Roche Holdings, Inc.
Annual Report 2020

Roche Holdings, Inc. Consolidated Financial Statements

Contents

Management Report 2

Review for the year ended December 31, 2020 2
Principal risks and uncertainties 10
International Financial Reporting Standards 11
Responsibility statement 11

Consolidated Financial Statements 12

Consolidated income statement for the year ended December 31, 2020 12
Consolidated income statement for the year ended December 31, 2019 13
Consolidated statement of comprehensive income 14
Consolidated balance sheet 15
Consolidated statement of cash flows 16
Consolidated statement of changes in equity 17

Notes to the Consolidated Financial Statements 18

1. General accounting principles 18
2. Operating segment information 21
3. Revenue 23
4. Net financial expense 25
5. Income taxes 26
6. Mergers and acquisitions 28
7. Restructuring plans 31
8. Property, plant and equipment 33
9. Goodwill 34
10. Intangible assets 37
11. Inventories 40
12. Accounts receivable 40
13. Marketable securities 41
14. Cash and cash equivalents 41
15. Other non-current assets 41
16. Other current assets 42
17. Accounts payable 42
18. Other non-current liabilities 42
19. Other current liabilities 42
20. Provisions and contingent liabilities 43
21. Debt 48
22. Equity attributable to RHI shareholder 53
23. Non-controlling interests 55
24. Employee benefits 55
25. Pensions and other post-employment benefits 56
26. Equity compensation plans 61
27. Leases 63
28. Statement of cash flows 68
29. Risk management 70
30. Related parties 81
31. Subsidiaries and associates 84
32. Significant accounting policies 85

Report of the RHI Group Auditors 96

Management Report

1. Review for the year ended December 31, 2020

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 2020 the RHI Group reported sales of USD 31.8 billion, a decrease of 1%, and an operating profit of USD 9.9 billion, an increase of 2% compared to 2019. Sales in the Pharmaceuticals Division decreased by 5% to USD 26.9 billion driven by biosimilar erosion as well as market contractions due to COVID-19 particularly for Rituxan, partly compensated by the uptake of new medicines. The Diagnostics Division reported a sales growth of 28% to USD 4.9 billion, due to sales of COVID-19-related tests, notably the cobas SARS-CoV-2 PCR test, which more than offset a decline in routine testing across the portfolio.

The COVID-19 pandemic outbreak has posed an unprecedented challenge for healthcare systems across the globe. The Roche Group has responded to this challenge with both its pharmaceuticals and diagnostics businesses. In March 2020 the Diagnostics Division launched its cobas SARS-CoV-2 PCR test. This runs on the high-volume fully automated cobas 6800 and cobas 8800 systems based on PCR technology, which are installed in major hospitals and laboratories around the world. In the Pharmaceuticals Division, Actemra has been adopted by many countries in their treatment guidelines to treat patients with severe COVID-19 pneumonia, and in August 2020, the Roche Group announced that it is partnering with Regeneron to develop, manufacture and distribute its investigational neutralising antibody combination.

The RHI Group's business has so far proved to be largely resilient in this difficult environment. The pandemic has nevertheless had a negative impact on the underlying business of both of the RHI Group's divisions, with the various restrictions leading to reduced hospitalisations and outpatient visits, which has impacted routine diagnostics testing and has led to lower levels of prescriptions for many medicines, notably those that require a medical professional to make infusions or injections. At the same time, no major manufacturing supply chain issues have so far occurred and the RHI Group's planned drug launches, filings, pivotal phase III trial readouts and pivotal trial starts are largely on track. Indeed, despite the pandemic, RHI's research and development spending increased by 8% and additionally various in-licensing transactions, including those with related parties, and asset acquisitions led to additions to intangible assets of USD 2.1 billion in the Pharmaceuticals Division and USD 0.8 billion in the Diagnostics Division.

The RHI Group's operating profit increased by 2% to USD 9.9 billion in 2020. Higher royalties and other operating income as well as lower marketing and distribution and general and administration costs more than offset increased research and development costs and lower gross profits from sales. The RHI Group's operating profit margin increased to 31.1% of sales from 30.3% in the comparative period. Net income increased by 9% to USD 7.1 billion mainly due to lower financing costs and lower income tax expenses.

The RHI Group had a positive cash flow from operating activities of USD 10.3 billion, a decrease of 6% compared to 2019. This was mainly due to lower cash generated from operations and higher utilisation of provisions, partly offset by lower income taxes paid. The Roche Group has maintained sufficient liquidity to support its ongoing global business activities and is well positioned to meet its financial obligations.

Impact of the COVID-19 pandemic

Roche medicines and diagnostic tests

Tests that detect the virus. In March 2020 the cobas SARS-CoV-2 PCR test to detect an active infection with SARS-CoV-2 received US FDA Emergency Use Authorization and became available in markets accepting the CE mark. Hospitals and reference laboratories can run the test on Roche Diagnostics' high-volume fully automated cobas 6800 and cobas 8800 systems based on PCR technology, which are installed in major hospitals and laboratories around the world.

In September 2020 the cobas SARS-CoV-2 & Influenza A/B test for use on the cobas 6800/8800 systems received US FDA Emergency Use Authorization and became available in markets accepting the CE mark. This test is also available on the cobas Liat systems in the point-of-care setting. In December 2020 the high-throughput Elecsys SARS-CoV-2 Antigen test, an automated laboratory assay intended as an aid in the diagnosis of active SARS-CoV-2 infection, was launched in markets accepting the CE mark and a filing was also made for US FDA Emergency Use Authorization.

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

In September 2020 the Elecsys Anti-SARS-CoV-2 S antibody test was launched in markets accepting the CE mark, and US FDA Emergency Use Authorization was subsequently received. This immunology test, which targets antibodies against the spike protein, can be used to quantitatively measure antibodies in people who have been exposed to SARS-CoV-2 and can play an important part in characterising a vaccine-induced immune response.

Investigating treatment options. Actemra has been adopted by many countries in their treatment guidelines to treat patients with severe COVID-19 pneumonia. Since March 2020 the Pharmaceuticals Division has initiated three global phase III clinical trials investigating the safety and efficacy of Actemra (tocilizumab) in COVID-19-associated pneumonia. Results of the COVACTA and EMPACTA studies have been published or submitted for publication in a peer-reviewed journal and have been uploaded on data sharing platforms. Following initial interactions with health authorities, the Pharmaceuticals Division will continue to monitor the evolving clinical evidence for Actemra in this setting, including in combination with an antiviral (remdesivir), in the ongoing phase III REMDACTA study. In addition to these trials, there are other independently led clinical trials on multiple medicines including Actemra that are taking place around the world such as the REMAP-CAP and the RECOVERY trials in the UK. At the time of writing, Actemra is not approved in the clinical treatment of COVID-19 pneumonia. RHI Group's sales of Actemra in 2020 were USD 1.3 billion, an increase of 38% compared to an increase of 8% in 2019.

Partnerships and collaborations. In August 2020, the Roche Group announced that it is partnering with Regeneron Pharmaceuticals, Inc. ('Regeneron') to develop, manufacture and distribute casirivimab and imdevimab, an investigational neutralising antibody combination. In addition to being investigated in non-hospitalised patients, casirivimab and imdevimab are currently being studied in a phase II/III clinical trial for the treatment of COVID-19 in hospitalised patients, the phase III open-label RECOVERY trial of hospitalised patients in the UK, and a phase III trial for the prevention of COVID-19 in household contacts of infected individuals. Under the terms of the agreement, Regeneron will distribute casirivimab and imdevimab in the US and the Roche Group will be responsible for distribution outside the US. In November 2020 Regeneron announced that its antibody combination had received Emergency Use Authorization in the US.

In October 2020, the Roche Group announced that it is also partnering with Atea Pharmaceuticals, Inc. ('Atea') to develop, manufacture and distribute AT-527, an investigational novel oral antiviral. A phase II study for the treatment of hospitalised patients with moderate COVID-19 is ongoing and a phase II in the outpatient setting has started in January 2021. In addition, AT-527 may be developed for post-exposure prophylactic settings.

In December 2020, the Roche Group announced a partnership with Moderna, Inc. ('Moderna') to utilise the Elecsys Anti-SARS-CoV-2 S antibody test in Moderna's mRNA-1273 vaccine research trials. This will facilitate the quantitative measurement of SARS-CoV-2 antibodies and help to establish a correlation between vaccine-induced protection and levels of anti-receptor binding domain (RBD) antibodies.

Impact on the RHI Group's business and results

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

- The restrictions on local travel and public gatherings discouraged some patients from visiting physicians, health practices and hospitals. This especially affected elderly patients.
- Many hospitals and health practices experienced a certain level of disruption leading to delays or cancellations of patient visits, especially for non-critical procedures.
- There was a certain level of forward purchasing in the first quarter of 2020 as doctors wrote prescriptions for longer periods to minimise patient visits to pharmacies, and as patients and distributors stocked up in anticipation of restrictions and potential supply chain disruptions.

