positions held in foreign currencies. The Group uses forward contracts, foreign exchange options and cross-currency swaps to hedge transaction exposures. Application of these instruments intends to continuously immunise against unfavourable developments of foreign exchange rates.

Interest rate risk

The Group mainly raises debt on a fixed rate basis for bonds and notes. The Group is exposed to movements in interest rates, mainly for its US dollar, Swiss franc and euro floating rate financial instruments and short-term debt. The Group's interest rate risk management strategy is to optimise the net interest result. The Group may use forward contracts, options and interest rate swaps to hedge its interest rate exposures. Depending on the interest rate environment of major currencies, the Group will use these instruments to generate an appropriate mix of fixed and floating rate exposures.

Other price risk

Other price risk arises mainly from movements in the prices of equity securities. The Group manages the price risk through placing limits on individual and total equity investments. These limits are defined both as a percentage of total liquid funds and as an absolute number for individual equity investments.

Capital management

The Group defines the capital that it manages as the Group's total capitalisation, being the sum of debt plus equity, including non-controlling interests. The Group's objectives when managing capital are:

- To safeguard the Group's ability to continue as a going concern, so that it can continue to provide benefits for patients and returns to investors.
- To provide an adequate return to investors based on the level of risk undertaken.
- To have available the necessary financial resources to allow the Group to invest in areas that may deliver future benefits for patients and returns to investors.
- To maintain sufficient financial resources to mitigate against risks and unforeseen events.

The capitalisation is reported to senior management as part of the Group's regular internal management reporting and is shown in the table below.

Capital in millions of CHF

	2021	2020	2019
Capital and reserves attributable to Roche shareholders [22]	24,489	36,341	32,747
Equity attributable to non-controlling interests [24]	3,856	3,432	3,120
Total equity	**28,345**	**39,773**	**35,867**
Total debt [21]	**31,198**	**14,216**	**14,363**
Capitalisation	**59,543**	**53,989**	**50,230**

The Group's net equity was significantly impacted by the share repurchase in 2021 (see Note 22).

The Group is not subject to regulatory capital adequacy requirements as known in the financial services industry. The Group has a majority shareholding in Chugai (see Note 23). Chugai is a public company and its objectives, policies and processes for managing its own capital are determined by Chugai management.

Financial instrument accounting classifications and fair values

The fair values of financial assets and liabilities, together with the carrying value shown in the consolidated balance sheet, are as follows:

Carrying value and fair value of financial instruments – 2021 in millions of CHF

	Financial instruments mandatorily at fair value through profit or loss	Financial instruments at fair value through OCI	Fair value – hedging instruments	Financial assets at amortised cost	Other financial liabilities	Total carrying value	Fair value
At 31 December 2021							
Other non-current assets [15]							
– Equity investments	410	328	–	–	–	738	738
– Other financial non-current assets	–	–	–	134	–	134	134
Accounts receivable [12]	–	–	–	10,806	–	10,806	10,806
Marketable securities [13]							
– Equity securities	2	–	–	–	–	2	2
– Debt securities	71	494	–	–	–	565	565
– Money market instruments	–	2,816	–	–	–	2,816	2,816
– Time accounts over three months	–	–	–	2,798	–	2,798	2,798
Cash and cash equivalents [14]	–	–	–	6,850	–	6,850	6,850
Other current assets [16]							
– Derivative financial instruments	–	–	189	–	–	189	189
– Other financial current assets	–	–	–	892	–	892	892
Total financial assets	**483**	**3,638**	**189**	**21,480**	**–**	**25,790**	**25,790**
Debt [21]							
– Bonds and notes	–	–	–	–	(16,579)	(16,579)	(17,714)
– Other debt	–	–	–	–	(14,619)	(14,619)	(14,619)
Contingent consideration [20]	(141)	–	–	–	–	(141)	(141)
Accounts payable [17]	–	–	–	–	(4,637)	(4,637)	(4,637)
Other non-current liabilities [18]	–	–	–	–	(1,307)	(1,307)	(1,307)
Other current liabilities [19]	–	–	(262)	–	(12,867)	(13,129)	(13,129)
Total financial liabilities	**(141)**	**–**	**(262)**	**–**	**(50,009)**	**(50,412)**	**(51,547)**

Carrying value and fair value of financial instruments – 2020 in millions of CHF

	Financial instruments mandatorily at fair value through profit or loss	Financial instruments at fair value through OCI	Fair value – hedging instruments	Financial assets at amortised cost	Other financial liabilities	Total carrying value	Fair value
At 31 December 2020							
Other non-current assets [15]							
– Equity investments	768	506	–	–	–	1,274	1,274
– Other financial non-current assets	–	–	–	127	–	127	127
Accounts receivable [12]	–	–	–	10,154	–	10,154	10,154
Marketable securities [13]							
– Equity securities	11	–	–	–	–	11	11
– Debt securities	–	590	–	–	–	590	590
– Money market instruments	–	2,734	–	–	–	2,734	2,734
– Time accounts over three months	–	–	–	3,272	–	3,272	3,272
Cash and cash equivalents [14]	–	–	–	5,727	–	5,727	5,727
Other current assets [16]							
– Derivative financial instruments	–	–	398	–	–	398	398
– Other financial current assets	–	–	–	687	–	687	687
Total financial assets	**779**	**3,830**	**398**	**19,967**	**–**	**24,974**	**24,974**
Debt [21]							
– Bonds and notes	–	–	–	–	(12,024)	(12,024)	(13,605)
– Other debt	–	–	–	–	(2,192)	(2,192)	(2,192)
Contingent consideration [20]	(150)	–	–	–	–	(150)	(150)
Accounts payable [17]	–	–	–	–	(4,121)	(4,121)	(4,121)
Other non-current liabilities [18]	–	–	–	–	(1,107)	(1,107)	(1,107)
Other current liabilities [19]	–	–	(286)	–	(11,483)	(11,769)	(11,769)
Total financial liabilities	**(150)**	**–**	**(286)**	**–**	**(30,927)**	**(31,363)**	**(32,944)**

The fair value of bonds and notes is Level 1 and is calculated based on the observable market prices of the debt instruments or the present value of the future cash flows on the instrument, discounted at a market rate of interest for instruments with similar credit status, cash flows and maturity periods.

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 31 December 2021				
Marketable securities [13]				
– Equity securities at fair value through profit or loss	2	–	–	2
– Debt securities at fair value through OCI	494	0	–	494
– Debt securities at fair value through profit or loss	0	71	–	71
– Money market instruments at fair value through OCI	0	2,816	–	2,816
Derivative financial instruments [16]	–	189	–	189
Equity investments at fair value through OCI [15]	309	19	–	328
Equity investments at fair value through profit or loss [15]	228	182	–	410
Financial assets recognised at fair value	**1,033**	**3,277**	**–**	**4,310**
Derivative financial instruments [19]	–	(262)	–	(262)
Contingent consideration [20]	–	–	(141)	(141)
Financial liabilities recognised at fair value	**–**	**(262)**	**(141)**	**(403)**
At 31 December 2020				
Marketable securities [13]				
– Equity securities at fair value through profit or loss	11	–	–	11
– Debt securities at fair value through OCI	590	0	–	590
– Debt securities at fair value through profit or loss	0	0	–	0
– Money market instruments at fair value through OCI	414	2,320	–	2,734
Derivative financial instruments [16]	–	398	–	398
Equity investments at fair value through OCI [15]	481	25	–	506
Equity investments at fair value through profit or loss [15]	580	188	–	768
Financial assets recognised at fair value	**2,076**	**2,931**	**–**	**5,007**
Derivative financial instruments [19]	–	(286)	–	(286)
Contingent consideration [20]	–	–	(150)	(150)
Financial liabilities recognised at fair value	**–**	**(286)**	**(150)**	**(436)**

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

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

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

The Group recognises transfers between levels of the fair value hierarchy as at the end of the reporting period during which the transfer has occurred. There were no significant transfers between Level 1 and Level 2 and vice versa during the year (2020: none).

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

	2021	2020
At 1 January	(150)	(205)
Arising from business combinations	0	0
Utilised for settlements [6]	23	9
Total gains and losses included in the income statement		
– Unused amounts reversed – recorded within general and administration	2	56
– Additional amount created – recorded within general and administration	(10)	(10)
– Discount unwind included in financing costs	(2)	(7)
Total gains and losses included in other comprehensive income		
– Currency translation effects	(4)	7
At 31 December	**(141)**	**(150)**

Contingent consideration arrangements

The Group is party to certain contingent consideration arrangements, including those from business combinations. The fair values of contingent consideration from business combinations are determined considering the expected payments, discounted to present value using a risk-adjusted average discount rate of 2.7% (2020: 2.1%). 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 31 December 2021 the total potential payments under contingent consideration arrangements arising from business combinations could be up to CHF 0.4 billion (2020: CHF 0.4 billion) as follows:

Potential payments under contingent consideration arrangements in millions of CHF

Acquisition	Year acquired	Operating segment	2021	2020
Dutalys	2014	Roche Pharmaceuticals	201	194
Santaris	2014	Roche Pharmaceuticals	0	22
Genia	2014	Diagnostics	149	143
Others	Various	Diagnostics	9	9
At 31 December			**359**	**368**

Derivative financial instruments

Cash collateral agreements are in place with the counterparties to certain derivative financial instruments to mitigate counterparty risk. The following table sets out the carrying value of derivative financial instruments and the amounts that are subject to master netting agreements.

Derivative financial instruments in millions of CHF

	Assets 2021	Assets 2020	Assets 2019	Liabilities 2021	Liabilities 2020	Liabilities 2019
Foreign currency derivatives						
– Forward exchange contracts	187	389	170	(242)	(249)	(147)
– Cross-currency swaps	0	0	0	0	(37)	(119)
– Other	0	0	0	0	0	0
Interest rate derivatives						
– Swaps	2	9	8	(20)	0	0
– Other	0	0	0	0	0	0
Other derivatives	0	0	0	0	0	0
Carrying value of derivative financial instruments [16, 19]	**189**	**398**	**178**	**(262)**	**(286)**	**(266)**
Derivatives subject to master netting agreements	(54)	(140)	(64)	54	140	64
Collateral arrangements	(32)	(184)	16	15	23	132
Net amount	**103**	**74**	**130**	**(193)**	**(123)**	**(70)**

Collateral arrangements

Movements in cash collateral other receivable (accrued liability) in millions of CHF

	2021	2020
At 1 January	(161)	148
Net cash delivered by (to) the Group	148	(300)
Fair value and other	(1)	0
Currency translation effects	(3)	(9)
At 31 December	**(17)**	**(161)**

Hedge accounting

As described above the Group's risk management strategy is to hedge the transaction exposures arising through foreign currency flows or monetary positions held in foreign currencies as well as to generate an appropriate mix of fixed and floating rate exposures. The level of hedging depends on market conditions and business requirements of the Group. The Group designates a specific interest rate risk management objective to ensure that a predetermined level of its interest rate risk exposure is at a floating rate.

Hedge effectiveness is determined at the inception of the hedge relationship, and through periodic prospective effectiveness assessments at each reporting date to ensure that an economic relationship exists between the hedged item and the hedging instrument. The Group performs a qualitative assessment of the hedge effectiveness using a critical terms match method. As the critical terms of the hedged items and the hedging instruments match, the Group concludes that risks being hedged for the hedged items and the hedging instruments are sufficiently aligned, that there is no inherent mismatch in the hedging relationship and that a 100% hedge ratio applies both for the actual quantities hedged and for the hedge accounting.

Accounting treatment, sources of ineffectiveness and prospective effectiveness assessment method by risk category

	Accounting treatment	Potential sources of ineffectiveness	Prospective effectiveness assessment method
Interest rate and/or foreign exchange rate fluctuations	Cash flow hedge	Counterparty credit risk	Critical terms match
Foreign exchange rate fluctuations	Cash flow hedge	Lower volume of hedged items / counterparty credit risk	Critical terms match
Interest rate fluctuations	Fair value hedge	Counterparty credit risk	Critical terms match

The ineffective portion of the hedge accounting is recognised in the income statement and included in other financial income (expense). It is measured using the hypothetical derivative method for cash flow hedges and the cumulative dollar offset method for fair value hedges. At 31 December 2021 and 31 December 2020, respectively, none of the above potential sources of ineffectiveness, individually or collectively, resulted in material amounts of actual ineffectiveness being reported for any hedge accounting relationships.

The table below shows fair values and nominal amounts of derivative financial instruments, including a range of the maturity of the nominal amount of the hedging instruments, which are designated as hedging instruments in a cash flow hedge and a fair value hedge. At 31 December 2021 and 2020, respectively, the Group has the following cash flow hedges and fair value hedges which are designated in a qualifying hedge relationship:

Fair values and nominal amounts of derivatives used for hedge accounting – at 31 December 2021

	Nominal amount	Fair value asset in million CHF	Fair value liability in million CHF	Maturity range
Cash flow hedges				
Risk hedged: interest rate and foreign exchange rate fluctuations				
– Cross-currency swaps	0	0	0	n/a
Risk hedged: foreign exchange rate fluctuations				
– Forward exchange contracts	JPY 612 billion	67	(120)	2022–2023
Risk hedged: interest rate fluctuations				
– Treasury locks	0	0	0	n/a
Total		**67**	**(120)**	
Fair value hedges				
Risk hedged: interest rate fluctuations				
– Interest rate swaps	USD 1,940 million	0	(18)	2022–2026
– Interest rate swaps	EUR 500 million	1	(1)	2023–2025
– Interest rate swaps	CHF 1,250 million	1	(1)	2022–2024
Total		**2**	**(20)**	

Fair values and nominal amounts of derivatives used for hedge accounting – at 31 December 2020

	Nominal amount	Fair value asset in million CHF	Fair value liability in million CHF	Maturity range
Cash flow hedges				
Risk hedged: interest rate and foreign exchange rate fluctuations				
– Cross-currency swaps	EUR 850 million fixed into USD	0	(37)	2021
Risk hedged: foreign exchange rate fluctuations				
– Forward exchange contracts	JPY 509 billion	14	(67)	2021–2022
Total		**14**	**(104)**	
Fair value hedges				
Risk hedged: interest rate fluctuations				
– Interest rate swaps	USD 500 million	3	0	2021–2022
– Interest rate swaps	EUR 200 million	1	0	2021–2025
– Interest rate swaps	CHF 800 million	5	0	2022–2024
Total		**9**	**0**	

The fair values of derivative financial instruments used for hedge accounting are included in other current assets (see Note 16) or other current liabilities (see Note 19). The Group's approach to managing market risk, including interest rate risk and foreign currency risk, is discussed in the 'Market risk' section in this Note.

Cash flow hedges. The Group had entered into cross-currency swaps to hedge foreign exchange and interest rate risk on some of the bonds and notes issued by the Group which were denominated in euro. On the due date of 4 March 2021 the Group redeemed the remaining notes with an outstanding amount of EUR 1.14 billion (see Note 21) and the related remaining cross-currency swaps expired at the same time. At 31 December 2020 such instruments were recorded as a net fair value liability of CHF 37 million. In 2021 and in 2020 there was no ineffective portion.

In November and December 2021 the Group entered into treasury locks to hedge interest rate risk of fixed rate notes issued by the Group on 13 December 2021 (see Note 21). At this date the treasury locks were settled. At 31 December 2021 a relating hedging reserve of CHF 43 million (excluding income taxes) was held as a deduction within equity, which will be released and transferred to the income statement until redemption of the fixed rate notes. There was no ineffective portion.

Chugai has entered into forward exchange contracts to hedge a part of its foreign translation exposure to Swiss franc and US dollar. At 31 December 2021 such instruments are recorded as fair value assets of CHF 67 million and as fair value liabilities of CHF 120 million (2020: fair value assets of CHF 14 million and fair value liabilities of CHF 67 million). There was no ineffective portion.

None of the hedging instruments currently held for applying hedge accounting is affected by the InterBank Offered Rates ('IBOR') reform.

Carrying amount of items designated as hedged items in a cash flow hedging relationship in millions of CHF

	2021 Assets	2021 Liabilities	2020 Assets	2020 Liabilities
At 31 December				
Bonds and notes				
Risk hedged by cross-currency swaps: interest rate and foreign exchange rate fluctuations				
– Bonds and notes	–	0	–	921
Inventories				
Risk hedged by forward exchange contracts: foreign exchange rate fluctuations				
– Inventories	4,861	–	4,345	–

Hedging reserve for continuing hedging relationships in millions of CHF

	2021 Total	2021 Treasury locks	2021 Cross-currency swaps	2021 Forward exchange contracts	2020 Total	2020 Cross-currency swaps	2020 Forward exchange contracts
At 1 January	(16)	–	7	(23)	13	20	(7)
Gains (losses) taken to equity	(56)	(43)	(9)	(4)	34	73	(39)
Transferred to income statement[a]	0	0	0	0	(88)	(88)	0
Income taxes	9	6	2	1	15	3	12
Non-controlling interests	1	0	0	1	10	0	10
Currency translation effects	2	0	0	2	0	(1)	1
At 31 December	**(60)**	**(37)**	**0**	**(23)**	**(16)**	**7**	**(23)**

a) The entire amount transferred to the income statement was reported in other financial income (expense).

On the due date of 4 March 2021 the Group redeemed the remaining notes with an outstanding amount of EUR 1.14 billion (see Note 21) and the related remaining cross-currency swaps expired at the same time. As a result, there was no remaining hedging reserve for cross-currency swaps at 31 December 2021. Other than that, in 2021 there are no hedging relationships for which hedge accounting is no longer applied (2020: none). The changes in the hedging reserve within equity are shown in Note 22.

The expected undiscounted cash flows from qualifying cash flow hedges, including interest payments during the duration of the derivative contract and final settlement on maturity, are shown in the table below.

