Roche Holdings, Inc. Annual Report 2021

Roche Holdings, Inc. Consolidated Financial Statements

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Management Report

1. Review for the year ended December 31, 2021

Principal activities

Roche Holdings, Inc. (RHI) is the holding company for the Roche Group's U.S. operations and performs financing activities for other members of the RHI Group.

RHI Group results

In 2021 the RHI Group reported sales of USD 31.4 billion, a decrease of 1% compared to 2020, and an operating profit of USD 7.3 billion, a decrease of 26%.

The 1% decrease in sales was driven by the Pharmaceuticals Division, where sales decreased by 4% to USD 25.9 billion. Biosimilar competition continued to drive further erosion of sales of Rituxan, Avastin and Herceptin, although the growth from Hemlibra, Ocrevus, Evrysdi and Tecentriq helped to compensate for this. Overall, the COVID-19 pandemic continued to have some negative impact on the Pharmaceuticals Division's sales. The Diagnostics Division reported a sales growth of 13% to USD 5.5 billion, where there was growth in the Molecular Lab customer area, mainly from the cobas SARS-CoV-2 tests, and in the Core Lab customer area due to the recovery in routine testing. RHI Group sales of USD 31.4 billion included sales to related parties of USD 2.3 billion in 2021.

The decrease of the RHI Group's operating profit by 26% or USD 2.5 billion to USD 7.3 billion is primarily driven by the Pharmaceuticals Division due to lower sales with increased cost of sales and higher research and development costs. The RHI Group's operating profit margin decreased to 23.4% of sales from 31.1% in the comparative period. Net income decreased by 30% or USD 2.1 billion to USD 5.0 billion, lower than the operating profit decrease, driven by lower tax expenses partly offset by higher financing costs on related party debt. The RHI Group's effective tax rate decreased to 11.2% from 14.7% in the comparative period. This was mainly due to the higher effect from the resolution of several tax disputes and higher research and development tax credits in 2021.

The RHI Group had a positive cash flow from operating activities of USD 8.9 billion, a decrease of 14% compared to 2020, driven by lower cash generated from operations partly offset by a lower increase of net working capital and lower utilisation of provisions.

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, which has received US FDA Emergency Use Authorization for the treatment of COVID-19 in hospitalised adults and children. The Diagnostics Division's sales growth was due to the comprehensive portfolio of COVID-19-related tests and a recovery in routine diagnostic testing.

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 Roche 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 Roche 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.

RHI Group results (continued)

Pharmaceuticals Division

Sales in the Pharmaceuticals Division decreased by USD 1.0 billion to USD 25.9 billion in 2021 and included sales to related parties of USD 1.2 billion.

The 4% sales decrease was driven by the impact of biosimilar erosion, partly offset by sales growth of Hemlibra, Ocrevus, Evrysdi and Tecentriq. Overall, the COVID-19 pandemic continued to have some negative impact on the division's sales. This was partly compensated by additional sales of Actemra driven by the adoption in treatment guidelines for patients with severe COVID-19 pneumonia.

Sales in the oncology therapeutic area decreased by 23% due to the biosimilar competition for Rituxan, Avastin and Herceptin. There was a 48% decline in sales of these three products due to the launches of biosimilars and combined sales fell by USD 3.3 billion to USD 3.5 billion. This was partially compensated by growth of the new products Tecentriq and Phesgo. Tecentriq sales grew by 12% to USD 1.9 billion, driven by the new indications for unresectable or metastatic hepatocellular carcinoma (HCC) and first-line non-squamous non-small cell lung cancer (NSCLC). Phesgo showed strong uptake since its launch in 2020. Sales of Perjeta declined by 1% due to patients with residual disease being switched to Kadcyla and due to the launch of Phesgo. Kadcyla sales increased by 4% 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. Alecensa showed continuing growth of 10% mainly driven by increased demand of first line treatment from continuing patients.

Sales in immunology increased by 1% driven by a 48% increase in total sales of Actemra mostly due to the use for hospitalised patients with severe COVID-19 pneumonia. This was partially offset by lower sales of Rituxan, which decreased by 44% due to biosimilar entry.

In neuroscience Ocrevus sales increased by 14% to USD 4.1 billion. Despite some negative impact from COVID-19, there was continuously growing demand in both relapsing and primary progressive forms of multiple sclerosis, with growth driven both by new and returning patients, with a higher proportion of sales coming from returning patients. Evrysdi, for the treatment of spinal muscular atrophy, showed a high uptake since being launched in the third quarter of 2020 with sales reaching USD 0.4 billion in 2021.

Hemlibra continued to show strong uptake with sales reaching USD 2.0 billion, an increase of 34% due to strong demand in the non-inhibitor segment. Sales in ophthalmology decreased by 5%, mainly due to Lucentis where sales declined by 4% driven by continuing competition. In other therapeutic areas, sales of Activase/TNKase were 2% higher mainly driven by higher volume due to a temporary stockpiling from distributors and end customers.

Competition from generic medicines and biosimilars. The RHI Group's pharmaceutical products are generally protected by patent rights, which are intended to provide the RHI Group with exclusive marketing rights in various countries. However, patent rights are of varying scope and duration, and the RHI 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 RHI 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 typically 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 RHI Group's business model and future growth will remain driven by innovation.

The RHI Group's basic, primary patents for Rituxan, Avastin and Herceptin have expired. Total sales for Rituxan, Avastin and Herceptin are summarised in the table below. Sales for these three products were USD 3.3 billion lower than in the prior period, a decline of 48%. The year-on-year movements were also driven by regular price and volume changes. Biosimilar competition is only one factor in the overall picture.

2021 product sales affected by biosimilar launches

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	2021 (USD m)	2020 (USD m)	% change	Comment
Rituxan	1,706	3,103	-45%	First biosimilar launches from late 2019
Avastin	1,002	1,984	-49%	First biosimilar launches from mid-2019
Herceptin	824	1,714	-52%	First biosimilar launches from mid-2019
Total	3,532	6,801	-48%	

The RHI Group's basic, primary patents for Lucentis have expired in the US. Based on publicly available information from competitor companies, the RHI 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 USD 1.5 billion in 2021.

Royalties and other operating income decreased by USD 0.1 billion to USD 5.7 billion. Royalty income increased by USD 0.1 billion to USD 4.9 billion driven by higher royalty income from related parties. Other operating income decreased by USD 0.2 billion to USD 0.8 billion driven by lower income from out-licensing agreements with related parties, partly offset by income from sale of product rights for Rivotril and Pegasys as well as higher income from profit-sharing agreements due to increased sales of Venclexta in the US.

Cost of sales increased by 8% to USD 13.5 billion in 2021. As a percentage of sales, cost of sales increased by 5.5 percentage points to 52.0%, driven by higher manufacturing costs, which grew by 19%, despite the sales decrease of 4%. This was primarily due to unfavourable product mix factors. Royalty expenses to third parties were 20% higher due to 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 decreased by 20% driven by lower sales of Rituxan. An idle-plant impairment was reversed in the first half of 2021, resulting in an income of USD 0.2 billion. Amortisation charges of intangible assets decreased by USD 0.1 billion which was primarily attributable to the Esbriet intangible asset becoming fully amortised in late 2021.

Marketing and distribution costs increased by 3% to USD 3.6 billion in 2021. As a percentage of sales, they increased to 13.8% from 12.8% in the comparative period. Major marketing and distribution activities included supporting the continued rollouts of Ocrevus and Tecentriq and also pre-launch activities. There was a continuing general slowdown in marketing activities, including lower expenses for travel and congresses due to COVID-19 restrictions.

Research and development costs increased by 7% to USD 7.0 billion in 2021. As a percentage of sales, they increased to 26.9% from 24.2% in the comparative period. Oncology remained the primary area of research and development, with the cancer immunotherapy portfolio being a key driver. Neuroscience and ophthalmology also represent significant areas of spending. The growth in spending was mostly driven by late-stage investments in oncology, specifically for 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. Investments were made in advanced computation and data analytics.

Additionally, in-licensing transactions, business combinations and asset acquisitions resulted in intangible assets of USD 0.9 billion being recognised. See the below sections on 'Mergers and acquisitions' and 'Alliance transactions' for further details. Research and development costs included intangible asset impairment charges of USD 0.2 billion.

General and administration costs increased by USD 0.2 billion to USD 1.0 billion in 2021 driven by the base effect from the release of the Accutane litigation provision in 2020.

The Pharmaceuticals Division's operating profit decreased by 30% to USD 6.6 billion in 2021 and reflects lower sales together with increased cost of sales and increased research and development costs.

Diagnostics Division

Sales in the Diagnostics Division increased by USD 0.6 billion to USD 5.5 billion in 2021 and included sales to related parties of USD 1.1 billion. The overall sales growth of 13% is driven by the Molecular Lab customer area, mainly from the cobas SARS-CoV-2 tests, and by growth in the Core Lab customer area due to the recovery in routine testing.

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. Further details on the new customer areas are given in Note 3 to the Annual Financial Statements.

The Molecular Lab customer area reported a sales growth of 21% led by COVID-19-related sales from SARS-CoV-2 assays on the cobas Liat System. It also included sales of USD 0.1 billion from GenMark, which was acquired effective April 22, 2021. Sales in the Core Lab customer area grew 13% due to the recovery of routine testing across the portfolio, with the main growth coming from immunoassays and clinical chemistry. In addition, COVID-19-related testing contributed to the sales growth in the custom biotech business. Sales in the Pathology Lab customer area increased by 5% mainly due to growth in the advanced staining business due to testing recovery, and growth in sales in the companion diagnostics business. Diabetes Care sales grew 3%, driven by an increase in blood glucose monitoring and the resolution of a dispute over a rebate. Point of Care sales decreased by 8%.

Royalties and other operating income increased by 63% to USD 0.2 billion due to higher royalty income from related parties.

Cost of sales increased by 19% to USD 3.0 billion, above the sales growth of 13%. This was mainly driven by higher amortisation charges due to an intangible asset that was transferred from a related party in late 2020. As a percentage of sales, cost of sales increased by 3.0 percentage points to 54.7%.

Marketing and distribution costs increased by 13% to USD 0.9 billion due to higher spending on distribution costs as well as higher personnel expenses. As a percentage of sales, marketing and distribution costs remained stable at 15.7%.

Research and development costs decreased by 11% to USD 0.9 billion mainly due to lower reimbursements paid to related parties under research and development cost-sharing agreements, partly offset by increased spending on digital projects and COVID-19 products development coupled with projects in blood screening. As a percentage of sales, research and development costs decreased to 16.2% compared to 20.6% in the comparative period.

General and administration costs decreased by 36% to USD 0.2 billion driven by the base effect of goodwill impairments in 2020 related to the AVL Medical Instruments and GeneWeave acquisitions. As a percentage of sales, general and administration costs decreased by 2.3 percentage points to 2.9% compared to 5.2% in the comparative period.

Merger & acquisitions

GenMark Diagnostics, Inc. On April 22, 2021 the RHI 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 RHI 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, which was paid in cash.

Protocol First, Inc. On December 14, 2021 the RHI 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 RHI 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.

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

Alliance transactions

During 2021 in-licensing deals and other alliance transactions, including those with related parties, resulted in intangible assets of USD 0.8 billion (2020: USD 2.2 billion) being recognised, mainly for 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.

Impairment of goodwill and intangible assets

Pharmaceuticals Division. The Pharmaceuticals Division recorded impairment charges to intangible assets of USD 0.3 billion.

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

In 2020 there were impairment charges of USD 0.5 billion in the Pharmaceuticals Division and USD 0.1 billion in the Diagnostics Division. Further details are given in Notes 8 and 9 to the Annual Financial Statements.

Legal and environmental cases

There were no significant developments in 2021. Further details are given in Note 19 to the Annual Financial Statements.

Treasury and taxation results

Financing costs decreased by 25% in 2021 due to lower interest expenses attributable to the repayment of debt in March 2021. Financing costs with related parties increased by 27% due to an early repayment charge of USD 0.3 billion following early redemption of related party debt in December 2021. A full analysis of financing costs is given in Note 4 and Note 29 to the Annual Financial Statements.

At December 31, 2021 debt was USD 42.9 billion compared to USD 42.1 billion at the end of 2020. In 2021 there was decrease in commercial paper of USD 1.2 billion, a net increase of USD 4.8 billion in bonds and notes and a net decrease in related party debt of USD 2.8 billion. Further details on debt are given in Note 20 to the Annual Financial Statements.

The RHI Group's effective tax rate decreased to 11.2% in 2021 compared to 14.7% in the comparative period. This was mainly due to the higher effect from the resolution of several tax disputes in 2021 compared to 2020 and higher research and development tax credits.

Cash flow

The cash inflows from operating activities decreased by USD 1.4 billion to USD 8.9 billion in 2021. This was due to lower cash generated from operations, partly offset by a lower increase of net working capital and lower utilisation of provisions. The increase in cash outflows from investing activities of USD 0.6 billion to USD 3.9 billion was driven by the acquisition of GenMark as described in the above section on 'Mergers and acquisitions', partially offset by lower payments for inlicensing deals and other alliance transactions, including those with related parties. The cash outflows from financing activities were USD 5.0 billion in 2021. These were mainly payments to related parties for dividends, interest and other financing costs as well as for equity compensation plans, partially compensated by the net cash inflow from the cash pool with related parties.

Financial position

In 2009 the Genentech transaction was accounted for in full as an equity transaction and as a consequence, the carrying amount of the consolidated equity of the RHI Group was significantly reduced (see Note 1 to the Annual Financial Statements). At December 31, 2021 the RHI Group had a negative equity of USD 18.7 billion (December 31, 2020: USD 18.5 billion). The capacity of the RHI Group to generate positive cash flows and operating profit is not affected by this accounting treatment. In addition, RHI has bonds, notes and commercial paper outstanding with a carrying value of USD 13.7 billion which are guaranteed by Roche Holding Ltd, the parent company of the Roche Group.

Total assets increased by USD 1.2 billion to USD 41.1 billion at December 31, 2021. The increase of USD 1.1 billion in goodwill arose from the acquisition of GenMark, as described in the above section on 'Mergers and acquisitions'. Accounts receivable from related parties decreased by USD 0.8 billion driven by changes in the cash pool balance. Property, plant and equipment increased by USD 0.5 billion due to site developments and manufacturing investments, including the reversal of an idle-plant impairment in 2021.

Total liabilities increased by USD 1.4 billion to USD 59.8 billion at December 31, 2021. This was mainly driven by the changes in debt and changes in the cash pool balance with related parties, partly offset by lower current income tax liabilities.

At December 31, 2021 the carrying value of debt was USD 42.9 billion (December 31, 2020: USD 42.1 billion), of which USD 28.9 billion is due to related parties (December 31, 2020: USD 31.7 billion). During 2021 there was a decrease in commercial paper debt of USD 1.2 billion, a net increase of USD 4.8 billion in bonds and notes and a net decrease in related party debt of USD 2.8 billion. Further details on debt are given in Note 20 to the Annual Financial Statements.

2. Principal risks and uncertainties

Risks

The RHI Group is exposed to various risks arising from its underlying operations and corporate finance activities. Information on risks the RHI Group is exposed to from its underlying operations is provided under provisions and contingent liabilities in Note 19 to the Annual Financial Statements. The RHI Group's financial risk exposures are predominantly related to changes in interest rates, equity prices and to an extent, foreign exchange rates, as well as the creditworthiness and the solvency of RHI's counterparties. The RHI Group's financial risk management is described in Note 28 to the Annual Financial Statements.

As noted above in the "Impact of the COVID-19 pandemic" section, the development of the pandemic in 2022 and beyond, both in the US and elsewhere, may have a significant impact on the RHI Group's business, results of operations and financial position.

Uncertainties

Key accounting judgements, estimates and assumptions are described in Note 1 to the Annual Financial Statements. Further information on uncertainties is provided under provisions and contingent liabilities in Note 19 to the Annual Financial Statements.

3. International Financial Reporting Standards

The RHI Group has implemented various minor amendments to existing standards and interpretations, which have no material impact on the RHI Group's overall results and financial position. See Note 31 to the Annual Financial Statements for further details.

4. Responsibility statement

The directors of Roche Holdings, Inc. confirm that, to the best of their knowledge as of the date of their approval of the Annual Financial statements at February 7, 2022:

- the Annual Financial Statements at December 31, 2021, which have been prepared in accordance with the applicable
 set of accounting standards, give a true and fair view of the assets, liabilities, financial position and profit or loss of
 Roche Holdings, Inc. and the undertakings included in the consolidation taken as a whole; and that
- the Management Report gives a true and fair view of the development and performance of the business and the
 position of Roche Holdings, Inc. and the undertakings included in the consolidation taken as a whole, together with
 a description of the principal risks and uncertainties that they face.