In the RHI Group's Pharmaceuticals Division the overall impact of COVID-19 was negative. The pandemic, with the various restrictions leading to the reduced hospitalisations and outpatient visits, which has impacted routine diagnostic testing and has led to lower levels of prescriptions for many medicines. This was partly compensated by additional sales of Actemra (+38%). The negative impacts were strongest for medicines where regular visits to health practices or hospitals are needed, for example for infusions or injections. Sales of Lucentis (-16%), Ocrevus (+18%) and the oncology portfolio (-18%) were therefore particularly affected, although the oncology portfolio was also heavily impacted by biosimilar erosion. The ongoing rollouts of Hemlibra (+56%) and Tecentriq (+40%) continued strongly, although the uptake of Hemlibra was also impacted to some extent by the pandemic.

In the RHI Group's Diagnostics Division the pandemic had a negative impact on sales across the whole portfolio, but this was more than compensated for by sales of the COVID-19-related tests, notably the cobas SARS-CoV-2 PCR test. The pandemic led to a reduction in overall diagnostic testing, which translated into reduced instrument placements in the laboratory solutions business and reduced sales of reagents and consumables. The ongoing rollout of COVID-19-related tests and pending instrument placements led to a certain build-up in inventories as at December 31, 2020.

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. While a certain level of volatility in purchasing patterns was noted during 2020, this has not significantly impacted the supply chain.

With the announcement of new clinical trials, and a potential increase in demand for Actemra, the Pharmaceuticals Division has ramped up its manufacturing capacity to increase the globally available supply. Manufacturing investments were also made in relation to the partnership with Regeneron. In total RHI Group's additional capital expenditure related to the COVID-19-related projects in the Pharmaceuticals Division was USD 96 million. While the Roche Group is ensuring a coordinated, global overview of additional supply requests, provision of medicines is managed on a country level according to local rules and regulations and in close collaboration with the authorities.

The Diagnostics Division has ramped up production capacity and supply chain for all COVID-19-related testing products with further scale-up as fast as possible. RHI Group's additional capital expenditure in the Diagnostics Division was USD 47 million. The Roche Group is committed to delivering as many tests as possible within the limits of supply and delivering its tests to areas where they can be immediately effective. Tests will be shipped from production sites to locations where appropriate infrastructure is in place and testing can begin without delay.

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

Operating results. The major impact on the operating profit came from the above-mentioned factors for revenues. Overall operating expenses were impacted to some extent by the COVID-19 pandemic, but 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 travel and congresses. In particular, the 11% decline in RHI Group's marketing and distribution costs was driven by a general slowdown in marketing activities, including lower travel costs and reduced attendance at congresses. There were no significant costs for idle manufacturing capacity or inventory write-offs that could be attributed directly to the pandemic, and construction projects incurred only minor costs for delays during restrictions.

Liquidity and financial position

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

Liquidity. With a positive cash flow from operating activities of USD 10.3 billion the RHI Group continues to show strong cash generation ability. The RHI Group has committed credit lines with various financial institutions totalling USD 7.5 billion available as back-stop lines for the commercial paper program. As at December 31, 2020 no debt has been drawn under these credit lines. The RHI Group did not renegotiate any major contracts for liquidity reasons. In addition, RHI has bonds, notes and commercial paper outstanding with a carrying value of USD 10.2 billion which are guaranteed by Roche Holding Ltd, the parent company of the Roche Group.

The RHI Group did not observe a significant increase in credit risk in 2020 due to the COVID-19 pandemic. Bad debt expenses and overdue receivables remained at relatively low levels.

Financial position as at December 31, 2020. As described previously, there were no significant bad debts or write-offs of inventories that could be directly attributed to COVID-19 factors.

Intangible asset impairment charges of USD 0.4 billion were incurred as a result of a delay in clinical trials, partly caused by COVID-19, for the Spark Therapeutics' haemophilia A programme. No other impairment issues were noted for goodwill and intangible assets that can be directly attributed to the pandemic.

No impairment issues that can be directly attributed to the pandemic were noted for financial assets, although the volatility in global markets had a corresponding impact on the carrying value of investments held at fair value. Similarly, there was a certain volatility in the fair value of pension assets and the discount rate during the first half of 2020, but the situation had largely stabilised by the end of the year, and no exceptional funding payments to the RHI Group's pension plans are currently foreseen.

RHI Group results (continued)

Pharmaceuticals Division

To some extent the COVID-19 pandemic negatively affected sales across the whole business as described in the section on 'Impact of the COVID-19 pandemic'. The COVID-19 pandemic had an overall negative impact on the division's sales in 2020. There was a general dampening on sales from the COVID-19-related restrictions beginning with the second quarter. Hospitalisations and outpatient visits decreased, which particularly impacted sales of Ocrevus, Hemlibra, Lucentis and Rituxan. This was partly compensated by additional sales of Actemra due to the use for patients with severe COVID-19 pneumonia.

In 2020 sales in the Pharmaceuticals Division decreased by 5% to USD 26.9 billion (2019: USD 28.2 billion), mainly due to the impact of biosimilars and the impacts of the COVID-19 pandemic. The new products Ocrevus, Hemlibra, Tecentriq and Kadcyla together contributed an additional USD 1.8 billion of new sales that partly compensated for the increasing competition from biosimilars and the COVID-19 impacts. The first biosimilar versions of Herceptin and Avastin were launched in the US from mid-2019 and the first biosimilar versions of Rituxan in late 2019. Sales of these three products were USD 3.9 billion lower in 2020, a decline of 36%. The COVID-19 pandemic also had an impact on sales of these three products, notably for Rituxan due to market contraction from the COVID-19-related restrictions. Actemra sales increased by 38% mostly due to the use for patients with severe COVID-19 pneumonia.

Sales in the oncology therapeutic area decreased by 18% due to the biosimilar competition for Herceptin, Avastin and Rituxan described above, partially compensated by growth of Tecentriq and Kadcyla. Tecentriq sales grew by 40% due to higher demand driven by the new indications for extensive-stage small cell lung cancer, PD-L1-positive triple-negative breast cancer and unresectable or metastatic hepatocellular carcinoma. Kadcyla sales increased by 31% 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 care. Perjeta grew by 2% due to growth in the early breast cancer setting, partly offset by COVID-19 restrictions. Alecensa showed continuing growth of 10%.

Sales in immunology grew by 2%, with Actemra and Xolair increasing by 38% and 2%, respectively. The increase in Actemra sales was mainly driven by the use of this medicine to treat patients with severe COVID-19 pneumonia. Rituxan sales in immunology decreased by 33% due to the impacts of the COVID-19 pandemic and biosimilar entry.

In neuroscience Ocrevus sales increased by 18% to USD 3.6 billion due to 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. Sales of Ocrevus were impacted by COVID-19 as the treatment is administered by intravenous infusion and requires hospital visits, which in many cases were cancelled or delayed during the pandemic restrictions.

In ophthalmology Lucentis sales decreased by 16%, in all approved indications. The COVID-19 pandemic caused some disruption in hospitals and ophthalmology practices and many patients delayed treatment during the restrictions.

Hemlibra continued to show strong uptake with sales reaching USD 1.5 billion, an increase of 56% due to strong demand in the non-inhibitor segment. COVID-19 restrictions caused a slowdown in growth due to missed patient visits affecting potential new patients, whereas existing patients remained on their treatment.

Infectious diseases sales were 11% higher due to growth of Xofluza sales, partly offset by lower sales of Tamiflu. In other therapeutic areas, sales of Activase/TNKase were 5% higher, with increased demand for TNKase during the COVID-19 pandemic due to the injection administration method being easier to use.

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.

The intellectual property for biologics can involve multiple patents and patent timelines for each individual product and therefore it is more difficult to give an exact date for patent expiry for biologic medicines. The RHI Group's basic, primary patents for Herceptin, Avastin and Rituxan have expired in the US. The secondary patent rights for subcutaneous formulations of Rituxan and Herceptin expire beyond 2025. In addition there are recent and approaching patent expiries for Lucentis which may have an impact on 2021 sales for this product.

The first biosimilar versions of Herceptin and Avastin were launched in the US from mid-2019 and the first biosimilar versions of Rituxan in late 2019. Sales of these three products were USD 3.9 billion lower in 2020, as summarised in the table below. The year-on-year movements were also driven by regular price and volume changes, as well as by the impacts of the COVID-19 pandemic, particularly for Rituxan. Biosimilar competition is only one factor in the overall picture.

2020 product sales affected by biosimilar launches

	2020 (USD m)	2019 (USD m)	% change	Comment
Rituxan	3,103	4,572	-32%	First biosimilar launches from late 2019
Avastin	1,984	3,121	-36%	First biosimilar launches from mid-2019
Herceptin	1,714	2,987	-43%	First biosimilar launches from mid-2019

Royalties and other operating income increased by USD 0.4 billion to USD 5.8 billion. Royalty income remained stable at USD 4.8 billion. A settlement gain of USD 136 million compensated for the lower income from the expired Cabilly patent and the lower royalty income from Lucentis sales outside the US. Other operating income increased by USD 0.4 billion due to higher income from out-licensing agreements with related parties and higher profit-share income, mainly due to increased sales of Venclexta in the US.