Expected cash flows of qualifying cash flow hedges in millions of CHF

	2021 Total	2021 Less than 1 year	2021 More than 1 year	2020 Total	2020 Less than 1 year	2020 More than 1 year
Cash inflows	4,926	3,916	1,010	5,327	4,237	1,090
Cash outflows	(4,972)	(3,946)	(1,026)	(5,413)	(4,313)	(1,100)
Total cash inflow (outflow)	**(46)**	**(30)**	**(16)**	**(86)**	**(76)**	**(10)**

The undiscounted cash flows in the table above will affect profit or loss as shown below. These include interest payments during the duration of the derivative contract but do not include the final settlement on maturity.

Expected cash flows of qualifying cash flow hedges with impact on profit or loss in millions of CHF

	2021 Total	2021 Less than 1 year	2021 More than 1 year	2020 Total	2020 Less than 1 year	2020 More than 1 year
Cash inflows	0	0	0	60	60	0
Cash outflows	0	0	0	(67)	(67)	0
Total cash inflow (outflow)	**0**	**0**	**0**	**(7)**	**(7)**	**0**

Fair value hedges. The Group has entered into some interest rate swaps to hedge its exposure to changes in the fair value of some of its fixed-term debt instruments in respect of a benchmark interest rate. At 31 December 2021 such instruments are recorded as fair value assets of CHF 2 million and as fair value liabilities of CHF 20 million (2020: fair value assets of CHF 9 million). During 2021 fair value adjustments of CHF 27 million were recorded as expense on these interest rate swaps (2020: CHF 1 million as income). All interest rate swaps currently held for applying hedge accounting are referenced to a benchmark rate other than the London InterBank Offered Rate ('LIBOR'). As the fair value hedge had been highly effective since inception, the result of the interest rate swaps was largely offset by changes in the fair value of the hedged debt instruments. The Group's approach to managing market risk, including interest rate risk, is discussed in the 'Market risk' section in this Note.

Carrying amount of items designated as hedged items in a fair value hedging relationship in millions of CHF

	Liabilities	Fair value adjustments cumulative	Fair value adjustments in current year
At 31 December 2021			
Bonds and notes			
Risk hedged by interest rate swaps: interest rate fluctuations			
– Bonds and notes	3,153	(18)	(27)
At 31 December 2020			
Bonds and notes			
Risk hedged by interest rate swaps: interest rate fluctuations			
– Bonds and notes	1,459	9	1

Net investment hedges. The Group does not have any net investment hedges.

32. Related parties

Controlling shareholders

The share capital of Roche Holding Ltd, which is the Group's parent company, consists of 160,000,000 bearer shares. Following the closing of the share repurchase transaction on 6 December 2021 (see Note 22), 53,309,000 bearer shares held by the Group are scheduled to be cancelled in early 2022 when the necessary legal procedures have been completed.

At 31 December 2021 and 2020, based on information supplied to the Group, a shareholder group with pooled voting rights owned 72,018,000 shares representing 45.01% (2020: 45.01%) of the issued shares (67.50% of the voting power excluding the treasury shares held by the Group on 31 December 2021 and scheduled to be cancelled early 2022). These figures do not include any shares without pooled voting rights held outside this group by individual members of the group. On 5 December 2019 the shareholder group announced that it would continue the shareholder pooling agreement with a modified shareholder composition. This group now consists of Mr André Hoffmann, Ms Marie-Anne Hoffmann, Ms Vera Michalski, Mr Alexander Hoffmann, Mr Frederic Hoffmann, Ms Isabel Hoffmann, Mr Lucas Hoffmann, Ms Marina Hoffmann, Ms Kasia Barbotin-Larrieu, Ms Tatiana Fabre, Mr Andreas Oeri, Ms Catherine Oeri, Ms Sabine Duschmalé, Mr Jörg Duschmalé, Mr Lukas Duschmalé, the charitable foundation Wolf and Artuma Holding Ltd. The shareholder pooling agreement has existed since 1948. The duration of the pool was extended for an indefinite period in 2009. At 31 December 2021 and 2020, based on information supplied to the Group, Ms Maja Oeri, formerly a member of the pool, held 8,091,900 shares independently of the pool, representing 5.057% (2020: 5.057%) of the issued shares (7.58% of the voting power excluding the treasury shares held by the Group on 31 December 2021 and scheduled to be cancelled early 2022).

Mr André Hoffmann and Dr Jörg Duschmalé are members of the Board of Directors of Roche Holding Ltd. Mr Hoffmann received remuneration totalling CHF 425,181 (2020: CHF 437,568) and Dr Duschmalé received remuneration totalling CHF 334,499 (2020: CHF 272,500). In 2020 Dr Andreas Oeri, previously a member of the Board of Directors of Roche Holding Ltd, received remuneration totalling CHF 90,000.

There were no other transactions between the Group and the individual members of the above shareholder group.

Subsidiaries and associates

A listing of the Group subsidiaries and associates is included in Note 33. This listing excludes Chugai's subsidiaries as well as companies that are not material, notably companies that are inactive, dormant or in liquidation. Transactions between the parent company and its subsidiaries and between subsidiaries are eliminated on consolidation. There were no significant transactions between the Group and its associates.

Key management personnel

Total remuneration of key management personnel was CHF 45 million (2020: CHF 44 million).

Members of the Board of Directors of Roche Holding Ltd receive an annual remuneration and payment for their time and expenses related to their membership of Board Committees. The Chairman of the Board of Directors and members of the Corporate Executive Committee (CEC) of Roche Holding Ltd receive remuneration, which consists of an annual salary, a bonus and an expense allowance. The Group pays social insurance contributions in respect of the above remuneration and pays contributions to pension and other post-employment benefit plans for the Chairman of the Board of Directors and the members of the CEC. The members of the CEC also participate in certain equity compensation plans as described below. The terms, vesting conditions and fair value of these awards are disclosed in Note 27. New members of the CEC are included in the table below for the full calendar year in which they joined the CEC. Similarly, members of the CEC retiring partway through the year are included for the full calendar year in which they left the CEC.

Remuneration of the members of the Board of Directors and the Corporate Executive Committee in millions of CHF

	2021	2020
Salaries, including cash-settled bonus	21	20
Bonus Stock Awards	7	7
Social security costs	4	2
Pensions and other post-employment benefits	3	4
Equity compensation plans	5	7
Board fees	3	3
Other employee benefits	2	1
Total	**45**	**44**

For the purposes of these remuneration disclosures the values for equity compensation plans, including the Bonus Stock Awards, are calculated based on the fair value used in Note 27. These represent the cost to the Group of such awards at grant date and reflect, amongst other matters, the observed exercise behaviour and exit rate for the whole population that receive the awards and initial simulations of any performance conditions.

The detailed disclosures regarding executive remuneration that are required by Swiss law are included in the Remuneration Report disclosed in the Annual Report on pages 162 to 188. In those disclosures the values for equity compensation plans, including the Bonus Stock Awards, represent the fair value that the employee receives taking into account the preliminary assessment of any completed performance conditions. These fair values are shown in the table below, which reconciles those disclosures required by Swiss law to the above related party disclosures for key management personnel.

Reconciliation to executive remuneration disclosures required by Swiss law in millions of CHF

	2021	2020
Total remuneration of the members of the Board of Directors and Corporate Executive Committee (IFRS basis – see table above)	45	44
Deduct		
– Bonus Stock Awards (IFRS basis)	(7)	(7)
– Equity compensation plans (IFRS basis)	(5)	(7)
Add back		
– Bonus Stock Awards (Swiss legal basis)	4	4
– Equity compensation plans (Swiss legal basis)	11	11
Total remuneration of the members of the Board of Directors and Corporate Executive Committee (Swiss legal basis)	**48**	**45**
Of which (including social security costs)		
– Board of Directors (page 176 of the Annual Report)	10	9
– Corporate Executive Committee (page 184 of the Annual Report)	38	36

Bonus Stock Awards. The Chairman of the Board of Directors and the Chief Executive Officer will be granted Bonus Stock Awards in lieu of their cash-settled bonus for the financial year 2021. These are subject to approval by the 2022 Annual General Meeting in March 2022 and will be issued in March 2022. The number of awards and fair value per award will be calculated at the grant date.

Equity compensation plans. The members of the Corporate Executive Committee received equity compensation as shown in the following tables.

Number of rights, options and awards granted to members of the Corporate Executive Committee

	2021	2020
Roche Stock-settled Stock Appreciation Rights	239,276	237,498
Roche Restricted Stock Unit Plan	8,266	7,965

Contributions paid for members of the Corporate Executive Committee in millions of CHF

	2021	2020
Roche Connect	0.2	0.2

Defined benefit plans

Transactions between the Group and the various defined benefit plans for the employees of the Group are described in Note 26.

33. List of subsidiaries and associates

The following is a listing of the Group subsidiaries and associates. It excludes Chugai's subsidiaries as well as companies that are not material, notably companies that are inactive, dormant or in liquidation.

Listed companies

Location	Company	City		Share capital (in millions)	Equity interest (in %)
Switzerland	Roche Holding Ltd Stock Exchange: SIX Swiss Exchange Zurich Stock code (Share): RO, Valor: 1203211 Stock code *(Genussschein)*: ROG, Valor: 1203204 ISIN Share: CH0012032113 ISIN *Genussschein*: CH0012032048 Market capitalisation: CHF 306,601 million	Basel	CHF	160.0	
Japan	Chugai Pharmaceutical Co., Ltd. Stock Exchange: Tokyo Stock code: TSE:4519 ISIN: JP3519400000 Market capitalisation: JPY 6,141,527 million	Tokyo	JPY	1,005.7	61.2

Non-listed companies

Location	Company	City		Share capital (in millions)	Equity interest (in %)
Algeria	Roche Algérie SPA	Hydra	DZD	1.0	48
Argentina	Productos Roche S.A. Química e Industrial	Tigre	ARS	2,841.6	100
	Roche Diabetes Care Argentina S.A.	Tigre	ARS	87.4	100
Australia	Roche Diabetes Care Australia Pty Limited	North Ryde	AUD	14.1	100
	Roche Diagnostics Australia Pty Limited	North Ryde	AUD	5.0	100
	Roche Products Pty Limited	Sydney	AUD	65.0	100
Austria	mySugr GmbH	Vienna	EUR	5.7	100
	Roche Austria GmbH	Vienna	EUR	14.5	100
	Roche Diabetes Care Austria GmbH	Vienna	EUR	(–)	100
	Roche Diagnostics GmbH	Vienna	EUR	1.1	100
Bangladesh	Roche Bangladesh Limited	Dhaka	BDT	27.2	100
Belarus	FLLC "Roche Products Limited"	Minsk	USD	1.5	100
Belgium	Roche Diagnostics Belgium NV	Diegem	EUR	3.8	100
	Roche SA/NV	Brussels	EUR	32.0	100
Bermuda	Chemical Manufacturing and Trading Company Limited	Hamilton	USD	(–)	100
	Hoffmann-La Roche Products Limited	Hamilton	USD	(–)	100
	Roche Capital Services Ltd.	Hamilton	RUB	(–)	100
	Roche Catalyst Investments Ltd.	Hamilton	USD	(–)	100
	Roche Financial Investments Ltd.	Hamilton	USD	(–)	100
	Roche Financial Management Ltd.	Hamilton	USD	(–)	100
	Roche Financial Services Ltd.	Hamilton	USD	(–)	100
	Roche International Ltd.	Hamilton	USD	(–)	100
	Roche Intertrade Limited	Hamilton	USD	10.0	100
	Roche Operations Ltd.	Hamilton	USD	(–)	100
	Roche Services Holdings Ltd.	Hamilton	USD	(–)	100
	Sapac Corporation Ltd.	Hamilton	CAD	(–)	100
Bolivia	Roche Bolivia S.R.L.	Santa Cruz	BOB	0.1	100
Bosnia and Herzegovina	Roche d.o.o. farmaceutsko drustvo - Roche Ltd. Pharmaceutical Company	Sarajevo	BAM	13.1	100
Brazil	Produtos Roche Químicos e Farmacêuticos S.A.	São Paulo	BRL	1,141.7	100
	Roche Diabetes Care Brasil Ltda.	São Paulo	BRL	44.4	100
	Roche Diagnostica Brasil Ltda.	São Paulo	BRL	683.5	100
Bulgaria	Roche Bulgaria EOOD	Sofia	BGN	5.1	100
Cameroon	Roche Cameroun SARL	Douala	XAF	60.0	100
Canada	Hoffmann-La Roche Limited	Mississauga	CAD	40.3	100
Chile	Roche Chile Limitada	Santiago de Chile	CLP	70.9	100

Location	Company	City		Share capital (in millions)	Equity interest (in %)
China	Roche (China) Holding Ltd.	Shanghai	USD	37.3	100
	Roche (Shanghai) Pharmaceuticals Consulting Co., Ltd.	Shanghai	CNY	30.0	100
	Roche (Shanghai) Pharmaceuticals Trading Co., Ltd.	Shanghai	USD	55.0	100
	Roche Diagnostics (Hong Kong) Limited	Hong Kong	HKD	10.0	100
	Roche Diagnostics (Shanghai) Ltd.	Shanghai	USD	31.0	100
	Roche Diagnostics (Suzhou) Limited	Suzhou	USD	160.0	100
	Roche Hong Kong Limited	Hong Kong	HKD	10.0	100
	Roche R&D Center (China) Ltd.	Shanghai	USD	35.8	100
	Shanghai Roche Pharmaceuticals Limited	Shanghai	USD	278.7	70
Colombia	Productos Roche S.A.	Bogotá	COP	26,923.7	100
	TIB Molbiol S.A.S.	Santiago de Cali	COP	3.0	100
Congo Democratic Republic	Roche DRC SARLU	Kinshasa	USD	0.3	100
Costa Rica	Roche Services Americas, Sociedad de Responsabilidad Limitada	San Jose	CRC	361.4	100
	Roche Servicios S.A.	Heredia	USD	8.1	100
Côte d'Ivoire	Roche Côte d'Ivoire SARL	Abidjan	XOF	50.0	100
Croatia	Roche d.o.o.	Zagreb	HRK	4.8	100
Czech Republic	Roche s.r.o.	Prague	CZK	200.0	100
Denmark	OBI Aps	Hadsund	DKK	4.4	100
	Roche a/s, Medicinalvarer og Kemikalier	Hvidovre	DKK	4.0	100
	Roche Diagnostics a/s	Hvidovre	DKK	1.3	100
	Roche Innovation Center Copenhagen A/S	Hoersholm	DKK	100.1	100
Dominican Republic	Productos Roche Dominicana, S.R.L.	Santo Domingo	DOP	0.6	100
Ecuador	Roche Ecuador S.A.	Quito	USD	28.1	100
Egypt	Roche Diagnostics Egypt for Trading S.A.E.	Giza	EGP	5.0	100
	Roche Egypt for Manufacturing and Trading SAE	Cairo	EGP	229.0	100
	Roche Egypt LLC	Cairo	EGP	228.1	100
El Salvador	Productos Roche (El Salvador) S.A. de C.V.	Antiguo Cuscatlan	USD	(–)	100
Estonia	Roche Eesti OÜ	Tallinn	EUR	0.1	100
Finland	Roche Diagnostics Oy	Espoo	EUR	0.2	100
	Roche Oy	Espoo	EUR	(–)	100
France	Institut Roche SAS	Boulogne-Billancourt	EUR	0.5	100
	Roche Diabetes Care France SAS	Meylan	EUR	4.5	100
	Roche Diagnostics France SAS	Meylan	EUR	16.0	100
	Roche SAS	Boulogne-Billancourt	EUR	38.2	100
	Timkl SAS	Montbonnot-Saint-Martin	EUR	0.8	100
	Trophos SA	Marseille	EUR	1.9	100
Georgia	Roche Georgia LLC	Tbilisi	GEL	0.5	100
Germany	Ascur Versicherungsvermittlungs GmbH	Grenzach-Wyhlen	EUR	(–)	100
	Flatiron Health GmbH	Cologne	EUR	(–)	100
	Foundation Medicine GmbH	Penzberg	EUR	(–)	100
	Galenus Mannheim Pharma GmbH	Mannheim	EUR	(–)	100
	Roche Beteiligungs GmbH	Grenzach-Wyhlen	EUR	3.6	100
	Roche Deutschland Holding GmbH	Grenzach-Wyhlen	EUR	6.0	100
	Roche Diabetes Care Deutschland GmbH	Mannheim	EUR	(–)	100
	Roche Diabetes Care GmbH	Mannheim	EUR	(–)	100
	Roche Diagnostics Automation Solutions GmbH	Ludwigsburg	EUR	(–)	100
	Roche Diagnostics Deutschland GmbH	Mannheim	EUR	1.0	100
	Roche Diagnostics GmbH	Mannheim	EUR	94.6	100
	Roche mtm laboratories AG	Mannheim	EUR	1.4	100
	Roche Pharma AG	Grenzach-Wyhlen	EUR	61.4	100
	Roche Privacy GmbH	Grenzach-Wyhlen	EUR	(–)	100
	Roche Real Estate Services Mannheim GmbH	Mannheim	EUR	1.8	100
	Roche Registration GmbH	Grenzach-Wyhlen	EUR	(–)	100
	RoX Health GmbH	Berlin	EUR	(–)	100
	Signature Diagnostics GmbH	Potsdam	EUR	0.1	100
	TIB Molbiol Syntheselabor GmbH	Berlin	EUR	(–)	100
Ghana	Roche Products Ghana Limited	Accra	GHS	1.2	100
Greece	Roche (Hellas) S.A.	Marousi	EUR	19.2	100
	Roche Diagnostics (Hellas) S.A.	Marousi	EUR	8.3	100
Guatemala	Productos Roche Guatemala (Sociedad Anónima)	Guatemala	GTQ	0.6	100
Honduras	Productos Roche (Honduras), S.A.	Tegucigalpa	HNL	(–)	100
Hungary	Roche (Hungary) Ltd	Budapest	HUF	30.0	100
	Roche Services (Europe) Ltd	Budapest	HUF	3.0	100