Severin Schwan Alan Hippe Bruce Resnick
Chairman of the Board Vice Chairman of the Board Member of the Board

Roger Brown Sean A. Johnston David P. McDede

Member of the Board Member of the Board Member of the Board

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Roche Holdings, Inc. Consolidated Financial Statements

oche Holdings, Inc. consolidated income statement for the year ended December 31, 2021 in millions of USD

	Pharmaceuticals	Diagnostics	Corporate	RHI Group
Sales 2,3	25,869	5,536	-	31,405
Royalties and other operating income ^{2,3}	5,735	223	-	5,958
Revenue ^{2, 3}	31,604	5,759	-	37,363
Cost of sales	(13,463)	(3,026)	-	(16,489)
Marketing and distribution	(3,561)	(871)	-	(4,432)
Research and development ²	(6,959)	(896)	-	(7,855)
General and administration	(990)	(162)	(86)	(1,238)
Operating profit ²	6,631	804	(86)	7,349
Financing costs ⁴				(337)
Financing costs – related parties ²⁹				(1,453)
Other financial income (expense) ⁴				53
Other financial income (expense) – related parties ²⁹				(19)
Profit before taxes				5,593
Income taxes ⁵				(628)
Net income				4,965
Attributable to				
- Roche Holdings, Inc. shareholder ²¹				4,968
- Non-controlling interests ²²				(3)

Roche Holdings, Inc. consolidated income statement for year ended December 31, 2020 in millions of USD

	Pharmaceuticals	Diagnostics	Corporate	RHI Group
Sales ^{2, 3}	26,876	4,903	-	31,779
Royalties and other operating income ^{2,3}	5,827	137	-	5,964
Revenue ^{2, 3}	32,703	5,040	-	37,743
Cost of sales	(12,506)	(2,534)	-	(15,040)
Marketing and distribution	(3,453)	(770)	-	(4,223)
Research and development ²	(6,498)	(1,009)	-	(7,507)
General and administration	(782)	(254)	(49)	(1,085)
Operating profit ²	9,464	473	(49)	9,888
Financing costs ⁴				(447)
Financing costs – related parties 29				(1,140)
Other financial income (expense) ⁴				(9)
Other financial income (expense) – related parties ²⁹				36
Profit before taxes				8,328
Income taxes ⁵				(1,222)
Net income				7,106
Attributable to				
- Roche Holdings, Inc. shareholder ²¹				7,108
- Non-controlling interests 22				(2)

Roche Holdings, Inc. consolidated statement of comprehensive income in millions of USD

	Year ended	December 31,
	2021	2020
Net income recognised in income statement	4,965	7,106
Other comprehensive income (OCI)		
Remeasurements of defined benefit plans ²¹	322	96
Fair value changes on equity investments at fair value through OCI 21	(4)	32
Items that will never be reclassified to the income statement	318	128
Fair value changes on debt securities at fair value through OCI ²¹	(1)	1
Cash flow hedges ²¹	(8)	(12)
Currency translation of foreign operations ²¹	(10)	28
Items that are or may be reclassified to the income statement	(19)	17
Other comprehensive income, net of tax	299	145
Total comprehensive income	5,264	7,251
Attributable to		
- Roche Holdings, Inc. shareholder ²¹	5,267	7,253
- Non-controlling interests ²²	(3)	(2)
Total	5,264	7,251

Roche Holdings, Inc. consolidated balance sheet in millions of USD

Roche Holdings, Inc. consolidated balance sheet in million	December 31, 2021	December 31, 2020	December 31 2019
Non-current assets	2021	2020	2013
Property, plant and equipment ⁷	7,893	7,437	7,098
Right-of-use assets ²⁶	615	479	429
Goodwill ⁸	10,053	8,970	9,087
Intangible assets 9	9,876	10,100	9,648
Deferred tax assets ⁵	726	863	364
Defined benefit plan assets ²⁴	326	158	136
Other non-current assets ¹⁴	1,022	644	468
Total non-current assets	30,511	28,651	27,230
Current assets			
Inventories 10	3,835	3,761	2,83
Accounts receivable – trade and other 11	3,932	3,969	3,65
Accounts receivable – related parties 11,29	1,745	2,593	2,323
Other current assets 15	1,001	913	72
Other current assets – related parties 15,29	109	82	50
Marketable securities 12	2	2	13
Cash and cash equivalents 13	0	1	12
Total current assets	10,624	11,321	9,85
Total assets	41,135	39,972	37,08
Non-current liabilities			
Long-term debt ²⁰	(13,464)	(6,629)	(8,540
Long-term debt – related parties ^{20, 29}	(25,505)	(28,155)	(27,875
Deferred tax liabilities ⁵	0	0	
Defined benefit plan liabilities ²⁴	(1,476)	(1,651)	(1,668
Provisions 19	(362)	(380)	(420
Other non-current liabilities 17	(753)	(617)	(575
Other non-current liabilities – related parties ²⁹	(313)	(407)	(494
Total non-current liabilities	(41,873)	(37,839)	(39,572
Current liabilities			
Short-term debt ²⁰	(547)	(3,834)	(1,450
Short-term debt – related parties ^{20, 29}	(3,400)	(3,500)	(4,530
Current income tax liabilities ⁵	(821)	(1,675)	(1,442
Provisions 19	(1,105)	(1,112)	(1,967
Accounts payable – trade and other 16	(1,362)	(1,181)	(1,105
Accounts payable – related parties ²⁹	(3,016)	(2,019)	(1,489
Other current liabilities 18	(5,922)	(5,466)	(5,645
Other current liabilities – related parties ²⁹	(1,771)	(1,818)	(1,510
Total current liabilities	(17,944)	(20,605)	(19,138
Total liabilities	(59,817)	(58,444)	(58,710
Total net liabilities	(18,682)	(18,472)	(21,630
Equity			
Capital and reserves attributable to Roche Holdings, Inc. shareholder 21	(18,684)	(18,473)	(21,632
Equity attributable to non-controlling interests 22	2	1	:
Total equity	(18,682)	(18,472)	(21,630

	Year ended	December 31,
	2021	2020
Cash flows from operating activities		
Cash generated from operations ²⁷	11,108	13,494
(Increase) decrease in net working capital	378	(1,782)
(Increase) decrease in net working capital - related parties	(882)	899
Payments made for defined benefit plans ²⁴	(72)	(62)
Utilisation of provisions ¹⁹	(477)	(806)
Disposal of products	99	25
Other operating cash flows	2	0
Income taxes paid ⁵	(1,227)	(1,420)
Total cash flows from operating activities	8,929	10,348
Cash flows from investing activities		
Purchase of property, plant and equipment	(1,074)	(1,107)
Purchase of intangible assets	(689)	(2,056)
Disposal of property, plant and equipment	19	20
Disposal of intangible assets	147	401
Business combinations ⁶	(1,911)	(2)
Asset acquisitions ⁶	(115)	(669)
Divestment of subsidiaries	4	0
Interest and dividends received on marketable securities and other investments	1	3
Interest and dividends received from related parties	0	10
Increase in other current assets – related parties	(109)	(77)
Decrease in other current assets – related parties	79	57
Sales of equity securities and debt securities	24	130
Purchases of equity securities and debt securities	0	0
Sales (purchases) of money market instruments and time accounts over three months, net	22	0
Other investing cash flows	(342)	(96)
Total cash flows from investing activities	(3,944)	(3,386)
Cash flows from financing activities		
Proceeds from issue of bonds and notes 20	7,479	0
Proceeds from issue of related party debt ²⁰	19,750	9,280
Redemption and repurchase of bonds and notes 20	(2,669)	0
Repayment of related party debt ²⁰	(22,500)	(10,030)
Increase (decrease) in commercial paper 20	(1,241)	338
Increase (decrease) in other debt ²⁰	(76)	2
Hedging arrangements - related parties	(37)	(23)
Interest paid	(377)	(383)
Principal portion of lease liabilities paid ²⁷	(108)	(88)
Dividends paid to related parties ²¹	(5,250)	(3,500)
Interests and other financing - related parties	(1,486)	(1,374)
Recharges and prepayments to related parties for equity compensation plans ²⁵	(1,238)	(1,039)
(Increase) decrease of cash pool balance with related parties	2,752	(272)
Total cash flows from financing activities	(5,001)	(7,089)
Net effect of currency translation on cash and cash equivalents	0	1
Increase (decrease) in cash and cash equivalents	(16)	(126)
Cash and cash equivalents at January 1	1	127
Cash and cash equivalents at December 31 ¹³	(15)	1

Roche Holdings, Inc. consolidated statement of changes in equity in millions of USD

<u> </u>	Share capital	Retained earnings	Fair value reserves	Hedging reserves	Translation reserves	Total	Non- controlling interests	Total equity
Year ended December 31, 2020								
At January 1, 2020	1	(21,656)	1	20	2	(21,632)	2	(21,630)
Net income recognised in income statement	-	7,108	-	-	-	7,108	(2)	7,106
Net change in fair value - financial assets at								
at fair value through OCI	-	4	29	-	-	33	-	33
Cash flow hedges	-	-	-	(12)	-	(12)	-	(12)
Currency translation of foreign operations	-	-	-	-	28	28	-	28
Remeasurements of defined benefit plans	-	96	_	_	-	96	-	96
Total comprehensive income	-	7,208	29	(12)	28	7,253	(2)	7,251
Dividends	-	(3,500)	-	-	-	(3,500)	-	(3,500)
Equity compensation plans, net of								
transactions in own equity	-	(594)	-	-	-	(594)	1	(593)
Changes in non-controlling interests 22	-	0	-	-	-	0	0	-
At December 31, 2020	1	(18,542)	30	8	30	(18,473)	1	(18,472)
Year ended December 31, 2021								
At January 1, 2021	1	(18,542)	30	8	30	(18,473)	1	(18,472)
Net income recognised in income statement	_	4,968	-	_	-	4,968	(3)	4,965
Net change in fair value – financial assets at								
at fair value through OCI	-	0	(5)	-	-	(5)	0	(5)
Cash flow hedges	-	-	-	(8)	-	(8)	0	(8)
Currency translation of foreign operations	-	-	-	-	(10)	(10)	0	(10)
Remeasurements of defined benefit plans	-	322	-	-	-	322	0	322
Total comprehensive income	-	5,290	(5)	(8)	(10)	5,267	(3)	5,264
Dividends	-	(5,250)	-	-	-	(5,250)	0	(5,250)
Equity compensation plans, net of								
transactions in own equity	_	(225)	_	_	-	(225)	1	(224)
Changes in non-controlling interests ²²	_	(3)	_	-	-	(3)	3	-
At December 31, 2021	1	(18,730)	25	0	20	(18,684)	2	(18,682)

Notes to the Roche Holdings, Inc. Consolidated Financial Statements

1. General accounting principles

Basis of preparation

The consolidated financial statements (hereafter 'the Annual Financial Statements') of the RHI Group have been prepared in accordance with International Financial Reporting Standards (IFRS) as adopted by the European Union (EU). 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 February 7, 2022.

These financial statements are the Annual Financial Statements of Roche Holdings, Inc., a company incorporated in the State of Delaware, and its subsidiaries ('RHI' or 'the RHI Group'). RHI is 100% indirectly owned by Roche Holding Ltd, a public company registered in Switzerland and the parent company of the Roche Group. The RHI Group is therefore a member of the Roche Group.

The RHI Group's significant accounting policies and changes in accounting policies are disclosed in Note 31.

Going concern. The RHI Group completed the purchase of the non-controlling interests in Genentech effective March 26, 2009. Based on the International Accounting Standard 27 'Separate Financial Statements' (IAS 27) and consistent with the International Financial Reporting Standard 10 'Consolidated Financial Statements' (IFRS 10), which was adopted by RHI in 2013, this transaction was accounted for in full as an equity transaction. As a consequence, the carrying amount of the consolidated equity of the RHI Group at that time was reduced by approximately USD 46.6 billion, of which USD 7.6 billion was allocated to eliminate the book value of Genentech non-controlling interests. At December 31, 2021 the RHI Group had a negative equity of USD 18.7 billion (December 31, 2020: USD 18.5 billion). The capacity of the RHI Group to generate positive cash flows and operating profit is not affected by this accounting treatment. In addition, RHI has bonds, notes and commercial paper outstanding with a carrying value of USD 13.7 billion which are guaranteed by Roche Holding Ltd. Management has assessed that it remains appropriate to prepare the RHI Group's financial statements on a going concern basis. In 2021, the RHI Group generated an operating profit of USD 7.3 billion and a positive operating cash flow of USD 8.9 billion.

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 RHI Group's business is such that many sales transactions do not have a simple structure and may consist of multiple components occurring 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 December 31, 2021 the RHI Group had USD 2,647 million in provisions and accruals for expected sales returns, chargebacks and other rebates, including Medicaid in the US. The provisions and accruals relating to the Pharmaceuticals business amounted to USD 2,388 million, of which USD 473 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 RHI 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 December 31, 2021 the RHI Group had USD 7,893 million in property, plant and equipment (see Note 7), USD 615 million in right-of-use assets (see Note 26), USD 10,053 million in goodwill (see Note 8) and USD 9,876 million in intangible assets (see Note 9). 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 December 31, 2021 the RHI Group had USD 38 million in allowance for doubtful accounts for trade and lease receivables (see Note 11). 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 RHI 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 December 31, 2021 the present value of RHI's defined benefit obligation was USD 5,746 million (see Note 24). The actuarial assumptions used for those estimates may differ materially from actual results due to changes in market and economic conditions, longer or shorter life spans of participants, and other changes in the factors being assessed. These differences could impact on the defined benefit plan assets and liabilities recognised in the balance sheet in future periods.

Legal provisions. The RHI 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 December 31, 2021, the RHI Group had USD 310 million in legal provisions. The status of significant legal cases is disclosed in Note 19. 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 progress.

Environmental provisions. The RHI Group provides for anticipated environmental remediation costs when there is a probable outflow of resources that can be reasonably estimated. At December 31, 2021, the RHI Group had USD 128 million in environmental provisions (see Note 19). 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 due to uncertainties related to the detection of previously unknown contamination, the method and extent of remediation, the percentage of the problematic materials attributable to the RHI 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 RHI Group makes provision for the estimated fair values of contingent consideration arrangements arising from business combinations. At December 31, 2021 the RHI Group had USD 69 million in contingent consideration provisions (see Note 19) and the total potential payments under contingent consideration arrangements from business combinations could be up to USD 173 million (see Note 28). 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. The estimates could change substantially over time as new facts emerge and each scenario develops.

Income taxes. At December 31, 2021 the RHI Group had a current income tax net liability of USD 821 million and a deferred tax net asset of USD 726 million (see Note 5). Major sources of estimation uncertainty are related to the calculation of 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 tax liabilities for management's best estimate of the ultimate liability that is expected to arise based on the specific circumstances and the RHI 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 RHI 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 December 31, 2021 the RHI Group has USD 615 million in right-of-use assets and USD 702 million in lease liabilities (see Note 26).

Where the RHI 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 RHI Group periodically undertakes transactions that may involve obtaining control or significant influence of 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 RHI Group has control or significant influence of 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 RHI 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 2021 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 USD 354 million were incurred as a result of a delay in clinical trials, partly impacted by the COVID-19 pandemic (see Note 9).

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

2. Operating segment information

The RHI 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 revenue from the sale or licensing of products or technology to third parties. Certain corporate activities that cannot be reasonably allocated to the other reportable business segments based on RHI's management and organisational structure are reported as 'Corporate'. These include certain functions for communications, human resources, finance (including treasury and taxes), legal, safety and environmental services.

Divisional information in millions of USD

	Pharma	aceuticals	Dia	gnostics	Co	rporate	F	RHI Group
	2021	2020	2021	2020	2021	2020	2021	2020
Revenues from external customers and								
related parties								
Sales	25,869	26,876	5,536	4,903	-	-	31,405	31,779
Royalties and other operating income	5,735	5,827	223	137	-	-	5,958	5,964
Total	31,604	32,703	5,759	5,040	-	-	37,363	37,743
Segment results								
Operating profit	6,631	9,464	804	473	(86)	(49)	7,349	9,888
Capital expenditure								
Business combinations	61	0	1,983	0	0	0	2,044	0
Asset acquisitions	40	396	0	338	0	0	40	734
Additions to property, plant and equipment	673	706	397	367	15	13	1,085	1,086
Additions to right-of-use assets	211	144	44	18	9	0	264	162
Additions to intangible assets	798	1,739	27	441	-	-	825	2,180
Total	1,783	2,985	2,451	1,164	24	13	4,258	4,162
Research and development								
Research and development costs	6,959	6,498	896	1,009	-	-	7,855	7,507
Other segment information								
Depreciation of property, plant and equipment	472	469	249	206	23	23	744	698
Depreciation of right-of-use assets	82	73	21	16	4	3	107	92
Amortisation of intangible assets	1,349	1,573	212	61	-	-	1,561	1,634
Impairment (reversal) of property, plant and equipment	(190)	3	15	2	0	0	(175)	5
Impairment (reversal) of right-of-use assets	0	0	0	3	0	0	0	3
Impairment of goodwill	0	0	0	117	-	-	0	117
Impairment of intangible assets	270	452	0	0	-	-	270	452
Inventory fair value adjustments	0	0	12	0	-	-	12	0
Equity compensation plan expenses	480	510	66	69	11	13	557	592

Net assets in millions of USD

			Assets			Liabilities			Net assets
At December 31	2021	2020	2019	2021	2020	2019	2021	2020	2019
Net operating assets									
Pharmaceuticals	29,402	29,734	28,548	(7,512)	(6,837)	(7,747)	21,890	22,897	20,801
Diagnostics	10,009	7,880	6,871	(2,002)	(2,696)	(1,906)	8,007	5,184	4,965
Corporate	79	85	99	(122)	(119)	(158)	(43)	(34)	(59)
Total	39,490	37,699	35,518	(9,636)	(9,652)	(9,811)	29,854	28,047	25,707
Current income tax net a	ssets (liabiliti	es)					(821)	(1,675)	(1,442)
Deferred tax net assets (I	liabilities)						726	863	364
Defined benefit plan net	assets (liabili	ties)					(1,150)	(1,493)	(1,532)
Lease liabilities							(702)	(543)	(483)
Marketable securities							2	2	131
Cash and cash equivalen	ts						0	1	127
Debt							(14,011)	(10,463)	(9,990)
Debt - related parties							(28,905)	(31,655)	(32,405)
Other net assets (liabilities	es)						(3,675)	(1,556)	(2,107)
Total net assets							(18,682)	(18,472)	(21,630)

Major customers

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

3. Revenue

Disaggregated revenue information

Disaggregation of revenue from external customers and related parties in millions of USD

Income from out-licensing agreements with related parties	19	-	19	369	-	369
Income from out-licensing agreements	41	-	41	62	-	62
	19	-	19	369	-	369
Income from disposal of products, profit-sharing						
agreements and other	99	686	785	5	595	600
Royalties and other operating income	5,049	686	5,735	5,232	595	5,827
Diagnostics Division						
Sales by customer area a)	0.050	00	0.000	1.005	00	1.005
Molecular Lab	2,353	33	2,386	1,935	30	1,965
Core Lab	1,383	82	1,465	1,209	80	1,289
Pathology Lab	846	32	878	799	40	839
Diabetes Care	573	0	573	555	0	555
Point of Care	234	0	234	255	0	255
Sales	5,389	147	5,536	4,753	150	4,903
Douglty income	0		•	-		_
Royalty income	9	-	9	7	-	7
Royalty income from related parties	199	-	199	125	-	125
Income from out-licensing agreements	9	-	9	0	-	0
Income from disposal of products and other	0	6	6	0	5	5
Royalties and other operating income	217	6	223	132	5	137

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:

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.

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

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.

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

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.

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 USD

Net sales	25,869	26,876
Net sales to related parties	1,243	1,699
Net sales to third parties	24,626	25,177
Others	(367)	(315)
Customer returns reserves	(215)	(146)
Cash discounts	(142)	(128)
Contractual price reductions	(2,496)	(2,231)
Government and regulatory mandatory price reductions	(5,459)	(5,488)
Gross sales	33,306	33,485
	2021	2020

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 (2020: USD 5.5 billion).

Contractual price reductions. These include rebates and charge-backs 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 11). 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 18). Provisions for sales returns are recorded in the balance sheet as other provisions (see Note 19).

Contract balances

Receivables in millions of USD

	2021	2020	2019
Accounts receivable 11	3,932	3,969	3,658
Other current receivables – contracts with customers 15	467	364	293
Other non-current receivables - contracts with customers 14	1	3	5
Total receivables	4,400	4,336	3,956

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

Contract assets in millions of USD		
2021	2020	2019
Accrued income and contract costs	4	8
Total contract assets 9	4	8
Contract liabilities in millions of USD		
2021	2020	2019
Deferred income – non-current 159	134	134
Deferred income – current 149	122	131
Total contract liabilities 308	256	265
Movement in contract liabilities in millions of USD		
	2021	2020
At January 1	256	265
Business combinations	1	0
Revenue recognised that was included in the contract liability balance at the beginning of the y	ear (85)	(237)
Increases due to cash received or receivable, excluding amounts recognised as revenue during	the year 136	228
At December 31	308	256

Revenue recognised in relation to performance obligations satisfied in previous years

In 2021 there was a decrease in revenue recognised of USD 21 million (2020: increase of USD 74 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 RHI 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 RHI 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 RHI Group expects to recognise these sales.

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

	2021	2020
No contract liability held	565	646
Contract liability held	308	256
Total	873	902
Thereof expected to be recognised as revenue		
- Within one year	303	287
- Between one and five years	536	566
- More than five years	34	49
Total	873	902

4. Net financial expense

Financing	costs	in	millions	of	USD

Financing costs in millions of USD		
	2021	2020
Interest expense	(279)	(374)
Amortisation of debt discount ²⁰	(6)	(7)
Net gains (losses) on redemption and repurchase of bonds and notes	0	0
Discount unwind ¹⁹	(2)	(7)
Net interest cost of defined benefit plans ²⁴	(39)	(47)
Interest expense on lease liabilities ²⁶	(11)	(12)
Total financing costs	(337)	(447)
Other financial income (expense) in millions of USD		
· · · ·	2021	2020
Net gains (losses) on equity investments / securities at fair value through profit or loss	14	(1)
Interest income (expense) from debt securities at fair value through OCI and at amortised cost	1	3
Net foreign exchange gains (losses)	21	(27)
Net other financial income (expense)	17	16
Associates	0	0
Total other financial income (expense)	53	(9)
Net financial expense in millions of USD		
·	2021	2020
Financing costs	(337)	(447)
Other financial income (expense)	53	(9)
Net financial expense	(284)	(456)
Financial result from Treasury management	(245)	(409)
Financial result from Pension management	(39)	(47)
Associates	0	0
Net financial expense	(284)	(456)

5. Income taxes

Income tax expenses in millions of USD

Total income tax (expense)	(628)	(1,222)
Deferred taxes	(124)	541
Current income taxes	(504)	(1,763)
	2021	2020

RHI's effective tax rate decreased to 11.2% in 2021 (2020: 14.7%). This was mainly due to the higher effect from the resolution of several tax disputes in 2021 compared to 2020 and higher research and development tax credits.