Cost of sales increased by 1% to USD 12.5 billion in 2020. As a percentage of sales, cost of sales increased by 2.8 percentage points to 46.5%. Manufacturing cost grew by 8%, despite the sales decrease of 5%. This was primarily due to product mix factors in 2020, partially offset by lower inventory write-offs compared to 2019. Royalty expenses to third parties were 11% lower due to a decrease in royalty expenses related to the expired Cabilly patent, partially offset by increased sales for certain royalty-bearing products, notably Ocrevus. Collaboration and profit-sharing expenses decreased by 18% driven by lower sales of Rituxan. Amortisation charges went up by 12% due to the Rozlytrek product intangible asset, which started being amortised after the product launch in the second half of 2019, and the Luxturna product intangible asset from the Spark Therapeutics acquisition. Impairment charges of USD 0.1 billion in 2020 relate to Luxturna due to reduced sales expectations. In 2019 an impairment of property, plant and equipment of USD 0.2 billion for idle plant was recognised.

Marketing and distribution costs decreased by 13% to USD 3.5 billion in 2020 driven by a general slowdown in marketing activities in 2020, including lower expenses for travel and congresses due to COVID-19 restrictions. The cost decrease was also associated with lower personnel expenses in 2020, including lower headcount costs in the field force. Major marketing and distribution activities included supporting the continued rollouts of Ocrevus, Xofluza and Tecentriq. As a percentage of sales, marketing and distribution costs decreased to 12.8% from 14.1% in the comparative period.

Pharmaceuticals Division – Research and development

	2020 (USD m)	2019 (USD m)
Research and early development	(3,034)	(3,006)
Late stage development	(2,704)	(2,460)
Partnering, including Foundation Medicine, Flatiron Health and Spark	(56)	(78)
Restructuring plans	(21)	(34)
Amortisation of intangible assets	(318)	(165)
Impairment of intangible assets	(365)	(481)
Total	**(6,498)**	**(6,224)**
– of which related party	*(700)*	*(975)*

Research and development costs increased by 4% and, as a percentage of sales, increased to 24.2% from 22.0% in the comparative period. The oncology franchise remained the largest area of research and development with the cancer immunotherapy portfolio being one of the key drivers. Ophthalmology also represents a significant area of spending. Growth in spend is mostly driven by late stage investments in ophthalmology, oncology and personalised healthcare as well as spending at Spark Therapeutics and Flatiron Health. Impairment charges of USD 0.4 billion in 2020 were a result of a delay in clinical trials for the Spark Therapeutics' haemophilia A intangible asset.

In addition, the Pharmaceuticals Division acquired various product intangibles under development and technologies through in-licensing transactions and asset acquisitions, which in total added USD 2.1 billion to intangible assets. The major item was an upfront payment of USD 0.7 billion to Blueprint Medicines, where, as part of a licensing and collaboration agreement, the RHI Group obtained co-development and co-commercialisation rights for pralsetinib (Gavreto), Blueprint Medicines' investigational, precision therapy in late-stage development for people with RET-altered non-small cell lung cancer (NSCLC), various types of thyroid cancer and other solid tumours. Other investments include payments of USD 0.2 billion to Vaccibody AS and USD 0.4 billion for the for the Promedior asset acquisition. See the below sections on 'Mergers and acquisitions' and 'Alliance transactions' for further details.

General and administration costs decreased by USD 0.3 billion to USD 0.8 billion in 2020 due to the income of USD 0.4 billion from the release of the Accutane litigation provision. This was partly offset by higher administration costs due to the recently acquired Spark Therapeutics and also Flatiron Health and Foundation Medicine. Business taxes and capital taxes increased by 20% primarily due to the relatively lower costs for the US Branded Prescription Drug Fee in 2019.

The Pharmaceuticals Division's operating profit decreased by 6% to USD 9.5 billion in 2020, driven by lower gross profit from sales and higher research and development costs, partially offset by higher other operating income as well as lower marketing and distribution and general and administration expenses.

Diagnostics Division

The Diagnostics Division reported overall sales growth of 28% to USD 4.9 billion due to sales of COVID-19-related tests, which more than offset a decline in routine testing across the portfolio.

Molecular Diagnostics reported a sales growth of 85% driven by the launch of the cobas SARS-CoV-2 PCR test. Centralised and Point of Care Solutions sales increased by 4% driven by the CustomBiotech business, which more than compensated for the combined effects of healthcare centres deprioritising routine care to allocate more resources to COVID-19 preparedness efforts and patients avoiding healthcare centres for fear of exposure to COVID-19. Sales in Tissue Diagnostics grew by 12% to USD 0.8 billion due to growth in advanced staining instruments sales and recovery from manufacturing delays in the prior year. Diabetes Care sales increased by 4% to USD 0.6 billion.

Royalties and other operating income decreased by 18% to USD 137 million driven by the base effect of the settlement of a royalty dispute in 2019 and due to lower royalty income from related parties.

Costs of sales increased by 1% to USD 2.5 billion, below the sales growth of 28%. This is driven by product mix factors resulting from higher volumes of products with relatively lower manufacturing costs and the base effect of impairment charges in 2019 related to intangible assets in the Molecular Diagnostics and sequencing businesses. As a percentage of sales, cost of sales decreased by 13.5 percentage points to 51.7%.

Marketing and distribution costs increased by 2% to USD 0.8 billion due to higher distribution costs for COVID-19 testing products partly compensated by lower spending on congresses and travelling following the COVID-19 restrictions and cost containment measures. As a percentage of sales, marketing and distribution costs decreased to 15.7% compared to 19.7% in the comparative period.

Research and development costs increased by 0.3 billion to USD 1.0 billion mainly due to spending on COVID-19 products development and lower reimbursements from related parties under research and development cost-sharing agreements in 2020. As a percentage of sales, research and development costs increased by 2.0 percentage points to 20.6%.

General and administration costs increased by 8% to USD 254 million. Impairment charges of USD 117 million in 2020 are due to the goodwill impairment related to the AVL Medical Instruments and GeneWeave acquisitions. Both 2020 and 2019 included income from the reversal of contingent consideration provisions. Legal and environmental costs in 2019 included litigation costs for the Meso case.

Merger & acquisitions

Spark Therapeutics. On December 17, 2019 the RHI Group acquired a 100% controlling interest in Spark Therapeutics, Inc. ('Spark Therapeutics'), a publicly owned US company based in Philadelphia, Pennsylvania, that had been listed on Nasdaq Stock Market. Spark Therapeutics is a fully integrated commercial company committed to discovering, developing and delivering gene therapies. Spark Therapeutics is reported in the Pharmaceuticals Division. The cash purchase consideration was USD 4.8 billion. In the 2019 Annual Financial Statements, the allocation of the purchase price recorded in the balance sheet was provisional. During the first half of 2020 the identification and valuation of intangible assets and other assets and liabilities was completed. Accordingly, the provisional amounts recorded in the balance sheet at December 31, 2019 were restated as set out in Note 6 to the Annual Financial Statements. As a result, the values for intangible assets were increased by USD 2.5 billion, deferred tax assets by USD 0.3 billion and deferred tax liabilities by USD 0.5 billion, with a consequent decrease in goodwill of USD 2.2 billion.

Asset acquisitions. In 2020 the RHI Group acquired a 100% controlling interest in Promedior, Inc. ('Promedior') for the Pharmaceuticals Division and Stratos Genomics, Inc. ('Stratos Genomics') for the Diagnostics Division. In addition, 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') that is reported in the Pharmaceuticals Division. The total initial cash consideration for these transactions was USD 0.7 billion and additional contingent payments may be made based upon the achievement of performance-related milestones. Of this USD 0.4 billion related to the Promedior asset acquisition, by which the RHI Group obtained rights to Promedior's entire portfolio including phase III-ready asset PRM-151, a recombinant human pentraxin-2 molecule for the treatment of idiopathic pulmonary fibrosis (IPF). These transactions did not qualify as business combinations under IFRS 3 and have been accounted for as additions to intangible assets.

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

Alliance transactions

In 2020 total in-licensing deals and other alliance transactions completed in 2020, including those with related parties, resulted in intangible assets totalling USD 2.2 billion being recognised.

On July 14, 2020 the Roche Group announced a collaboration with Blueprint Medicines Corporation ('Blueprint Medicines') for the co-development and co-commercialisation rights for pralsetinib, an investigational, precision therapy in late-stage development for people with RET-altered non-small cell lung cancer (NSCLC), various types of thyroid cancer and other solid tumours. Under the terms of the agreement, the RHI Group made an upfront payment of USD 0.7 billion in cash in addition to a USD 0.1 billion equity investment in Blueprint Medicines. The parties will co-commercialise pralsetinib in the US while the Roche Group will be responsible for commercial activities outside the US. Gavreto was approved in the US for the treatment of adults with metastatic RET-fusion-positive NSCLC in September 2020 and for the treatment of people with advanced or metastatic RET-mutant and RET-fusion-positive thyroid cancers in December 2020.