Location	Company	City		Share capital (in millions)	Equity interest (in %)
India	Roche Diabetes Care India Private Limited	Mumbai	INR	15.2	100
	Roche Diagnostics India Private Limited	Mumbai	INR	149.2	100
	Roche Information Solutions India Private Limited	Pune	INR	(–)	100
	Roche Products (India) Private Limited	Mumbai	INR	14.0	100
Indonesia	P.T. Roche Indonesia	Jakarta	IDR	43,770.0	100
Iran	Roche Pars Co. (Ltd.)	Tehran	IRR	41,610.0	100
Ireland	Inflazome Limited	Dublin	EUR	(–)	100
	Roche Ireland Limited	Clarecastle	EUR	2.4	100
	Roche Products (Ireland) Limited	Dublin	EUR	(–)	100
	Spark Therapeutics Ireland Limited	Dublin	EUR	(–)	100
Israel	Medingo Ltd.	Yoqneam Illit	ILS	8.0	100
	Roche Pharmaceuticals (Israel) Ltd.	Hod Hasharon	ILS	(–)	100
Italy	Roche Diabetes Care Italy S.p.A.	Monza	EUR	40.2	100
	Roche Diagnostics S.p.A.	Monza	EUR	18.1	100
	Roche S.p.A.	Monza	EUR	34.1	100
	TIB Molbiol S.r.l.	Genoa	EUR	0.1	100
Japan	Flatiron Health K.K.	Tokyo	JPY	0.5	100
	Roche DC Japan K. K.	Tokyo	JPY	10.0	100
	Roche Diagnostics K.K.	Tokyo	JPY	2,500.0	100
Jordan	F. Hoffmann-La Roche Ltd / Jordan P.S.C.	Amman	JOD	(–)	100
Kazakhstan	Roche Kazakhstan LLP	Almaty	KZT	150.0	100
Kenya	Roche Kenya Limited	Nairobi	KES	50.0	100
Kuwait	Roche for Trading in Medicines, Equipment, Devices and Medical Supplies SPC	Salmiya	KWD	1.8	100
Latvia	Roche Latvija SIA	Riga	EUR	1.7	100
Lebanon	Roche Lebanon S.A.R.L.	Beirut	LBP	1,000.0	100
Lithuania	UAB Roche Lietuva	Vilnius	EUR	0.2	100
Malaysia	Roche (Malaysia) Sdn. Bhd.	Kuala Lumpur	MYR	4.0	100
	Roche Diagnostics (Malaysia) Sdn. Bhd.	Petaling Jaya	MYR	0.9	100
	Roche Services (Asia Pacific) Sdn. Bhd.	Kuala Lumpur	MYR	0.5	100
Mauritius	Roche Products (Mauritius) Ltd	Moka	MUR	4.0	100
Mexico	Productos Roche, S.A. de C.V.	Mexico City	MXN	82.6	100
	Roche DC México, S.A. de C.V.	Mexico City	MXN	3.9	100
Morocco	Roche S.A.	Casablanca	MAD	59.5	100
Myanmar	Roche Myanmar Company Limited	Yangon	USD	(–)	100
Netherlands	Roche Diabetes Care Nederland B.V.	Almere	EUR	0.6	100
	Roche Diagnostics Nederland B.V.	Almere	EUR	2.3	100
	Roche Finance Europe B.V.	Woerden	EUR	2.0	100
	Roche Nederland B.V.	Woerden	EUR	10.9	100
	Roche Pharmholding B.V.	Woerden	EUR	467.8	100
New Zealand	Roche Diagnostics NZ Limited	Mount Wellington	NZD	3.0	100
	Roche Products (New Zealand) Limited	Auckland	NZD	13.5	100
Nicaragua	Productos Roche (Nicaragua), S.A.	Managua	NIO	0.9	100
Nigeria	Roche Products Limited	Lagos	NGN	200.0	100
North Macedonia	Roche Makedonija DOOEL	Skopje	EUR	0.3	100
Norway	Roche Diagnostics Norge A/S	Oslo	NOK	5.8	100
	Roche Norge A/S	Oslo	NOK	6.2	100
Pakistan	Roche Pakistan Limited	Karachi	PKR	2,063.3	100
Panama	Productos Roche (Panama), S.A.	Panama City	PAB	(–)	100
	Productos Roche Interamericana S.A. (PRISA)	Panama City	USD	0.1	100
Paraguay	Roche Diagnostics Paraguay S.A.	Asunción	PYG	0.2	100
Peru	Productos Roche Q.F.S.A.	Lima	PEN	11.1	100
	Roche Farma (Peru) S.A.	Lima	PEN	38.1	100
Philippines	Roche (Philippines) Inc.	Taguig City	PHP	300.0	100
Poland	Roche Diabetes Care Polska sp. z o.o.	Warsaw	PLN	2.0	100
	Roche Diagnostics Polska Sp. z o.o.	Warsaw	PLN	8.0	100
	Roche Polska Sp. z o.o.	Warsaw	PLN	25.0	100
Portugal	Roche Farmacêutica Química, Lda.	Amadora	EUR	1.1	100
	Roche Sistemas de Diagnósticos, Sociedade Unipessoal, Lda.	Amadora	EUR	2.6	100
Puerto Rico	Genentech P.R., Inc.	San Juan	USD	(–)	100
	Roche Products Inc.	Ponce	USD	0.5	100
	Syntex Puerto Rico, Inc.	Ponce	USD	(–)	100
Romania	Roche Romania S.R.L.	Bucharest	RON	472.2	100
Russian Federation	"Roche-Moscow" JSC	Moscow	RUB	2.6	100
	Limited Liability Company Roche Diabetes Care Rus	Moscow	RUB	100.0	100
	Limited Liability Company Roche Diagnostics Rus	Moscow	RUB	250.0	100

Location	Company	City		Share capital (in millions)	Equity interest (in %)
Saudi Arabia	Roche Diagnostics Saudi Arabia LLC	Riyadh	SAR	200.0	75
	Roche Products Saudi Arabia LLC	Jeddah	SAR	30.0	100
Serbia	Roche d.o.o. Beograd	Belgrade	RSD	939.1	100
Singapore	Roche Diabetes Care Asia Pacific Pte. Ltd.	Singapore	SGD	0.6	100
	Roche Diagnostics Asia Pacific Pte. Ltd.	Singapore	SGD	20.4	100
	Roche Singapore Pte. Ltd.	Singapore	SGD	4.0	100
	Roche Singapore Technical Operations, Pte. Ltd.	Singapore	USD	35.0	100
Slovakia	Roche Slovensko, S.R.O.	Bratislava	EUR	0.3	100
Slovenia	Roche farmacevtska družba, d.o.o.	Ljubljana	EUR	0.2	100
South Africa	Kapa Biosystems (Pty) Ltd	Cape Town	ZAR	(–)	100
	Roche Diabetes Care South Africa Proprietary Limited	Midrand	ZAR	15.0	100
	Roche Diagnostics Proprietary Limited	Midrand	ZAR	(–)	100
	Roche Products (Proprietary) Limited	Midrand	ZAR	60.0	100
South Korea	Roche Diagnostics Korea Co., Ltd.	Seoul	KRW	22,969.0	100
	Roche Korea Company Ltd.	Seoul	KRW	13,375.0	100
Spain	Roche Diabetes Care Spain, S.L.	Sant Cugat del Vallès	EUR	1.0	100
	Roche Diagnostics S.L.	Sant Cugat del Vallès	EUR	17.0	100
	Roche Farma, S.A.	Madrid	EUR	45.0	100
	TIB Molbiol S.L.	Madrid	EUR	(–)	100
Sweden	Roche AB	Solna	SEK	20.0	100
	Roche Diagnostics Scandinavia AB	Solna	SEK	9.0	100
Switzerland	Biopharm AG	Basel	CHF	0.3	100
	F. Hoffmann-La Roche Ltd	Basel	CHF	150.0	100
	Hoffmann - La Roche Ltd	Basel	CHF	0.5	100
	InterMune International AG	Basel	CHF	10.0	100
	Museum Tinguely AG	Basel	CHF	0.1	100
	Phaor AG	Basel	CHF	0.2	100
	Rabbit-Air Ltd	Bachenbülach	CHF	3.0	100
	Roche Capital Market Ltd	Basel	CHF	1.0	100
	Roche Chemische Unternehmungen AG	Basel	CHF	1.3	100
	Roche Diabetes Care (Switzerland) Ltd	Rotkreuz	CHF	0.1	100
	Roche Diagnostics (Switzerland) Ltd	Rotkreuz	CHF	1.0	100
	Roche Diagnostics International Ltd	Rotkreuz	CHF	20.0	100
	Roche Finance Ltd	Basel	CHF	409.2	100
	Roche Forum Buonas Ltd	Buonas	CHF	0.1	100
	Roche Glycart Ltd	Schlieren	CHF	0.3	100
	Roche Long Term Foundation	Basel	CHF	0.5	100
	Roche Pharma (Switzerland) Ltd	Basel	CHF	2.0	100
	Syntex Pharm AG	Rotkreuz	CHF	0.5	100
	Tavero AG	Basel	CHF	0.1	100
Taiwan	Roche Diagnostics Ltd.	Taipei	TWD	483.0	100
	Roche Products Ltd.	Taipei	TWD	1,563.0	100
Thailand	Roche Diagnostics (Thailand) Limited	Bangkok	THB	103.0	100
	Roche Thailand Limited	Bangkok	THB	12.0	100
Tunisia	Roche Tunisie SA	Tunis	TND	0.8	100
Turkey	Infogenetik Moleküler Bilgi Hizmetleri Anonim Şirketi	Istanbul	TRY	3.5	100
	Roche Diagnostics Turkey Anonim Şirketi	Istanbul	TRY	250.0	100
	Roche Müstahzarlari Sanayi Anonim Şirketi	Istanbul	TRY	249.5	100
Ukraine	Roche Ukraine LLC	Kiev	UAH	124.0	100
United Arab Emirates	Roche Diabetes Care Middle East FZCO	Dubai	AED	0.5	100
	Roche Diagnostics Middle East FZCO	Dubai	AED	19.0	100
	Roche Pharmaceuticals Middle East FZCO	Dubai	AED	0.5	100
United Kingdom	Flatiron Health UK Ltd	St Albans	GBP	(–)	100
	GenMark Diagnostics UK Limited	Egham	GBP	(–)	100
	Inflazome UK Limited	Welwyn Garden City	GBP	(–)	100
	InterMune Holdings Limited	Welwyn Garden City	GBP	(–)	100
	Roche Diabetes Care Limited	Burgess Hill	GBP	0.4	100
	Roche Diagnostics Limited	Burgess Hill	GBP	32.6	100
	Roche Holding (UK) Limited	Welwyn Garden City	GBP	100.0	100
	Roche Products Limited	Welwyn Garden City	GBP	98.3	100
	Roche Registration Limited	Welwyn Garden City	GBP	(–)	100
	Spark Therapeutics UK Ltd	London	GBP	(–)	100
	TMEM16A Limited	Welwyn Garden City	GBP	0.2	100
	Tusk Therapeutics Limited	Welwyn Garden City	GBP	(–)	100

Location	Company	City		Share capital (in millions)	Equity interest (in %)
United States	Adheron Therapeutics Inc.	South San Francisco	USD	(–)	100
	Anadys Pharmaceuticals, Inc.	South San Francisco	USD	(–)	100
	BINA Technologies, Inc.	Pleasanton	USD	(–)	100
	BioVeris Corporation	Indianapolis	USD	(–)	100
	Flatiron Health, Inc.	New York	USD	(–)	100
	ForSight VISION4, Inc.	South San Francisco	USD	(–)	100
	Foundation Medicine, Inc.	Cambridge	USD	(–)	100
	Freenome Holdings, Inc.	South San Francisco	USD	(–)	16
	Genentech USA, Inc.	South San Francisco	USD	(–)	100
	Genentech, Inc.	South San Francisco	USD	(–)	100
	GenMark Diagnostics, Inc.	Carlsbad	USD	(–)	100
	GenMark Holdings, Inc.	Carlsbad	USD	(–)	100
	Hoffmann-La Roche Inc.	Little Falls	USD	3.0	100
	I5 Surviving Corp.	South San Francisco	USD	(–)	100
	IGEN International, Inc.	Pleasanton	USD	(–)	100
	IGEN LS LLC	Pleasanton	USD	(–)	100
	Ignyta, Inc.	South San Francisco	USD	(–)	100
	InterMune, Inc.	South San Francisco	USD	(–)	100
	IQuum, Inc.	Marlborough	USD	(–)	100
	Jecure Therapeutics, Inc.	South San Francisco	USD	(–)	100
	Kapa Biosystems, Inc.	Wilmington	USD	(–)	100
	Lexent Bio, Inc.	Cambridge	USD	(–)	100
	Memory Pharmaceuticals Corp.	Little Falls	USD	(–)	100
	Prescient Design Corp.	South San Francisco	USD	(–)	100
	Promedior, Inc.	South San Francisco	USD	(–)	100
	Protocol First, Inc.	Salt Lake City	USD	(–)	100
	Roche Diabetes Care, Inc.	Indianapolis	USD	(–)	100
	Roche Diagnostics Corporation	Indianapolis	USD	(–)	100
	Roche Diagnostics Hematology, Inc.	Westborough	USD	(–)	100
	Roche Diagnostics Operations, Inc.	Indianapolis	USD	(–)	100
	Roche Diagnostics Seattle, Inc.	Seattle	USD	(–)	100
	Roche Holdings, Inc.	South San Francisco	USD	1.0	100
	Roche Laboratories Inc.	Little Falls	USD	(–)	100
	Roche Molecular Systems, Inc.	Pleasanton	USD	(–)	100
	Roche Palo Alto LLC	South San Francisco	USD	(–)	100
	Roche Sequencing Solutions, Inc.	Pleasanton	USD	(–)	100
	Roche TCRC, Inc.	Little Falls	USD	(–)	100
	Seragon Pharmaceuticals Inc.	South San Francisco	USD	(–)	100
	Spark Therapeutics International Holdings, Inc.	Philadelphia	USD	(–)	100
	Spark Therapeutics, Inc.	Philadelphia	USD	(–)	100
	Tanox, Inc.	South San Francisco	USD	(–)	100
	Tensha Therapeutics, Inc.	South San Francisco	USD	(–)	100
	Therapeutic Human Polyclonals, Inc.	South San Francisco	USD	(–)	100
	Ventana Medical Systems, Inc.	Tucson	USD	(–)	100
	Viewics, Inc.	Santa Clara	USD	(–)	100
Uruguay	Roche International Ltd. (Montevideo Branch)	Montevideo	UYU	(–)	100
Venezuela	Productos Roche S.A.	Caracas	VEF	156.9	100
Vietnam	Roche Pharma (Vietnam) Company Limited	Ho Chi Minh City	VND	75,600.0	100
	Roche Vietnam Company Limited	Ho Chi Minh City	USD	25.0	100

(–) = share capital of less than 100,000 local currency units

34. Significant accounting policies

Consolidation policy

Subsidiaries are all companies over which the Group has control. The Group controls an entity when the Group is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. Companies acquired during the year are consolidated from the date on which control is transferred to the Group, and subsidiaries to be divested are included up to the date on which control passes from the Group. Intercompany balances, transactions and resulting unrealised income are eliminated in full. Changes in ownership interests in subsidiaries are accounted for as equity transactions if they occur after control has already been obtained and if they do not result in a loss of control. Associates are companies over which the Group exercises, or has the power to exercise, significant influence, but which it does not control, and they are accounted for using the equity method.

Segment reporting

For the purpose of segment reporting the Group's Corporate Executive Committee (CEC) is considered to be the Group's Chief Operating Decision Maker. The determination of the Group's operating segments is based on the organisation units for which information is reported to the CEC on a regular basis. The information provided is used as the basis of the segment revenue and profit disclosures reported in Note 2, with the geographic analysis based on the location of customers. Selected segment balance sheet information is also routinely provided to the CEC.

Transfer prices between operating segments are set on an arm's length basis. Operating assets and liabilities consist of property, plant and equipment, goodwill and intangible assets, trade receivables/payables, inventories and other assets and liabilities, such as provisions, which can be reasonably attributed to the reported operating segments. Non-operating assets and liabilities mainly include current and deferred income tax balances, post-employment benefit assets/liabilities and financial assets/liabilities such as cash, marketable securities, investments and debt.

Foreign currency translation

The Annual Financial Statements are presented in Swiss francs. Most Group companies use their local currency as their functional currency. Certain Group companies use other currencies (such as US dollar, Swiss franc or euro) as their functional currency where this is the currency of the primary economic environment in which the entity operates. Local transactions in other currencies are initially reported using the exchange rate at the date of the transaction. Gains and losses from the settlement of such transactions and gains and losses on translation of monetary assets and liabilities denominated in other currencies are included in income, except when they are qualifying cash flow hedges or arise on monetary items that, in substance, form part of the Group's net investment in a foreign entity. In such cases the gains and losses are deferred into other comprehensive income.

Upon consolidation, assets and liabilities of Group companies using functional currencies other than Swiss francs are translated into Swiss francs using year-end rates of exchange. The income statement and statement of cash flows are translated at the average rates of exchange for the year. Translation differences due to the changes in exchange rates between the beginning and the end of the year and the difference between net income translated at the average and year-end exchange rates are taken directly to other comprehensive income.

Revenue

Sales. Revenue from the sale of goods supplied (product sales) and services rendered are recorded as 'Sales'.

Sales are recognised when a promise in a customer contract (performance obligation) has been satisfied by transferring control over the promised goods and services to the customer. Control over a promised good or service refers to the ability to direct the use of, and obtain substantially all of the remaining benefits from, those goods or services. Control is usually transferred upon shipment, delivery to, upon receipt of goods by the customer, or as services are rendered, in accordance with the delivery and acceptance terms agreed with the customers. For goods subject to installation, such as instruments sold in the Diagnostics Division, sales are generally recognised upon completion of the installation at the customer's site and customer acceptance. The amount of sales to be recognised (transaction price) is based on the consideration the Group expects to receive in exchange for its goods and services, excluding amounts collected on behalf of third parties such as value added taxes or other taxes directly linked to sales. If a contract contains more than one performance obligation, the transaction price is allocated to each performance obligation based on their relative stand-alone selling prices.