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

	2021	2020
Average expected tax rate	21.0%	21.0%
Tax effect of		
- Non-taxable income/non-deductible expenses	+1.3%	+1.1%
- Equity compensation plans	-0.1%	-0.1%
- Research and development tax credits and other deductions	-5.0%	-3.7%
- US state tax impacts	+1.6%	+1.2%
- Resolution of several tax disputes	-9.0%	-6.9%
- Prior-year and other differences	+1.4%	+2.1%
RHI's effective tax rate	11.2%	14.7%

Tax effects of other comprehensive income	e in millions of US	SD .				
			2021			2020
	Pre-tax amount	Tax	After-tax amount	Pre-tax amount	Tax	After-tax amount
Remeasurements of defined benefit plans	415	(93)	322	123	(27)	96
Equity investments at fair value through OCI	(5)	1	(4)	39	(7)	32
Debt securities at fair value through OCI	(1)	0	(1)	2	(1)	1
Cash flow hedges	(10)	2	(8)	(15)	3	(12)
Currency translation of foreign operations	(10)	0	(10)	28	_	28
Other comprehensive income	389	(90)	299	177	(32)	145

Income tax assets (liabilities) in millions of USD			
	2021	2020	2019
Current income taxes			
- Assets	0	0	0
- Liabilities	(821)	(1,675)	(1,442)
Net current income tax assets (liabilities)	(821)	(1,675)	(1,442)
Deferred taxes			
- Assets	726	863	364
- Liabilities	0	0	0
Net deferred tax assets (liabilities)	726	863	364

Tax liabilities include accruals for uncertain tax positions.

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

	2021	2020
Net current income tax asset (liability) at January 1	(1,675)	(1,442)
Income taxes paid	1,227	1,420
(Charged) credited to the income statement	(504)	(1,763)
(Charged) credited to equity from equity compensation plans and other transactions with shareholders	132	109
Currency translation effects and other movements	(1)	11
Net current income tax assets (liabilities) at December 31	(821)	(1,675)

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

303) 0 0 153) - -	(614) (215) 0 198 - -	232 0 0 12 (93) -	1,548 95 0 (181) 3 196 0	863 (120) 0 (124) (90) 196
0	(215) 0	0 0 12	95 0 (181) 3	(120) 0 (124) (90)
0	(215) 0	0 0 12	95 0 (181)	(120) 0 (124)
0	(215) 0	0 0 12	95 0 (181)	(120) 0 (124)
0	(215) 0	0	95 0	(120) 0
0	(215)	0	95	(120)
•			,	
303)	(614)	232	1,548	863
803)	(614)	232	1,548	863
0	(3)	0	0	(3)
-	-	-	(48)	(48)
-	-	(27)	(5)	(32)
(41)	321	21	240	541
0	0	0	41	41
0	0	0	0	0
262)	(932)	238	1,320	364
and nent t-of- In	tangible assets	Defined benefit plans	Other temporary differences	Total
	erty, and ment t-of- In: ssets (262)	rerty, and ment t-of- Intangible ssets assets (262) (932) 0 0 0 0	Defined Defi	rerty, and ment t-of- Intangible benefit temporary sests assets plans differences (262) (932) 238 1,320 0 0 0 0 0 0 0 41 (41) 321 21 240

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 RHI Group has unrecognised tax losses, including valuation allowances, as follows:

Unrecognised tax losses: expiry

	Amount (USD million)	2021 Applicable tax rate	Amount (USD million)	2020 Applicable tax rate
Within one year	0	-	0	-
Between one and five years	0	-	0	-
More than five years	6,370	5%	6,220	5%
Total unrecognised tax losses	6,370	5%	6,220	5%

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.

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 April 22, 2021 the RHI 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 RHI 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.

Protocol First, Inc. On December 14, 2021 the RHI 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 RHI 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 USD 42 million compared to the corresponding amounts disclosed in the 2021 Interim Financial Statements. The amounts for the Protocol First acquisition 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 USD

	GenMark	Protocol First	Total
Property, plant and equipment ⁷	45	0	45
Right-of-use assets ²⁶	18	0	18
Intangible assets			
- Product intangibles: in use ⁹	825	0	825
- Other intangibles ⁹	40	33	73
Deferred tax assets	97	1	98
Inventories	41	0	41
Cash and cash equivalents	15	0	15
Marketable securities	47	0	47
Long-term debt	(60)	0	(60)
Deferred tax liabilities	(210)	(8)	(218)
Other non-current liabilities			
- Lease liabilities	(20)	0	(20)
- Other long-term liabilities	(1)	0	(1)
Other net assets (liabilities)	(27)	1	(26)
Net identifiable assets	810	27	837
Goodwill ⁸	1,055	28	1,083
Total consideration	1,865	55	1,920
Cash	1,865	55	1,920
Total consideration	1,865	55	1,920

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 earning 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 and Protocol First's other intangibles was calculated using a risk-adjusted discount rate of 10.0%. 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 in commercialisation. The Protocol First goodwill represents a control premium, the acquired workforce and the expected synergies. The goodwill from the GenMark transaction is allocated to the Diagnostics customer areas as cash-generating unit. The goodwill from the Protocol First transaction is allocated to the Pharmaceuticals operating segment 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 USD 19 million from the GenMark acquisition which were all expected to be collectable at the date of the acquisition.

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

In the eight months ended December 31, 2021 GenMark contributed revenue of USD 125 million and a net loss (after tax) of USD 82 million to the results reported for the Diagnostics Division, where it is reported in the Molecular Lab customer area, and the RHI Group. If the acquisition had occurred on January 1, 2021 management estimates that GenMark would have contributed revenue of approximately USD 180 million and a net loss (including intangible asset amortisation and after tax) of approximately USD 160 million in 2021. This information is provided for illustrative purposes only and is not necessarily indicative of the results of the combined RHI Group that would have occurred had GenMark actually been acquired at the beginning of the year, or indicative of the future results of the combined RHI Group. The impact of the Protocol First acquisition on the 2021 results for the Pharmaceuticals Division and the RHI Group were not material.

Business combinations - 2020

The RHI Group did not complete any business combination during 2020.

Cash flows from business combinations

Business combinations: net cash outflow in millions of USD

			2021			2020
	Pharmaceuticals	Diagnostics	Total	Pharmaceuticals	Diagnostics	Total
Cash consideration paid	(55)	(1,865)	(1,920)	0	0	0
Deferred consideration paid	0	(6)	(6)	0	(2)	(2)
Contingent consideration paid 19	0	0	0	0	0	0
Cash in acquired company	0	15	15	0	0	0
Total net cash outflow	(55)	(1,856)	(1,911)	0	(2)	(2)

Asset acquisitions - 2021

The RHI Group did not complete any asset acquisitions during 2021.

Asset acquisitions - 2020

Promedior, Inc. On February 13, 2020 the RHI 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 May 20, 2020 the RHI 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 June 12, 2020 Foundation Medicine, Inc. ('FMI'), which is held by the RHI Group and a related party with an interest of 98.9% and 1.1%, respectively, 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.

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

	Stratos			
	Promedior	Genomics	Lexent Bio	Total
Intangible assets				
- Product intangibles: not available for use	368	262	27	657
Deferred tax assets	26	12	3	41
Cash and cash equivalents	18	7	0	25
Other net assets (liabilities)	2	1	0	3
Net identifiable assets	414	282	30	726
Fair value of previously held equity interest	0	(26)	0	(26)
Total consideration	414	256	30	700
Cash	414	250	30	694
Deferred consideration	0	6	0	6
Total consideration	414	256	30	700

Cash flows from asset acquisitions

Asset acquisitions: net casl	h outflow in million	s of USD				
			2021			2020
	Pharmaceuticals	Diagnostics	Total	Pharmaceuticals	Diagnostics	Total
Cash consideration paid	0	0	0	(444)	(250)	(694)
Cash in acquired company	0	0	0	18	7	25
Contingent payments related to						
previous acquisitions	(40)	(75)	(115)	0	0	0
Total net cash outflow	(40)	(75)	(115)	(426)	(243)	(669)

For asset acquisitions previously closed the RHI Group recorded additions to product intangible assets related to contingent payments for the achievement of performance-related milestones of USD 40 million (2020: USD 75 million, none of which was paid in 2020). Furthermore, the RHI Group made contingent payments of USD 75 million related to product intangible assets recognised already at 31 December 2020.

7. Property, plant and equipment

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

601 0 0 0 0	3,972 0 63 (6) 212	1,979 1 295 (24)	546 0 728 0	1
0 0 0	0 63 (6)	1 295 (24)	0 728	
0 0	63 (6)	295 (24)	728	1 1,086
0	(6)	(24)		1,086
			0	
0 -	212			(30)
-		122	(334)	-
	(284)	(414)	-	(698)
0	0	(2)	(3)	(5)
0	0	(15)	0	(15)
601	3,957	1,942	937	7,437
601	7,079	5,743	1,148	14,571
0	(3,122)	(3,801)	(211)	(7,134)
601	3,957	1,942	937	7,437
601	3,957	1,942	937	7,437
0	0	38	7	45
0	20	257	808	1,085
0	0	(21)	0	(21)
0	490	352	(842)	-
_	(301)	(443)	-	(744)
0	0	(15)	190	175
0	0	(84)	0	(84)
601	4,166	2,026	1,100	7,893
601	7,499	6,174	1,100	15,374
0	(3,333)	(4,148)	0	(7,481)
	601 0 601 0 601 0 0 0 0 0 0 0 0 0	3,957 601 7,079 0 (3,122) 301 3,957 601 3,957 0 0 0 20 0 0 0 490 - (301) 0 0 0 0 0 4,166 601 7,499	601 3,957 1,942 601 7,079 5,743 0 (3,122) (3,801) 601 3,957 1,942 601 3,957 1,942 0 0 38 0 20 257 0 0 (21) 0 490 352 - (301) (443) 0 0 (15) 0 0 (84) 601 4,166 2,026 601 7,499 6,174	601 3,957 1,942 937 601 7,079 5,743 1,148 0 (3,122) (3,801) (211) 601 3,957 1,942 937 601 3,957 1,942 937 0 0 38 7 0 20 257 808 0 0 (21) 0 0 490 352 (842) - (301) (443) - 0 0 (15) 190 0 0 (84) 0 601 4,166 2,026 1,100

In 2021 the Pharmaceuticals Division reported net impairment reversals of property, plant and equipment of USD 190 million. An idle-plant impairment was reversed in the first half of 2021, resulting in an income of USD 203 million.

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 December 31, 2021 machinery and equipment with an original cost of USD 834 million (2020: USD 803 million) and a net book value of USD 252 million (2020: USD 267 million) was being leased to third parties (see Note 26).

Capital commitments

The RHI Group has non-cancellable capital commitments for the purchase or construction of property, plant and equipment totalling USD 398 million (2020: USD 360 million).

8. Goodwill

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

	2021	2020
At January 1		
Cost	12,570	12,853
Accumulated impairment	(3,600)	(3,766)
Net book value	8,970	9,087
Year ended December 31		
At January 1	8,970	9,087
Business combinations ⁶	1,083	-
Impairment charge recorded within general and administration	0	(117)
At December 31	10,053	8,970
Cost	13,620	12,570
Accumulated impairment	(3,567)	(3,600)
Net book value	10,053	8,970
Allocated to the following cash-generating units		
Pharmaceuticals	5,603	5,575
Pharmaceuticals product transactions	293	293
Total Pharmaceuticals Division	5,896	5,868
Diagnostics customer areas	3,683	2,628
Diabetes Care customer area	2	2
Divisional goodwill	472	472
Total Diagnostics Division	4,157	3,102

Cash-generating units used for allocating goodwill

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

- Within the 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 Pharmaceuticals operating segment.
- The cash-generating unit for the goodwill arising from technology transactions is also the 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.

The RHI Group allocated the goodwill in the 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).
- Product transactions consists of 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:
 - o Strategic transactions that have a transformative effect across the whole division.
 - o 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 RHI Group allocated the goodwill in the Roche Diagnostics operating segment as listed below.

- Strategic transactions consist of Corange/Boehringer Mannheim (1997).
- Technology transactions in the Diagnostics customer areas consist of Viewics (2017).
- Product transactions in the Diagnostics customer areas consist of Igen (2004), BioVeris (2007), Ventana (2008),
 IQuum (2014) and GenMark (2021).

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 USD 117 million were recorded in the Diagnostics Division.

AVL Medical Instruments acquisition. A charge of USD 34 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 USD 83 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 USD 428 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 weighted average cost of capital as the cash-generating units have integrated operations across large parts of the RHI 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 flows 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 ^{a)}	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%

a) For goodwill relating to 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.

Sensitivity analysis

Management has performed sensitivity analyses for the Pharmaceuticals Division and the Diagnostics Division, which increased the discount rate by 1% combined with decreasing the forecast cash flows 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 December 31, 2021.

9. Intangible assets

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

	Product intangibles: in use	Product intangibles: not available for use	Other intangibles	Total
At January 1, 2020				
Cost	19,103	5,459	1,382	25,944
Accumulated amortisation and impairment	(13,170)	(2,192)	(934)	(16,296)
Net book value	5,933	3,267	448	9,648
Year ended December 31, 2020				
At January 1, 2020	5,933	3,267	448	9,648
Business combinations	0	0	0	0
Asset acquisitions	0	732	0	732
Additions	883	1,282	15	2,180
Disposals	(30)	(371)	0	(401)
Transfers	649	(649)	-	_
Amortisation charge	(1,538)	-	(96)	(1,634)
Impairment charge	(87)	(365)	0	(452)
Currency translation effects	27	0	0	27
At December 31, 2020	5,837	3,896	367	10,100
Cost	20,726	6,446	1,397	28,569
Accumulated amortisation and impairment	(14,889)	(2,550)	(1,030)	(18,469)
Net book value	5,837	3,896	367	10,100
Allocated by operating segment Pharmaceuticals Diagnostics	4,990 847	3,547 349	360 7	8,897 1,203
Total RHI Group	5,837	3,896	367	10,100
Year ended December 31, 2021 At January 1, 2021	5,837	3,896	367	10,100
Business combinations ⁶	825	3,030	73	898
Asset acquisitions	0	40	0	40
Additions	270	383	172	825
Disposals	0	(87)	(61)	(148)
Transfers	188	(188)	(01)	(140)
Amortisation charge	(1,496)	(100)	(65)	(1,561)
Impairment charge	(1,430)	(133)	0	(270)
Currency translation effects	(137)	(133)	0	(8)
At December 31, 2021	5,479	3,911	486	9,876
At December 31, 2021	3,473	3,311	400	3,070
Cost	21,420	5,776	1,575	28,771
Accumulated amortisation and impairment	(15,941)	(1,865)	(1,089)	(18,895)
Net book value	5,479	3,911	486	9,876
Allocated by operating segment				
Pharmaceuticals	3,975	3,568	458	8,001
Diagnostics	1,504	343	28	1,875
Total RHI Group	5,479	3,911	486	9,876

			Remaining
	Operating segment	Net book value	amortisation period
Product intangibles in use			
Rozlytrek (Ignyta acquisition)	Pharmaceuticals	1,382	10 years
GenMark acquisition	Diagnostics	785	13 years
Flatiron Health acquisition	Pharmaceuticals	442	11 years
Gavreto (Blueprint Medicines in-licensing transaction)	Pharmaceuticals	440	15 years
Xofluza (Shionogi in-licensing transaction)	Pharmaceuticals	386	14 years
Roche Blood Glucose Monitoring (transferred from related parties)	Diagnostics	314	3 years
Kapa acquisition	Diagnostics	186	9 years
Foundation Medicine acquisition	Pharmaceuticals	177	3 years
Luxturna (Spark Therapeutics acquisition)	Pharmaceuticals	172	6 years
Product intangibles not available for use			
SPK-8011 haemophilia A gene therapy (Spark Therapeutics acquisition)	Pharmaceuticals	1,118	n/a
Promedior acquisition	Pharmaceuticals	378	n/a
Stratos Genomics acquisition	Diagnostics	331	n/a
SPK-9001 haemophilia B gene therapy (Spark Therapeutics acquisition)	Pharmaceuticals	305	n/a
BioNTech in-licensing transaction	Pharmaceuticals	232	n/a
Other intangibles - Technology intangibles in use			
Adaptive in-licensing transaction	Pharmaceuticals	255	17 years

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

Total	(1,561)	(1,634)	(270)	(452)
- Diagnostics	(12)	(2)	0	0
- Pharmaceuticals	(220)	(318)	(159)	(365)
Research and development				
- Diagnostics	(9)	(1)	0	0
- Pharmaceuticals	(4)	(11)	0	0
Marketing and distribution				
- Diagnostics	(191)	(58)	0	0
- Pharmaceuticals	(1,125)	(1,244)	(111)	(87)
Cost of sales				
	2021	2020	2021	2020
		Amortisation		Impairment

Internally generated intangible assets

The RHI Group currently 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 RHI 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 December 31, 2021 approximately 71% (2020: 59%) 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 USD 270 million were recorded. The major items related to:

- A charge of USD 117 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 USD 68 million.
- A charge of USD 111 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 USD 172 million. The intangible asset
 continues to be amortised over its remaining estimated useful life of six years.
- A charge of USD 46 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 USD 305 million.
- A charge of USD 41 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 USD 20 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.
- A charge of USD 13 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.
- The previously recorded impairment for a compound in development was partially reversed and an income of USD 110 million was recorded for this. The asset concerned was written up to its estimated recoverable value of USD 120 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 USD 42 million was recorded
 for a compound in development. After a full review of updated 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 USD 452 million were recorded. The major items related to:

- A charge of USD 354 million for the partial impairment of the intangible asset for SPK-8011, a novel gene therapy
 for the treatment of haemophilia A, acquired as part of the Spark Therapeutics acquisition. The impairment 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 USD 1,118 million.
- A charge of USD 87 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. The impairment was a result of reduced sales
 expectations. The asset concerned was written down to its estimated recoverable amount of USD 326 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 RHI Group is party to in-licensing and alliance arrangements and intangible asset purchase agreements with third-parties, including asset acquisitions. These arrangements and purchase agreements may require the RHI 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.

RHI'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 RHI's current best estimate.

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

Total	1,565	177	1,742
Between two and three years	643	94	737
Between one and two years	454	5	459
Within one year	468	78	546
	Pharmaceuticals	Diagnostics	RHI Group

10. Inventories

Inventories in millions of USD

Total inventories	3,835	3,761	2,834
Provision for slow-moving and obsolete inventory	(455)	(172)	(254)
Finished goods	2,054	2,736	2,034
Intermediates	1,563	661	512
Work in process	42	42	51
Raw materials and supplies	631	494	491
	2021	2020	2019

Inventories expensed through cost of sales totalled USD 12.5 billion (2020: USD 10.6 billion). Inventory write-downs during the year resulted in an expense of USD 283 million (2020: USD 57 million).