On August 19, 2020 the Roche Group entered into a licensing agreement with Regeneron Pharmaceuticals, Inc. ('Regeneron'). The parties will collaborate on developing and manufacturing Regeneron's investigational COVID-19 antibody combination of casirivimab and imdevimab, which is in late-stage clinical trials for the treatment and prevention of SARS-CoV-2 infection. Under the terms of the agreement, each company has committed to dedicate a certain manufacturing capacity to casirivimab and imdevimab each year. Regeneron will distribute casirivimab and imdevimab in the US and the Roche Group will be responsible for distribution outside the US. There were no initial payments. In November 2020 Regeneron announced that its antibody combination of casirivimab and imdevimab received Emergency Use Authorization in the US.

Other significant transactions included an upfront payment of USD 0.1 billion for a strategic collaboration and license agreement with Arrakis Therapeutics for the discovery of RNA-targeted small molecule (rSM) drugs against a broad set of targets across all of the Pharmaceutical Division's research and development areas. There was also an upfront payment of USD 0.2 billion to Vaccibody AS for a worldwide collaboration and license agreement to develop DNA-based individualised neoantigen cancer vaccines based on VB10.NEO across multiple tumour types. In addition there was also an upfront payment of USD 0.1 billion to Vividion Therapeutics for rights to Vividion's proteomics screening platform and proprietary small molecule library to target novel E3 ligases, as well as a range of oncology and immunology therapeutic targets. An upfront payment of USD 0.1 billion was to UCB for rights to UCB's investigational monoclonal antibody drug being developed as a potential treatment for patients with Alzheimer's Disease.

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

Restructuring plans

During 2020 the RHI Group continued with the implementation of various global restructuring plans initiated in prior years. In 2020 total costs were USD 173 million, mainly for employee-related and other reorganisation expenses for plans to drive business transformation and efficiency gains. Further details are given in Note 7 to the Annual Financial Statements.

Impairment of goodwill and intangible assets

Pharmaceuticals Division. The Pharmaceuticals Division recorded impairment charges to intangible assets of USD 0.5 billion. The major part was an impairment charge of USD 0.4 billion coming from the partial impairment of the intangible asset for SPK-8011, a novel gene therapy for the treatment of haemophilia A, acquired as part of the Spark Therapeutics acquisition. The impairment was a result of a delay in clinical trials, partly impacted by the COVID-19 pandemic, leading to reduced sales expectations. In addition, there was a charge of USD 0.1 billion related to the partial impairment of the product 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 acquired as part of the Spark Therapeutics acquisition. The impairment was a result of reduced sales expectations.

Diagnostics Division. There were impairment charges of USD 0.1 billion relating to the goodwill from the AVL Medical Instruments and GeneWeave acquisitions as detailed in Note 9 to the Annual Financial Statements. There were no other impairments of intangible assets in the Diagnostics Division.

In 2019 there were impairment charges of USD 0.5 billion in the Pharmaceuticals Division. The Diagnostics Division recorded impairment charges of USD 0.3 billion related to intangible assets in Molecular Diagnostics and in the Sequencing business.

Further details are given in Notes 9 and 10 to the Annual Financial Statements.

Legal and environmental cases

Based on the development of the various litigations, notably the Accutane case, some of the provisions previously held were released which resulted in an income of USD 0.4 billion. There were no other significant developments affecting the 2020 financial results. Further details are given in Note 20 to the Annual Financial Statements.

Treasury and taxation results

The RHI Group financed the Genentech transaction in 2009 by a combination of own funds, bonds, notes and commercial paper raising net proceeds of USD 40.3 billion through a series of debt offerings. All debt issued in 2009 is senior, unsecured and has been guaranteed by Roche Holding Ltd, the parent of the RHI Group.

Financing costs decreased by USD 0.4 billion in 2020 driven by lower interest expenses due to repayment of bonds and notes in the second half of 2019. At December 31, 2020 total debt was USD 42.1 billion compared to USD 42.4 billion at the end of 2019. In 2020 there was an increase in commercial paper of USD 0.3 billion and a net decrease in related party debt of USD 0.7 billion. A full analysis of financing costs is given in Note 4 to the Annual Financial Statements.

The RHI Group's effective tax rate decreased to 14.7% in 2020 compared to 17.3% in the comparative period. The main drivers for the decrease were the resolution of tax disputes, partially offset by the deferred tax impact from equity compensation plans, which varies according to the price of the underlying equities.

Cash flow

The cash inflows from operating activities decreased by USD 0.7 billion to USD 10.3 billion in 2020. This was mainly due to lower cash generated from operations and higher utilisation of provisions, partly offset by lower income taxes paid. The decrease in cash outflows from investing activities by USD 3.2 billion to USD 3.4 billion is driven by the Spark Therapeutics acquisition in 2019 (USD 4.6 billion), partially offset by higher investments in intangible assets and asset acquisitions. The cash outflows from financing activities were USD 7.1 billion. These were mainly for payments to related parties for dividends, interest and other financing costs and for equity compensation plans.

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 Interim Financial Statements). At December 31, 2020 the RHI Group had a negative equity of USD 18.5 billion (December 31, 2019: USD 21.6 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 10.2 billion which are guaranteed by Roche Holding Ltd, the parent company of the Roche Group.

Total assets increased by USD 2.9 billion to USD 40.0 billion at December 31, 2020, mainly due to an increase of USD 0.9 billion in inventories, an increase of USD 0.6 billion in accounts receivable as well as an increase of USD 0.5 billion in both intangible assets and deferred tax assets. In the Pharmaceuticals Division inventories increased driven by active management to ensure product availability and by launch supply. In the Diagnostics Division inventories increased due to the ongoing rollout of COVID-19-related products and pending instrument placements, while trade receivables increased due to the sales growth. The increase in intangible assets is due to increased spending on in-licensing and alliance arrangements, and also due to and asset acquisitions in 2020 to bring external innovation into the RHI Group. The increase in net deferred tax assets was mainly driven by the deferred tax effects from the amortisation and impairment of intangible assets.

Total liabilities slightly decreased by USD 0.3 billion to USD 58.4 billion at December 31, 2020. This was mostly driven by a decrease in provisions, mainly due to the release of the Accutane litigation provision and the cash settlement for past royalties related to the PDL-1 inhibitor litigation. In 2020 there was an increase in commercial paper debt of USD 0.3 billion and a net decrease in related party debt of USD 0.7 billion. At December 31, 2020 the carrying value of debt was USD 42.1 billion (December 31, 2019: USD 42.4 billion), of which USD 31.7 billion (December 31, 2019: USD 32.4 billion) is due to related parties.

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 20 to the 2020 RHI 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 29 to the 2020 RHI Annual Financial Statements.

As noted above in the "Impact of the COVID-19 pandemic" section, the development of the pandemic in 2021 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 2020 RHI Annual Financial Statements. Further information on uncertainties is provided under provisions and contingent liabilities in Note 20 to the 2020 RHI Annual Financial Statements.

3. International Financial Reporting Standards

New and revised standards applied in 2020

'Definition of a Business' (Amendments to IFRS 3)

In 2020 the RHI Group has applied the amendments to IFRS 3 'Business Combinations', effective January 1, 2020. These were issued in October 2018 by the International Accounting Standards Board and have been endorsed by the EU in April 2020. The amendments further clarify the definition of a business and add an optional 'concentration test' 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. The effect of the amendments is particularly applicable for many of the acquisitions carried out by the RHI Group, since the value in the acquired companies often largely consists of the rights to a single product or technology. The RHI Group applied these amendments prospectively and with no restatement of comparative period information.

The RHI Group has also 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 32 to the 2020 RHI 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 5, 2021:

- the Annual Financial Statements at December 31, 2020, 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 Chairman of the Board	Alan Hippe Vice Chairman of the Board	Bruce Resnick Member of the Board
Roger Brown Member of the Board	Sean A. Johnston Member of the Board	David P. McDede Member of the Board

Roche Holdings, Inc. Consolidated Financial Statements

Roche Holdings, Inc. consolidated income statement for the 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 [30]				(1,140)
Other financial income (expense) [4]				(9)
Other financial income (expense) – related parties [30]				36
Profit before taxes				**8,328**
Income taxes [5]				(1,222)
Net income				**7,106**
Attributable to				
- Roche Holdings, Inc. shareholder [22]				7,108
- Non-controlling interests [23]				(2)

Roche Holdings, Inc. consolidated income statement for the year ended December 31, 2019 *in millions of USD*

	Pharmaceuticals	Diagnostics	Corporate	RHI Group
Sales [2, 3]	28,231	3,835	-	32,066
Royalties and other operating income [2, 3]	5,404	166	-	5,570
Revenue [2, 3]	**33,635**	**4,001**	**-**	**37,636**
Cost of sales	(12,334)	(2,499)	-	(14,833)
Marketing and distribution	(3,987)	(755)	-	(4,742)
Research and development [2]	(6,224)	(715)	-	(6,939)
General and administration	(1,039)	(235)	(126)	(1,400)
Operating profit [2]	**10,051**	**(203)**	**(126)**	**9,722**
Financing costs [4]				(799)
Financing costs – related parties [30]				(1,087)
Other financial income (expense) [4]				29
Other financial income (expense) – related parties [30]				42
Profit before taxes				**7,907**
Income taxes [5]				(1,369)
Net income				**6,538**
Attributable to				
- Roche Holdings, Inc. shareholder [22]				6,540
- Non-controlling interests [23]				(2)