Instruments in the Diagnostics Division may be sold together with other goods such as reagents and other consumables as well as services under a single contract or under several contracts that are combined for revenue recognition purposes. Sales are recognised upon satisfaction of each of the performance obligations in the contract. Instruments are either sold in cash and instalment sales transactions or otherwise made available to customers under finance lease and operating lease transactions.

- Finance leases: Arrangements in which the Group transfers substantially all of the risks and rewards of ownership to the customer are treated as finance lease arrangements. Income from finance leases is recognised as revenue at amounts that represent the fair value of the instrument, which approximates the present value of the minimum lease payments under the arrangement. As interest rates embedded in finance lease arrangements are approximately market rates, income from finance leases is comparable to revenue for outright sales. Finance income for finance lease arrangements longer than twelve months is deferred and subsequently recognised based on a pattern that approximates the use of the effective interest rate method and recorded in royalty and other operating income.
- Operating leases: Income from operating leases is recognised as revenue on a straight-line basis over the lease term or, when lease revenue is entirely variable and subject to subsequent reagent sales, as the performance obligation to deliver reagents is satisfied.

Sales, net of discounts, are based on estimates regarding the related obligations, including their stand-alone selling prices or fair values. It requires judgement to determine when different obligations are satisfied, including whether enforceable purchase commitments for further obligations exist and when they arise.

For contracts with distributors, no sales are recognised when goods are physically transferred to the distributor under a consignment arrangement, or if the distributor acts as an agent. In such cases, sales are recognised when control over the goods transfers to the end-customer, and distributor's commissions are presented within marketing and distribution. Commissions and similar payments to distributors acting as principals are deducted from sales unless such payments are in exchange for a distinct service.

The consideration received by the Group in exchange for its goods and services may be fixed or variable. Variable consideration is only recognised when it is considered highly probable that a significant revenue reversal will not occur once the underlying uncertainty related to variable consideration is subsequently resolved. The most common elements of variable consideration in the Pharmaceuticals Division are listed below:

- Government and regulatory mandatory price reductions. These consist of mandatory price reductions. The major elements are the 340B Drug Discount Program, Medicaid and other plans in the US.
- 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.

Revenues from product sales are recorded net of allowances for estimated rebates, chargebacks, cash discounts and estimates of product returns, all of which are established at the time of sale. All product sales allowances are based on estimates of the amounts earned or to be claimed on the related sales. These estimates take into consideration historical experience, current contractual and statutory requirements, specific known market events and trends such as competitive pricing and new product introductions, estimated inventory levels, and the shelf life of products. If actual future results vary, these estimates need to be adjusted, with an effect on sales and earnings in the period of the adjustment. 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.

The Group recognises a deferred income (contract liability) if consideration has been received (or has become receivable) before the Group transfers the promised goods or services to the customer. Deferred income mainly relates to remaining performance obligations for goods free of charge under certain patient access or similar programmes, reagents and other consumables and services.

Remaining performance obligations in (partially) unsatisfied long-term contracts are either included in deferred income or are related to amounts the Group expects to receive for goods and services that have not yet been transferred to customers under existing, non-cancellable or otherwise enforceable contracts. These are mainly associated with contracts with minimum purchase commitments related to reagents and consumables for previously sold instruments as well as monitoring and maintenance services. For contracts that have an original duration of one year or less, the Group has elected the practical expedient to not disclose the transaction price for remaining performance obligations at the end of each reporting period and at which point in time the Group expects to recognise these sales.

Royalty and other operating income. Royalty and other operating income includes royalty income, income from out-licensing agreements and income from disposal of products and other items.

Royalty income earned through a licence is recognised as the underlying sales are recorded by the licensee.

Income from out-licensing agreements typically arises from the receipt of upfront, milestone and other similar payments from third parties for granting a licence to product- or technology-related intellectual property (IP). Out-licensing agreements may be entered into with no further obligation or may include commitments to conduct research, late-stage development, regulatory approval, co-marketing or manufacturing. Licences granted are usually rights to use IP and are generally unique. Therefore the basis of allocating revenue to performance obligations makes use of the residual approach. Upfront payments and other licensing fees are usually recognised upon granting the licence unless some of the income shall be deferred for other performance obligations using the residual approach. Such deferred income is released and recognised as revenue when other performance obligations are satisfied. Milestone payments are typically received upon reaching a specific scientific milestone (development milestone) or upon achieving a certain annual sales milestone (commercial milestone). Development milestone income is recognised at the point in time when it is highly probable that the respective milestone event criteria is achieved, and the risk of revenue reversal is considered remote. Commercial milestone income is accrued and recognised as revenue when it is highly probable that the annual sales milestone is reached during the period.

Payments received for the disposal of product and similar rights are recognised as revenue upon transfer of control over such rights. To the extent that some of these payments relate to other performance obligations, a portion is deferred using the residual approach and recognised as revenue when or as activities such as manufacturing or other services are rendered. Income from profit-sharing agreements with collaboration partners is recognised as underlying sales and cost of sales are recorded by the collaboration partners. Also included is income from other services rendered which are usually not part of the Group's primary business activities, to the extent that such revenue is not recorded under 'Sales', and is recognised when control transfers and performance obligations are satisfied.

Cost of sales

Cost of sales includes the corresponding direct production costs and related production overheads of goods sold and services rendered. Royalties, alliance and collaboration expenses, including all collaboration profit-sharing agreements, are also reported as part of cost of sales. Start-up costs between validation and the achievement of normal production capacity are expensed as incurred.

Research and development

Internal research and development activities are expensed as incurred for the following:

- Internal research costs incurred for the purpose of gaining new scientific or technical knowledge and understanding.
- Internal development costs incurred for the application of research findings or other knowledge to plan and develop new products for commercial production. The development projects undertaken by the Group are subject to technical, regulatory and other uncertainties, such that, in the opinion of management, the criteria for capitalisation as intangible assets are not met prior to obtaining marketing approval by the regulatory authorities in major markets.
- Post-marketing studies after regulatory approval, such as phase IV costs in the pharmaceuticals business, generally involve safety surveillance and ongoing technical support of a drug after it receives marketing approval to be sold. They may be required by regulatory authorities or may be undertaken for safety or commercial reasons. The costs of such post-marketing studies are not capitalised as intangible assets as, in the opinion of management, they do not generate separately identifiable incremental future economic benefits that can be reliably measured.

Acquired in-process research and development resources obtained through in-licensing arrangements, business combinations or separate asset purchases, including asset acquisitions, are capitalised as intangible assets. The acquired asset must be controlled by the Group, be separately identifiable and expected to generate future economic benefits, even if uncertainty exists as to whether the research and development will ultimately result in a marketable product. Consequently, upfront and milestone payments to third parties for pharmaceutical products or compounds before regulatory marketing approval are recognised as intangible assets. Assets acquired through such arrangements are measured on the basis set out in the 'Intangible assets' policy. Subsequent internal research and development costs incurred post-acquisition are treated in the same way as other internal research and development costs. If research and development are embedded in contracts for strategic alliances, the Group carefully assesses whether upfront or milestone payments constitute funding of research and development work or acquisition of an asset.

Employee benefits

Short-term employee benefits include wages, salaries, social security contributions, paid annual leave and sick leave, profit sharing and bonuses, and non-monetary benefits for current employees. The costs are recognised within the operating results when the employee has rendered the associated service. The Group recognises a liability for profit sharing and bonuses where contractually obliged or where there is a past practice that has created a constructive obligation.

Long-term employee benefits include long-service or sabbatical leave, long-service benefits and long-term disability benefits. The expected costs of these benefits are accrued over the period of employment. Any changes in the carrying value of other long-term employee benefit liabilities are recognised within the operating results.

Termination benefits are payable when employment is terminated by the Group before the normal retirement date, or whenever an employee accepts voluntary redundancy in exchange for these benefits. Termination costs are recognised at the earlier of when the Group can no longer withdraw the offer of the benefits or when the Group recognises any related restructuring costs.

Pensions and other post-employment benefits

For defined contribution plans the Group contributions are recognised within the operating results when the employee has rendered the associated service. Prepaid contributions are recognised as an asset to the extent that a cash refund or a reduction in future payments is available.

For defined benefit plans the liability recognised in the balance sheet is the present value of the defined benefit obligation less the fair value of the plan assets. All changes in the net defined benefit liability are recognised as they occur as follows:

Recognised in the income statement:
- Current service cost is charged to the appropriate income statement heading within the operating results.
- Past service cost, including curtailment gains or losses, is recognised immediately in general and administration within the operating results.
- Settlement gains or losses are recognised in general and administration within the operating results.
- Net interest on the net defined benefit liability is recognised in financing costs.

Recognised in other comprehensive income:
- Actuarial gains and losses arising from experience adjustments (the difference between previous assumptions and what has actually occurred) and changes in actuarial assumptions.
- The return on plan assets, excluding amounts included in net interest on the net defined benefit liability.
- Any change in the limit on the recognition of plan assets, excluding amounts included in net interest on the net defined benefit liability.

Net interest on the net defined benefit liability is comprised of interest income on plan assets, interest cost on the defined benefit obligation and interest on the effect of the limit on the recognition of pension assets. The net interest is calculated using the same discount rate that is used in calculating the defined benefit obligation, applied to the net defined liability at the start of the period, taking into account any changes from contribution or benefit payments.

Pension assets and liabilities in different defined benefit plans are not offset unless the Group has a legally enforceable right to use the surplus in one plan to settle obligations in the other plan.

Equity compensation plans

The fair value of all equity compensation awards granted to employees is estimated at the grant date and recorded as an expense over the vesting period. The expense is charged to the appropriate income statement heading within the operating results. For equity-settled plans, an increase in equity is recorded for this expense and any subsequent cash flows from exercises of vested awards are recorded as changes in equity.

Property, plant and equipment

Property, plant and equipment are initially recorded at cost of purchase or construction, and include all costs directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management. These include items such as costs of site preparation, installation and assembly costs, and professional fees. The net costs of testing whether the asset is functioning properly, including validation costs, are also included in the initially recorded cost of construction. Interest and other borrowing costs incurred with respect to qualifying assets are capitalised and included in the carrying value of the assets. Property, plant and equipment are depreciated on a straight-line basis, except for land, which is not depreciated. The estimated useful lives of major classes of depreciable assets are as follows:

Land improvements	40 years
Buildings	10–50 years
Machinery and equipment	4–15 years
Diagnostic instruments	3–5 years
Office equipment	3–6 years
Motor vehicles	5–8 years

Where parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate components. The estimated useful lives of the assets are regularly reviewed and, if necessary, the future depreciation charges are accelerated. Repairs and maintenance costs are expensed as incurred.

Leases

Where the Group is the lessee. At inception of a contract the Group assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. The Group recognises a right-of-use asset and a corresponding lease liability for each contract that is, or contains, a lease at the lease commencement date, except for short-term leases and leases of low-value assets. Payments for short-term leases and leases of low-value assets are recognised as an expense on a straight-line basis over the term of the respective lease. The lease liability is initially measured at the present value of the future lease payments that are not paid at the lease commencement date. The lease payments are discounted using the interest rate implicit in the lease or, if not readily determinable, the Group's incremental borrowing rate in the respective markets. Lease payments include fixed payments, variable payments that depend on an index or rate known at the lease commencement date and payments from exercising extension or purchase options if the Group is reasonably certain to exercise. The lease liability is subsequently measured at amortised costs using the effective interest method. It is remeasured, with a corresponding adjustment to the related right-of-use asset, when there is a change in future lease payments following a contract renegotiation, a change of an index or rate or a reassessment of options. The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any payments made at or before the lease commencement date and which includes any initial direct costs incurred and expected costs of obligations to dismantle, remove or refurbish the underlying asset, less any incentives received. Right-of-use assets are depreciated on a straight-line basis from the lease commencement date over the shorter of the lease term or the useful life of the underlying asset. Right-of-use assets are assessed for impairment whenever there is an indication for impairment.

Where the Group is the lessor. Certain assets, mainly Diagnostics instruments, are leased to third-party customers through both finance and operating lease arrangements. Such transactions may be entered into in separate contracts or in combined contracts including reagents and other consumables and services. The treatment of leasing transactions is mainly determined by whether the lease is considered to be an operating or finance lease, which requires judgement. In making this assessment, management looks at the substance of the lease, as well as the legal form, and makes a judgement about whether substantially all of the risks and rewards of ownership are transferred. If this is the case, then the lease is a finance lease. If not, then it is an operating lease. Arrangements which do not take the legal form of a lease but that nevertheless convey the right to use an asset are also covered by such judgemental assessments.

- Finance leases: Finance lease assets are reported as receivables at an amount equal to the net investment in the lease. Income from finance leases is recognised as revenue at amounts that represent the stand-alone selling price of the instrument, which approximates the present value of the minimum lease payments under the arrangement. Minimum lease payments exclude any variable lease payments or contingent rent. Finance income for finance lease arrangements longer than twelve months is deferred and subsequently recognised based on a pattern that approximates the use of the effective interest method and recorded in royalty and other operating income.
- Operating leases: Income from operating leases is recognised as revenue on a straight-line basis over the lease term at amounts that represent the stand-alone selling price of the instrument, which approximates the present value of the minimum lease payments under the arrangement. Minimum lease payments exclude any variable lease payments or contingent rent. When lease revenue is entirely based on variable lease payments and subject to subsequent reagent sales, it is recognised as the performance obligations for reagents are satisfied.

Sales, net of discounts, are based on estimates regarding the related obligations, including their stand-alone selling prices. It requires judgement to determine when different obligations are satisfied, including whether enforceable purchase commitments for further obligations exist and when they arise.

Mergers and acquisitions

Business combinations. Business combinations are accounted for using the acquisition method of accounting. At the date of the acquisition the Group initially recognises the fair value of the identifiable assets acquired, the liabilities assumed and any non-controlling interest in the acquired business. The consideration transferred is measured at fair value at the date of acquisition. Where the Group does not acquire 100% ownership of the acquired business, non-controlling interests are recorded either at fair value or as the proportion of the fair value of the acquired net assets attributable to the non-controlling interest. Directly attributable acquisition-related costs are expensed as incurred within general and administration expenses.

Asset acquisitions. Asset acquisitions are acquisitions of legal entities that do not qualify as business combinations. At the date of the acquisition the Group initially recognises the individual identifiable assets acquired and liabilities assumed. The cost to the Group at the date of the acquisition is allocated to the individual identifiable assets and liabilities on the basis of their relative fair values at the date of the acquisition. Subsequent consideration for performance-related development milestones is recognised as intangible assets when the specific milestones have been achieved and other recognition criteria are met. Such transactions do not give rise to goodwill. Material directly attributable acquisition-related costs are included in the cost of the acquired assets.

Goodwill

Goodwill arises in a business combination and is the excess of the consideration transferred to acquire the business over the underlying fair value of the net identified assets acquired. Goodwill is not amortised but is tested for impairment at least annually and upon the occurrence of an indication of impairment.

Intangible assets

Purchased patents, licences, trademarks and other intangible assets are initially recorded at cost. Assets that have been acquired through a business combination are initially recorded at fair value. Commercial software development costs are capitalised when certain recognition criteria such as technical feasibility and commercial viability are met. Once available for use, intangible assets are amortised on a straight-line basis over their useful lives. Intangible assets are reviewed for impairment at each reporting date. The estimated useful life is the lower of the legal duration and the economic useful life. The estimated useful lives of intangible assets are regularly reviewed. Estimated useful lives of major classes of amortisable intangible assets are as follows:

Product intangibles in use	up to 20 years
Marketing intangibles in use	up to 15 years
Technology intangibles in use	up to 20 years

Impairment of property, plant and equipment, right-of-use assets and intangible assets

An impairment assessment is carried out when there is evidence that an asset may be impaired. In addition, intangible assets that are not yet available for use are tested for impairment annually. When the recoverable amount of an asset, being the higher of its fair value less costs of disposal and its value in use, is less than its carrying value, then the carrying value is reduced to its recoverable amount. This reduction is reported in the income statement as an impairment loss. Value in use is calculated using estimated cash flows, generally over a five-year period, with extrapolating projections for subsequent years. These are discounted using an appropriate long-term interest rate. When an impairment loss arises, the useful life of the asset is reviewed and, if necessary, the future depreciation/amortisation charge is accelerated. If the amount of impairment loss subsequently decreases and the decrease can be related objectively to an event occurring after the impairment was recognised, then the previously recognised impairment loss is reversed through the income statement as an impairment reversal.

Impairment of goodwill

Goodwill is assessed for impairment at each reporting date and is additionally tested annually for impairment. Goodwill is allocated to cash-generating units and when the recoverable amount of the cash-generating unit, being the higher of its fair value less costs of disposal or its value in use, is less than its carrying value, then the carrying value of the goodwill is reduced to its recoverable amount. This reduction is reported in the income statement as an impairment loss. When an acquired business that is included within a cash-generating unit permanently ceases to operate, then it is treated as a disposal of that business. For separately identifiable goodwill that was generated on the initial acquisition of that business and where all of the factors that made up that goodwill are entirely unrelated to the continuing operations of the cash-generating unit, then the goodwill is deemed to have been disposed of and is fully impaired. As described in Note 9, this also applies if acquired products permanently cease to generate economic benefits or if acquired technologies permanently cease to operate. The impairment testing methodology is further described in Note 9.

Inventories

Inventories are stated at the lower of cost and net realisable value. The cost of finished goods, work in process and intermediates includes raw materials, direct labour and other directly attributable costs and overheads based upon the normal capacity of production facilities. Cost is determined using the weighted average method. Net realisable value is the estimated selling price less cost to completion and selling expenses.