11. Accounts receivable

Accounts receivable – trade and other in millions of USD

Total accounts receivable – related parties 29	1,745	2,593	2,323
Other receivables - related parties	179	178	199
Trade receivables - related parties	1,566	1,407	1,392
Cash pool balance – related parties	0	1,008	732
	2021	2020	2019
Accounts receivable – related parties in millions of USD			
Accounts receivable – trade and other ³	3,932	3,969	3,658
Chargebacks and other allowances to be withheld upon settlement ³	(590)	(352)	(388)
Allowances for doubtful accounts	(38)	(29)	(28)
Other receivables	47	48	50
Notes receivable	1	6	5
Trade receivables	4,512	4,296	4,019
	2021	2020	2019

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

At December 31	(38)	(29)
Utilised during the year	4	3
Unused amounts reversed	13	22
Additional allowances created	(26)	(26)
At January 1	(29)	(28)
	2021	2020

The entire amount of the allowances for doubtful accounts is related to third party receivables. Bad debt expenses recorded within marketing and distribution costs totalled USD 7 million (2020: bad debt reversals of USD 1 million).

12. Marketable securities

Marketal	ble seci	urities <i>in</i>	millions	of USD
municum			11111110110	UI COD

	2021	2020	2019
Equity securities at fair value through profit or loss 28	2	2	2
Debt securities at fair value through OCI	0	0	129
Total marketable securities	2	2	131
	2021	2020	2019
Debt securities – contracted maturity in millions of USD			
Within one year	0	0	115
Between one and five years	0	0	14
More than five years	0	0	
	•	•	0

13. Cash and cash equivalents

Cash and cash equivalents in millions of USD

	2021	2020	2019
Cash - cash in hand and in current or call accounts	0	1	127
Cash equivalents - time accounts with a maturity of three months or less	0	0	0
Total cash and cash equivalents	0	1	127
Cash overdraft ¹⁸	(15)	0	0
Total cash and cash equivalents - Net	(15)	1	127

14. Other non-current assets

Other non-current assets in millions of USD

Total other non-current assets	1,022	644	468
Associates	348	2	3
Total non-financial non-current assets	453	430	378
Other assets	209	193	150
Long-term employee benefits	244	237	228
Total financial non-current assets	221	212	87
Other receivables - third	86	83	69
Other receivables – contracts with customers ³	1	3	5
Restricted cash	1	2	2
Equity investments at fair value through profit or loss ²⁸	22	8	11
Equity investments at fair value through OCI ²⁸	111	116	0
	2021	2020	2019

15. Other current assets

Other	current	assets ir	n millions	of USD
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Other current assets in millions of USD			
	2021	2020	2019
Other receivables – contracts with customers ³	467	364	293
Other receivables	66	36	75
Total financial current assets	533	400	368
Prepaid expenses and accrued income	454	493	323
Other assets	14	20	30
Total non-financial current assets	468	513	353
Total other current assets	1,001	913	721
Other current assets – related parties in millions of USD			
•	2021	2020	2019
Other current assets – related parties ²⁹	109	82	56
Total financial current assets – related parties	109	82	56
Total other current assets – related parties	109	82	56
Total other current assets – related parties 16. Accounts payable Accounts payable – trade and other in millions of USD	109	82	56
16. Accounts payable	2021	2020	2019
16. Accounts payable			
16. Accounts payable Accounts payable – trade and other in millions of USD	2021	2020	2019 1,048
16. Accounts payable Accounts payable – trade and other in millions of USD Trade payables	2021 1,299	2020 1,102	2019 1,048 44
16. Accounts payable Accounts payable – trade and other in millions of USD Trade payables Other taxes payable	2021 1,299 53	2020 1,102 54	2019
16. Accounts payable Accounts payable – trade and other in millions of USD Trade payables Other taxes payable Other payables	2021 1,299 53 10	2020 1,102 54 25	2019 1,048 44 13
16. Accounts payable Accounts payable – trade and other in millions of USD Trade payables Other taxes payable Other payables Total accounts payable – trade and other	2021 1,299 53 10	2020 1,102 54 25	2019 1,048 44 13
16. Accounts payable Accounts payable – trade and other in millions of USD Trade payables Other taxes payable Other payables Total accounts payable – trade and other 17. Other non-current liabilities	2021 1,299 53 10	2020 1,102 54 25	2019 1,048 44 13
16. Accounts payable Accounts payable – trade and other in millions of USD Trade payables Other taxes payable Other payables Total accounts payable – trade and other 17. Other non-current liabilities	2021 1,299 53 10 1,362	2020 1,102 54 25 1,181	2019 1,048 44 13 1,105
16. Accounts payable Accounts payable – trade and other in millions of USD Trade payables Other taxes payable Other payables Total accounts payable – trade and other 17. Other non-current liabilities Other non-current liabilities in millions of USD	2021 1,299 53 10 1,362	2020 1,102 54 25 1,181	2019 1,048 44 13 1,105
16. Accounts payable Accounts payable – trade and other in millions of USD Trade payables Other taxes payable Other payables Total accounts payable – trade and other 17. Other non-current liabilities Other non-current liabilities in millions of USD Deferred income	2021 1,299 53 10 1,362 2021 160	2020 1,102 54 25 1,181	2019 1,048 44 13 1,105 2019 134

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

18. Other current liabilities

Other current liabilities in millions of USD

	2021	2020	2019
Deferred income	149	122	131
Lease liabilities ²⁶	109	93	80
Accrued payroll and related items	1,634	1,362	1,532
Interest payable	75	151	147
Accrued chargebacks and other allowances separately payable ³	1,575	1,502	1,485
Accrued royalties and commissions	954	875	1,023
Other accrued liabilities	1,411	1,361	1,247
Cash overdrafts	15	0	0
Total other current liabilities	5,922	5,466	5,645

19. Provisions and contingent liabilities

Provisions: movements in recognised liabilities in millions of USD

	Legal	Environmental	Restructuring	Contingent consideration	Other	
	provisions	provisions	provisions	provisions	provisions	Total
Year ended December 31, 2020						
At January 1, 2020	686	159	342	95	1,105	2,387
Additional provisions created	60	9	42	0	460	571
Unused amounts reversed	(385)	(8)	(29)	(29)	(220)	(671)
Utilised	(28)	(24)	(175)	0	(581)	(808)
Discount unwind ⁴	0	4	0	3	0	7
Business combinations						
- Acquired companies	0	0	0	0	0	0
- Deferred consideration	-	-	-	-	0	0
- Contingent consideration	-	-	-	0	-	0
Asset acquisitions	0	0	0	0	6	6
At December 31, 2020	333	140	180	69	770	1,492
Current	317	23	86	10	676	1,112
Non-current	16	117	94	59	94	380
At December 31, 2020	333	140	180	69	770	1,492
Year ended December 31, 2021						
At January 1, 2021	333	140	180	69	770	1,492
Additional provisions created	34	7	160	0	428	629
Unused amounts reversed	(4)	(1)	(46)	(1)	(122)	(174)
Utilised	(54)	(19)	(77)	0	(333)	(483)
Discount unwind ⁴	0	1	0	1	0	2
Business combinations						
- Acquired companies	1	0	0	0	0	1
- Deferred consideration	-	-	-	-	0	0
- Contingent consideration	-	-	-	0	-	0
Asset acquisitions	0	0	0	0	0	0
At December 31, 2021	310	128	217	69	743	1,467
Current	294	20	130	10	651	1,105
Non-current	16	108	87	59	92	362
At December 31, 2021	310	128	217	69	743	1,467
Expected outflow of resources						
- Within one year	294	20	130	10	651	1,105
- Between one to two years	16	29	12	50	34	141
- Between two to three years	0	17	75	9	24	125
- More than three years	0	62	0	0	34	96
At December 31, 2021	310	128	217	69	743	1,467

In 2021 USD 483 million of provisions were utilised (2020: USD 808 million), of which USD 477 million (2020: USD 806 million) are included in the cash flows from operating activities and USD 6 million (2020: USD 2 million) are included in the cash flows from business combinations for payments made from deferred consideration arrangements (see Note 6).

Legal provisions

Legal provisions relate to a number of separate legal matters, including claims arising from trade, in various RHI 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 USD 30 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 USD 385 million. In 2021 the net expenses for legal cases included in general and administration were USD 33 million (2020: net income of USD 322 million). Details of the major legal cases outstanding are disclosed below.

Environmental provisions

Provisions for environmental matters relate to various separate environmental issues. By their nature the amounts and timings of any outflows are difficult to predict. Significant provisions are discounted by 2.9% (2020: 2.6%) 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.

Restructuring provisions

These arise from planned programmes that materially change the scope of business undertaken by the RHI 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 RHI 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.

The significant provisions relate to various business transformation initiatives, including the resourcing flexibility plans, as well as to the redesign and the strategic realignment of its manufacturing network in the Pharmaceuticals Division.

Contingent consideration provisions

The RHI Group is party to certain contingent consideration arrangements arising from business combinations. Significant provisions are discounted using a discount rate of 2.9% (2020: 2.6%) 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 28.

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.

Total other provisions	743	770	1,105
Other items	27	54	298
Employee provisions	234	235	221
Sales returns	482	481	586
	2021	2020	2019

Contingent liabilities

The operations and earnings of the RHI 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. The industries in which the RHI 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 RHI 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 RHI Group's own potential new products. These arrangements and purchase agreements may require the RHI 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 RHI Group's current estimate of future third-party commitments for such potential payments within the next three years are given in Note 9.

Legal cases

At December 31, 2021 legal provisions included provisions for legal cases of USD 271 million (2020: USD 298 million), mainly related to legal cases in the Diagnostics Division of USD 236 million (2020: USD 266 million) and in the Pharmaceuticals Division of USD 35 million (2020: USD 32 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.

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 December 31, 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 December 31, 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 RHI 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 November 25, 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 May 6, 2020. On December 23, 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 RHI Group appealed this decision. On November 2, 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 May 4, 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 May 11, 2017 Genentech was served with the complaint. Genentech's response and counterclaims to the complaint were filed on June 30, 2017. On June 19, 2017 Chugai waived service. On September 13, 2017 Chugai filed a motion to dismiss the complaint for lack of personal jurisdiction. On December 14, 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 June 13 and 14, 2018 and during that hearing Baxalta withdrew its request for a preliminary injunction as to the inhibitor patients. On June 25, 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 August 7, 2018 the US District Court ruled against Baxalta, denying their request for an injunction. On September 19, 2018 Chugai was dismissed from this case. On February 1, 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 February 8, 2019 Baxalta appealed this decision. On August 27, 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 September 3, 2021 Genentech filed a motion for summary judgment on multiple grounds. On November 19, 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 January 13, 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 RHI 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 October 29, 2019 the US Department of Justice closed its inquiry against FHLR. On July 17, 2020 the Federal District Court granted the defendants' motions to dismiss. The plaintiffs appealed this decision. On January 4, 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 RHI 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 RHI 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 January 17, 2020 the RHI Group filed a motion to dismiss. On September 28, 2020 the plaintiff dismissed the complaint as to Roche Holding and Genentech and the District Court denied HLR's motion for summary judgment. On October 6, 2021 the US District Court granted the parties' joint motion to stay discovery and to amend the scheduling order, staying discovery for six months. The RHI 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 May 25, 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 June 24, 2021 Genentech filed a notice of removal, seeking to move the case from state court to federal court. On July 1, 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 August 20, 2021. On September 3, 2021 Genentech filed a motion to dismiss the amended complaint on similar grounds. The hearing is scheduled to take place on February 10, 2022. The parties have agreed to engage in a voluntary private mediation on February 11, 2022. The RHI Group is vigorously defending itself in this matter. The outcome of this matter cannot be determined at this time.

20. Debt

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

Dobt moromone in carrying value of recognised habilities in millions of	2021	2020
At January 1	42,118	42,395
Proceeds from issue of bonds and notes	7,479	0
Proceeds from issue of related party debt	19,750	9,280
Redemption and repurchase of bonds and notes	(2,669)	0
Repayment of related party debt	(22,500)	(10,030)
Increase (decrease) in commercial paper	(1,241)	338
Increase (decrease) in other debt	(76)	2
Changes from financing cash flows	743	(410)
Net (gains) losses on redemption and repurchase of bonds and notes ⁴	0	0
Amortisation of debt discount ⁴	6	7
Financing costs	6	7
Business combinations	76	0
Net foreign exchange (gains) losses	(27)	126
Changes in foreign exchanges rates	(27)	126
At December 31	42,916	42,118
Bonds and notes	13,462	8,672
Commercial paper	547	1,788
Amounts due to related parties 29	28,905	31,655
Other borrowings	2	3
Total debt	42,916	42,118
Long-term debt	38,969	34,784
Short-term debt	3,947	7,334
Total debt	42,916	42,118

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

Bonds and notes

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

Recognised liabilities and effective interest rates of bond	is and notes	in millions of	USD		
	Effective Underlying instrument	interest rate Including hedging	2021	2020	2019
US dollar notes – fixed rate	ot. aoc				
2.875% notes due September 29, 2021, principal USD 1.3 billion					
(ISIN: US771196BB71)	2.98%	n/a	_	643	643
1.75% notes due January 28, 2022, principal USD 0.65 billion					
(ISIN: US771196BM37)	1.87%	n/a	_	649	649
3.25% notes due September 17, 2023, principal USD 0.75 billion,					
outstanding USD 0.39 billion (ISIN: US771196BN10)	3.32%	n/a	390	390	390
0.45% notes due March 5, 2024, principal USD 0.5 billion					
(US771196BQ41)	0.49%	n/a	500	-	-
3.35% notes due September 30, 2024, principal USD 1.65 billion,					
outstanding USD 0.59 billion (ISIN: US771196BE11)	3.40%	n/a	589	589	589
3.0% notes due November 10, 2025, principal USD 1.0 billion,					
outstanding USD 0.51 billion (ISIN: US771196BJ08)	3.14%	n/a	504	504	503
0.991% notes due March 5, 2026, principal USD 0.65 billion					
(US771196BS07)	1.03%	n/a	649	-	-
2.625% notes due May 15, 2026, principal USD 1.0 billion					
(ISIN: US771196BK70)	2.78%	n/a	995	994	992
2.375% notes due January 28, 2027, principal USD 0.85 billion					
(ISIN: US771196BL53)	2.54%	n/a	844	843	842
3.625% notes due September 17, 2028, principal USD 0.65 billion					
(ISIN: US771196BP67)	3.69%	n/a	649	648	648
1.93% notes due December 13, 2028, principal USD 2.0 billion					
(ISIN: US771196BW19)	1.97%	n/a	1,996	-	-
2.076% notes due December 13, 2031, principal USD 2.0 billion					
(ISIN: US771196BX91)	2.11%	n/a	1,995	-	-
7.0% notes due March 1, 2039, principal USD 2.5 billion, outstanding					
USD 1.12 billion (ISIN: USU75000AN65 and US771196AU61)	7.43%	n/a	1,083	1,083	1,082
4.0% notes due November 28, 2044, principal USD 0.65 billion					
(ISIN: US771196BH42)	4.16%	n/a	640	639	639
2.607% notes due December 13, 2051, principal USD 2.0 billion					
(ISIN: US771196BY74)	2.65%	n/a	1,990	-	-
US dollar notes – floating rate					
Notes due March 5, 2024, principal USD 0.35 billion					
(ISIN: US771196BR24)	0.45%	n/a	350	_	_
	0.1070	4	000		
Euro Medium Term Note programme – fixed rate					
6.5% notes due March 4, 2021, principal EUR 1.75 billion					
(ISIN: XS0415624716)	6.66%	7.00%	-	1,402	1,275
Genentech Senior Notes					
5.25% Senior Notes due July 15, 2035, principal USD 0.5 billion,					
outstanding USD 0.29 billion (ISIN: US368710AC32)	5.39%	n/a	288	288	288
Total bonds and notes			13,462	8,672	8,540

Bonds and notes maturity in millions of USD

	2021	2020	2019
Within one year	0	2,045	0
Between one and two years	390	649	1,918
Between two and three years	1,438	390	649
Between three and four years	504	589	390
Between four and five years	1,644	504	589
More than five years	9,486	4,495	4,994
Total bonds and notes	13,462	8,672	8,540
Unamortised discount included in carrying value of	bonds and notes in millions of USD		
	2021	2020	2019
LIC dollar notae	70	62	60

Unamortised discount included in carrying value of b	oonds and notes in millions of USL)	
	2021	2020	2019
US dollar notes	78	63	69
Euro notes	0	0	2
Total unamortised discount	78	63	71

Currency swaps. Proceeds from the euro notes at the amount of EUR 850 million had been swapped into USD by entering into derivative contracts with related parties. The related party derivatives had mirrored exactly the terms of derivative contracts that a Roche Group affiliate outside the RHI Group had entered with third party financial institutions. As a result, in these financial statements, the bonds and notes had economic characteristics equivalent to USD bonds and notes. On the due date of March 4, 2021 the RHI Group redeemed the remaining euro notes with an outstanding amount of EUR 1.14 billion (see below) and the related remaining derivative contracts with related parties expired at the same time.

Issuance of bonds and notes - 2021

On March 5, 2021 the RHI 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 March 5, 2024 and March 5, 2026, respectively. The RHI Group received USD 1,148 million aggregate net proceeds from the issuance and sale of these fixed rate notes.

On March 5, 2021 the RHI 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 March 5, 2024. The RHI Group received USD 350 million aggregate net proceeds from the issuance and sale of these floating rate notes.

On December 13, 2021 the RHI 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 December 13, 2028, December 13, 2031 and December 13, 2051, respectively. The Group received USD 5,981 million aggregate net proceeds from the issuance and sale of these fixed rate notes.

Issuance of bonds and notes - 2020

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

Redemption and repurchase of bonds and notes - 2021

On the due date of March 4, 2021 the RHI 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 USD 1,376 million and there was no gain or loss recorded on the redemption.

On July 29, 2021 the RHI 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 September 29, 2021. The cash outflow was USD 643 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 December 28, 2021 the RHI 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 January 28, 2022. The cash outflow was USD 650 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

The RHI Group did not repay any bonds or notes in 2020.

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

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

	2021	2020
US dollar notes	7,479	0
Total cash inflows from issuance of bonds and notes	7,479	0
Cash outflows from redemption and repurchase of bonds and notes in millio	ns of USD 2021	2020
Cash outflows from redemption and repurchase of bonds and notes in million Euro Medium Term Note programme – Euro notes		2020
· · · · · · · · · · · · · · · · · · ·	2021	2020 0 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 lines that is available as a back-stop supporting the commercial paper program are USD 7.5 billion at December 31, 2021. On July 3, 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 December 31, 2021 unsecured commercial paper notes with a principal of USD 0.5 billion and an average interest rate of 0.08% were outstanding.