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

	Year ended December 31,	
	2020	2019
Net income recognised in income statement	**7,106**	**6,538**
Other comprehensive income (OCI)		
Remeasurements of defined benefit plans [22]	96	(40)
Fair value changes on equity investments at fair value through OCI [22]	32	0
Items that will never be reclassified to the income statement	**128**	**(40)**
Fair value changes on debt securities at fair value through OCI [22]	1	2
Cash flow hedges [22]	(12)	(28)
Currency translation of foreign operations [22]	28	5
Items that are or may be reclassified to the income statement	**17**	**(21)**
Other comprehensive income, net of tax	**145**	**(61)**
Total comprehensive income	**7,251**	**6,477**
Attributable to		
- Roche Holdings, Inc. shareholder [22]	7,253	6,479
- Non-controlling interests [23]	(2)	(2)
Total	**7,251**	**6,477**

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

	December 31, 2020	December 31, 2019	December 31, 2018
Non-current assets			
Property, plant and equipment [8]	7,437	7,098	7,116
Right-of-use assets [27]	479	429	-
Goodwill [9]	8,970	9,087	6,739
Intangible assets [10]	10,100	9,648	8,310
Deferred tax assets [5]	863	364	0
Defined benefit plan assets [25]	158	136	119
Other non-current assets [15]	644	468	458
Total non-current assets	**28,651**	**27,230**	**22,742**
Current assets			
Inventories [11]	3,761	2,834	2,535
Accounts receivable – trade and other [12]	3,969	3,658	3,312
Accounts receivable – related parties [12, 30]	2,593	2,323	3,421
Other current assets [16]	913	721	679
Other current assets – related parties [16, 30]	82	56	0
Marketable securities [13]	2	131	0
Cash and cash equivalents [14]	1	127	0
Total current assets	**11,321**	**9,850**	**9,947**
Total assets	**39,972**	**37,080**	**32,689**
Non-current liabilities			
Long-term debt [21]	(6,629)	(8,540)	(11,831)
Long-term debt – related parties [21, 30]	(28,155)	(27,875)	(26,155)
Deferred tax liabilities [5]	0	0	(248)
Defined benefit plan liabilities [25]	(1,651)	(1,668)	(1,501)
Provisions [20]	(380)	(420)	(502)
Other non-current liabilities [18]	(617)	(575)	(75)
Other non-current liabilities – related parties [30]	(407)	(494)	(281)
Total non-current liabilities	**(37,839)**	**(39,572)**	**(40,593)**
Current liabilities			
Short-term debt [21]	(3,834)	(1,450)	(2,587)
Short-term debt – related parties [21, 30]	(3,500)	(4,530)	(1,720)
Current income tax liabilities [5]	(1,675)	(1,442)	(1,880)
Provisions [20]	(1,112)	(1,967)	(1,487)
Accounts payable – trade and other [17]	(1,181)	(1,105)	(995)
Accounts payable – related parties [30]	(2,019)	(1,489)	(1,318)
Other current liabilities [19]	(5,466)	(5,645)	(5,294)
Other current liabilities – related parties [30]	(1,818)	(1,510)	(790)
Total current liabilities	**(20,605)**	**(19,138)**	**(16,071)**
Total liabilities	**(58,444)**	**(58,710)**	**(56,664)**
Total net liabilities	**(18,472)**	**(21,630)**	**(23,975)**
Equity			
Capital and reserves attributable to Roche Holdings, Inc. shareholder [22]	(18,473)	(21,632)	(23,976)
Equity attributable to non-controlling interests [23]	1	2	1
Total equity	**(18,472)**	**(21,630)**	**(23,975)**

As disclosed in Note 6, the balance sheet at December 31, 2019 has been restated following the finalisation of the valuation of the net assets acquired related to the Spark Therapeutics acquisition in 2019. A reconciliation to the previously published balance sheet is provided in Note 6. As disclosed in Note 27, the RHI Group changed its accounting policies for leases following the implementation of IFRS 16 'Leases', effective January 1, 2019. The RHI Group applied the cumulative catch-up method for the transition, meaning that the comparative balance sheet as at December 31, 2018 was not restated.

Roche Holdings, Inc. consolidated statement of cash flows *in millions of USD*

	Year ended December 31,	
	2020	2019
Cash flows from operating activities		
Cash generated from operations [28]	13,494	14,493
(Increase) decrease in net working capital	(1,782)	(438)
(Increase) decrease in net working capital - related parties	899	(241)
Payments made for defined benefit plans [25]	(62)	(50)
Utilisation of provisions [20]	(806)	(403)
Disposal of products	25	0
Income taxes paid [5]	(1,420)	(2,334)
Total cash flows from operating activities	**10,348**	**11,027**
Cash flows from investing activities		
Purchase of property, plant and equipment	(1,107)	(962)
Purchase of intangible assets	(2,056)	(1,012)
Disposal of property, plant and equipment	20	60
Disposal of intangible assets	401	17
Business combinations [6]	(2)	(4,690)
Asset acquisitions [6]	(669)	-
Interest and dividends received	3	3
Interest and dividends received from related parties	10	60
Increase in other current assets – related parties	(77)	(54)
Decrease in other current assets – related parties	57	0
Sales of equity securities and debt securities	130	10
Purchases of equity securities and debt securities	0	(6)
Sales (purchases) of money market instruments and time accounts over three months, net	0	0
Other investing cash flows	(96)	13
Total cash flows from investing activities	**(3,386)**	**(6,561)**
Cash flows from financing activities		
Proceeds from issue of bonds and notes [21]	0	0
Proceeds from issue of related party debt [21]	9,280	6,250
Redemption and repurchase of bonds and notes [21]	0	(5,474)
Repayment of related party debt [21]	(10,030)	(1,720)
Increase (decrease) in commercial paper [21]	338	862
Increase (decrease) in other debt [21]	2	0
Hedging arrangements - related parties	(23)	(9)
Interest paid	(383)	(558)
Principal portion of lease liabilities paid [28]	(88)	(69)
Dividends paid to related parties [22]	(3,500)	(3,000)
Interests and other financing - related parties	(1,374)	(900)
Recharges and prepayments to related parties for equity compensation plans [26]	(1,039)	(955)
(Increase) decrease of cash pool balance with related parties	(272)	1,262
Total cash flows from financing activities	**(7,089)**	**(4,311)**
Net effect of currency translation on cash and cash equivalents	1	**0**
Increase (decrease) in cash and cash equivalents	**(126)**	**155**
Cash and cash equivalents at January 1	127	(28)
Cash and cash equivalents at December 31 [14]	**1**	**127**

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

	Share capital	Retained earnings	Fair value reserves	Hedging reserves	Translation reserves	Total	Non-controlling interests	Total equity
Year ended December 31, 2019								
At January 1, 2019	**1**	**(24,021)**	**(1)**	**48**	**(3)**	**(23,976)**	**1**	**(23,975)**
Net income recognised in income statement	–	6,540	–	–	–	6,540	(2)	6,538
Net change in fair value – financial assets at fair value through OCI	–	0	2	–	–	2	–	2
Cash flow hedges	–	–	–	(28)	–	(28)	–	(28)
Currency translation of foreign operations	–	–	–	–	5	5	–	5
Remeasurements of defined benefit plans	–	(40)	–	–	–	(40)	–	(40)
Total comprehensive income	**–**	**6,500**	**2**	**(28)**	**5**	**6,479**	**(2)**	**6,477**
Dividends	–	(3,000)	–	–	–	(3,000)	–	(3,000)
Equity compensation plans, net of transactions in own equity	–	(1,133)	–	–	–	(1,133)	1	(1,132)
Changes in non-controlling interests [23]	–	(2)	–	–	–	(2)	2	–
At December 31, 2019	**1**	**(21,656)**	**1**	**20**	**2**	**(21,632)**	**2**	**(21,630)**
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 [23]	–	0	–	–	–	0	0	–
At December 31, 2020	**1**	**(18,542)**	**30**	**8**	**30**	**(18,473)**	**1**	**(18,472)**

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 5, 2021.

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 32.

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, 2020 the RHI Group had a negative equity of USD 18.5 billion (December 31, 2019: USD 21.6 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 10.2 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 2020, the RHI Group generated an operating profit of USD 9.9 billion and a positive operating cash flow of USD 10.3 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. 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. 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.

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. At December 31, 2020 the RHI Group had USD 2,335 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 1,987 million, of which USD 472 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 considers the underlying economic substance of the items concerned in addition to the contractual terms.