Receivables, including accounts receivable

Receivables are carried at the original invoice amount less allowances made for doubtful accounts, trade discounts, cash discounts, volume rebates and similar allowances. A receivable represents a right to consideration that is unconditional and excludes contract assets. An allowance for doubtful accounts is recorded for expected credit losses over the term of the receivables. These estimates are based on specific indicators, such as the ageing of customer balances, specific credit circumstances and the Group's historical loss rates for each category of customers, and adjusted for forward-looking macroeconomic data. Expenses for doubtful trade receivables are recognised within marketing and distribution expenses. Trade discounts, cash discounts, volume rebates and similar allowances are recorded on an accrual basis consistent with the recognition of the related sales, using estimates based on existing contractual obligations, historical trends and the Group's experience.

Receivables are written off (either partly or in full) when there is no reasonable expectation of recovery. Where receivables have been written off, the Group continues to engage in enforcement activities to attempt to recover the receivable due. Where recoveries are made, these are recognised in profit or loss.

For trade and lease receivables, the Group applies the simplified approach prescribed by IFRS 9, which requires/permits the use of the lifetime expected loss provision from initial recognition of the receivables. The Group measures an allowance for doubtful accounts equal to the credit losses expected over the lifetime of the trade and lease receivables.

Cash and cash equivalents

Cash and cash equivalents include cash on hand and time, call and current balances with banks and similar institutions. Such balances are only reported as cash equivalents if they are readily convertible to known amounts of cash, are subject to insignificant risk of changes in their fair value and have a maturity of three months or less from the date of acquisition.

Provisions and contingencies

Provisions are recognised where a legal or constructive obligation has been incurred which will probably lead to an outflow of resources that can be reliably estimated. In particular, restructuring provisions are recognised when the Group has a detailed formal plan that has either commenced implementation or has been announced. Provisions are recorded for the estimated ultimate liability that is expected to arise and are discounted when the time value of money is material. A contingent liability is disclosed where the existence of the obligation will only be confirmed by future events or where the amount of the obligation cannot be measured with reasonable reliability. Contingent assets are not recognised, but are disclosed where an inflow of economic benefits is probable.

Fair values

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. It is determined by reference to quoted market prices or by the use of established valuation techniques such as option pricing models and the discounted cash flow method if quoted prices in an active market are not available.

Financial instruments

The Group classifies its financial instruments in the following measurement categories which are disclosed in Note 31: amortised cost; fair value through OCI; fair value through OCI – equity investments; or fair value through profit or loss (including hedging instruments).

The classification depends on the Group's business model for managing the financial assets and the contractual terms of the cash flows. The Group reclassifies debt securities and financial assets at amortised cost when and only when its business model for managing those assets changes.

At initial recognition, the Group measures a financial asset at its fair value plus, in the case of a financial asset not at fair value through profit or loss, transaction costs that are directly attributable to the acquisition of the financial asset. Transaction costs of financial assets carried at fair value through profit or loss are expensed in profit or loss.

Amortised cost. Assets that are held for collection of contractual cash flows where those cash flows represent solely payments of principal and interest are measured at amortised cost, less provision for impairment. A gain or loss on a debt security that is subsequently measured at amortised cost and is not part of a hedging relationship is recognised in profit or loss when the asset is derecognised or impaired. Interest income from these financial assets is included in other financial income using the effective interest rate method. Assets at amortised cost are mainly comprised of accounts receivable, cash and cash equivalents and time accounts over three months.

Fair value through other comprehensive income (fair value through OCI). These are financial assets that are held for collection of contractual cash flows and for selling the financial assets, where the assets' cash flows represent solely payments of principal and interest. Those are initially recorded and subsequently carried at fair value. Changes in the fair value are recorded in other comprehensive income, except for the recognition of impairment gains or losses, interest revenue and foreign exchange gains and losses which are recognised in profit or loss. When the financial asset is derecognised, the cumulative gain or loss previously recognised in OCI is reclassified from equity to profit or loss. Interest income from these financial assets is included in other financial income using the effective interest rate method. Fair value through other comprehensive income assets are mainly comprised of money market instruments and debt securities.

Equity investments at fair value through other comprehensive income (fair value through OCI). These are equity investments in private biotechnology companies, which are kept as part of the Group's strategic alliance efforts. These assets are subsequently measured at fair value. Dividends are recognised as other financial income in profit or loss unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognised in OCI and included in the fair value reserve. When such an asset is derecognised, the cumulative gain or loss previously recognised in OCI is reclassified within equity from the fair value reserve to retained earnings and never to profit or loss.

Fair value through profit or loss. These are financial assets whose performance is evaluated on a fair value basis. A gain or loss on a financial asset that is subsequently measured at fair value through profit or loss and is not part of a hedging relationship is recognised in profit or loss and presented within other financial income (expense) in the period in which it arises. Fair value through profit or loss assets are mainly comprised of equity investments/securities. Contingent consideration liabilities are initially recorded and subsequently carried at fair value with changes in fair value recorded in general and administration within the operating results of the income statement.

Fair value through profit or loss – hedging instruments. These are derivative financial instruments that are used to manage the exposures to foreign currency, interest rate, equity market and credit risks. These instruments are initially recorded and subsequently carried at fair value. Apart from those derivatives designated as qualifying cash flow hedging instruments, all changes in fair value are recorded as other financial income (expense).

Other financial liabilities. These are non-derivative financial liabilities. Other financial liabilities are initially recorded at fair value, less transaction costs, and subsequently carried at amortised cost using the effective interest rate method. Other financial liabilities are mainly comprised of debt and trade payables.

Debt. Debt instruments are initially recorded at cost, which is the proceeds received, net of transaction costs. Subsequently they are reported at amortised cost. Any discount between the net proceeds received and the principal value due on redemption is amortised over the duration of the debt instrument and is recognised as part of financing costs using the effective interest rate method.

Derecognition. A financial asset is derecognised when the contractual cash flows from the asset expire or when the Group transfers the rights to receive the contractual cash flows from the financial assets in a transaction in which substantially all the risks and rewards of ownership of the financial asset are transferred. A financial liability is derecognised when the contractual obligations are discharged, cancelled or expire.

Impairment of financial assets

The Group recognises loss allowances for expected credit losses ('ECL') for financial assets measured at amortised cost and debt securities measured at fair value through OCI.

For trade and lease receivables the Group measures the allowance for doubtful accounts at an amount equal to lifetime ECL.

For debt securities carried at fair value through OCI and debt securities and other financial assets at amortised cost, which are determined to have low credit risk based on external credit ratings of the counterparties, the Group measures loss allowances at an amount equal to 12-month ECL. The Group considers debt securities to have low credit risk when their credit risk rating is equivalent to the globally understood definition of 'investment grade'. The Group considers this to be at least Baa3 from Moody's and BBB- from Standard & Poor's. When the credit risk of debt securities carried at fair value through OCI and debt securities and other financial assets at amortised cost has increased significantly since their initial recognition, the Group measures loss allowances at an amount equal to lifetime ECL. The Group assumes that the credit risk of such instruments have increased significantly if they are more than 30 days past due.

Financial assets are written off (either partially or in full) when there is no realistic prospect of recovery. This is generally the case when the Group determines that the customer does not have assets or sources of income that could generate sufficient cash flows to repay the amounts subject to the write-off. However, financial assets that are written off are still subject to enforcement activities in order to comply with the Group's policy for recovery of amounts due.

Hedge accounting

The Group uses derivatives to manage its exposures to foreign currency, interest rate, equity market and credit risks. The instruments used may include interest rate swaps, cross-currency swaps, forwards contracts and options. The Group generally limits the use of hedge accounting to certain significant transactions. To qualify for hedge accounting, the hedging relationship must meet several strict conditions on eligibility of hedging and hedged instruments, formal designation and documentation, as well as hedge effectiveness and reliability of measurement. While many of these transactions can be considered as hedges in economic terms, if the required conditions are not met, then the relationship does not qualify for hedge accounting. In this case the hedging instrument and the hedged item are reported independently as if there were no hedging relationship, which means that any derivatives are reported at fair value, with changes in fair value included in other financial income (expense).

Cash flow hedge. This is a hedge of the exposure to variability in cash flows that is attributable to a particular risk associated with a recognised asset or liability or a highly probable forecasted transaction and could affect profit or loss. The hedging instrument is recorded at fair value. The effective portion of the hedge is included in other comprehensive income and any ineffective portion is reported in other financial income (expense). If the hedging relationship is the hedge of the foreign currency risk of a firm commitment or highly probable forecasted transaction that results in the recognition of a non-financial item, the cumulative changes in the fair value of the hedging instrument that have been recorded in other comprehensive income are included in the initial carrying value of the non-financial item at the date of recognition. For all other cash flow hedges, the cumulative changes in the fair value of the hedging instrument that have been recorded in other comprehensive income are included in other financial income (expense) when the forecasted transaction affects net income.

Fair value hedge. This is a hedge of the exposure to changes in fair value of a recognised asset or liability, or an unrecognised firm commitment, or an identified portion of such an asset, liability or firm commitment, that is attributable to a particular risk and could affect profit or loss. The hedging instrument is recorded at fair value and the hedged item is recorded at its previous carrying value, adjusted for any changes in fair value that are attributable to the hedged risk. Changes in the fair values are reported in other financial income (expense).

Taxation

Income taxes include all taxes based upon the taxable profits of the Group, including withholding taxes payable on the distribution of retained earnings within the Group. Other taxes not based on income, such as property and capital taxes, are included within general and administration expenses.

Liabilities for income taxes, mainly withholding taxes, which could arise on the remittance of retained earnings, principally relating to subsidiaries, are only recognised where it is probable that such earnings will be remitted in the foreseeable future. Where the amount of tax liabilities is uncertain, accruals are recorded within income tax liabilities for management's best estimate of the ultimate liability that is expected to arise based on the specific circumstances and the Group's historical experience.

Deferred tax assets and liabilities are recognised on temporary differences between the tax bases of assets and liabilities and their carrying values. Deferred tax assets are recognised to the extent that it is probable that future taxable profit will be available against which the unused tax losses can be utilised.

Current and deferred tax assets and liabilities are offset when the income taxes are levied by the same taxation authority and when there is a legally enforceable right to offset them. Deferred taxes are determined based on the currently enacted tax rates applicable in each tax jurisdiction where the Group operates.

Own equity instruments

The Group's holdings in its own equity instruments are recorded as a deduction from equity. The original purchase cost, consideration received for subsequent resale of these equity instruments and other movements are reported as changes in equity. These instruments are held for the Group's potential conversion obligations that may arise from the Group's equity compensation plans.

Changes in accounting policies

In 2021 the Group has implemented various minor amendments to existing standards and interpretations, which have no material impact on the Group's overall results and financial position.

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 2022 which the Group has not yet applied. Based on an 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 2022.

Report of Roche Management on Internal Control over Financial Reporting

Report of Roche Management on Internal Control over Financial Reporting

The Board of Directors and management of Roche Holding Ltd are responsible for establishing and maintaining adequate control over financial reporting. The internal control system was designed to provide reasonable assurance over the reliability of financial reporting and the preparation and fair presentation of consolidated financial statements in accordance with International Financial Reporting Standards.

All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective may not prevent or detect misstatements and can provide only reasonable assurance with respect to financial statement preparation and presentation. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions or that the degree of compliance with the policies or procedures may deteriorate.

Management assessed the effectiveness of its system of internal control over financial reporting as of 31 December 2021 based on the criteria for effective internal control over financial reporting described in *Internal Control – Integrated Framework 2013* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this assessment, management has concluded that the system of internal control over financial reporting was effective as of 31 December 2021.

The Statutory Auditor KPMG AG has audited the consolidated financial statements of Roche Holding Ltd for the year ended 31 December 2021, in accordance with Swiss Auditing Standards and with the International Standards on Auditing (ISA).

Christoph Franz
Chairman of the Board of Directors

Alan Hippe
Chief Financial Officer

Basel, 1 February 2022

Statutory Auditor's Report

To the General Meeting of Roche Holding Ltd, Basel

Report on the Audit of the Consolidated Financial Statements

Opinion

We have audited the consolidated financial statements of Roche Holding Ltd and its subsidiaries (the Group), which comprise the consolidated balance sheet as at 31 December 2021 and the consolidated income statement, consolidated statement of comprehensive income, consolidated statement of changes in equity and consolidated statement of cash flows for the year then ended, and notes to the consolidated financial statements, including a summary of significant accounting policies.

In our opinion the consolidated financial statements (pages 44–152) give a true and fair view of the consolidated financial position of the Group as at 31 December 2021, and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with International Financial Reporting Standards (IFRS) and comply with Swiss law.

Basis for Opinion

We conducted our audit in accordance with Swiss law, International Standards on Auditing (ISAs) and Swiss Auditing Standards. Our responsibilities under those provisions and standards are further described in the Auditor's Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are independent of the Group in accordance with the provisions of Swiss law and the requirements of the Swiss audit profession, as well as the International Ethics Standards Board for Accountants' International Code of Ethics for Professional Accountants (including International Independence Standards) (IESBA Code), and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Key Audit Matters

Chargebacks, other rebates and sales returns in the US pharmaceuticals business

Carrying value of product intangible assets not available for use in the Pharmaceuticals Division

Income tax – uncertain tax positions

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Chargebacks, other rebates and sales returns in the US pharmaceuticals business

Key Audit Matter

The Group's pharmaceuticals business makes sales to various customers in the US that fall under certain government-mandated and commercial contracts, purchasing and reimbursement arrangements, of which the most significant is the 340B Drug Discount Program. The Group also provides a right of return to its US customers for certain products, with return periods that in some cases extend several years into the future. These arrangements result in deductions to gross amounts invoiced in arriving at revenue and create obligations for the Group to provide customers with credits, chargebacks or rebate payments. The estimated amounts are deducted from gross sales and recorded as accrued liabilities (rebates) or provisions for sales returns, or as a deduction from accounts receivable (chargebacks). These estimates are based on analyses of existing contractual or legislatively mandated obligations, recent trends and historical experience.

Management has determined accrued liabilities and deductions to accounts receivable for expected chargebacks and other rebates, predominantly contractual price reductions, of CHF 1,750 million to be necessary at 31 December 2021. Additionally, provisions for sales returns mainly relating to products with loss of exclusivity of CHF 432 million were recorded at 31 December 2021.

We focused on this area because the arrangements are complex and because establishing an appropriate year-end position requires significant judgement and estimation by management. The assumptions required for estimating provisions for sales returns are also made more complicated given the recent loss of exclusivity in the US for some of the Group's pharmaceutical products.

Our response

Our audit procedures included, amongst others, on a sample basis, obtaining management's calculations for accrued liabilities, provisions and accounts receivable deductions, testing the accuracy of the calculations and assessing the appropriateness of key inputs and assumptions used in the estimates. In performing our assessment, we referenced internal and external sources of information, including the terms of the applicable contracts, US government pricing information, historical rates of chargebacks and other rebates, historical rates of sales returns and consideration of current trends.

We also evaluated the accuracy of management's estimates by comparing rates used in historical estimates to the rates of actual rebate payments and chargebacks. We assessed changes in the accrual rates used within the estimates for 2021 by comparing the accrual rates to current chargeback, other rebate payment and sales return trends.

We also evaluated the appropriateness of the Group's revenue recognition accounting policies, including the recognition and measurement of deductions to gross sales relating to chargebacks, other rebates and sales returns and related disclosures.

For further information on chargebacks, other rebates and sales returns in the US pharmaceuticals business refer to the following:

Page 143 (Significant accounting policies, note 34), page 50 (General accounting principles – Key accounting judgements, estimates and assumptions, note 1) and pages 57, 81 and 84–90 (Financial disclosures, note 3 Revenue, note 12 Accounts receivable, note 19 Other current liabilities and note 20 Provisions and contingent liabilities).

KPMG

Carrying value of product intangible assets not available for use in the Pharmaceuticals Division

Key Audit Matter

Product intangibles not available for use in the Pharmaceuticals Division (CHF 5,211 million) mostly represent in-process research and development assets. These were acquired through business combinations, asset acquisitions or in-licensing arrangements.

Due to the inherent uncertainties in the research and development processes, intangible assets not available for use are particularly at risk of impairment. The impairment assessment requires management to make key assumptions and judgements on the clinical, technical and commercial viability of the new products. Accordingly, we also focused our audit work on these areas. Risks include an inability to achieve successful trial results, obtain required clinical and/or regulatory approvals and a highly competitive business environment in the therapeutic areas where the Group has significant assets in research or development.

Our response

Our audit procedures included, amongst others, challenging the robustness of the key assumptions used to determine the recoverable amounts, including forecast revenues and the discount rate.

Our challenge was based on our understanding of the commercial prospects of the individual products, as well as the relevant business areas and markets in which they operate. We used our valuation specialists to assist us in evaluating the assumptions and methodologies used by management in relation to the discount rate. We assessed the key inputs such as projected pricing and volumes, and the products' projected share of the therapeutic area, by comparing relevant assumptions to industry forecasts and by reviewing analyst commentaries. We compared management's assumptions with external data where it was available. We performed sensitivity analysis over individual intangible asset impairment models to assess the level of sensitivity to key assumptions so we could focus our work on those areas and assess management's allowance for risk. In addition, we assessed the reasonableness of management's assumptions regarding the probability of obtaining regulatory approval through comparison to industry practice, past history, and consideration of the Group's internal governance and approval processes.

For further information on the carrying value of product intangible assets not available for use in the Pharmaceuticals Division refer to the following:

Page 143 (Significant accounting policies, note 34), page 50 (General accounting principles – Key accounting judgements, estimates and assumptions, note 1) and pages 77–80 (Financial disclosures, note 10 Intangible assets).

KPMG

Income tax – uncertain tax positions

Key Audit Matter

The Group operates across a wide range of different tax jurisdictions around the world and thus its tax treatments in tax filings are subject to challenge by local tax authorities in respect of cross-border transfer pricing arrangements for goods and services, financing and transaction-related tax matters in connection with the integration of investments, divestments and licensing contracts. Tax treatments involving uncertainty include agreements and transfer pricing arrangements between affiliates involved in the Group's global manufacturing supply chains.