Movements in commercial paper obligations in millions of USD

At December 31		1.788
Net cash proceeds (payments)	(1,241)	338
At January 1	1,788	1,450
	2021	2020

Recognised liabilities due to related parties

The movements of the amounts due to related parties are shown in the table below:

Recognised liabilities due to related parties in millions of USD

	2021	2020	2019
At January 1	31,655	32,405	27,875
Proceeds from issue of related party debt	19,750	9,280	6,250
Repayment of related party debt	(22,500)	(10,030)	(1,720)
At December 31	28,905	31,655	32,405

Issues from related parties. Issues of new term notes from related parties are shown in the table below:

Cash inflows from related parties in millions of USD

Term note 2.27% issued February 25, 2020	-	500
Term note 2.8% issued February 25, 2020	-	1,000
Term note 0.23% issued June 5, 2020	-	1,000
Term note 1.31% issued June 8, 2020	-	280
Term note 0.23% issued June 25, 2020	-	750
Term note 0.23% issued July 24, 2020	-	1,000
Term note 0.22% issued August 21, 2020	-	1,000
Term note 0.18% issued October 21, 2020	-	1,000
Term note 0.17% issued November 5, 2020	-	750
Term note 1.71% issued December 4, 2020	-	750
Term note 1.71% issued December 15, 2020	-	500
Term note 1.71% issued December 17, 2020	-	750
Term note 1.9% issued February 3, 2021	250	-
Term note 0.14% issued March 4, 2021	1,500	-
Term note 0.16% issued April 6, 2021	1,500	-
Term note 0.16% issued April 22, 2021	1,000	-
Term note 0.16% issued April 23, 2021	500	-
Term note 2.82% issued May 6, 2021	1,500	-
Term note 0.17% issued May 13, 2021	500	-
Term note 0.17% issued May 17, 2021	1,000	-
Term note 2.82% issued May 21, 2021	1,500	-
Term note 0.17% issued June 11, 2021	500	-
Term note 0.17% issued June 17, 2021	500	-
Term note 0.17% issued June 25, 2021	500	-
Term note 0.16% issued July 9, 2021	500	-
Term note 0.16% issued July 16, 2021	2,000	-
Term note 0.25% issued August 16, 2021	1,000	-
Term note 1.30% issued August 25, 2021	1,500	-
Term note 0.23% issued October 1, 2021	2,000	-
Term note 0.29% issued November 3, 2021	2,000	-
Total cash inflows from related party issues	19,750	9,280

Payments to related parties. Payments of term notes to related parties are shown in the table below:

Cash outflows to related party issues in millions of USD

	2021	2020
Term note 5.79% due February 25, 2020	-	(1,500)
Term note 2.09% due June 5, 2020	-	(1,000)
Term note 5.6% due June 8, 2020	-	(280)
Term note 0.23% due August 21, 2020	-	(1,000)
Term note 0.23% due September 10, 2020	-	(750)
Term note 2.09% due September 23, 2020	-	(750)
Term note 0.22% due October 21, 2020	-	(1,000)
Term note 0.23% due November 5, 2020	-	(1,000)
Term note 0.18% due November 23, 2020	-	(1,000)
Term note 0.17% due December 4, 2020	-	(750)
Term note 2.09% due December 17, 2020	-	(1,000)
Term note 0.14% due April 6, 2021	(1,500)	-
Term note 0.16% due May 6, 2021	(1,500)	-
Term note 2.09% due May 17, 2021	(1,000)	-
Term note 0.16% due May 21, 2021	(1,000)	-
Term note 0.16% due May 21, 2021	(500)	-
Term note 0.17% due June 11, 2021	(500)	-
Term note 0.17% due June 17, 2021	(1,000)	-
Term note 0.17% due July 9, 2021	(500)	-
Term note 0.17% due July 16, 2021	(500)	-
Term note 0.17% due July 16, 2021	(500)	-
Term note 0.16% due August 9, 2021	(500)	-
Term note 0.16% due August 16, 2021	(2,000)	-
Term note 3.74% due August 25, 2021	(1,500)	-
Term note 0.25% due September 15, 2021	(1,000)	-
Term note 4.65% due September 20, 2021	(1,000)	-
Term note 0.23% due October 29, 2021	(2,000)	-
Term note 0.29% due December 2, 2021	(2,000)	-
Term note 2.72% due January 17, 2029 ^{a)}	(1,250)	-
Term note 2.72% due June 17, 2029 ^{a)}	(1,250)	-
Term note 2.82% due August 6, 2030 a)	(1,500)	-
Total cash outflows to related party issues	(22,500)	(10,030)

a) Upon completion of the fixed rate notes offering on December 13, 2021 described above the RHI Group redeemed related party debt before the scheduled due dates. The cash outflow was USD 4.0 billion, plus accrued interest and an early repayment charge of USD 338 million.

Amounts due to related parties in millions of USD

Total amounts due to related parties		28,905	31,655	32,405
Term note 2.82% due August 20, 2030, principal USD 1,500 million	2.84%	1,500	-	
Term note 1.90% due May 3, 2030, principal USD 250 million	1.91%	250	-	-
Term note 1.71% due February 18, 2030, principal USD 750 million	1.72%	750	750	-
Term note 1.71% due February 15, 2030, principal USD 500 million	1.72%	500	500	-
Term note 1.71% due February 4, 2030, principal USD 750 million	1.72%	750	750	-
Term note 1.31% due August 8, 2029, principal USD 280 million	1.31%	280	280	-
Term note 2.72% due June 17, 2029, principal USD 1,250 million	2.74%	-	1,250	1,250
Term note 2.80% due May 25, 2029, principal USD 1,000 million	2.82%	1,000	1,000	-
Term note 2.72% due January 17, 2029, principal USD 1,250 million	2.74%	-	1,250	1,250
Term note 3.99% due August 25, 2027, principal USD 750 million	4.03%	750	750	750
Term note 3.38% due February 16, 2027, principal USD 500 million	3.41%	500	500	500
Term note 3.38% due February 16, 2027, principal USD 100 million	3.41%	100	100	100
Term note 3.38% due February 16, 2027, principal USD 1,900 million	3.41%	1,900	1,900	1,900
Term note 3.38% due February 2, 2027, principal USD 300 million	3.41%	300	300	300
Term note 3.38% due February 1, 2027, principal USD 500 million	3.41%	500	500	500
Term note 3.38% due February 1, 2027, principal USD 500 million	3.41%	500	500	500
Term note 3.38% due October 27, 2026, principal USD 1,000 million	3.41%	1,000	1,000	1,000
Term note 2.7% due May 4, 2026, principal USD 500 million	2.73%	500	500	500
Term note 2.54% due April 13, 2026, principal USD 750 million	2.57%	750	750	750
Term note 2.27% due February 25, 2026, principal USD 500 million	2.28%	500	500	-
Term note 6.5% due February 2, 2026, principal USD 200 million	6.66%	200	200	200
Term note 3.41% due August 26, 2025, principal USD 750 million	3.44%	750	750	750
Term note 3.36% due April 22, 2025, principal USD 500 million	3.39%	500	500	500
Term note 3.44% due March 24, 2025, principal USD 500 million	3.47%	500	500	500
Term note 3.14% due February 27, 2025, principal USD 750 million	3.17%	750	750	750
Term note 3.48% due January 30, 2025, principal USD 1,000 million	3.51%	1,000	1,000	1,000
Term note 3.14% due November 27, 2024, principal USD 800 million	3.16%	800	800	800
Term note 1.30% due September 24, 2024, principal USD 1,500 million	1.30%	1,500	=	-
Term note 3.14% due August 27, 2024, principal USD 750 million	3.16%	750	750	750
Term note 3.48% due May 29, 2024, principal USD 1,000 million	3.51%	1,000	1,000	1,000
Term note 3.88% due February 27, 2024, principal USD 800 million	3.92%	800	800	800
Term note 4.03% due January 29, 2024, principal USD 750 million	4.07%	750	750	750
Term note 3.80% due December 29, 2023, principal USD 750 million	3.84%	750	750	750
Term note 4.03% due September 29, 2023, principal USD 750 million	4.07%	750	750	750
Term note 4.38% due September 5, 2023, principal USD 1,000 million	4.43%	1,000	1,000	1,000
Term note 4.38% due June 14, 2023, principal USD 500 million	4.43%	500	500	500
Term note 4.55% due April 6, 2023, principal USD 875 million	4.60%	875	875	875
Term note 3.10% due November 11, 2022, principal USD 900 million	3.12%	900	900	900
Term note 3.74% due August 25, 2022, principal USD 1,500 million	3.77%	1,500	1,500	1,500
Term note 3.13% due March 25, 2022, principal USD 1,000 million	3.15%	1,000	1,000	1,000
Term note 4.65% due September 20, 2021, principal USD 1,000 million	4.71%	-	1,000	1,000
Term note 3.74% due August 25, 2021, principal USD 1,500 million	3.77%	-	1,500	1,500
Term note 2.09% due May 17, 2021, principal USD 1,000 million	2.10%	-	1,000	1,000
Term note 2.09% due December 17, 2020, principal USD 1,000 million	2.10%	-	-	1,000
Term note 2.09% due September 23, 2020, principal USD 750 million	2.10%	-	-	750
Term note 5.60% due June 8, 2020, principal USD 280 million	5.68%	-	-	280
Term note 2.09% due June 5, 2020, principal USD 1,000 million	2.10%	-	-	1,000
Term note 5.79% due February 25, 2020, principal USD 1,500 million	5.88%	-	-	1,500
	interest rate	2021	2020	2019
Amounts due to related parties in millions of OSD	Effective			

21. Equity attributable to RHI shareholder

Changes in equity attributable to RHI shareholder in millions of USD

	Share capital	Retained earnings	Fair value reserves	Hedging reserves	Translation reserves	Total
Year ended December 31, 2020						
At January 1, 2020	1	(21,656)	1	20	2	(21,632)
Net income recognised in income statement	-	7,108	-	-	-	7,108
Financial assets at fair value through OCI						
- Fair value gains (losses) - equity investments at						
fair value through OCI	-	-	39	-	_	39
- Fair value gains (losses) taken to retained						
earnings on disposal of equity investments at						
fair value through OCI	-	4	(4)	-	_	-
- Fair value gains (losses) - debt securities at fair						
value through OCI	-	-	2	_	-	2
- Fair value gains (losses) transferred to income						
statement - debt securities at fair value through						
OCI	-	-	0	_	-	0
- Income taxes ⁵	-	0	(8)	-	_	(8)
Cash flow hedges						
- Gains (losses) taken to equity	-	-	_	78	_	78
- Transferred to income statement ^{a)}	-	-	_	(93)	_	(93)
- Income taxes ⁵	-	_	_	3	-	3
Currency translation of foreign operations						
- Exchange differences	-	-	0	-	28	28
Defined benefit plans						
- Remeasurement gains (losses) 24	-	123	_	-	-	123
- Income taxes ⁵	-	(27)	-	_	-	(27)
Other comprehensive income, net of tax	-	100	29	(12)	28	145
Total comprehensive income	-	7,208	29	(12)	28	7,253
Dividends	-	(3,500)	-	-	-	(3,500)
Equity compensation plans	-	(594)	-	-	-	(594)
Changes in non-controlling interests	_	0			_	0
At December 31, 2020	1	(18,542)	30	8 b)	30	(18,473)

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 USD 3 million, net of tax.

Changes in equity attributable to RHI shareholder in millions of USD

	Share capital	Retained earnings	Fair value reserves	Hedging reserves	Translation reserves	Total
Year ended December 31, 2021						
At January 1, 2021	1	(18,542)	30	8 ^{a)}	30	(18,473)
Net income recognised in income statement	-	4,968	-	-	-	4,968
Financial assets at fair value through OCI						
- Fair value gains (losses) - equity investments at						
fair value through OCI	_	_	(5)	_	_	(5)
- 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	_	_	(1)	_	_	(1)
- Fair value gains (losses) transferred to income						
statement - debt securities at fair value through						
OCI	_	_	0	_	_	0
- Income taxes ⁵	_	0	1	_	_	1
Cash flow hedges						
- Gains (losses) taken to equity	_	_	_	(10)	_	(10)
- Transferred to income statement	_	_	_	0	_	0
- Income taxes ⁵	_	_	_	2	_	2
Currency translation of foreign operations						
- Exchange differences	_	_	0	_	(10)	(10)
Defined benefit plans						
- Remeasurement gains (losses) ²⁴	_	415	_	_	_	415
- Income taxes ⁵	_	(93)	_	_	_	(93)
Other comprehensive income, net of tax	-	322	(5)	(8)	(10)	299
Total comprehensive income	-	5,290	(5)	(8)	(10)	5,267
Dividends	-	(5,250)	-	-	-	(5,250)
Equity compensation plans	-	(225)	-	-	-	(225)
Changes in non-controlling interests		(3)	-			(3)
At December 31, 2021	1	(18,730)	25	0 b)	20	(18,684)

a) Cost of hedging reserve related to the EUR/USD cross-currency swap is included in the hedging reserve and amounted to USD 3 million, net of tax.

Genentech transaction

The RHI Group completed the purchase of the non-controlling interests in Genentech effective March 26, 2009. Based on the International Accounting Standard 27 'Separate Financial Statements' (IAS 27) and consistent with the International Financial Reporting Standard 10 'Consolidated Financial Statements' (IFRS 10), which was adopted by RHI in 2013, this transaction was accounted for in full as an equity transaction. As a consequence, the carrying amount of the consolidated equity of the RHI Group at that time was reduced by approximately USD 47 billion, of which USD 7.6 billion was allocated to eliminate the book value of Genentech non-controlling interests. At December 31, 2021 the RHI Group had a negative equity of USD 18.7 billion (December 31, 2020: USD 18.5 billion). This accounting treatment has no effect on the capacity of the RHI Group to generate positive cash flows and operating profit or on its dividend policy.

Share capital

At December 31, 2021 the authorised and issued share capital of Roche Holdings, Inc., which is the RHI Group's parent company, consisted of 1,000 shares with a nominal value of USD 1,000 each and has not changed during 2021. All the shares are indirectly owned by Roche Holding Ltd, a public company registered in Switzerland.

b) The remaining cross-currency swaps expired on March 4, 2021 (see Note 28) and therefore the hedging reserves no longer included any costs for hedging instruments at December 31, 2021.

Dividends

During 2021 the RHI Board of Directors resolved to declare the following dividends to RHI's sole stockholder, Roche Finance Ltd, which were paid during 2021.

Total	5,250,000	5,250
November 9, 2021	500,000	500
September 30, 2021	750,000	750
September 20, 2021	1,250,000	1,250
January 14, 2021	2,750,000	2,750
Date declared	(USD per share)	(USD millions)
	Dividend per share	Total cash distribution

Dividends paid during 2021 amounted to USD 5.3 billion.

Own equity instruments

The RHI Group holds none of its own equity shares.

Reserves

Fair value reserve. At December 31, 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 the RHI Group companies that use functional currencies other than US dollars.

22. Non-controlling interests

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

	2021	2020
At January 1	1	2
Total net income recognised in income statement	(3)	(2)
Total comprehensive income	(3)	(2)
Equity compensation plans	1	1
Changes in non-controlling interests	3	0
At December 31	2	1

23. Employee benefits

Employee remuneration in millions of USD

Total employee remuneration	7,077	6,492
Net interest cost of defined benefit plans ²⁴	39	47
Employee remuneration included in operating results	7,038	6,445
Other employee benefits	768	832
Termination costs	137	57
Equity compensation plans ²⁵	557	592
Operating expenses for defined benefit plans ²⁴	105	99
Defined contribution plans ²⁴	355	345
Social security costs	253	213
Wages and salaries	4,863	4,307
	2021	2020

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.

24. Pensions and other post-employment benefits

The RHI 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 RHI Group's long-term financial position. Most employees are covered by post-employment benefit plans sponsored by RHI Group companies. The nature of such plans varies according to legal regulations, fiscal requirements and market practice within the US. Post-employment benefit plans are classified for IFRS as 'defined contribution plans' if the RHI 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 RHI Group to funds administered by third parties. The RHI Group's expenses for these plans were USD 355 million (2020: USD 345 million). No assets or liabilities are recognised in RHI'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 RHI's contributions. The RHI Group's major defined contribution plan is the US Roche 401(k) Savings Plan. The plans are governed by a senior governing body, the US Roche DC Fiduciary Committee.

Defined benefit plans

RHI's defined benefit plans are mostly established as trusts independent of the RHI Group and are funded by payments from RHI Group companies and by employees. In some cases, the plan is unfunded and the RHI Group pays pensions to retired employees directly from its own financial resources. The plans are governed by a senior governing body, the Roche US Governance Committee. 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 RHI Group's financial statements.

The RHI Group's major pension plans have been closed to new members since 2007. New employees 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 RHI 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 RHI Group.

Other post-employment benefit ('OPEB') plans. These consist of post-employment healthcare and life insurance schemes. These plans are mainly unfunded and/or are contributory for employees, with the RHI Group also making contributions directly from its own financial resources. The RHI Group's major OPEB plans 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. Reimbursement rights are linked to the post-employment medical plan and represent the expected reimbursement of the prescription expenditure provided under the Medicare Prescription Drug, Improvement, and Modernization Act of 2003. There is no statutory funding requirement for these plans. The RHI Group is funding these plans to the extent that it is tax efficient. In 2021 and 2020 no contributions were made by the RHI Group to these plans. At December 31, 2021 the IFRS funding status was 65% (2020: 57%), including reimbursement rights, for the funded OPEB plans.

Defined benefit plans: income statemen	nt in millions	of USD				
			2021			2020
	Pension plans	Other post- employment benefit plans	Total expense	Pension plans	Other post- employment benefit plans	Total expense
Current service cost	91	14	105	85	14	99
Past service (income) cost	0	0	0	0	0	0
Settlement (gain) loss	0	0	0	0	0	0
Total operating expenses	91	14	105	85	14	99
Net interest cost of defined benefit plans	18	21	39	24	23	47
Total expense recognised in						
income statement	109	35	144	109	37	146

Funding status

The funding of the RHI Group's various defined benefit plans is the responsibility of the sponsoring employer, and is managed based on local statutory valuations, which follow the statutory requirements in the United States. 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 the Roche Group level.

In 2021 the IFRS funding status of the funded defined benefit plans increased to 93% (2020: 88%).

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

Defined benefit plans: funding status in millions of USD

			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	4,095	383	4,478	4,131	375	4,506
- Defined benefit obligation	(4,039)	(750)	(4,789)	(4,258)	(862)	(5,120)
Over (under) funding	56	(367)	(311)	(127)	(487)	(614)
Unfunded plans						
- Defined benefit obligation	(596)	(361)	(957)	(612)	(400)	(1,012)
Total funding status	(540)	(728)	1,268	(739)	(887)	(1,626)
Reimbursement rights	-	118	118	-	133	133
Net recognised asset (liability)	(540)	(610)	(1,150)	(739)	(754)	(1,493)
Reported in balance sheet						
- Defined benefit plan assets	208	118	326	25	133	158
- Defined benefit plan liabilities	(748)	(728)	(1,476)	(764)	(887)	(1,651)

Plan assets

The responsibility for the investment strategies of funded plans is with the senior governance body, the Roche US Governance Committee. 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 RHI Group currently does not use longevity swaps to manage longevity risk.

Plan assets are managed using external asset managers. The actual performance is continually monitored by the pension fund governance body as well as being closely monitored at the Roche Group 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 USD 191 million (2020: gain of USD 697 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 USD

	Pension	Other post- employment	2021	Pension	Other post- employment	2020
	plans	benefit plans	Total	plans	benefit plans	Total
At January 1	4,131	508	4,639	3,675	502	4,177
Interest income on plan assets and reimbursement rights	100	13	113	115	15	130
Remeasurements on plan assets and reimbursement rights	32	30	62	507	55	562
Employer contributions	0	0	0	0	(2)	(2)
Employee contributions	0	8	8	0	8	8
Benefits paid – funded plans	(168)	(58)	(226)	(166)	(70)	(236)
Benefits paid – settlements	0	0	0	0	0	0
At December 31	4,095	501	4,596	4,131	508	4,639

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

At December 31	4,478	4,506
Other investments	692	669
Cash and money market instruments	47	97
Property	118	117
Debt securities	2,870	3,085
Equity securities	751	538
	2021	2020

Assets are invested in a variety of different asset 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) and other observable inputs (Level 2 fair value hierarchy).
- Property which is mainly in REITs and commercial property funds which have quoted market prices (Level 1 fair value hierarchy) and 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 hedge funds, private equity, commodities and insurance contracts which have other observable inputs (Level 2 fair value hierarchy) and unobservable inputs (Level 3 fair value hierarchy).