Impairment of property, plant and equipment, right-of-use assets, goodwill and intangible assets. At December 31, 2020 the RHI Group had USD 7,437 million in property, plant and equipment (see Note 8), USD 479 million in right-of-use assets (see Note 27), USD 8,970 million in goodwill (see Note 9) and USD 10,100 million in intangible assets (see Note 10). Goodwill and intangible assets not yet available for use are reviewed annually for impairment. Property, plant and equipment, right-of-use assets and intangible assets in use are assessed for impairment when there is a triggering event that provides evidence that an asset may be impaired. To assess whether any impairment exists estimates of expected future cash flows are used. Actual outcomes could vary significantly from such estimates. 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 could lead to shorter useful lives or impairment.

Impairment of financial assets. At December 31, 2020 the RHI Group had USD 29 million in allowance for doubtful accounts for trade and lease receivables (see Note 12). The allowance for doubtful accounts is based on assumptions about risk of default and expected loss rates. The RHI Group uses judgement in making these assumptions and selecting the inputs to the calculation of the allowance for doubtful accounts, 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. 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. At December 31, 2020 the present value of RHI's defined benefit obligation is USD 6,132 million (see Note 25). The actuarial assumptions used 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, 2020, the RHI Group had USD 333 million in legal provisions. The status of significant legal cases is disclosed in Note 20. These estimates consider the specific circumstances of each legal case, relevant legal advice and are inherently judgemental 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, 2020, the RHI Group had USD 140 million in environmental provisions (see Note 20). Environmental provisions consist primarily of costs to fully clean and refurbish contaminated sites, including landfills, and to treat and contain contamination at certain other sites. These estimates are inherently judgemental 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, 2020 the RHI Group had USD 69 million in contingent consideration provisions (see Note 20) and the total potential payments under contingent consideration arrangements from business combinations could be up to USD 173 million (see Note 29). The estimated amounts provided are the expected payments, 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, 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, 2020, the RHI Group had a current income tax net liability of USD 1,675 million and a deferred tax net asset of USD 863 million (see Note 5). Significant estimates are required to determine the current and deferred tax assets and liabilities. Some of these estimates are based on interpretations of existing tax laws or regulations. Where tax positions are uncertain accruals are recorded within 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 current and deferred taxes 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, 2020 the RHI Group has USD 479 million in right-of-use assets and USD 543 million in lease liabilities (see Note 27).

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. 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 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 management makes 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 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.

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

Intangible asset impairment charges of USD 354 million were incurred as a result of a delay in clinical trials, partly caused by COVID-19, for the Spark Therapeutics' haemophilia A programme (see Note 10). No other impairment issues were noted for goodwill and intangible assets that can be directly attributed to the pandemic.

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

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*

	Pharmaceuticals		Diagnostics		Corporate		RHI Group	
	2020	2019	2020	2019	2020	2019	2020	2019
Revenues from external customers and related parties								
Sales	26,876	28,231	4,903	3,835	-	-	31,779	32,066
Royalties and other operating income	5,827	5,404	137	166	-	-	5,964	5,570
Total	**32,703**	**33,635**	**5,040**	**4,001**	**-**	**-**	**37,743**	**37,636**
Segment results								
Operating profit	9,464	10,051	473	(203)	(49)	(126)	9,888	9,722
Capital expenditure								
Business combinations	0	4,722	0	0	0	0	0	4,722
Asset acquisitions	396	0	338	0	0	0	734	0
Additions to property, plant and equipment	706	518	367	402	13	16	1,086	936
Additions to right-of-use assets	144	116	18	11	0	3	162	130
Additions to intangible assets	1,739	1,065	441	26	-	-	2,180	1,091
Total	**2,985**	**6,421**	**1,164**	**439**	**13**	**19**	**4,162**	**6,879**
Research and development								
Research and development costs	6,498	6,224	1,009	715	-	-	7,507	6,939
Other segment information								
Depreciation of property, plant and equipment	469	421	206	201	23	36	698	658
Depreciation of right-of-use assets	73	55	16	19	3	3	92	77
Amortisation of intangible assets	1,573	1,301	61	78	-	-	1,634	1,379
Impairment of property, plant and equipment	3	225	2	9	0	0	5	234
Impairment (reversal) of right-of-use assets	0	(12)	3	0	0	0	3	(12)
Impairment of goodwill	0	0	117	0	-	-	117	0
Impairment of intangible assets	452	481	0	347	-	-	452	828
Equity compensation plan expenses	510	381	69	56	13	13	592	450

Net assets *in millions of USD*

			Assets			Liabilities			Net assets
At December 31	2020	2019	2018	2020	2019	2018	2020	2019	2018
Net operating assets									
Pharmaceuticals	29,734	28,548	23,169	(6,837)	(7,747)	(6,855)	22,897	20,801	16,314
Diagnostics	7,880	6,871	7,282	(2,696)	(1,906)	(1,923)	5,184	4,965	5,359
Corporate	85	99	98	(119)	(158)	(169)	(34)	(59)	(71)
Total	**37,699**	**35,518**	**30,549**	**(9,652)**	**(9,811)**	**(8,947)**	**28,047**	**25,707**	**21,602**
Current income tax net assets (liabilities)							(1,675)	(1,442)	(1,880)
Deferred tax net assets (liabilities)							863	364	(248)
Defined benefit plan net assets (liabilities)							(1,493)	(1,532)	(1,382)
Lease liabilities							(543)	(483)	-
Marketable securities							2	131	0
Cash and cash equivalents							1	127	0
Debt							(10,463)	(9,990)	(14,418)
Debt – related parties							(31,655)	(32,405)	(27,875)
Other net assets (liabilities)							(1,556)	(2,107)	226
Total net assets							**(18,472)**	**(21,630)**	**(23,975)**

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

As disclosed in Note 27, the RHI Group changed its accounting policies for leases following the implementation of IFRS 16 'Leases', effective 1 January 2019. The RHI Group applied the cumulative catch-up method for the transition, meaning that the comparative balance sheet as at December 31, 2018 was not restated. Details of the additional segment net operating assets reported, which total to USD 374 million, are given below.

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

			January 1, 2019
	Assets	Liabilities	Net assets
Pharmaceuticals	242	48	290
Diagnostics	64	0	64
Corporate	20	0	20
Total operating	**326**	**48**	**374**
Lease liabilities	-	(374)	(374)
RHI Group	**326**	**(326)**	**0**

Major customers

In total three US national wholesale distributors represent well over half of the RHI Group's revenues in 2020. The three US national wholesale distributors are McKesson Corp. with USD 9 billion (2019: USD 10 billion), AmerisourceBergen Corp. with USD 7 billion (2019: USD 8 billion) and Cardinal Health, Inc. with USD 5 billion (2019: USD 6 billion). Approximately 96% 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*

	2020			2019		
	Revenue from contracts with customers	Revenue from other sources	Total	Revenue from contracts with customers	Revenue from other sources	Total
Pharmaceuticals Division						
Sales by therapeutic area						
Oncology	11,574	–	11,574	14,119	–	14,119
Immunology	6,167	–	6,167	6,052	–	6,052
Neuroscience	3,765	–	3,765	3,131	–	3,131
Ophthalmology	1,557	–	1,557	1,861	–	1,861
Haemophilia A	1,478	–	1,478	557	–	557
Infectious diseases	146	–	146	132	–	132
Other therapeutic areas	2,189	–	2,189	2,379	–	2,379
Sales	**26,876**	**–**	**26,876**	**28,231**	**–**	**28,231**
Royalty income	862	–	862	859	–	859
Royalty income from related parties	3,934	–	3,934	3,890	–	3,890
Income from out-licensing agreements	431	–	431	195	–	195
Income from disposal of products and other	5	595	600	0	460	460
Royalties and other operating income	**5,232**	**595**	**5,827**	**4,944**	**460**	**5,404**
Diagnostics Division						
Sales by business area						
Molecular Diagnostics	1,935	30	1,965	1,046	14	1,060
Centralised and Point of Care Solutions	1,464	80	1,544	1,416	74	1,490
Tissue Diagnostics	799	40	839	725	26	751
Diabetes Care	555	0	555	534	0	534
Sales	**4,753**	**150**	**4,903**	**3,721**	**114**	**3,835**
Royalty income	7	–	7	22	–	22
Royalty income from related parties	125	–	125	138	–	138
Income from out-licensing agreements	0	–	0	0	–	0
Income from disposal of products and other	0	5	5	1	5	6
Royalties and other operating income	**132**	**5**	**137**	**161**	**5**	**166**
Total	**36,993**	**750**	**37,743**	**37,057**	**579**	**37,636**

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

Gross-to-net sales reconciliation for the Pharmaceuticals Division

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

Pharmaceuticals Division sales gross-to-net reconciliation *in millions of USD*

	2020	2019
Gross sales	33,485	35,014
Government and regulatory mandatory price reductions	(5,488)	(5,699)
Contractual price reductions	(2,231)	(1,780)
Cash discounts	(128)	(126)
Customer returns reserves	(146)	(207)
Others	(315)	(325)
Net sales to third parties	**25,177**	**26,877**
Net sales to related parties	1,699	1,354
Net sales	**26,876**	**28,231**

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 (2019: USD 5.7 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 12). Sales reductions that are separately payable to customers, governmental health authorities or healthcare regulatory authorities are recorded in the balance sheet as accrued liabilities (see Note 19). Provisions for sales returns are recorded in the balance sheet as other provisions (see Note 20).