Where it is not probable that the tax authority will accept a treatment, the tax liability recognised in the financial statements reflects management's best estimate of the outcome based on the facts known in the relevant jurisdiction. The Group has open tax and transfer pricing matters with various tax authorities where the range of possible outcomes is broad. At 31 December 2021, the Group has recognised current income tax liabilities of CHF 3,002 million which includes accruals for uncertain tax positions.

We focused on this area as there is uncertainty regarding the estimates of the amounts of tax receivable or payable, and these therefore require a significant level of expertise and judgement.

Our response

Our audit procedures included, amongst others, obtaining an understanding of uncertain tax positions through inquiry of employees of the tax department and management of affiliates. We inspected documentation in relation to tax exposure items including correspondence with tax authorities and reports issued by tax advisors to verify whether uncertain tax positions have been considered and provided for where necessary.

For significant items we challenged management's judgement regarding the eventual resolution of the uncertainties with the assistance of our local country tax specialists and re-performed the calculation of the estimated exposure. We inspected third-party transfer pricing studies and evaluated, where applicable, past experience of management's interactions with the tax authorities in the respective jurisdiction. Additionally, we used our own tax specialists' expertise to assess the appropriateness of the key assumptions made by management and to conclude on a best estimate of the outcome.

Our audit approach included additional audit procedures to consider uncertain tax positions arising for the Group in particular with respect to transfer pricing arrangements for goods and services and transaction-related tax matters.

For further information on uncertain tax positions refer to the following:

Page 143 (Significant accounting policies, note 34), page 50 (General accounting principles – Key accounting judgements, estimates and assumptions, note 1) and pages 62–64 (Financial disclosures, note 5 Income taxes).

KPMG

Other Information in the Annual Report

The Board of Directors is responsible for the other information in the annual report. The other information comprises all information included in the annual report, but does not include the consolidated financial statements, the stand-alone financial statements of the company, the remuneration report and our auditor's reports thereon.

Our opinion on the consolidated financial statements does not cover the other information in the annual report and we do not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information in the annual report and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibility of the Board of Directors for the Consolidated Financial Statements

The Board of Directors is responsible for the preparation of consolidated financial statements that give a true and fair view in accordance with IFRS and the provisions of Swiss law, and for such internal control as the Board of Directors determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the Board of Directors is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Board of Directors either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Swiss law, ISAs and Swiss Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with Swiss law, ISAs and Swiss Auditing Standards, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made.
- Conclude on the appropriateness of the Board of Directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the consolidated financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the Group audit. We remain solely responsible for our audit opinion.

We communicate with the Board of Directors or its relevant committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide the Board of Directors or its relevant committee with a statement that we have complied with relevant ethical requirements regarding independence, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, actions taken to eliminate threats or safeguards applied.

From the matters communicated with the Board of Directors or its relevant committee, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report, unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Report on Other Legal and Regulatory Requirements

In accordance with article 728a para. 1 item 3 CO and the Swiss Auditing Standard 890, we confirm that an internal control system exists, which has been designed for the preparation of consolidated financial statements according to the instructions of the Board of Directors.

We recommend that the consolidated financial statements submitted to you be approved.

KPMG AG

Mark Baillache Licensed Audit Expert Auditor in Charge	Marc Ziegler Licensed Audit Expert

Basel, 1 February 2022

KPMG AG is a subsidiary of KPMG Holding AG, which is a member firm of the KPMG global organisation of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee. All rights reserved.

Multi-Year Overview and Supplementary Information

Multi-Year Overview

Statistics, as reported

	2012	2013	2014
Income statement in millions of CHF			
Sales	45,499	46,780	47,462
EBITDA	19,040	19,802	19,558
Operating profit	14,125	16,376	14,090
Net income attributable to Roche shareholders	9,539	11,164	9,332
Research and development	9,552	9,270	9,895
Balance sheet in millions of CHF			
Non-current assets	33,434	33,003	44,426
Current assets	31,371	29,164	31,114
Total assets	64,805	62,167	75,540
Non-current liabilities	(27,868)	(25,166)	(30,874)
Current liabilities	(20,209)	(15,760)	(23,108)
Total liabilities	(48,077)	(40,926)	(53,982)
Net assets	16,728	21,241	21,558
Capital and reserves attributable to Roche shareholders	14,494	19,294	19,586
Equity attributable to non-controlling interests	2,234	1,947	1,972
Additions to property, plant and equipment	2,130	2,458	2,905
Personnel			
Number of employees at end of year	82,089	85,080	88,509
Key ratios			
Net income attributable to Roche shareholders as % of sales	21	24	20
Net income attributable to Roche shareholders as % of equity	66	58	48
Research and development as % of sales	21	20	21
Current ratio %	155	185	135
Equity and non-controlling interests as % of total assets	26	34	29
Human capital return on investment ratio	2.25	2.45	2.16
Data on shares and non-voting equity securities			
Number of shares	160,000,000	160,000,000	160,000,000
Number of non-voting equity securities *(Genussscheine)*	702,562,700	702,562,700	702,562,700
Total shares and non-voting equity securities	862,562,700	862,562,700	862,562,700
Total dividend in millions of CHF	6,340	6,728	6,901
Earnings per share and non-voting equity security (diluted) in CHF	11.16	12.93	10.81
Dividend per share and non-voting equity security in CHF	7.35	7.80	8.00

Information in this table is stated as reported and changes in accounting policies arising from changes in International Financial Reporting Standards are not applied retrospectively.

2015	2016	2017	2018	2019	2020	2021
48,145	50,576	53,299	56,846	61,466	58,323	62,801
19,479	20,483	21,201	22,825	25,419	24,281	24,692
13,821	14,069	13,003	14,769	17,548	18,543	18,155
8,863	9,576	8,633	10,500	13,497	14,295	13,930
9,581	11,532	11,292	12,092	12,774	13,009	14,799
47,581	48,149	45,104	46,273	51,837	53,196	56,690
28,182	28,670	31,572	32,244	31,254	32,942	35,627
75,763	76,819	76,676	78,517	83,091	86,138	92,317
(28,695)	(27,817)	(25,509)	(25,118)	(23,105)	(20,964)	(25,556)
(23,768)	(22,600)	(22,160)	(23,033)	(24,119)	(25,401)	(38,416)
(52,463)	(50,417)	(47,669)	(48,151)	(47,224)	(46,365)	(63,972)
23,300	26,402	29,007	30,366	35,867	39,773	28,345
20,979	23,911	26,441	27,622	32,747	36,341	24,489
2,321	2,491	2,566	2,744	3,120	3,432	3,856
4,077	3,790	3,477	3,796	3,479	3,693	3,826
91,747	94,052	93,734	94,442	97,735	101,465	100,920
18	19	16	19	22	25	22
42	40	33	38	41	39	57
20	23	21	21	21	22	24
119	127	142	140	130	130	93
31	34	38	39	43	46	31
2.06	2.06	1.89	1.96	2.07	2.18	2.08
160,000,000	160,000,000	160,000,000	160,000,000	160,000,000	160,000,000	160,000,000
702,562,700	702,562,700	702,562,700	702,562,700	702,562,700	702,562,700	702,562,700
862,562,700	862,562,700	862,562,700	862,562,700	862,562,700	862,562,700	862,562,700
6,987	7,073	7,159	7,504	7,763	7,849	7,526[a)]
10.28	11.13	10.04	12.21	15.62	16.52	16.20
8.10	8.20	8.30	8.70	9.00	9.10	9.30[a)]

a) 2021 dividend proposed by the Board of Directors.

Sales by division in millions of CHF

	2017	2018	2019	2020	2021
Pharmaceuticals	41,220	43,967	48,516	44,532	45,041
Diagnostics	12,079	12,879	12,950	13,791	17,760
Total	**53,299**	**56,846**	**61,466**	**58,323**	**62,801**

Sales by geographical area in millions of CHF

	2017	2018	2019	2020	2021
Switzerland	574	627	590	670	731
Germany	3,041	3,147	3,050	3,323	4,292
Rest of Europe	10,135	9,828	9,654	9,780	11,375
Europe	**13,750**	**13,602**	**13,294**	**13,773**	**16,398**
United States	23,122	26,105	29,724	27,187	26,519
Rest of North America	897	931	985	882	915
North America	**24,019**	**27,036**	**30,709**	**28,069**	**27,434**
Latin America	3,024	2,870	2,858	2,393	2,746
Japan	4,214	4,175	4,545	4,156	4,999
Rest of Asia	6,824	7,689	8,701	8,614	9,749
Asia	**11,038**	**11,864**	**13,246**	**12,770**	**14,748**
Africa, Australia and Oceania	1,468	1,474	1,359	1,318	1,475
Total	**53,299**	**56,846**	**61,466**	**58,323**	**62,801**

Additions to property, plant and equipment by division in millions of CHF

	2017	2018	2019	2020	2021
Pharmaceuticals	2,030	2,340	1,864	2,141	2,134
Diagnostics	1,443	1,376	1,552	1,502	1,628
Corporate	4	80	63	50	64
Total	**3,477**	**3,796**	**3,479**	**3,693**	**3,826**

Additions to property, plant and equipment by geographical area in millions of CHF

	2017	2018	2019	2020	2021
Switzerland	846	858	754	754	857
Germany	541	543	459	515	635
Rest of Europe	322	329	339	345	344
Europe	**1,709**	**1,730**	**1,552**	**1,614**	**1,836**
United States	844	900	900	987	925
Rest of North America	7	4	3	2	2
North America	**851**	**904**	**903**	**989**	**927**
Latin America	110	113	120	106	116
Japan	331	647	502	668	609
Rest of Asia	422	371	367	291	293
Asia	**753**	**1,018**	**869**	**959**	**902**
Africa, Australia and Oceania	54	31	35	25	45
Total	**3,477**	**3,796**	**3,479**	**3,693**	**3,826**

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 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 year 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 10), excluding commercial software intangible assets, and impairment of goodwill (see Note 9) are excluded.
- Acquisition accounting and other impacts from the accounting for mergers and acquisitions (M&A) and alliance transactions (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 (see Note 26) 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 – 2021 in millions of CHF

	IFRS	Global restructuring	Intangibles amortisation	Intangibles impairment	M&A and alliance transactions	Legal and environmental	Pension plan settlements	Global issues	Normalisation of ECP tax benefit	Core
Sales	62,801	–	–	–	–	–	–	–	–	62,801
Royalties and other operating income	3,049	0	–	–	–	–	–	–	–	3,049
Cost of sales	(19,647)	192	1,205	101	11	–	–	–	–	(18,138)
Marketing and distribution	(9,920)	424	37	15	–	–	–	–	–	(9,444)
Research and development	(14,799)	242	314	535	–	–	–	–	–	(13,708)
General and administration	(3,329)	504	–	0	44	118	0	–	–	(2,663)
Operating profit	**18,155**	**1,362**	**1,556**	**651**	**55**	**118**	**0**	**–**	**–**	**21,897**
Financing costs	(418)	0	–	–	2	4	–	–	–	(412)
Other financial income (expense)	(339)	–	–	–	–	–	–	–	–	(339)
Profit before taxes	**17,398**	**1,362**	**1,556**	**651**	**57**	**122**	**0**	**–**	**–**	**21,146**
Income taxes	(2,463)	(267)	(205)	(111)	(10)	(15)	0	0	(4)	(3,075)
Net income	**14,935**	**1,095**	**1,351**	**540**	**47**	**107**	**0**	**0**	**(4)**	**18,071**
Attributable to										
– Roche shareholders	13,930	1,081	1,343	534	47	107	0	0	(4)	17,038
– Non-controlling interests	1,005	14	8	6	–	0	0	0	–	1,033

Core results reconciliation – 2020 in millions of CHF

	IFRS	Global restructuring	Intangibles amortisation	Intangibles impairment	M&A and alliance transactions	Legal and environmental	Pension plan settlements	Global issues	Normalisation of ECP tax benefit	Core
Sales	58,323	–	–	–	–	–	–	–	–	58,323
Royalties and other operating income	2,020	0	–	–	–	–	–	–	–	2,020
Cost of sales	(16,177)	225	1,304	81	0	–	–	–	–	(14,567)
Marketing and distribution	(9,572)	178	33	0	–	–	–	–	–	(9,361)
Research and development	(13,009)	99	413	344	–	–	–	–	–	(12,153)
General and administration	(3,042)	407	–	247	9	(345)	(2)	–	–	(2,726)
Operating profit	**18,543**	**909**	**1,750**	**672**	**9**	**(345)**	**(2)**	**–**	**–**	**21,536**
Financing costs	(553)	0	–	–	7	7	–	–	–	(539)
Other financial income (expense)	(25)	–	–	–	–	–	–	–	–	(25)
Profit before taxes	**17,965**	**909**	**1,750**	**672**	**16**	**(338)**	**(2)**	**–**	**–**	**20,972**
Income taxes	(2,897)	(168)	(482)	(94)	(12)	67	0	0	(8)	(3,594)
Net income	**15,068**	**741**	**1,268**	**578**	**4**	**(271)**	**(2)**	**0**	**(8)**	**17,378**
Attributable to										
– Roche shareholders	14,295	719	1,262	578	4	(271)	(2)	0	(8)	16,577
– Non-controlling interests	773	22	6	0	–	0	0	0	–	801

Divisional core results reconciliation – 2021 in millions of CHF

	IFRS	Global restructuring	Intangibles amortisation	Intangibles impairment	M&A and alliance transactions	Legal and environmental	Pension plan settlements	Core
Pharmaceuticals								
Sales	45,041	–	–	–	–	–	–	45,041
Royalties and other operating income	2,969	0	–	–	–	–	–	2,969
Cost of sales	(10,634)	1	1,083	101	0	–	–	(9,449)
Marketing and distribution	(6,874)	324	18	15	–	–	–	(6,517)
Research and development	(12,993)	209	297	535	–	–	–	(11,952)
General and administration	(1,979)	326	–	0	23	86	0	(1,544)
Operating profit	**15,530**	**860**	**1,398**	**651**	**23**	**86**	**0**	**18,548**
Diagnostics								
Sales	17,760	–	–	–	–	–	–	17,760
Royalties and other operating income	80	0	–	–	–	–	–	80
Cost of sales	(9,013)	191	122	0	11	–	–	(8,689)
Marketing and distribution	(3,046)	100	19	0	–	–	–	(2,927)
Research and development	(1,806)	33	17	0	–	–	–	(1,756)
General and administration	(656)	63	–	0	21	29	0	(543)
Operating profit	**3,319**	**387**	**158**	**0**	**32**	**29**	**0**	**3,925**
Corporate								
General and administration	(694)	115	–	–	0	3	0	(576)
Operating profit	**(694)**	**115**	**–**	**–**	**0**	**3**	**0**	**(576)**

Divisional core results reconciliation – 2020 in millions of CHF

	IFRS	Global restructuring	Intangibles amortisation	Intangibles impairment	M&A and alliance transactions	Legal and environmental	Pension plan settlements	Core
Pharmaceuticals								
Sales	44,532	–	–	–	–	–	–	44,532
Royalties and other operating income	1,959	0	–	–	–	–	–	1,959
Cost of sales	(9,483)	122	1,210	81	0	–	–	(8,070)
Marketing and distribution	(6,796)	139	24	0	–	–	–	(6,633)
Research and development	(11,421)	75	405	344	–	–	–	(10,597)
General and administration	(1,639)	237	–	0	34	(344)	(2)	(1,714)
Operating profit	**17,152**	**573**	**1,639**	**425**	**34**	**(344)**	**(2)**	**19,477**
Diagnostics								
Sales	13,791	–	–	–	–	–	–	13,791
Royalties and other operating income	61	0	–	–	–	–	–	61
Cost of sales	(6,694)	103	94	0	0	–	–	(6,497)
Marketing and distribution	(2,776)	39	9	0	–	–	–	(2,728)
Research and development	(1,588)	24	8	0	–	–	–	(1,556)
General and administration	(793)	56	–	247	(25)	8	0	(507)
Operating profit	**2,001**	**222**	**111**	**247**	**(25)**	**8**	**0**	**2,564**
Corporate								
General and administration	(610)	114	–	–	0	(9)	0	(505)
Operating profit	**(610)**	**114**	**–**	**–**	**0**	**(9)**	**0**	**(505)**

Core EPS (basic)

	2021	2020
Core net income attributable to Roche shareholders (CHF millions)	17,038	16,577
Weighted average number of outstanding shares and non-voting equity securities used to calculate basic earnings per share (millions) [29]	850	855
Core earnings per share (basic) (CHF)	**20.04**	**19.40**

Core EPS (diluted)

	2021	2020
Core net income attributable to Roche shareholders (CHF millions)	17,038	16,577
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)	**17,037**	**16,576**
Weighted average number of outstanding shares and non-voting equity securities used to calculate diluted earnings per share (millions) [29]	**860**	**865**
Core earnings per share (diluted) (CHF)	**19.81**	**19.16**

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 non-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 are within the responsibility of divisional management) and excludes income taxes paid (which are not within the responsibility of divisional management). Cash outflows from defined benefit plans are allocated to the operating free cash flow based on the current service cost with the residual allocated to treasury activities.