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. The corporate bonds have maturity terms approximating to the terms of the related pension obligation.

The RHI Group's final average salary-based defined benefit pension plans have been closed to new participants since 2007. 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 average salary-based defined benefit pension plan. New employees now join the RHI Group's defined contribution plans. As a result, the proportion of the defined benefit obligation which relates to these closed plans is expected to decrease in the future.

Defined benefit plans: defined benefit obligation in millions of USD

			2021			2020
	Pension plans	Other post- employment benefit plans	Total	Pension plans	Other post- employment benefit plans	Total
At January 1	4,870	1,262	6,132	4,436	1,273	5,709
Current service cost	91	14	105	85	14	99
Interest cost	118	34	152	139	38	177
Remeasurements:						
- Demographic assumptions	(38)	(16)	(54)	(51)	(37)	(88)
- Financial assumptions	(236)	(140)	(376)	408	55	463
- Experience adjustments	57	20	77	70	(6)	64
Employee contributions	0	8	8	0	8	8
Benefits paid - funded plans	(168)	(58)	(226)	(166)	(70)	(236)
Benefits paid - unfunded plans	(59)	(13)	(72)	(51)	(13)	(64)
Benefits paid – settlements	0	0	0	0	0	0
Settlement (gain) loss	0	0	0	0	0	0
Past service (income) cost	0	0	0	0	0	0
At December 31	4,635	1,111	5,746	4,870	1,262	6,132
Composition of plan						
Active members	1,523	282	1,805	1,704	337	2,041
Deferred vested members	837	8	845	855	9	864
Retired members	2,275	821	3,096	2,311	916	3,227
At December 31	4,635	1,111	5,746	4,870	1,262	6,132
Duration in years	12.3	11.9	12.2	13.2	12.5	13.1

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 Roche Group corporate management and the Roche 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 Roche Group's actuaries use a mortality table which takes into account historic patterns and expected changes, such as further increases in longevity in the US. Rates of employee turnover, disability and early retirement are based on historical behaviour within RHI Group companies. 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
Mortality table	2021	2020	2021	2020
Pri-2012 projected with MP-2020	21.8	22.0	23.2	23.4

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	2.90%	2.90%	2.52%	2.50% - 2.60%
Expected rates of salary increases	4.25%	4.25%	4.25%	4.25%
Expected rates of pension increases	1.13%	1.13%	1.13%	1.13%
Expected inflation rates	2.25%	2.25%	2.25%	2.25%
Immediate medical cost trend rate	5.80%	5.80%	5.80%	5.80%
Ultimate medical cost trend rate (in 2038)	4.00%	4.00%	4.50%	4.50%

Discount rates are determined with reference to interest rates on high-quality corporate bonds. Expected rates of salary increases are based on the RHI 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. 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.

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 USD

	2021	2020
Increase (decrease) in defined benefit obligation		
1 year increase in life expectancy	141	158
Discount rate		
0.25% increase	(167)	(190)
0.25% decrease	176	200
Expected inflation rates		
0.25% increase	42	48
0.25% decrease	(40)	(46)
Immediate medical cost trend rate		
1.00% increase	111	135
1.00% decrease	(93)	(114)

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

Defined benefit plans: cash flows in millions of USD

	0001	
	2021	2020
Employer contributions, net of reimbursements – funded plans	0	2
Benefits paid - unfunded plans	(72)	(64)
Total cash inflow (outflow)	(72)	(62)

Based on the most recent actuarial valuations, the RHI Group expects no employer contributions for funded plans in 2022. Benefits paid for unfunded plans in 2022 are estimated to be approximately USD 75 million.

25. Equity compensation plans

The Roche Group operates several equity compensation plans. 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 equit	v compensation	plans in	millions of USD
--	--------------------	----------------	----------	-----------------

expenses for equity compensation plans in millions of OSD	0001	0000
	2021	2020
Cost of sales	90	89
Marketing and distribution	130	140
Research and development	268	280
General and administration	69	83
Total operating expenses	557	592
Equity compensation plans		
Roche Stock-settled Stock Appreciation Rights	106	110
Roche Restricted Stock Unit Plan	451	482
Total operating expenses	557	592
Of which		
- Equity-settled	557	592
- Cash-settled	-	
Cash inflow (outflow) from equity compensation plans in millions of USD		
	2021	2020
Recharges and prepayments to related parties for equity compensation plans	(1,238)	(1,039)
Total cash inflow (outflow) from equity-settled equity compensation plans	(1,238)	(1,039)

Equity compensation plans

Roche Stock-settled Stock Appreciation Rights. The Roche Group issues Stock-settled Stock Appreciation Rights (S-SARs) to certain directors, management and employees selected at the discretion of the Roche 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 vest on a phased basis over three years.

Roche S-SARs - movement in number of rights outstanding

N Outstanding at January 1 Granted	umber of rights	2021 Weighted average	Number of rights	2020
Outstanding at January 1	ĕ	Weighted average	Number of rights	Waighted average
,	(thousands)		ass. or riginto	Weighted average
,	(thousands)	exercise price (CHF)	(thousands)	exercise price (CHF)
Granted	24,088	264.15	24,350	247.37
	6,114	308.49	6,745	308.31
Forfeited	(1,536)	296.95	(771)	276.82
Exercised	(6,904)	253.09	(6,300)	244.86
Expired	(24)	264.18	(8)	217.53
Transfer of expatriate employees	83	246.75	72	249.87
Outstanding at December 31	21,821	277.72	24,088	264.15
- of which exercisable	10,310	250.69	11,735	247.55

Roche S-SARs - terms of rights outstanding at December 31, 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	516	0.28	257.33	516	257.33
2016	1,584	1.27	250.74	1,584	250.74
2017	2,318	2.27	251.34	2,318	251.34
2018	3,388	3.27	221.49	3,388	221.49
2019	3,528	7.28	272.49	1,409	272.60
2020	5,007	8.27	308.37	1,051	308.38
2021	5,480	9.28	308.71	44	306.45
Total	21,821	6.25	277.72	10,310	250.69

Roche Restricted Stock Unit Plan. The Roche Group issues Restricted Stock Units (RSUs) awards to certain directors, management and employees selected at the discretion of the Roche 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 December 31, 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 Roche 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 January 1	3,404	3,243
Granted	1,804	1,726
Forfeited	(498)	(310)
Transferred to participants	(1,768)	(1,467)
Transfer of expatriate employees	(8)	212
Outstanding at December 31	2,934	3,404
- of which vested and transferable	1	0

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
	Progressively	Progressively over
Vesting period	over 4 years	4 years
Contractual life	10 years	n/a
Number granted during year (thousands)	6,114	1,804
Weighted average fair value (CHF)	21	310
Model used	Binomial	Market price a)
Inputs to option pricing model		
- Share price at grant date (CHF)	308	310
- Exercise price (CHF)	308	-
- Expected volatility b)	19.7%	n/a
- Expected dividend yield	6.7%	n/a
- Early exercise factor ^{c)}	1.33	n/a
- Expected exit rate	7.7%	n/a

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.

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.

The RHI Group as a lessee

The RHI Group enters into leasing transaction as a lessee mainly for reasons of convenience and flexibility. The RHI 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 RHI 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 RHI Group's leases are shown in the table below.

Right-of-use assets: movements	. i	ala af aa	aata in milliana	of LICD
Right-ot-like assets, movements	s in carryind	Value of acc	sets in milli∩ns	ากราบราบ

Right-of-use assets: movements in carrying valu	Land	Buildings and land improvements	Machinery and equipment	Total
Year ended December 31, 2020				
At January 1, 2020	14	371	44	429
Business combinations	0	0	0	0
Asset acquisitions	0	1	0	1
Additions	0	136	26	162
Disposals	0	(31)	(3)	(34)
Depreciation charge	(1)	(75)	(16)	(92)
Impairment reversal (charge)	0	(3)	0	(3)
Other	0	16	0	16
At December 31, 2020	13	415	51	479
Cost	15	541	75	631
Accumulated depreciation and impairment	(2)	(126)	(24)	(152)
Net book value	13	415	51	479
Year ended December 31, 2021				
At January 1, 2021	13	415	51	479
Business combinations ⁶	0	18	0	18
Additions	0	237	27	264
Disposals	0	(13)	(3)	(16)
Depreciation charge	(1)	(85)	(21)	(107)
Impairment reversal (charge)	0	0	0	0
Other	0	(24)	1	(23)
At December 31, 2021	12	548	55	615
Cost	15	742	92	849
Accumulated depreciation and impairment	(3)	(194)	(37)	(234)
Net book value	12	548	55	615
At December 31, 2021 Cost	12 15 (3) 12	in milli	742 (194) 548	548 55 742 92 (194) (37) 548 55
impairment reversal (charge) of	right-of-use assets	in millions of USD		
			2021	202
Cost of sales			0	(1)
Research and development			0	0
General and administration			0	(2)
Total impairment reversal (charge)			0	(3)

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

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

	2021	2020
At January 1	543	483
Increase from new lease arrangements	259	162
Repayment of lease liabilities	(118)	(100)
Business combinations	24	0
Asset acquisitions	0	1
Disposals	(17)	(35)
Interest expense on lease liabilities ⁴	11	12
Other	0	20
At December 31	702	543
Non-current lease liabilities ¹⁷	593	450
Current lease liabilities 18	109	93
Total lease liabilities	702	543

The maturity analysis of lease liabilities is given in Note 28 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 USD 2 million (2020: USD 8 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 nil (2020: USD 1 million).

Expenses for variable lease payments not included in the measurement of lease liabilities was USD 13 million in 2021 (2020: USD 11 million). In 2021 and 2020 there was no income from subleasing right-of-use assets. In 2021 and 2020 the RHI Group did not enter into any sale and leaseback transactions.

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

		<i>c</i> 1			(1100
Leases:	casn	tiows	ın	millions	of USD

	2021	2020
Included in cash flows from operating activities	(16)	(20)
Included in cash flows from financing activities	(118)	(100)
Total lease payments	(134)	(120)

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 RHI Group as a lessor

In the Diagnostics Division the RHI 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 RHI Group performs a thorough customer assessment before new leasing agreements are signed. Usually the RHI 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 USD

	2021	2020
Selling profit or loss as the difference between sales and cost of sales	5	7
Finance income on the net investment in the lease	6	5

Currently the RHI 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 USD 135 million (2020: USD 131 million).

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

	Present				
	Gross investn	nent in lease	minimum leas	se receipts	
	2021	2020	2021	2020	
Within one year	54	55	47	48	
Between one and two years	38	33	34	31	
Between two and three years	26	26	25	24	
Between three and four years	18	15	17	14	
Between four and five years	8	10	8	9	
More than five years	3	5	3	5	
Total	147	144	134	131	
Unearned finance income	(12)	(13)	n/a	n/a	
Unguaranteed residual value	n/a	n/a	1	0	
Net investment in lease	135	131	135	131	

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 USD 104 million (2020: USD 97 million) and was included in sales. Of this USD 93 million (2020: USD 87 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 USD 2021 2020 Leased out Own use Total Leased out Own use Total At January 1 Cost 803 4,940 5,743 746 4,779 5,525 Accumulated depreciation and impairment (536)(3,265)(3,801) (489) (3,057)(3,546)Net book value 267 1,675 1,942 257 1,722 1,979 Year ended December 31 At January 1 267 1,675 1,942 257 1,722 1,979 **Business combinations** 0 38 38 0 0 0 Asset acquisitions 0 0 0 0 1 1 Additions 102 155 257 120 175 295 Disposals (14) (21) (14) (10)(24)(7) Transfers 0 352 121 122 352 1 Depreciation charge (103)(340)(443)(97) (317)(414)Impairment charge 0 (15)(15)0 (2)(2) Other (84) (84) (15) (15) At December 31 1,942 252 1,774 2,026 267 1,675 Cost 834 5,340 6,174 803 4,940 5,743 Accumulated depreciation and impairment (582)(3,566)(536)(3,801) (4,148)(3,265)

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

252

1,774

2,026

267

1,675

3

46

1,942

4

57

Net book value

More than five years

Total minimum receipts

Operating leases: future minimum lease receipts under non-cancellable leases in millions of USD 2020 Within one year 14 14 Between one and two years 10 12 Between two and three years 8 10 Between three and four years 7 9 Between four and five years 4 8

27. Statement of cash flows

Cash flows from operating activities

Cash flows from operating activities arise from the RHI Group's primary activities in the Pharmaceuticals and Diagnostics Divisions. These are calculated by the indirect method by adjusting RHI'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.

Net (gain) loss on disposal of products Other adjustments	(99) (65)	(25) (17)
Inventory fair value adjustments	12	0
Inventory write-downs	283	57
Bad debt (reversal) expense	7	(1)
Net (income) expense for provisions	452	(100)
Operating expense for equity-settled equity compensation plans ²⁵	557	592
Operating (income) expenses for defined benefit plans 24	105	99
Impairment (reversal) of right-of-use assets ²⁶	0	3
Impairment (reversal) of property, plant and equipment ⁷	(175)	5
Impairment of intangible assets 9	270	452
Impairment of goodwill ⁸	0	117
Amortisation of intangible assets 9	1,561	1,634
Depreciation of right-of-use assets ²⁶	107	92
Depreciation of property, plant and equipment ⁷	744	698
Operating profit	7,349	9,888
- Income taxes ⁵	628	1,222
- Other financial (income) expense - related parties ²⁹	19	(36)
- Other financial (income) expense ⁴	(53)	9
- Financing costs - related parties ²⁹	1,453	1,140
- Financing costs ⁴	337	447
Add back non-operating (income) expense		
Net income	4,965	7,106
	2021	2020

Cash flows from investing activities

Cash flows from investing activities are principally those arising from the RHI 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 RHI 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 RHI 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 RHI Group's other investments.

Cash flows from financing activities

Cash flows from financing activities are primarily the proceeds from the issue and repayment of the RHI 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 RHI 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. Movements in cash pool balances with related parties are included as they are considered to be part of the RHI Group's financing activities.

Liabilities arising from financing activities

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

	Debt 20, 29	Interest payable 18, 29	Principal portion of lease liabilities	Derivative financial instruments, net 28, 29	Total
Year ended December 31, 2020					
At January 1, 2020	(42,395)	(767)	(483)	(140)	(43,785)
Cash flows					
- Outflow (inflow)	410	1,757	88	23	2,278
Non-cash changes					
- Financing costs	(7)	(1,514)	(12)	0	(1,533)
- Business combinations	0	0	0	0	0
- Asset acquisitions	0	0	(1)	0	(1)
- Fair value and other	0	(13)	(135)	105	(43)
- Foreign exchange rates	(126)	0	0	0	(126)
At December 31, 2020	(42,118)	(537)	(543)	(12)	(43,210)
V I. I.D I					
Year ended December 31, 2021	(42,118)	(537)	(543)	(12)	(43,210)
At January 1, 2021 Cash flows	(42,110)	(337)	(543)	(12)	(43,210)
	(7,40)	1 000	100	07	1.005
- Outflow (inflow)	(743)	1,863	108	37	1,265
Non-cash changes	(6)	(1.700)	(11)	0	(1.740)
- Financing costs	(6)	(1,732)	(11)	0	(1,749)
- Business combinations	(76)	1	(24)	0	(99)
- Asset acquisitions	0	0	0	0	0
- Fair value and other	0	(16)	(232)	(25)	(273)
- Foreign exchange rates	27	0	0	0	27
At December 31, 2021	(42,916)	(421)	(702)	0	(44,039)

Significant non-cash transactions

In 2021 there were no significant non-cash transactions (2020: none) except for the leasing transactions where the RHI Group is a lessee (see Note 26).

28. Risk management

Group risk management

Risk management is a fundamental element of the Roche Group's business practice on all levels and encompasses different types of risks. At Roche 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 of Roche Holding Ltd.

Financial risk management

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

Financial risk management within the RHI Group is governed by policies reviewed by the boards of directors of Roche Holding Ltd. 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 the RHI Group.

Credit risk

Credit risk arises from the possibility that counterparties to transactions may default on their obligations, causing financial losses for the RHI 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 RHI's financial assets.

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

Accounts receivable – trade and other. At December 31, 2021 the RHI Group has trade and other receivables of USD 4.6 billion (2020: USD 4.4 billion). These are subject to a policy of active credit risk management which focuses on the assessment of credit availability, ongoing credit evaluation and account monitoring procedures. The objective of trade receivables management is to maximise the collection of unpaid amounts.

The RHI 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 RHI Group's historical experience and the RHI 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 USD

-			Overdue	Overdue	Overdue more	Credit
	Total	Current	1-3 months	3-12 months	than 1 year	impaired
At December 31, 2021						
Gross carrying amount	3,970	3,669	198	72	31	0
RHI Group's expected credit loss rate	1%	0.4%	2%	3%	55%	0%
Allowance for doubtful accounts	(38)	(15)	(4)	(2)	(17)	0
At December 31, 2020						
Gross carrying amount	3,998	3,740	199	49	10	0
RHI Group's expected credit loss rate	1%	0.4%	4%	6%	50%	0%
Allowance for doubtful accounts	(29)	(14)	(7)	(3)	(5)	0

At December 31, 2021 the RHI Group's trade receivables balance were mainly with three US national wholesale distributors. The combined trade receivables balance with the three US national wholesale distributors, McKesson Corp., AmerisourceBergen Corp. and Cardinal Health Inc., was equivalent to USD 3.0 billion representing 67% of RHI's consolidated third party trade receivables (2020: USD 3.0 billion representing 71%). The remaining accounts receivable balance was mostly with private customers. Risk limits and exposures are continuously monitored. The RHI Group obtains credit insurance and similar enhancements when appropriate to protect the collection of trade receivables. At December 31, 2021 no collateral was considered to measure expected credit losses for trade receivables (2020: none). Of the overall balance of trade receivables in 2021, USD 301 million representing 8% was overdue (2020: USD 258 million representing 6%).

Accounts receivable - related parties. In addition to third party accounts receivable, at December 31, 2021 the RHI Group had USD 1.7 billion accounts receivable balances with related parties mainly in the European Union and Switzerland (2020: USD 2.6 billion). At December 31, 2020 accounts receivable balances with related parties also included USD 1.0 billion with Roche Pharmholding B.V. in its function as corporate cash pool leader for numerous Roche affiliates.

Accounts receivable - related parties - simplified approach

Accounts receivables from related parties amounted to USD 1.7 billion at December 31, 2021 (2020: USD 1.6 billion, excluding receivables on cash pool balances). The allowance on accounts receivables from related parties, excluding receivables on cash pool balances, are measured at an amount equal to lifetime expected credit losses. This takes into account that there have been no credit defaults with related parties during the past five years. Out of these receivable balances from related parties, at December 31, 2021 USD 1.7 billion were not overdue for more than 90 days (2020: USD 1.6 billion). Accounts receivable from related parties balances that were more than 90 days overdue were still considered to have low credit risk and the RHI Group has reasonable and supportable information to demonstrate this. On the basis of the information available, the RHI Group determined that any allowance for doubtful accounts for receivables from related parties is clearly insignificant and has therefore not recognized allowances for doubtful accounts in respect of amounts owed by related parties.