Contract balances

Receivables *in millions of USD*

	2020	2019	2018
Accounts receivable [12]	3,969	3,658	3,312
Other current receivables – contracts with customers [16]	364	293	417
Other non-current receivables – contracts with customers [15]	3	5	1
Total receivables	**4,336**	**3,956**	**3,730**

Other current receivables mainly include royalty and licensing receivables. At December 31, 2020 total receivables include lease receivables of 2% (2019: 2%) which are not considered receivables from contracts with customers.

Contract assets *in millions of USD*

	2020	2019	2018
Accrued income	4	8	0
Total contract assets	**4**	**8**	**0**

Contract liabilities *in millions of USD*

	2020	2019	2018
Deferred income – non-current	134	134	2
Deferred income – current	122	131	85
Total contract liabilities	**256**	**265**	**87**

Movement in contract liabilities *in millions of USD*

	2020	2019
At January 1	265	87
Business combinations	0	145
Revenue recognised that was included in the contract liability balance at the beginning of the year	(237)	(138)
Increases due to cash received or receivable, excluding amounts recognised as revenue during the year	228	171
At December 31	**256**	**265**

Revenue recognised in relation to performance obligations satisfied in previous years

In 2020 there was USD 74 million revenue relating to performance obligations that were 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 (2019: USD 94 million).

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*

	2020	2019
No contract liability held	646	579
Contract liability held	256	265
Total	**902**	**844**
Thereof expected to be recognised as revenue		
- Within one year	287	275
- Between one and five years	566	505
- More than five years	49	64
Total	**902**	**844**

4. Net financial expense

Financing costs *in millions of USD*

	2020	2019
Interest expense	(374)	(507)
Amortisation of debt discount [21]	(7)	(11)
Net gains (losses) on redemption and repurchase of bonds and notes	0	(203)
Discount unwind [20]	(7)	(10)
Net interest cost of defined benefit plans [25]	(47)	(58)
Interest expense on lease liabilities [27]	(12)	(10)
Total financing costs	**(447)**	**(799)**

Other financial income (expense) *in millions of USD*

	2020	2019
Net gains (losses) on equity investments / securities at fair value through profit or loss	(1)	(2)
Interest income from debt securities at fair value through OCI and at amortised cost	3	3
Net foreign exchange gains (losses)	(27)	7
Net other financial income (expense)	16	21
Total other financial income (expense)	**(9)**	**29**

Net financial expense *in millions of USD*

	2020	2019
Financing costs	(447)	(799)
Other financial income (expense)	(9)	29
Net financial expense	**(456)**	**(770)**
Financial result from Treasury management	(409)	(712)
Financial result from Pension management	(47)	(58)
Net financial expense	**(456)**	**(770)**

5. Income taxes

Income tax expenses *in millions of USD*

	2020	2019
Current income taxes	(1,763)	(1,991)
Deferred taxes	541	622
Total income tax (expense)	**(1,222)**	**(1,369)**

RHI's effective tax rate decreased to 14.7% in 2020 (2019: 17.3%). The main drivers for the decrease were the resolution of tax disputes, partially offset by the deferred tax impact from equity compensation plans, which varies according to the price of the underlying equities.

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

Reconciliation of RHI's effective tax rate

	2020	2019
Average expected tax rate	21.0%	21.0%
Tax effect of		
- Non-taxable income/non-deductible expenses	+1.1%	+0.8%
- Equity compensation plans	-0.1%	-1.2%
- Research and development tax credits and other deductions	-3.7%	-3.7%
- US state tax impacts	+1.2%	+0.8%
- Resolution of several tax disputes	-6.9%	-2.7%
- Prior year and other differences	+2.1%	+2.3%
RHI's effective tax rate	**14.7%**	**17.3%**

Tax effects of other comprehensive income *in millions of USD*

	2020			2019		
	Pre-tax amount	Tax	After-tax amount	Pre-tax amount	Tax	After-tax amount
Remeasurements of defined benefit plans	123	(27)	96	(53)	13	(40)
Equity investments at fair value through OCI	39	(7)	32	0	0	0
Debt securities at fair value through OCI	2	(1)	1	3	(1)	2
Cash flow hedges	(15)	3	(12)	(35)	7	(28)
Currency translation of foreign operations	28	-	28	5	-	5
Other comprehensive income	**177**	**(32)**	**145**	**(80)**	**19**	**(61)**

Income tax assets (liabilities) *in millions of USD*

	2020	2019	2018
Current income taxes			
- Assets	0	0	0
- Liabilities	(1,675)	(1,442)	(1,880)
Net current income tax assets (liabilities)	**(1,675)**	**(1,442)**	**(1,880)**
Deferred taxes			
- Assets	863	364	0
- Liabilities	0	0	(248)
Net deferred tax assets (liabilities)	**863**	**364**	**(248)**

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

Tax liabilities include accruals for uncertain tax positions.

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

	2020	2019
Net current income tax asset (liability) at January 1	(1,442)	(1,880)
Income taxes paid	1,420	2,334
Business combinations	0	0
(Charged) credited to the income statement	(1,763)	(1,991)
(Charged) credited to equity from equity compensation plans and other transactions with shareholders	109	96
Currency translation effects and other movements	1	(1)
Net current income tax assets (liabilities) at December 31	**(1,675)**	**(1,442)**

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

	Property, plant and equipment and right-of-use assets	Intangible assets	Defined benefit plans	Other temporary differences	Total
Year ended December 31, 2019					
At January 1, 2019	(280)	(796)	251	577	(248)
Business combinations [6]	0	(543)	0	304	(239)
Asset acquisitions	0	0	0	0	0
(Charged) credited to the income statement	21	407	(27)	221	622
(Charged) credited to other comprehensive income [22]	–	–	13	6	19
(Charged) credited to equity from equity compensation plans and other transactions with shareholder	–	–	–	209	209
Currency translation effects and other movements	(3)	0	1	3	1
At December 31, 2019	**(262)**	**(932)**	**238**	**1,320**	**364**
Year ended December 31, 2020					
At January 1, 2020	(262)	(932)	238	1,320	364
Business combinations	0	0	0	0	0
Asset acquisitions [6]	0	0	0	41	41
(Charged) credited to the income statement	(41)	321	21	240	541
(Charged) credited to other comprehensive income [22]	–	–	(27)	(5)	(32)
(Charged) credited to equity from equity compensation plans and other transactions with shareholder	–	–	–	(48)	(48)
Currency translation effects and other movements	0	(3)	0	0	(3)
At December 31, 2020	**(303)**	**(614)**	**232**	**1,548**	**863**

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

The deferred tax net 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)	2020 Applicable tax rate	Amount (USD million)	2019 Applicable tax rate
Within one year	0	–	0	–
Between one and five years	0	–	0	–
More than five years	6,220	5%	13,018	5%
Total unrecognised tax losses	**6,220**	**5%**	**13,018**	**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 product or technology. 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 '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.

Business combinations – 2020

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

Business combinations – 2019

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

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

Business combinations – 2019: net assets acquired *in millions of USD*

	Spark Therapeutics
Property, plant and equipment [8]	79
Right-of-use assets [28]	66
Intangible assets [10]	
- Product intangibles: in use [10]	465
- Product intangibles: not available for use [10]	2,003
Deferred tax assets	304
Cash and cash equivalents	160
Marketable securities	135
Deferred tax liabilities	(543)
Other non-current liabilities	
- Deferred income	(135)
- Lease liabilities	(78)
- Other long-term liabilities	(2)
Other net assets (liabilities)	(30)
Net identifiable assets	**2,424**
Goodwill [9]	2,348
Total consideration	**4,772**
Cash	4,772
Total consideration	**4,772**

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

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

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

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

The impact of the acquisition on the 2019 results for the Pharmaceuticals Division and the RHI Group were not material. If the acquisition had occurred on January 1, 2019 management estimates that Spark Therapeutics would have contributed revenue of approximately USD 80 million and a net loss (after tax) of approximately USD 450 million in 2019. 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 Spark Therapeutics actually been acquired at the beginning of the year, or indicative of the future results of the combined RHI Group.

Cash flows from business combinations

Business combinations: net cash outflow *in millions of USD*

			2020			2019
	Pharmaceuticals	Diagnostics	Total	Pharmaceuticals	Diagnostics	Total
Cash consideration paid	0	0	0	(4,772)	0	(4,772)
Deferred consideration paid	0	(2)	(2)	0	(3)	(3)
Contingent consideration paid [20]	0	0	0	0	(75)	(75)
Cash in acquired company	0	0	0	160	0	160
Total net cash outflow	**0**	**(2)**	**(2)**	**(4,612)**	**(78)**	**(4,690)**

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. With the acquisition, the RHI Group obtained rights to Promedior's entire portfolio including phase III-ready asset PRM-151, a recombinant human pentraxin-2 molecule for the treatment of idiopathic pulmonary fibrosis. Promedior is reported in the Pharmaceuticals Division. The cash consideration paid at the acquisition date was USD 414 million. Additional contingent payments may be made based upon the achievement of performance-related milestones.