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

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

Operating free cash flow reconciliation in millions of CHF

	2021	2020
Cash flows from operating activities (IFRS basis in accordance with IAS 7)	**20,976**	**18,566**
Add back		
– Income taxes paid	3,343	3,236
Deduct		
– Investments in property, plant and equipment	(3,693)	(3,528)
– Principal portion of lease liabilities paid	(382)	(369)
– Investments in intangible assets	(856)	(3,162)
– Disposal of property, plant and equipment	61	70
– Disposal of intangible assets	0	0
Pensions and other post-employment benefits		
– Add back total payments for defined benefit plans	619	601
– Deduct allocation of payments to operating free cash flow	(708)	(657)
Acquisition-related items, including transaction costs	53	58
Other operating items	(2)	0
Operating free cash flow	**19,411**	**14,815**

Free cash flow reconciliation in millions of CHF

	2021	2020
Cash flows from operating activities (IFRS basis in accordance with IAS 7)	**20,976**	**18,566**
Deduct		
– Investments in property, plant and equipment	(3,693)	(3,528)
– Principal portion of lease liabilities paid	(382)	(369)
– Investments in intangible assets	(856)	(3,162)
– Disposal of property, plant and equipment	61	70
– Disposal of intangible assets	0	0
– Interest paid	(405)	(422)
Other operating items, including acquisition-related items	51	58
Other treasury items	(61)	(270)
Free cash flow	**15,691**	**10,943**

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

	Pharmaceuticals 2021	Pharmaceuticals 2020	Diagnostics 2021	Diagnostics 2020	Corporate 2021	Corporate 2020	Group 2021	Group 2020
Depreciation, amortisation and impairment								
Depreciation of property, plant and equipment	1,278	1,263	1,188	1,127	58	61	2,524	2,451
Depreciation of right-of-use assets	234	236	117	112	12	9	363	357
Amortisation of intangible assets	1,398	1,639	158	111	–	–	1,556	1,750
Impairment (reversal) of property, plant and equipment	(108)	(30)	105	4	0	0	(3)	(26)
Impairment (reversal) of right-of-use assets	5	2	0	3	0	0	5	5
Impairment of goodwill	0	0	0	247	–	–	0	247
Impairment of intangible assets	651	425	0	0	–	–	651	425
Total	**3,458**	**3,535**	**1,568**	**1,604**	**70**	**70**	**5,096**	**5,209**
Other adjustments								
Add back								
– Expenses for equity-settled equity compensation plans	513	559	98	102	52	52	663	713
– Net (income) expense for provisions	1,380	181	456	250	28	28	1,864	459
– Net (gain) loss from disposals	(486)	(224)	13	5	(1)	0	(474)	(219)
– Non-cash working capital and other items	281	63	315	198	2	(1)	598	260
Deduct								
– Utilisation of provisions	(719)	(1,048)	(331)	(228)	(73)	(64)	(1,123)	(1,340)
– Proceeds from disposals	513	247	43	61	1	1	557	309
Total	**1,482**	**(222)**	**594**	**388**	**9**	**16**	**2,085**	**182**
Operating profit cash adjustments	**4,940**	**3,313**	**2,162**	**1,992**	**79**	**86**	**7,181**	**5,391**

EBITDA

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

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

EBITDA (using core results) in millions of CHF

	Pharmaceuticals 2021	Pharmaceuticals 2020	Diagnostics 2021	Diagnostics 2020	Corporate 2021	Corporate 2020	Group 2021	Group 2020
EBITDA								
Core operating profit	18,548	19,477	3,925	2,564	(576)	(505)	21,897	21,536
Depreciation and impairment of property, plant and equipment – Core basis	1,109	1,230	1,268	1,098	58	61	2,435	2,389
Depreciation and impairment of right-of-use assets – Core basis	231	235	117	112	12	9	360	356
EBITDA	**19,888**	**20,942**	**5,310**	**3,774**	**(506)**	**(435)**	**24,692**	**24,281**
– Margin, % of sales	44.2	47.0	29.9	27.4	–	–	39.3	41.6

Net operating assets

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

The calculation of the net operating assets disclosed in Note 2 of the Annual Financial Statements is shown in the tables below.

Net operating assets reconciliation – 2021 in millions of CHF

	Pharmaceuticals	Diagnostics	Corporate	Treasury and taxation	Group
Property, plant and equipment	16,055	6,852	256	–	23,163
Right-of-use assets	916	273	60	–	1,249
Goodwill	5,775	5,034	–	–	10,809
Intangible assets	10,212	1,905	–	–	12,117
Inventories	4,728	2,987	–	–	7,715
Provisions	(2,704)	(1,062)	(202)	–	(3,968)
Current income tax net liabilities	–	–	–	(2,682)	(2,682)
Deferred tax net assets	–	–	–	4,955	4,955
Defined benefit plan net liabilities	–	–	–	(4,605)	(4,605)
Lease liabilities	–	–	–	(1,354)	(1,354)
Marketable securities	–	–	–	6,181	6,181
Cash and cash equivalents	–	–	–	6,850	6,850
Debt	–	–	–	(31,198)	(31,198)
Other net assets (liabilities)					
– Net working capital	(2,323)	43	(314)	–	(2,594)
– Other long-term net operating assets	756	28	2	–	786
– Other	–	–	–	921	921
Total net assets	**33,415**	**16,060**	**(198)**	**(20,932)**	**28,345**

Net operating assets reconciliation – 2020 in millions of CHF

	Pharmaceuticals	Diagnostics	Corporate	Treasury and taxation	Group
Property, plant and equipment	15,270	6,640	248	–	22,158
Right-of-use assets	801	276	35	–	1,112
Goodwill	5,575	3,674	–	–	9,249
Intangible assets	10,964	1,053	–	–	12,017
Inventories	4,208	2,986	–	–	7,194
Provisions	(2,108)	(932)	(249)	–	(3,289)
Current income tax net liabilities	–	–	–	(3,530)	(3,530)
Deferred tax net assets	–	–	–	5,106	5,106
Defined benefit plan net liabilities	–	–	–	(6,864)	(6,864)
Lease liabilities	–	–	–	(1,195)	(1,195)
Marketable securities	–	–	–	6,607	6,607
Cash and cash equivalents	–	–	–	5,727	5,727
Debt	–	–	–	(14,216)	(14,216)
Other net assets (liabilities)					
– Net working capital	(1,754)	(9)	(229)	–	(1,992)
– Other long-term net operating assets	515	76	9	–	600
– Other	–	–	–	1,089	1,089
Total net assets	**33,471**	**13,764**	**(186)**	**(7,276)**	**39,773**

Net debt

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

Net debt calculations, including details of movements during the current year, are shown in the table on page 36 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 24 (Pharmaceuticals Division), page 29 (Diagnostics Division) and page 31 (Corporate) in the Financial Review.

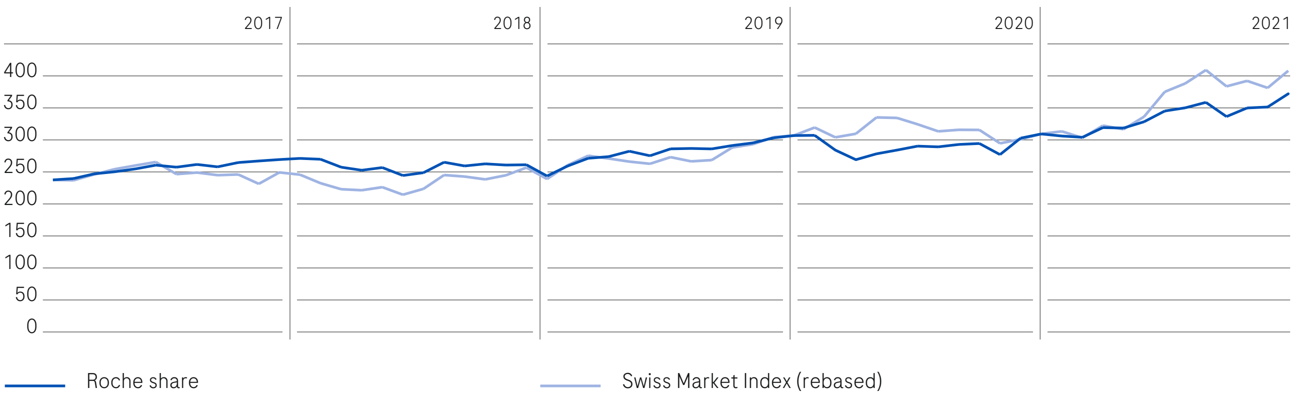
Constant exchange rates

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 2021 line item and its 2020 equivalent is calculated using the average exchange rate for the year ended 31 December 2020 for both the 2021 line item and the 2020 line item and subsequently calculating the change in percent with respect to the two recalculated numbers.

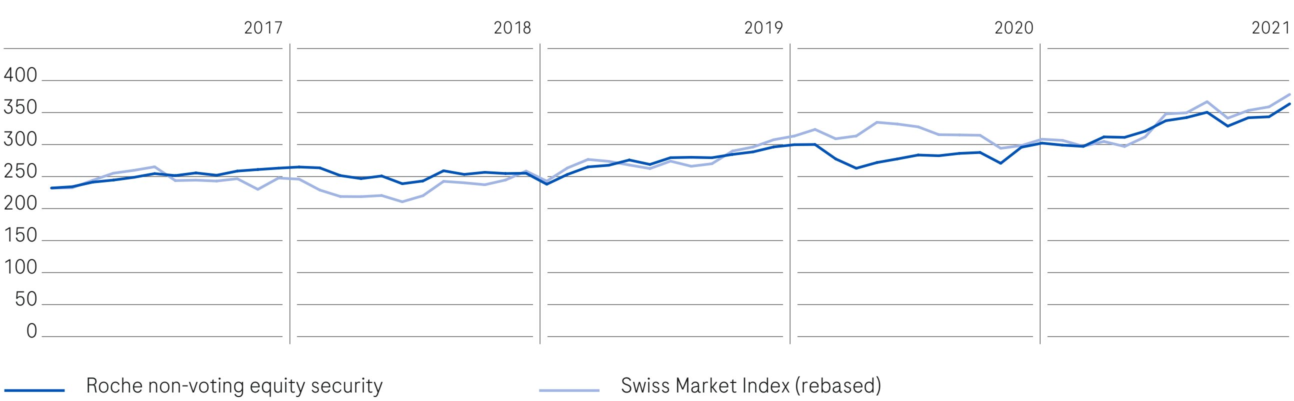
Foreign exchange gains and losses are excluded from the calculation of CER growth rates in the earnings per share disclosures. In countries where there is a significant devaluation in the local currency in the current year, the simulations use the average exchange rate of the current year instead of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

Roche Securities

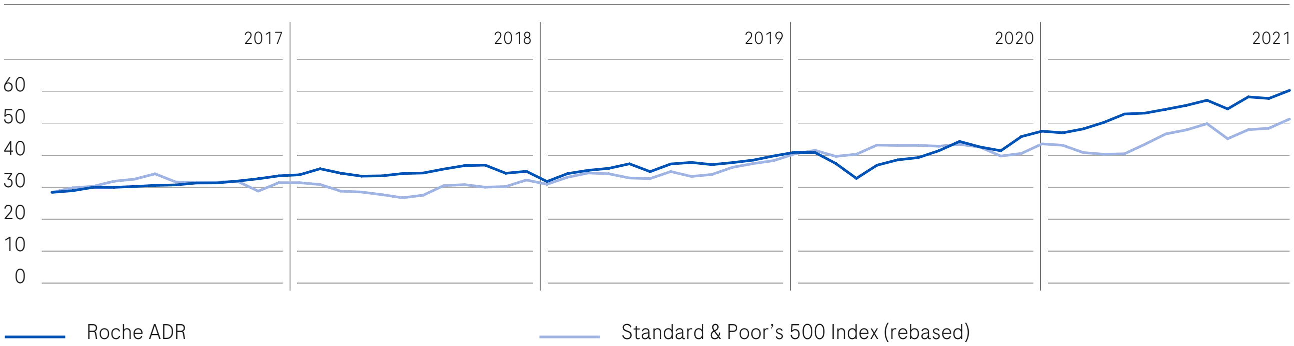
Price development of share in CHF



Price development of non-voting equity security *(Genussschein)* in CHF



Price development of American Depositary Receipt (ADR) in USD



Eight Roche American Depositary Receipts (ADRs) are equivalent to one non-voting equity security *(Genussschein)*. ADRs have been traded in the US over-the-counter market since July 1992.

Number of shares and non-voting equity securities[a)]

	2017	2018	2019	2020	2021
Number of shares (nominal value: CHF 1.00)	160,000,000	160,000,000	160,000,000	160,000,000	160,000,000
Number of non-voting equity securities *(Genussscheine)* (no nominal value)	702,562,700	702,562,700	702,562,700	702,562,700	702,562,700
Total issued	**862,562,700**	**862,562,700**	**862,562,700**	**862,562,700**	**862,562,700**
Number of own shares and non-voting equity securities *(Genussscheine)* held	(8,712,977)	(8,134,699)	(6,806,245)	(9,436,750)	(62,159,409)
Total outstanding	**853,849,723**	**854,428,001**	**855,756,455**	**853,125,950**	**800,403,291**

Following the closing of the share repurchase transaction on 6 December 2021 (see Note 22 of the Roche Group Consolidated Financial Statements), the number of own shares and non-voting equity securities *(Genussscheine)* held by the Roche Group at 31 December 2021 as summarised in the table above include 53,309,000 bearer shares which are scheduled to be cancelled in early 2022 when the necessary legal procedures have been completed.

Data per share and non-voting equity security in CHF

		2017	2018	2019	2020	2021
Earnings (basic)		10.12	12.29	15.77	16.73	16.38
Earnings (diluted)		10.04	12.21	15.62	16.52	16.20
Core earnings (basic)		15.47	18.25	20.35	19.40	20.04
Core earnings (diluted)		15.34	18.14	20.16	19.16	19.81
Equity attributable to Roche shareholders		30.97	32.33	38.27	42.60	30.60
Dividend		8.30	8.70	9.00	9.10	9.30[c)]
Stock price of share[b)]	Opening	238.00	246.20	239.40	307.60	310.00
	High	271.75	258.00	312.20	352.20	420.00
	Low	230.40	211.60	239.40	267.40	303.80
	Year-end	246.20	239.40	307.60	310.00	408.80
Stock price of non-voting equity security *(Genussschein)*[b)]	Opening	232.60	246.50	243.40	314.00	309.00
	High	272.60	259.50	317.25	354.05	383.60
	Low	227.70	207.70	243.40	274.45	297.05
	Year-end	246.50	243.40	314.00	309.00	379.10

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.

c) 2021 dividend proposed by the Board of Directors.

Market capitalisation in millions of CHF

	2017	2018	2019	2020	2021
Year-end	210,426	207,328	267,684	263,776	306,601

Key ratios (year-end)

	2017	2018	2019	2020	2021
Dividend yield of shares in %	3.4	3.6	2.9	2.9	2.3
Dividend yield of non-voting equity securities *(Genussscheine)* in %	3.4	3.6	2.9	2.9	2.5
Price/earnings of shares	25	20	20	19	25
Price/earnings of non-voting equity securities *(Genussscheine)*	25	20	20	19	23

Stock codes

	Share	Non-voting equity security	American Depositary Receipt (ADR)
SIX Swiss Exchange	RO	ROG	–
Bloomberg	RO SW	ROG VX	RHHBY US
Reuters	RO.S	ROG.VX	RHHBY.PK

Roche Holding Ltd, Basel

Financial Statements

Balance sheet in millions of CHF

	31 December 2021	31 December 2020
Current assets		
Cash and cash equivalents	1,498	1,287
Marketable securities	1,110	1,700
Accounts receivable from Group companies	3,694	4,079
Short-term loans to Group companies	1,400	3,000
Accrued dividends receivable from subsidiaries	2,800	–
Other short-term receivables	2	0
Total current assets	**10,504**	**10,066**
Non-current assets		
Long-term loans to Group companies	3,054	525
Investments	8,869	8,869
Total non-current assets	**11,923**	**9,394**
Total assets	**22,427**	**19,460**
Short-term liabilities		
Accounts payable to Group companies	8	6
Interest-bearing liabilities to banks	13,486	0
Interest-bearing liabilities to Group companies	0	1,716
Other short-term liabilities	10	77
Provisions	18	0
Total short-term liabilities	**13,522**	**1,799**
Long-term liabilities		
Provisions	35	35
Total long-term liabilities	**35**	**35**
Total liabilities	**13,557**	**1,834**
Shareholders' equity		
Share capital	160	160
Non-voting equity securities *(Genussscheine)*	p.m.	p.m.
Legal retained earnings:		
– General legal retained earnings	300	300
Voluntary reserves and retained earnings:		
– Free reserve	6,000	6,000
– Special reserve	2,152	2,152
– Available earnings		
– Balance brought forward from previous year	1,165	1,142
– Net income for the year	18,087	7,872
Own equity instruments	(18,994)	0
Total shareholders' equity	**8,870**	**17,626**
Total shareholders' equity and liabilities	**22,427**	**19,460**

p.m. = pro memoria. Non-voting equity securities *(Genussscheine)* have no nominal value.

Income statement in millions of CHF

	Year ended 31 December 2021	2020
Income		
Income from investments (dividend income)	18,115	7,978
Other financial income		
– Interest income from loans to Group companies	30	32
– Income from marketable securities and other	33	6
Guarantee fee income from Group companies	49	58
Other income	0	2
Total income	**18,227**	**8,076**
Expenses		
Administration expenses	(44)	(35)
Other expenses	(14)	(67)
Financial expenses	(75)	(96)
Direct taxes	(7)	(6)
Total expenses	**(140)**	**(204)**
Net income	**18,087**	**7,872**

Notes to the Financial Statements

1. Summary of significant accounting policies

Basis of preparation

The financial statements of Roche Holding Ltd, Basel (the 'Company') have been prepared in accordance with the provisions of Swiss Law on Accounting and Financial Reporting (32nd title of the Swiss Code of Obligations, 'CO'). Where not prescribed by law, the significant accounting principles applied are described below.

The Company has prepared its consolidated financial statements in accordance with a recognised accounting standard (International Financial Reporting Standards). In accordance with the CO, the Company decided to forgo presenting additional information on audit fees in the notes as well as a cash flow statement.

Valuation methods and translation of foreign currencies

Marketable securities are reported at the lower of cost or market value. All other financial assets, including investments, are reported at cost less appropriate write-downs. Own equity instruments are recognised at cost and deducted from equity at the time of purchase. If the own equity instruments are sold, the gain or loss is recognised through the income statement. Assets and liabilities denominated in foreign currencies are translated into Swiss francs using year-end rates of exchange, except investments which are translated at historical rates. Transactions during the year which are denominated in foreign currencies are translated at the exchange rates effective at the relevant transaction dates. Resulting exchange gains and losses are recognised in the income statement with the exception of unrealised gains which are deferred.