Credit risk on related parties exposures (excluding cash pool balance) based on accounts receivable days overdue in millions of USD

	Total	Current	Overdue 1-3 months	Overdue 3-12 months	Overdue more than 1 year	Credit impaired
	TUlai	Current	1-3 1110111113	3-12 1110111115	tilali i yeai	iiiipaiieu
At December 31, 2021						
Gross carrying amount	1,745	1,674	22	42	7	0
RHI Group's expected credit loss rate	0%	0%	0%	0%	0%	0%
Allowance for doubtful accounts	0	0	0	0	0	0
At December 31, 2020						
Gross carrying amount	1,585	1,540	22	5	18	0
RHI Group's expected credit loss rate	0%	0%	0%	0%	0%	0%
Allowance for doubtful accounts	0	0	0	0	0	0

Cash pool balance - related parties

On September 12, 2021 Roche Holdings, Inc.'s parent company, Roche Finance Ltd, became the corporate cash pool leader within the Roche Group for numerous Roche affiliates. Previously this had been Roche Pharmholding B.V.

At December 31, 2021 accounts payables with related parties included cash pool payables of USD 1.7 billion with Roche Finance Ltd (the 'cash pool leader') (2020: cash pool receivables of USD 1.0 billion with Roche Pharmholding B.V. included in accounts receivable – related parties). As disclosed in Note 29, cash pool balances bear variable interest referenced to SOFR for USD, ESTR for EUR, SARON for CHF, SONIA for GBP, TONAR for JPY and for all other currencies to a one month money market interest rate of the respective currency. Surplus funds deposited with the cash pool leader are immediately available. Impairment on amounts deposited with the cash pool are measured on a 12-month expected credit losses ('ECL') basis, which is equal to the lifetime ECLs for those exposures as the amounts from the cash pool are repayable on demand.

The credit rating of Roche Holding Ltd, the parent company of Roche Group and parent company of the cash pool leader is AA (Standard & Poor's), based on the most recent available ratings, which corresponds to an investment grade credit rating. Therefore the RHI Group considers that the credit risk of surplus funds deposited with the cash pool leader is low. On the basis of the information available, the RHI Group determined that any allowance for doubtful accounts for receivables with the cash pool leader is clearly immaterial and therefore does not recognise allowances for doubtful accounts in respect of amounts owed by the cash pool leader.

Cash and marketable securities (excluding equity securities). At December 31, 2021 the RHI Group has cash and marketable securities (excluding equity securities) of nil (2020: USD 1 million). Cash and marketable securities (excluding equity securities) 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 investment grade, based on Moody's and Standard & Poor's ratings. Cash and short-term time deposits are subject to rules which limit the RHI 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 RHI 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 RHI 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. As at December 31, 2021 the RHI Group did not hold any marketable securities (excluding equity securities). (2020: nil)

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.

There were no material movements in the loss allowance in 2021 and 2020, respectively.

Contract terms. At December 31, 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. RHI's approach to liquidity risk is to maintain sufficient readily available reserves in order to meet its liquidity requirements at any point in time. The Roche Group enjoys strong credit quality and is 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 December 31, 2021 the RHI Group has (jointly with other borrowers in the Roche Group) unused committed credit lines with various financial institutions totalling USD 7.5 billion (2020: USD 7.5 billion), all of which serves as a back-stop line for the commercial paper program. On July 3, 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 from contractual maturities of financial liabilities, including estimated interest payments, are shown in the table below.

Contractual maturities of financial liabilities in millions of USD	
0	

- of which lease liabilities	93	103	103	-	-	-
Other current liabilities 18	5,466	5,476	5,476	-	-	-
- of which lease liabilities	450	487	-	95	74	318
Other non-current liabilities 17	617	654	-	255	77	322
- of which derivative financial instruments	43	43	43	0	0	0
Payables – related parties 29	4,244	4,244	3,837	214	193	0
Accounts payable 16	1,181	1,181	1,181	-	-	-
Contingent consideration 19	69	73	10	0	63	0
- Other debt	33,446	37,768	6,368	4,311	13,286	13,803
- Bonds and notes	8,672	11,816	2,404	893	2,151	6,368
Debt ²⁰						
At December 31, 2020						
Total financial liabilities	56,122	64,468	17,323	5,927	17,996	23,222
- of which lease liabilities	109	116	116	-	-	
Other current liabilities 18	5,922	5,929	5,929	-	-	-
of which lease liabilities	593	674	-	101	84	489
Other non-current liabilities 17	753	834	-	257	87	490
- of which derivative financial instruments	0	0	0	0	0	0
Payables – related parties ²⁹	5,100	5,100	4,787	206	107	0
Accounts payable 16	1,362	1,362	1,362	-	-	-
Contingent consideration 19	69	73	10	53	10	0
- Other debt	29,454	32,375	4,853	4,642	13,178	9,702
- Bonds and notes	13,462	18,795	382	769	4,614	13,030
Debt ²⁰						
At December 31, 2021			•	•	•	-
	Carrying value	Total	Less than 1 year	1-2 years	2-5 years	Over 5 years

Market risk

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

Value-at-Risk. The RHI 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 USD

VaR - Total market risk	440	228
Diversification	(15)	(17)
VaR - Other price component	13	12
VaR - Foreign exchange component	0	0
VaR - Interest rate component	442	233
	2021	2020

The interest rate component increased due to the bond issuances in December 2021. The other price component remained stable at a low level.

Foreign exchange risk

The RHI Group uses the US dollar as its reporting currency and as a result is exposed to movements in foreign currencies, mainly the euro. The RHI's foreign exchange risk management strategy is to preserve the economic value of its current and future assets and to minimise the volatility of RHI's financial result. The primary focus of RHI's foreign exchange risk management activities is on hedging transaction exposures arising through foreign currency flows or monetary positions held in foreign currencies. The RHI Group does not currently hedge translation exposures using financial instruments. RHI 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 RHI Group mainly raises debt on a fixed rate basis for bonds and notes. The RHI Group is exposed to movements in interest rates, mainly for its US dollar denominated financial instruments and short-term debt. The RHI's interest rate risk management strategy is to optimise the net interest result. The RHI Group may use forward contracts, options and interest rate swaps to hedge its interest rate exposures. Depending on the interest rate environment of the major currencies, RHI 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. RHI 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 RHI Group defines the capital that it manages as RHI's total capitalisation, being the sum of debt plus equity, including non-controlling interests. RHI's objectives when managing capital are:

- To safeguard RHI'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 RHI 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 shown in the table below.

Capital in millions of USD

	2021	2020	2019
Capital and reserves attributable to RHI shareholder 21	(18,684)	(18,473)	(21,632)
Equity attributable to non-controlling interests 22	2	1	2
Total equity	(18,682)	(18,472)	(21,630)
Total debt ²⁰	42,916	42,118	42,395
Capitalisation	24,234	23,646	20,765

The RHI Group's net equity was significantly impacted by the 2009 Genentech transaction (see Note 21). The RHI Group is not subject to regulatory capital adequacy requirements as known in the financial services industry.

Financial instruments 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 USD

Carrying value and fair value of							
	Financial	Financial	Fair value –	Financial	Other	Total	Fair
	instruments mandatorily	instruments at fair value	hedging instruments	assets at amortised	financial liabilities	carrying value	value
	at fair value	through	monuments	cost	паршисэ	value	
	through	OCI					
	profit or loss						
At December 31, 2021							
Other non-current assets 14							
- Equity investments	22	111	-	-	-	133	133
- Other financial non-current assets	-	-	-	88	-	88	88
Accounts receivable 11	-	-	-	3,932	-	3,932	3,932
Receivables - related parties 29	-	-	0	1,854	-	1,854	1,854
- of which derivative financial instruments	-	-	0	-	-	0	0
Marketable securities 12							
- Equity securities	2	-	-	-	-	2	2
- Debt securities	-	0	-	-	-	0	0
Cash and cash equivalents 13	-	-	-	0	-	0	0
Other current assets 15							
- Other financial current assets	-	_	-	533	-	533	533
Total financial assets	24	111	0	6,407	-	6,542	6,542
Debt ²⁰							
- Bonds and notes	-	-	-	-	(13,462)	(13,462)	(14,580)
- Amounts due to related parties	_	-	-	-	(28,905)	(28,905)	(28,905)
- Other debt	-	-	-	-	(549)	(549)	(549)
Contingent consideration 19	(69)	_	-	-	-	(69)	(69)
Accounts payable 16	-	-	-	-	(1,362)	(1,362)	(1,362)
Payables - related parties 29	-	-	0	-	(5,100)	(5,100)	(5,100)
- of which derivative financial instruments	-	-	0	-	-	0	0
Other non-current liabilities 17	-	-	-	-	(753)	(753)	(753)
Other current liabilities 18	-	-	-	-	(5,922)	(5,922)	(5,922)
Total financial liabilities	(69)	-	0	-	(56,053)	(56,122)	(57,240)

Carrying value and fair value of financial instruments – 2020 in millions of USD Other Financial Financial Fair value -Total Fair instruments instruments assets at financial hedging carrying value mandatorily at fair value instruments amortised liabilities value at fair value through OCI cost through profit or loss At December 31, 2020 Other non-current assets 14 116 124 124 - Equity investments 8 - Other financial non-current assets 88 88 88 Accounts receivable 11 3,969 3,969 3,969 Receivables - related parties 29 31 2,644 2,675 2,675 - of which derivative financial instruments 31 31 31 Marketable securities 12 2 2 - Equity securities 2 0 0 0 - Debt securities Cash and cash equivalents 13 1 1 1 Other current assets 15 - Other financial current assets 400 400 400 **Total financial assets** 10 116 31 7,102 7,259 7,259 Debt 20 - Bonds and notes (8,672)(8,672)(10,277)- Amounts due to related parties (31,655)(31,655)(31,655)- Other debt (1,791)(1,791)(1,791)Contingent consideration 19 (69)(69)(69)Accounts payable 16 (1,181)(1,181)(1,181)Payables - related parties 29 (43)(4,201)(4,244)(4,244)- of which derivative financial instruments (43)(43)(43)Other non-current liabilities 17 (617)(617)(617)Other current liabilities 18 (5,466)(5,466)(5,466)

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.

(43)

(53,583)

(53,695)

(55,300)

(69)

Total financial liabilities

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 USD

	Level 1	Level 2	Level 3	Total
At December 31, 2021				
Marketable securities 12				
- Equity securities at fair value through profit or loss	2	-	-	2
- Debt securities at fair value through OCI	0	0	-	0
Derivative financial instruments – related parties ²⁹	-	0	-	0
Equity investments at fair value through OCI 14	111	0	-	111
Equity investments at fair value through profit or loss 14	12	10	-	22
Financial assets recognised at fair value	125	10	-	135
Derivative financial instruments – related parties ²⁹	-	0	-	0
Contingent consideration ¹⁹	-	_	(69)	(69)
Financial liabilities recognised at fair value	0	0	(69)	(69)

Fair value hierarchy of financial instruments *in millions of USD*

	Level 1	Level 2	Level 3	Total
At December 31, 2020				
Marketable securities 12				
- Equity securities at fair value through profit or loss	2	-	-	2
- Debt securities at fair value through OCI	0	0	-	0
Derivative financial instruments – related parties ²⁹	-	31	-	31
Equity investments at fair value through OCI 14	116	0	-	116
Equity investments at fair value through profit or loss 14	0	8	-	8
Financial assets recognised at fair value	118	39	-	157
Derivative financial instruments – related parties ²⁹	-	(43)	-	(43)
Contingent consideration ¹⁹	-	-	(69)	(69)
Financial liabilities recognised at fair value	-	(43)	(69)	(112)

Level 2 financial assets consist primarily of equity investments and derivative financial instruments. The RHI Group determines Level 2 fair values using the following valuation techniques:

- Equity investments at fair value through profit or loss are based on a valuation model that uses the most recently published observable market data.
- 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.

The RHI Group recognises transfers between levels of the fair value hierarchy as of 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 USD

	2021	2020
At January 1	(69)	(95)
Arising from business combinations	0	0
Utilised for settlements ⁶	0	0
Total gains and losses included in the income statement		
- Unused amounts reversed - recorded within general and administration	1	29
- Additional amount created - recorded within general and administration	0	0
- Discount unwind included in financing costs	(1)	(3)
At December 31	(69)	(69)

Contingent consideration arrangements

The RHI 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 payment, discounted to present value using a risk-adjusted discount rate of 2.9% (2020: 2.6%). The expected payments are determined by considering the possible scenarios of forecast sales and other performance criteria, the amount to be paid under each scenario, and the probability of each scenario. The significant unobservable inputs are the forecast sales, other performance criteria and the risk-adjusted discount rate. The estimated fair value would increase if the forecast sales or other performance criteria rates were higher or the risk-adjusted discount rate was lower. At December 31, 2021 the total potential payments under contingent consideration arrangements arising from business combinations could be up to USD 0.2 billion (2020: USD 0.2 billion) as follows:

Potential payments under contingent consideration arrangements in millions of USD

At December 31			173	173
Others	Various	Diagnostics	10	10
Genia	2014	Diagnostics	163	163
Acquisition	Year acquired	Operating segment	2021	2020

Derivative financial instruments

The RHI Group had entered into various currency swaps with related parties for some of the bonds and notes issued by the RHI Group which were denominated in euro. On the due date of March 4, 2021 the RHI Group redeemed the remaining notes with an outstanding amount of EUR 1.14 billion (see Note 20) and the related remaining cross-currency swaps with related parties expired at the same time. Cash collateral agreements were entered into with the counterparties to the currency swaps to mitigate counterparty risk. At December 31, 2021 and December 31, 2020 the RHI Group had no derivative financial instruments with third parties and no derivatives that are subject to master netting agreements.

Derivative financial instruments related parties in millions of USD

			Assets			Liabilities
	2021	2020	2019	2021	2020	2019
Foreign currency derivatives						
- Forward exchange contracts	0	31	0	0	(1)	(17)
- Cross-currency swaps	0	0	0	0	(42)	(123)
Total derivative financial instruments related parties	0	31	0	0	(43)	(140)

Hedge accounting

As described above the RHI 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 RHI Group.

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 RHI Group performs a qualitative assessment of the hedge effectiveness using a critical terms method. As the critical terms of the hedged items and the hedging instruments match, the RHI 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 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 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

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. At December 31, 2021 and December 31, 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.

At December 31, 2021 the RHI Group had no cash flow hedges which had been designated in a qualifying hedge relationship. 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 were designated as hedging instruments in a cash flow hedge at December 31, 2020.

Fair values and nominal amounts of derivativ	es used for hedge ac	counting - at De	ecember 31, 2020	
	Nominal amount	Fair value asset in million USD	Fair value liability in million USD	Maturity range
Cash flow hedges				
Risk hedged: interest rate and foreign exchange				
rate fluctuations				
- Cross-currency swaps	EUR 850 million			
	fixed into USD	0	42	2021
Total		0	42	

The fair values of derivative financial instruments with related parties, used for hedge accounting are included in accounts receivable – related parties and accounts payable – related parties (see Note 29). 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 RHI Group had entered into cross-currency swaps with related parties to hedge foreign exchange and interest rate risk on some of the bonds and notes issued by the RHI Group which were denominated in euro. On the due date of March 4, 2021 the RHI Group redeemed the remaining notes with an outstanding amount of EUR 1.14 billion (see Note 20) and the related remaining cross-currency swaps with related parties expired at the same time. At December 31, 2020 such instruments were recorded as a net fair value liability of USD 42 million. In 2020 and 2021 there was no ineffective portion.

Carrying amount of items designated as hedged items in a cash flow hedging relationship in millions of USD					
		2021		2020	
At December 31	Assets	Liabilities	Assets	Liabilities	
Risk hedged by cross-currency swaps: interest rate and					
foreign exchange rate fluctuations					
- Bonds and notes	-	0	-	1,045	

Hedging reserve for continuing hedging relationships in millions of USD

		2021		2020
	Cı	ross-currency		Cross-currency
	Total	swaps	Total	swaps
At January 1	8	8	20	20
- Gains (losses) taken to equity	(10)	(10)	78	78
- Transferred to income statement ^{a)}	0	0	(93)	(93)
- Income taxes	2	2	3	3
At December 31	0	0	8	8

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

On the due date of March 4, 2021 the RHI Group redeemed the remaining notes with an outstanding amount of EUR 1.14 billion (see Note 20) and the related remaining cross-currency swaps with related parties expired at the same time. As a result, the hedging reserve for cross-currency swaps with related parties is nil. Otherwise, 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 21.

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 USD						
	Total	Less than 1 year	2021 More than 1 year	Total	Less than 1 year	2020 More than 1 year
Cash inflows	0	0	0	1,114	1,114	0
Cash outflows	0	0	0	(1,164)	(1,164)	0
Total cash inflow (outflow)	0	0	0	(50)	(50)	0

The undiscounted cash flows in the table above will affect profit and 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 USD						
	Total	Less than 1 year	2021 More than 1 year	Total	Less than 1 year	2020 More than 1 year
Cash inflows	0	0	0	68	68	0
Cash outflows	0	0	0	(76)	(76)	0
Total cash inflow (outflow)	0	0	0	(8)	(8)	0

Fair value hedges. The RHI Group does not have any fair value hedges.

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

29. Related parties

Controlling shareholder

Roche Finance Ltd (Roche Finanz AG), a Swiss corporation, owns all of the issued and outstanding shares of Roche Holdings, Inc. Roche Finance Ltd is a wholly-owned, direct subsidiary of Roche Holding Ltd, a public company registered in Switzerland.

As a member of the Roche Group, all of the RHI Group's related party transactions are with Roche Group affiliates. The transactions include purchases of inventory and other materials, sales of inventory and other materials, services received and rendered, allocation of research and development costs under cost-sharing agreements and collaborations, allocation of marketing and distribution costs under cost-sharing agreements, allocations of other expenses attributable to the US business as well as transfers of intangible assets, the payment and receipt of royalties and income from outlicensing agreements.