Investments

The direct and indirect investments of the Company into subsidiaries are listed in Note 33 to the Roche Group Annual Financial Statements. This listing excludes Chugai's subsidiaries as well as companies that are not material, notably companies that are inactive, dormant or in liquidation. Ownership interests equal voting rights.

Own equity instruments, including treasury shares

Own equity instruments, including treasury shares, are recognised at the purchase price and deducted from shareholders' equity at the time of the purchase. In case of a resale, the gain or loss is recognised through other financial income or financial expenses. Upon cancellation of bearer shares repurchased, such shares are derecognised with a corresponding decrease of share capital for the nominal value of the cancelled shares and of voluntary reserves and retained earnings for any exceeding amount. No dividend distributions are made for own equity instruments held by the Company, including treasury shares.

Income from investments (dividend income)

Dividend income from distributions from subsidiaries are accrued for in the financial statements of the Company provided that the annual general meetings of the subsidiaries approve the distribution of the dividend prior to the approval of the Annual Financial Statements of Roche Holding Ltd by its Board of Directors. In 2021 income from investments included a dividend income of CHF 2.8 billion declared by one subsidiary for the 2021 business year as approved by its Annual General Meeting in January 2022. This has been accrued for at 31 December 2021 and is included in 'Accrued dividends receivable from subsidiaries'.

Taxes

Direct taxes include corporate income and capital taxes.

2. Shareholders' equity

Share repurchase

On 4 November 2021, the Company and Novartis announced an agreement whereby the Company would repurchase 53,309,000 bearer shares of the Company, with a nominal value of CHF 1.00 each, held by Novartis for a total consideration of CHF 19.0 billion. The repurchased shares would subsequently be cancelled by the Company. On 26 November 2021, an Extraordinary General Meeting of the Company's shareholders approved a share capital reduction by CHF 53.3 million from CHF 160.0 million to CHF 106.7 million through the cancellation of all such shares to be repurchased from Novartis. The share repurchase transaction closed on 6 December 2021. At 31 December 2021, the repurchased shares are reported as treasury shares at the repurchase price, excluding transaction costs, and are scheduled to be cancelled in early 2022 when the necessary legal procedures have been completed.

The transaction was financed through a credit facility from banks for the total repurchase price. This was partly redeemed by the Company and CHF 13.5 billion of the credit facility was outstanding as at 31 December 2021.

Share capital

As in the previous year, share capital amounts to CHF 160 million. The share capital consists of 160,000,000 bearer shares with a nominal value of CHF 1.00 each. Following the closing of the share repurchase transaction described above on 6 December 2021, 53,309,000 bearer shares held by the Company are scheduled to be cancelled in early 2022 when the necessary legal procedures have been completed. Upon cancellation of the shares, the share capital will decrease by CHF 53.3 million from CHF 160.0 million to CHF 106.7 million. Included in equity are 702,562,700 non-voting equity securities *(Genussscheine)*. They are not part of the share capital and confer no voting rights. However, each non-voting equity security confers the same rights as any of the shares to participate in the available earnings and in any remaining proceeds from liquidation following repayment of the nominal value of the share capital and, if any, participation certificates.

Own equity instruments, including treasury shares

At 31 December 2021 the Company held 53,309,000 bearer shares as treasury shares which were repurchased at the repurchase price of CHF 19.0 billion. The repurchase price, excluding transaction costs, was deducted from shareholders' equity. No non-voting equity securities were held. During 2021 the Company did not sell bearer shares nor non-voting equity securities.

At 31 December 2020 the Company did not hold any bearer shares or non-voting equity securities. During 2020 the Company neither purchased nor sold bearer shares or non-voting equity securities.

Company subsidiaries that meet the definitions and requirements of Article 659b CO do not hold equity instruments. Within the Roche Group Annual Financial Statements some entities (mainly foundations) are included in the consolidation which do not qualify as subsidiaries under Article 659b CO.

Movement in recognised amounts in millions of CHF

			Voluntary reserves and retained earnings				
	Share capital	Legal retained earnings	Free reserve	Special reserve	Available earnings	Own equity instruments	Total equity
As at 1 January 2019	160	300	6,000	2,152	8,572	0	17,184
Net income	–	–	–	–	7,837	–	7,837
Dividends	–	–	–	–	(7,504)	–	(7,504)
Transactions in own equity instruments	–	–	–	–	–	0	0
As at 31 December 2019	**160**	**300**	**6,000**	**2,152**	**8,905**	**0**	**17,517**
Net income	–	–	–	–	7,872	–	7,872
Dividends	–	–	–	–	(7,763)	–	(7,763)
Transactions in own equity instruments	–	–	–	–	–	0	0
As at 31 December 2020	**160**	**300**	**6,000**	**2,152**	**9,014**	**0**	**17,626**
Net income	–	–	–	–	18,087	–	18,087
Dividends	–	–	–	–	(7,849)	–	(7,849)
Transactions in own equity instruments	–	–	–	–	–	0	0
Share repurchase	–	–	–	–	–	(18,994)	(18,994)
As at 31 December 2021	**160**	**300**	**6,000**	**2,152**	**19,252**	**(18,994)**	**8,870**

Upon cancellation of 53,309,000 shares in early 2022 when the necessary legal procedures have been completed, the share capital will decrease by CHF 53.3 million from CHF 160.0 million to CHF 106.7 million and the available earnings will decrease by CHF 18.9 billion.

3. Contingent liabilities

Guarantees

The Company has issued guarantees for certain bonds and notes, commercial paper notes and credit facilities of Group companies. The nominal amount outstanding at 31 December 2021 was CHF 16.9 billion (2020: CHF 13.4 billion). These are described in Note 21 to the Roche Group Annual Financial Statements.

4. Significant shareholders

All shares in the Company are bearer shares, and for this reason the Company does not keep a register of shareholders. The following figures are based on information from shareholders, the shareholder validation check at the Annual General Meeting of 16 March 2021 and on other information available to the Company.

Controlling shareholders

At 31 December 2021 and 2020, based on information supplied to the Group, a shareholder group with pooled voting rights owned 72,018,000 shares representing 45.01% (2020: 45.01%) of the issued shares (67.50% of the voting power excluding the treasury shares held by the Company on 31 December 2021 and scheduled to be cancelled early 2022, see Note 2). These figures do not include any shares without pooled voting rights that are held outside this group by individual members of the group. On 5 December 2019 the shareholder group announced that it would continue the shareholder pooling agreement with a modified shareholder composition. This group consists now of Mr André Hoffmann, Ms Marie-Anne Hoffmann, Ms Vera Michalski, Mr Alexander Hoffmann, Mr Frederic Hoffmann, Ms Isabel Hoffmann, Mr Lucas Hoffmann, Ms Marina Hoffmann, Ms Kasia Barbotin-Larrieu, Ms Tatiana Fabre, Mr Andreas Oeri, Ms Catherine Oeri, Ms Sabine Duschmalé, Mr Jörg Duschmalé, Mr Lukas Duschmalé, the charitable Foundation Wolf and Artuma Holding Ltd. The shareholder pooling agreement has existed since 1948. The duration of the pool was extended for an indefinite period in 2009. At 31 December 2021 and 2020, based on information supplied to the Group, Ms Maja Oeri, formerly a member of the pool, held 8,091,900 shares independently of the pool, representing 5.057% (2020: 5.057%) of the issued shares (7.58% of the voting power excluding the treasury shares held by the Company on 31 December 2021 and scheduled to be cancelled early 2022).

At 31 December 2020, based on information supplied to the Group, 53,332,863 shares were owned by Novartis Holding AG, Basel (participation below 33⅓%).

5. Full-time equivalent employees

The annual average number of full-time equivalent employees for 2021 and 2020 did not exceed ten people.

6. Board and Executive shareholdings

Board of Directors

Directors Mr André Hoffmann and Dr Jörg Duschmalé and certain other members of the founder's families who are closely associated with them belong to a shareholder group with pooled voting rights. At the end of 2021 and 2020 this shareholder group held 72,018,000 shares. Detailed information about this group is given in Note 4. In addition, at the end of the year the members of the Board of Directors and persons closely associated with them held shares and non-voting equity securities *(Genussscheine)* as shown in the table below.

Shareholdings of members of the Board of Directors

	Shares 2021	Shares 2020	Non-voting equity securities *(Genussscheine)* 2021	Non-voting equity securities *(Genussscheine)* 2020	Other
C. Franz	27,951	23,210	4,810	4,810	
A. Hoffmann	0[a]	0[a]	200	200	
J. Brown	1,000	729	0	0	
P. Bulcke	0	0	4,000	4,000	
H. Clevers	0	0	750	750	
J. Duschmalé	0[a]	0[a]	0	0	
P. Frost	2,000	1,000	0	0	
A. Hauser	3,000	3,000	150	150	d)
R.P. Lifton	0	0	0	0	e)
B. Poussot	500	500	500	500	
S. Schwan	–	–	–	–	b)
C. Suessmuth Dyckerhoff	0	0	2,100[c]	2,100[c]	
Total	**34,451**	**28,439**	**12,510**	**12,510**	

a) Does not include shares held in the shareholder group with pooled voting rights.
b) As a member of the Corporate Executive Committee, Dr S. Schwan's shareholdings are disclosed in the tables below.
c) Jointly held with close relative.
d) Close relatives of A. Hauser held 20 non-voting equity securities *(Genussscheine)* (2020: 20).
e) Prof. Dr R.P. Lifton held 300 Roche American Depositary Receipts (ADRs) (2020: 300). Eight ADRs are equivalent to one non-voting equity security *(Genussschein)*. ADRs have been traded in the US over-the-counter market since July 1992.

Corporate Executive Committee

At the end of the year members of the Corporate Executive Committee and persons closely associated with them held shares and non-voting equity securities as shown in the table below.

Shareholdings of members of the Corporate Executive Committee

	Shares 2021	Shares 2020	Non-voting equity securities *(Genussscheine)* 2021	Non-voting equity securities *(Genussscheine)* 2020	Other
S. Schwan	203,592	196,789	90,342	50,176	a)
B. Anderson	0	0	7,745	4,547	a)
A. Hippe	6,970	6,970	37,937	27,579	a)
T. Schinecker	0	0	2,093	737	a)
C.A. Wilbur	0	0	14,324	8,491	a)
Total	**210,562**	**203,759**	**152,441**	**91,530**	

a) Equity compensation awards: S-SARs (Stock-settled Stock Appreciation Rights) and RSUs (Restricted Stock Units).

The remuneration from equity compensation plans to members of the Corporate Executive Committee is composed of 80% Stock-settled Stock Appreciation Rights (S-SARs) and 20% Restricted Stock Units (RSUs).

At 31 December 2021 members of the Corporate Executive Committee held Stock-settled Stock Appreciation Rights (S-SARs) as shown in the table below. The terms and vesting conditions of these awards are disclosed in Note 27 to the Roche Group Annual Financial Statements and additional supplementary information is given in the Remuneration Report included in the Annual Report on pages 162 to 188. S-SARs awards granted to members of the Corporate Executive Committee vest after four years (awards granted before 2019 vested after three years).

S-SARs awards held at 31 December 2021

Year of issue	2021	2020	2019	2018	2017	2016	2015	Total
S. Schwan	100,746	103,260	122,322	100,677	85,476	59,517	0	571,998
B. Anderson	50,374	46,467	55,045	19,854	0	0	0	171,740
A. Hippe	40,300	41,304	48,930	40,275	7,191	0	0	178,000
T. Schinecker	22,669	20,652	3,872	0	0	0	0	47,193
C. A. Wilbur	25,187	25,815	29,052	21,402	16,032	0	0	117,488
Total	**239,276**	**237,498**	**259,221**	**182,208**	**108,699**	**59,517**	**0**	**1,086,419**
Strike price (CHF)	306.45	308.05	271.65	220.80	251.90	251.50	256.10	
Expiry date	Mar. 2031	Mar. 2030	Mar. 2029	Mar. 2025	Mar. 2024	Mar. 2023	Mar. 2022	

At 31 December 2021 members of the Corporate Executive Committee held Restricted Stock Units (RSUs) as shown in the table below. The terms and vesting conditions of these awards are disclosed in Note 27 to the Roche Group Annual Financial Statements and additional supplementary information is given in the Remuneration Report included in the Annual Report on pages 162 to 188. RSU awards granted to members of the Corporate Executive Committee vest after four years. Thereafter, the non-voting equity securities and/or shares may remain blocked for up to ten years.

RSU awards held at 31 December 2021

Year of issue	2021	2020	2019	Total
S. Schwan	3,481	3,463	3,927	10,871
B. Anderson	1,740	1,558	1,767	5,065
A. Hippe	1,392	1,385	1,571	4,348
T. Schinecker	783	693	497	1,973
C. A. Wilbur	870	866	933	2,669
Total	**8,266**	**7,965**	**8,695**	**24,926**

Information relating to the number and value of rights, options and awards granted to employees of the Roche Group and members of the Board of Directors and the Corporate Executive Committee of the Company are disclosed in Note 27 and Note 32 to the Roche Group Annual Financial Statements.

7. Equal pay analysis for Roche companies in Switzerland

As per the Swiss Gender Equality Act from 1 July 2020, employers in Switzerland with 100 or more employees are required to conduct an internal equal pay analysis within one year. All Roche companies in Switzerland subject to this federal act conducted the equal pay analysis in 2021 in accordance with the Gender Equality Act. The equal pay analyses confirmed that equal pay requirements between women and men are met. As required by the federal act, the equal pay analyses were verified by either a Roche employees' representation or by a licensed audit firm.

Appropriation of Available Earnings

Proposals to the Annual General Meeting in CHF

	2021	2020
Available earnings		
Balance brought forward from previous year	1,164,996,707	1,141,948,483
Net profit for the year	18,086,636,971	7,872,368,794
Release of free reserve	6,000,000,000	0
Release of special reserve	2,152,083,979	0
Reduction as per the resolution of the Extraordinary General Meeting of 26 November 2021 for 53,309,000 shares scheduled to be cancelled in early 2022 when the necessary legal procedures have been completed	(18,940,490,937)	–
Total available earnings	**8,463,226,720**	**9,014,317,277**
Appropriation of available earnings		
Distribution of an ordinary dividend of CHF 9.30 gross per share entitled to dividend and non-voting equity security *(Genussschein)* as against CHF 9.10 last year	(7,526,059,410)	(7,849,320,570)
Total appropriation of available earnings	**(7,526,059,410)**	**(7,849,320,570)**
To be carried forward on this account	**937,167,310**	**1,164,996,707**

KPMG

Statutory Auditor's Report

To the General Meeting of Roche Holding Ltd, Basel

Report on the Audit of the Financial Statements

Opinion

We have audited the financial statements of Roche Holding Ltd, which comprise the balance sheet as at 31 December 2021, and the income statement for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion the financial statements (pages 175–185) for the year ended 31 December 2021 comply with Swiss law and the company's articles of incorporation.

Basis for Opinion

We conducted our audit in accordance with Swiss law and Swiss Auditing Standards. Our responsibilities under those provisions and standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the entity in accordance with the provisions of Swiss law and the requirements of the Swiss audit profession and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Report on Key Audit Matters based on the circular 1/2015 of the Federal Audit Oversight Authority

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the financial statements of the current period. We have determined that there are no key audit matters to communicate in our report.

Responsibility of the Board of Directors for the Financial Statements

The Board of Directors is responsible for the preparation of the financial statements in accordance with the provisions of Swiss law and the company's articles of incorporation, and for such internal control as the Board of Directors determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board of Directors is responsible for assessing the entity's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Board of Directors either intends to liquidate the entity or to cease operations, or has no realistic alternative but to do so.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Swiss law and Swiss Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Swiss law and Swiss Auditing Standards, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

— Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
— Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of internal control.
— Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made.
— Conclude on the appropriateness of the Board of Directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the entity's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the entity to cease to continue as a going concern.

We communicate with the Board of Directors or its relevant committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide the Board of Directors or its relevant committee with a statement that we have complied with relevant ethical requirements regarding independence, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, actions taken to eliminate threats or safeguards applied.

From the matters communicated with the Board of Directors or its relevant committee, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report, unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Report on Other Legal and Regulatory Requirements

In accordance with article 728a para. 1 item 3 CO and the Swiss Auditing Standard 890, we confirm that an internal control system exists, which has been designed for the preparation of financial statements according to the instructions of the Board of Directors.

We further confirm that the proposed appropriation of available earnings complies with Swiss law and the company's articles of incorporation. We recommend that the financial statements submitted to you be approved.

KPMG AG

Mark Baillache
Licensed Audit Expert
Auditor in Charge

Marc Ziegler
Licensed Audit Expert

Basel, 1 February 2022

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

KPMG AG is a subsidiary of KPMG Holding AG, which is a member firm of the KPMG global organisation of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee. All rights reserved.

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

Next Annual General Meeting:
15 March 2022

Cautionary statement regarding forward-looking statements

This Finance 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 Annual 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 2022 or any subsequent period will necessarily match or exceed the historical published earnings or earnings per share of Roche.

All trademarks are legally protected.

Links to third-party pages are provided for convenience only. We do not express any opinion on the content of any third-party pages and expressly disclaim any liability for all third-party information and the use of it.

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

Our reporting consists of the actual Annual Report and of the Finance Report and contains the annual financial statements and the consolidated financial statements. With regards to content, the Management Report as per the Articles of Incorporation consists of both aforementioned reports with the exception of the Remuneration Report.

Printed on non-chlorine bleached, FSC-certified paper.

FSC
www.fsc.org
MIX
Paper | Supporting responsible forestry
FSC® C018119

F. Hoffmann-La Roche Ltd
4070 Basel, Switzerland

© 2022

All trademarks are legally protected.

www.roche.com

7 001 046