Related party transactions in millions of USD

neialeu party transactions in millions of OSD		Year ended De	ecember 31
		2021	2020
Sales		2,292	2,707
Royalty income		4,248	4,059
Contract revenue		19	369
Purchases of pharmaceutical products and materials		(7,618)	(7,169)
Purchases of diagnostic instruments, reagents and consumables		(776)	(763)
Transfers of intangible assets from related parties		76	837
Transfers of intangible assets to related parties		(141)	(401)
Payments issued under marketing and distribution cost-sharing and collaboration agreen	ments	(188)	(122)
Reimbursements received under marketing and distribution cost-sharing and collaboration	on agreements	99	74
Payments issued under research and development cost-sharing and collaboration agreen	ments	(1,517)	(1,895)
Reimbursements received under research and development cost-sharing and collaboration	on agreements	631	920
Services rendered		133	165
Services received		(375)	(289)
Other income (expense)		15	(94)
Financing costs – related parties			
Interest expense		(1,421)	(1,098)
Guarantee fees		(32)	(42)
			(1,140)
Other financial income (expense) – related parties		(1,453) (25)	26
Net gains (losses) on foreign currency derivatives Other financial income (expense)		(25) 6	26 10
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives		(25)	26
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives Other financial income (expense) Total other financial income (expense) – related parties		(25) 6	26 10
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives Other financial income (expense) Total other financial income (expense) – related parties Related party balances in millions of USD	2021	(25) 6 (19)	26 10
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives Other financial income (expense) Total other financial income (expense) – related parties Related party balances in millions of USD Other current assets 15	2021 109	(25) 6 (19)	26 10 36
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives Other financial income (expense) Total other financial income (expense) – related parties Related party balances in millions of USD Other current assets 15 Accounts receivable 11		(25) 6 (19)	26 10 36 2019
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives Other financial income (expense) Total other financial income (expense) – related parties Related party balances in millions of USD Other current assets 15 Accounts receivable 11 Of which	109	(25) 6 (19) 2020 82	26 10 36 2019 56
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives Other financial income (expense) Total other financial income (expense) – related parties Related party balances in millions of USD Other current assets ¹⁵ Accounts receivable ¹¹ Of which - derivative financial assets ^{27, 28}	109	(25) 6 (19) 2020 82	26 10 36 2019 56
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives Other financial income (expense) Total other financial income (expense) – related parties Related party balances in millions of USD Other current assets 15 Accounts receivable 11 Of which	109 1,745	(25) 6 (19) 2020 82 2,593	26 10 36 2019 56 2,323
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives Other financial income (expense) Total other financial income (expense) – related parties Related party balances in millions of USD Other current assets ¹⁵ Accounts receivable ¹¹ Of which - derivative financial assets ^{27, 28}	109 1,745 <i>0</i>	(25) 6 (19) 2020 82 2,593	26 10 36 2019 56 2,323
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives Other financial income (expense) Total other financial income (expense) – related parties Related party balances in millions of USD Other current assets 15 Accounts receivable 11 Of which - derivative financial assets 27, 28 Total receivables – related parties 28	109 1,745 <i>0</i> 1,854	(25) 6 (19) 2020 82 2,593 31 2,675	26 10 36 2019 56 2,323 0 2,379
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives Other financial income (expense) Total other financial income (expense) – related parties Related party balances in millions of USD Other current assets ¹⁵ Accounts receivable ¹¹ Of which – derivative financial assets ^{27, 28} Total receivables – related parties ²⁸ Long-term debt	109 1,745 0 1,854 (25,505)	(25) 6 (19) 2020 82 2,593 37 2,675	26 10 36 2019 56 2,323 0 2,379 (27,875)
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives Other financial income (expense) Total other financial income (expense) – related parties Related party balances in millions of USD Other current assets ¹⁵ Accounts receivable ¹¹ Of which – derivative financial assets ^{27, 28} Total receivables – related parties ²⁸ Long-term debt Short-term debt	109 1,745 0 1,854 (25,505) (3,400)	(25) 6 (19) 2020 82 2,593 37 2,675 (28,155) (3,500)	26 10 36 2019 56 2,323 0 2,379 (27,875) (4,530)
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives Other financial income (expense) Total other financial income (expense) – related parties Related party balances in millions of USD Other current assets 15 Accounts receivable 11 Of which – derivative financial assets 27, 28 Total receivables – related parties 28 Long-term debt Short-term debt Total debt – related parties 20, 28	109 1,745 0 1,854 (25,505) (3,400) (28,905)	(25) 6 (19) 2020 82 2,593 37 2,675 (28,155) (3,500) (31,655)	26 10 36 2019 56 2,323 0 2,379 (27,875) (4,530)
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives Other financial income (expense) Total other financial income (expense) – related parties Related party balances in millions of USD Other current assets 15 Accounts receivable 11 Of which – derivative financial assets 27, 28 Total receivables – related parties 28 Long-term debt Short-term debt Total debt – related parties 20, 28 Other non-current liabilities Other current liabilities	109 1,745 0 1,854 (25,505) (3,400) (28,905) (313) (1,771)	(25) 6 (19) 2020 82 2,593 37 2,675 (28,155) (3,500) (31,655)	26 10 36 2019 56 2,323 0 2,379 (27,875) (4,530) (32,405) (494) (1,510)
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives Other financial income (expense) Total other financial income (expense) – related parties Related party balances in millions of USD Other current assets 15 Accounts receivable 11 Of which - derivative financial assets 27, 28 Total receivables – related parties 28 Long-term debt Short-term debt Total debt – related parties 20, 28 Other non-current liabilities Other current liabilities	109 1,745 0 1,854 (25,505) (3,400) (28,905)	(25) 6 (19) 2020 82 2,593 37 2,675 (28,155) (3,500) (31,655)	26 10 36 2019 56 2,323 0 2,379 (27,875) (4,530) (32,405)
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives Other financial income (expense) Total other financial income (expense) – related parties Related party balances in millions of USD Other current assets 15 Accounts receivable 11 Of which - derivative financial assets 27, 28 Total receivables – related parties 28 Long-term debt Short-term debt Total debt – related parties 20, 28 Other non-current liabilities Other current liabilities Accounts payable	109 1,745 0 1,854 (25,505) (3,400) (28,905) (313) (1,771)	(25) 6 (19) 2020 82 2,593 37 2,675 (28,155) (3,500) (31,655) (407) (1,818) (2,019)	26 10 36 2019 56 2,323 0 2,379 (27,875) (4,530) (32,405) (494) (1,510) (1,489)
Other financial income (expense) – related parties Net gains (losses) on foreign currency derivatives Other financial income (expense) Total other financial income (expense) – related parties Related party balances in millions of USD Other current assets 15 Accounts receivable 11 Of which – derivative financial assets 27,28 Total receivables – related parties 28 Long-term debt Short-term debt Total debt – related parties 20,28 Other non-current liabilities Other current liabilities Accounts payable Of which	109 1,745 0 1,854 (25,505) (3,400) (28,905) (313) (1,771) (3,016)	(25) 6 (19) 2020 82 2,593 37 2,675 (28,155) (3,500) (31,655)	26 10 36 2019 56 2,323 0 2,379 (27,875) (4,530) (32,405) (494) (1,510)

On September 12, 2021 Roche Holdings, Inc.'s parent company, Roche Finance Ltd, became the corporate cash pool leader within the Roche Group for numerous Roche affiliates. Previously this had been Roche Pharmholding B.V. At December 31, 2021 accounts payables with related parties included cash pool payables of USD 1.7 billion with Roche Finance Ltd (2020: cash pool receivables of USD 1.0 billion with Roche Pharmholding B.V. included in accounts receivable - related parties). Cash pool balances with Roche Finance Ltd bear variable interest referenced to SOFR for USD, ESTR for EUR, SARON for CHF, SONIA for GBP, TONAR for JPY and for all other currencies to a one month money market interest rate of the respective currency. Surplus funds deposited with Roche Finance Ltd are immediately available. See Note 28 for further information.

At December 31, 2020 derivative financial instruments with related parties, used for hedge accounting were included in accounts payable – related parties and were recorded as a net fair value liability of USD 42 million.

Subsidiaries and associates

A listing of the major RHI Group subsidiaries and associates is included in Note 30. This listing excludes 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 RHI Group and its associates.

Key management personnel

The principle purpose of Roche Holdings, Inc. is to act as a holding and financing company for the US operations of the RHI Group and to engage in any lawful act or activity for which a corporation may be organised under the General Corporation Law of Delaware. RHI has no operating functions except through its subsidiaries and the members of the RHI Group Board of Directors act as the chief operating decision-maker.

Board of Directors of Roche Holdings, Inc.

		Date of appointment
Dr Severin Schwan	Chairman	April 29, 2008
Dr Alan Hippe	Vice-Chairman	April 1, 2011
Roger Brown	Member of the Board	October 28, 2011
Sean A. Johnston	Member of the Board	February 17, 2017
David P. McDede	Member of the Board	December 2, 2008
Bruce Resnick	Member of the Board	December 2, 2008

Dr Schwan and Dr Hippe did not receive remuneration or payment for their time and expenses from RHI related to their services to RHI during 2021 and 2020.

The RHI Group pays to its directors salary, bonus, expense allowance, social insurance contributions in respect of the below remuneration and pays contributions to pension and other post-employment benefit plans. These directors also participate in the equity compensation plans. The terms, vesting conditions and fair value of these awards are disclosed in Note 25.

 $\textbf{Remuneration of members of the RHI Group Executive Committee} \ \textit{in thousands of USD}$

Total	8,261	9,345
Other employee benefits	221	222
Equity compensation plans	1,573	1,344
Pensions and other post-employment benefits	519	570
Social security costs	108	123
Salaries, including bonuses and expenses	5,840	7,086
	2021	2020

Defined benefit plans

Transactions between the RHI Group and the various defined benefit plans for the employees of the RHI Group are described in Note 24.

30. Subsidiaries and associates

Associates

On December 21, 2021 the RHI Group acquired an interest in Freenome Holdings, Inc. ('Freenome'), a privately owned US company based in South San Francisco, California. The RHI Group's interest in Freenome at December 31, 2021 was 15.3%. This investment has been assessed and is treated as an associate of the RHI Group. The RHI Group accounts for Freenome using the equity method based on Freenome's financial statements that are made available to the RHI Group. The carrying value of the RHI Group's share of Freenome's net assets at December 31, 2021, an asset of USD 347 million, is included in other non-current assets (see Note 14). There was no impact to the RHI Group from its share of Freenome's results from December 21 to December 31, 2021 included in other financial income (expense) (see Note 4).

List of Subsidiaries

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

Non-listed companies	Location	City	Controlling 2021	interest 2020
Flatiron Health GmbH	Germany	Cologne	100%	-
Foundation Medicine GmbH		Penzberg	98.9%	98.9%
Roche Information Solutions India Private	India	Pune	100%	100%
Spark Therapeutics Ireland Limited	Ireland	Dublin	100%	100%
Flatiron Health K.K.	Japan	Tokyo	100%	-
Genentech P.R., Inc.	Puerto Rico	San Juan	100%	100%
Kapa Biosystems (Pty) Ltd	South Africa	Cape Town	100%	100%
InterMune International AG	Switzerland	Basel	100%	100%
Flatiron Health UK Ltd	United Kingdom	St Albans	100%	100%
GenMark Diagnostics UK Limited		Egham	100%	-
InterMune Holdings Limited		Welwyn Garden City	100%	100%
Spark Therapeutics UK Ltd		London	100%	100%
Adheron Therapeutics Inc.	United States	South San Francisco	100%	100%
Anadys Pharmaceuticals, Inc.		South San Francisco	100%	100%
Ariosa Diagnostics, Inc.		San Jose	-	100%
BINA Technologies, Inc.		Pleasanton	100%	100%
BioVeris Corporation		Indianapolis	100%	100%
Flatiron Health, Inc.		New York	100%	100%
ForSight VISION4, Inc.		South San Francisco	100%	100%
Foundation Medicine Securities Corporation		Cambridge	-	98.9%
Foundation Medicine, Inc.		Cambridge	98.9%	98.9%
Genentech USA, Inc.		South San Francisco	100%	100%
Genentech, Inc.		South San Francisco	100%	100%
GenMark Diagnostics, Inc.		Carlsbad	100%	-
GenMark Holdings, Inc.		Carlsbad	100%	-
Hoffmann-La Roche Inc.		Little Falls	100%	100%
I5 Surviving Corp.		South San Francisco	100%	100%
IGEN International, Inc.		Pleasanton	100%	100%
IGEN LS LLC		Pleasanton	100%	100%
Ignyta, Inc.		South San Francisco	100%	100%
InterMune, Inc.		South San Francisco	100%	100%
IQuum, Inc.		Marlborough	100%	100%
Jecure Therapeutics, Inc.		South San Francisco	100%	100%
Kapa Biosystems, Inc.		Wilmington	100%	100%
Lexent Bio, Inc.		Cambridge	98.9%	98.9%
Memory Pharmaceuticals Corp.		Little Falls	100%	100%
Prescient Design Corp.		South San Francisco	100%	_
Promedior, Inc.		South San Francisco	100%	100%
Protocol First, Inc.		Salt Lake City	100%	_
Roche Diabetes Care, Inc.		Indianapolis	100%	100%
Roche Diagnostics Corporation		Indianapolis	100%	100%
Roche Diagnostics Hematology, Inc.		Westborough	100%	100%
Roche Diagnostics Operations, Inc.		Indianapolis	100%	100%
Roche Diagnostics Seattle, Inc.		Seattle	100%	100%
Roche Laboratories Inc.		Little Falls	100%	100%
Roche Molecular Systems, Inc.		Pleasanton	100%	100%
Roche Palo Alto LLC		South San Francisco	100%	100%
Roche Sequencing Solutions, Inc.		Pleasanton	100%	100%
Roche TCRC, Inc.		Little Falls	100%	100%
Seragon Pharmaceuticals Inc.		South San Francisco	100%	100%
Spark Therapeutics, Inc.		Philadelphia	100%	100%
Spark Therapeutics International Holdings, Inc.		Philadelphia	100%	100%
Tanox, Inc.		South San Francisco	100%	100%
Tensha Therapeutics, Inc.		South San Francisco	100%	100%
Therapeutic Human Polyclonals, Inc.		South San Francisco	100%	100%
Ventana Medical Systems, Inc.		Tucson	100%	100%

31. Significant accounting policies

Consolidation policy

Subsidiaries are all companies over which the RHI Group has control. The RHI Group controls an entity when the RHI 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 RHI Group, and subsidiaries to be divested are included up to the date on which control passes from the RHI 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 RHI 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

The determination of the RHI Group's operating segments is based on the organisation units for which information is reported to the RHI Group's management.

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 US dollars. Most RHI Group companies use their local currency as their functional currency. 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 RHI 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 RHI Group companies using functional currencies other than US dollars are translated into US dollars 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 RHI 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 RHI 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 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 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 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 RHI 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.
- 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 RHI Group recognises a deferred income (contract liability) if consideration has been received (or has become receivable) before the RHI 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 RHI 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 RHI 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 RHI Group expects to recognise these sales.

Royalty and other operating income. Royalty and other operating income includes royalty income, income from outlicense 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 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 RHI 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 RHI Group are subject to
 technical, regulatory and other uncertainties, such that, in the opinion of management, the criteria for capitalisation
 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 on-going 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 RHI 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 RHI 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 RHI 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 RHI 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 RHI Group can no longer withdraw the offer of the benefits or when the RHI Group recognises any related restructuring costs.

Pensions and other post-employment benefits

For defined contribution plans the RHI 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 comprises 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 RHI 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 improvements40 yearsBuildings10-50 yearsMachinery and equipment4-15 yearsDiagnostic instruments3-5 yearsOffice equipment3-6 yearsMotor vehicles5-8 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 RHI Group is the lessee. At inception of a contract the RHI 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 RHI 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 RHI 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 RHI 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 asset are assessed for impairment whenever there is an indication for impairment.

Where the RHI Group is the lessor. Certain assets, mainly Diagnostics instruments, are leased to third parties 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. Sales from finance leases are recognised 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: Sales from operating leases are recognised 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 sales as the performance obligation 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 RHI 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 RHI 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 RHI Group initially recognises the individual identifiable assets acquired and liabilities assumed. The cost to the RHI 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, licenses, 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 8, 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 8.

Inventories

Inventories are stated at the lower of cost and net realisable value. The cost of finished goods and 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 RHI 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 RHI 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 RHI 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 RHI 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 RHI Group measures an allowance for doubtful accounts equal to the credit losses expected over the lifetime of the trade and lease receivables. The simplified approach is also applied for the assessment of expected credit losses for accounts receivable from related parties, excluding amounts deposited with Roche Finance Ltd.

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. Cash overdrafts that are repayable on demand and form an integral part of the RHI Group's cash management are included as a component of cash and cash equivalents for the purpose of the consolidated statement of cash flows.

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 RHI 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 flows method if quoted prices in an active market are not available.

Financial instruments

The RHI Group classifies its financial instruments in the following measurement categories which are disclosed in Note 28: 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 RHI Group's business model for managing the financial assets and the contractual terms of the cash flows. The RHI 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 RHI 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 RHI 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 RHI 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 RHI 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 RHI Group measures the allowance for doubtful accounts at an amount equal to lifetime ECL. Allowances for doubtful accounts for accounts receivables from related parties, excluding receivables from cash pool balances from related parties, are also measured at an amount equal to lifetime ECLs.

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 RHI Group measures loss allowances at an amount equal to 12-month ECL. The RHI 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 RHI 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 RHI Group measures loss allowances at an amount equal to lifetime ECL. The RHI Group assumes that the credit risk of such instruments have increased significantly if they are more than 30 days past due.

For amounts deposited with Roche Finance Ltd in its function as corporate cash pool leader for numerous Roche affiliates, the RHI Group measures loss allowances at an amount equal to 12-month ECL, which is equal to the lifetime ECLs for those exposures as the amounts from the cash pool are repayable on demand. The credit rating of Roche Holding Ltd, the parent company of Roche Group and an ultimate parent of Roche Finance Ltd is AA (Standard & Poor's), based on the most recent available ratings, which corresponds to an investment grade credit rating. Therefore, the RHI Group considers that the credit risk of surplus funds deposited with Roche Finance Ltd is low.

The RHI Group measures the allowances for doubtful account at an amount equal to lifetime ECL for its debt investments at fair value through OCI and at amortised cost on which credit risk has increased significantly since their initial recognition. The RHI Group assumes that the credit risk on a financial asset has increased significantly if it is 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 RHI 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 RHI Group's policy for recovery of amounts due.

Hedge accounting

The RHI 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 RHI 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 documentation, probability of occurrence, 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 financial income (expense).

Cash flow hedge. 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 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 hedging instrument that have been recorded in 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 financial income (expense) when the forecasted transaction affects net income.

Taxation

Income taxes include all taxes based upon the taxable profits of the RHI Group, including withholding taxes payable on the distribution of retained earnings within the RHI 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 tax liabilities for management's best estimate of the ultimate liability that is expected to arise based on the specific circumstances and the RHI 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 RHI Group operates.

Changes in accounting policies

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

Future new and revised standards

The RHI Group is currently assessing the potential impacts of the various new and revised standards and interpretations that will be mandatory from January 1, 2022 which the RHI Group has not yet applied. Based on an analysis to date, the RHI Group does not anticipate that these will have a material impact on RHI Group's overall results and financial position. The RHI Group is also assessing other new and revised standards which are not mandatory until after 2022.



Independent Auditor's Report

To the Board of Directors of Roche Holdings Inc., Wilmington, Delaware

Opinion

We have audited the consolidated financial statements of Roche Holdings Inc. 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 8 to 87) 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) as adopted by the European Union (EU).

Basis for Opinion

We conducted our audit in accordance with International Standards on Auditing (ISAs). Our responsibilities under those 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 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



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.

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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 charge-backs and other rebates, predominantly contractual price reductions, of USD 1,915 million to be necessary at 31 December 2021. Additionally, provisions for sales returns mainly relating to products with loss of exclusivity of USD 473 million were recorded at 31 December 2021.

We focused on this area because the arrangements are complex and because establishing an appropriate yearend 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 78 (Significant accounting policies, note 31), page 14 (General accounting principles – Key accounting judgements, estimates and assumptions, note 1) and pages 19 – 21, 35, 36, 37 and 38 – 41 (Financial disclosures, note 3 Revenue, note 11 Accounts receivable, note 18 Other current liabilities and note 19 Provisions and contingent liabilities).





Carrying value of product intangible assets not available for use

Key Audit Matter

Product intangibles not available for use (USD 3,911 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 refer to the following:

Page 78 (Significant accounting policies, note 31), page 14 (General accounting principles – Key accounting judgements, estimates and assumptions, note 1) and pages 32 – 35 (Financial disclosures, note 9 Intangible assets).





Income tax - uncertain tax positions

Key Audit Matter

The Group operates across a wide range of different tax Our audit procedures included, amongst others, obtainjurisdictions 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 income tax liabilities of USD 95 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

ing 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 78 (Significant accounting policies, note 31), page 14 (General accounting principles - Key accounting judgements, estimates and assumptions, note 1) and pages 23 – 24 (Financial disclosures, note 5 Income taxes).



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 and our auditor's report 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 the consolidated financial statements that give a true and fair view in accordance with IFRS as adopted by the European Union (EU), 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 ISAs 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 ISAs, we exercise professional judgment 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 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 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, 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.

KPMG AG

Mark Baillache Licensed Audit Expert

Marc Ziegler Licensed Audit Expert

Basel, February 7, 2022