Stratos Genomics, Inc. On 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 an early-stage sequencing technology company, which the RHI Group acquired to advance the development of the RHI Group's nanopore sequencer. The acquisition provides the RHI Group access to Stratos Genomics' unique chemistry, Sequencing by Expansion. Stratos Genomics is reported in the Diagnostics Division. The cash consideration paid at the acquisition date was USD 250 million. Additional contingent payments may be made based upon the achievement of performance-related milestones.

Lexent Bio, Inc. On 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. The acquisition provides the RHI Group access to Lexent Bio's novel multiomics liquid biopsy platforms. Lexent Bio is reported in the Pharmaceuticals Division. The cash consideration paid at the acquisition date was USD 30 million. An additional contingent payment may be made based upon the achievement of a performance-related milestone.

For asset acquisitions previously closed the RHI Group recorded additions to product intangible assets related to the achievement of performance-related milestones of USD 75 million (2019: nil), which will be paid in 2021.

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

	Promedior	Stratos 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**

Asset acquisitions – 2019

The RHI Group did not complete any asset acquisitions in 2019.

Cash flows from asset acquisitions

Asset acquisitions: net cash outflow *in millions of USD*

			2020			2019
	Pharmaceuticals	Diagnostics	Total	Pharmaceuticals	Diagnostics	Total
Cash consideration paid	(444)	(250)	(694)	0	0	0
Cash in acquired company	18	7	25	0	0	0
Contingent payments related to previous acquisitions	0	0	0	0	0	0
Total net cash outflow	**(426)**	**(243)**	**(669)**	**0**	**0**	**0**

Restated balance sheet – December 31, 2019

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

Restated RHI Group consolidated balance sheet (selected items) *in millions of USD*

	December 31, 2019		
	As originally published	Measurement adjustment	Restated
Goodwill	11,316	(2,229)	9,087
Intangible assets	7,180	2,468	9,648
Deferred tax assets	603	(239)	364
Other net liabilities	(40,729)	-	(40,729)
Total net liabilities	**(21,630)**	**-**	**(21,630)**

Restated Spark Therapeutics acquisition – 2019: net assets acquired (selected items) *in millions of USD*

	As originally published	Spark Therapeutics Measurement adjustment	Restated
Intangible assets			
- Product intangibles: in use [9]	-	465	465
- Product intangibles: not available for use [9]	-	2,003	2,003
Deferred tax assets	-	304	304
Deferred tax liabilities	-	(543)	(543)
Other net assets (liabilities)	195	0	195
Net identifiable assets	**195**	**2,229**	**2,424**
Goodwill	4,577	(2,229)	2,348
Total consideration	**4,772**	-	**4,772**

7. Restructuring plans

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

Restructuring plans: costs incurred *in millions of USD*

	Diagnostics	Site consolidation	Other Plans	Total
Year ended December 31, 2020				
Restructuring costs				
- Employee-related costs	9	28	26	63
- Site closure costs	0	3	0	3
- Other reorganisation expenses	7	0	100	107
Total restructuring costs	**16**	**31**	**126**	**173**
Year ended December 31, 2019				
Restructuring costs				
- Employee-related costs	36	102	216	354
- Site closure costs	9	(10)	4	3
- Other reorganisation expenses	11	6	32	49
Total restructuring costs	**56**	**98**	**252**	**406**

Diagnostics Division

In 2020 initiatives in the Diagnostics Division incurred costs of USD 16 million.

Site consolidation

In 2020 employee-related costs of USD 28 million were mainly for the redesign of manufacturing at the South San Francisco site.

Other restructuring plans

In 2020 major items included employee-related and other reorganisation expenses, mainly related to driving business transformation and efficiency gains.

Restructuring plans: summary of costs incurred *in millions of USD*

	2020	2019
Employee-related costs		
- Termination costs	57	326
- Defined benefit plans	0	0
- Other employee-related costs	6	28
Total employee-related costs	**63**	**354**
Site closure costs		
- Impairment (reversal) of property, plant and equipment and right-of-use assets	3	(12)
- Accelerated depreciation of property, plant and equipment and right-of-use assets	2	9
- (Gains) losses on disposal of property, plant and equipment right-of-use assets	2	8
- Other site closure costs	(4)	(2)
Total site closure costs	**3**	**3**
Other reorganisation expenses	107	49
Total restructuring costs	**173**	**406**

Restructuring plans: classification of costs *in millions of USD*

	2020			2019		
	Depreciation, amortisation and impairment	Other costs	Total	Depreciation, amortisation and impairment	Other costs	Total
Cost of sales						
- Pharmaceuticals	2	28	30	0	104	104
- Diagnostics	1	(2)	(1)	0	12	12
Marketing and distribution						
- Pharmaceuticals	0	20	20	0	172	172
- Diagnostics	0	8	8	0	2	2
Research and development						
- Pharmaceuticals	0	21	21	0	34	34
- Diagnostics	2	1	3	8	28	36
General and administration						
- Pharmaceuticals	0	65	65	(12)	14	2
- Diagnostics	0	6	6	1	6	7
- Corporate	0	21	21	0	37	37
Total	**5**	**168**	**173**	**(3)**	**409**	**406**
Total by operating segment						
- Pharmaceuticals	2	134	136	(12)	324	312
- Diagnostics	3	13	16	9	48	57
- Corporate	0	21	21	0	37	37
Total	**5**	**168**	**173**	**(3)**	**409**	**406**

8. Property, plant and equipment

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

	Land	Buildings and land improvements	Machinery and equipment	Construction in progress	Total
At January 1, 2019					
Cost	544	6,253	5,255	1,089	13,141
Accumulated depreciation and impairment	0	(2,624)	(3,401)	0	(6,025)
Net book value	**544**	**3,629**	**1,854**	**1,089**	**7,116**
Year ended December 31, 2019					
At January 1, 2019	544	3,629	1,854	1,089	7,116
Business combinations [6]	0	43	20	16	79
Asset acquisitions	0	0	0	0	0
Additions	57	91	228	560	936
Disposals	0	(4)	(30)	(48)	(82)
Transfers	0	489	354	(843)	-
Depreciation charge	-	(262)	(396)	-	(658)
Impairment charge	0	(4)	(2)	(228)	(234)
Other	0	(10)	(49)	0	(59)
At December 31, 2019	**601**	**3,972**	**1,979**	**546**	**7,098**
Cost	601	6,823	5,525	763	13,712
Accumulated depreciation and impairment	0	(2,851)	(3,546)	(217)	(6,614)
Net book value	**601**	**3,972**	**1,979**	**546**	**7,098**
Year ended December 31, 2020					
At January 1, 2020	601	3,972	1,979	546	7,098
Business combinations	0	0	0	0	0
Asset acquisitions	0	0	1	0	1
Additions	0	63	295	728	1,086
Disposals	0	(6)	(24)	0	(30)
Transfers	0	212	122	(334)	-
Depreciation charge	-	(284)	(414)	-	(698)
Impairment charge	0	0	(2)	(3)	(5)
Other	0	0	(15)	0	(15)
At December 31, 2020	**601**	**3,957**	**1,942**	**937**	**7,437**
Cost	601	7,079	5,743	1,148	14,571
Accumulated depreciation and impairment	0	(3,122)	(3,801)	(211)	(7,134)
Net book value	**601**	**3,957**	**1,942**	**937**	**7,437**

Classification of impairment of property, plant and equipment *in millions of USD*

	2020	2019
Cost of sales	(5)	(224)
Research and development	0	(8)
General and administration	0	(2)
Total impairment charge	**(5)**	**(234)**

In 2019 impairment charges for property, plant and equipment were mainly related to an idle plant.

In 2020 no reimbursements were received from insurance companies in respect of impairments to property, plant and equipment (2019: none). In 2020 no borrowing costs were capitalised as property, plant and equipment (2019: none).

At December 31, 2020 machinery and equipment with an original cost of USD 803 million (2019: USD 746 million) and a net book value of USD 267 million (2019: USD 257 million) was being leased to third parties (see Note 27).

Capital commitments

The RHI Group has non-cancellable capital commitments for the purchase or construction of property, plant and equipment totalling USD 360 million (2019: USD 358 million).

9. Goodwill

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

	2020	2019
At January 1		
Cost	12,853	10,614
Accumulated impairment	(3,766)	(3,875)
Net book value	**9,087**	**6,739**
Year ended December 31		
At January 1	9,087	6,739
Business combinations [6]	–	2,348
Impairment charge recorded within general and administration	(117)	0
At December 31	**8,970**	**9,087**
Cost	12,570	12,853
Accumulated impairment	(3,600)	(3,766)
Net book value	**8,970**	**9,087**
Allocated to the following cash-generating units		
Roche Pharmaceuticals	5,575	5,575
Roche Pharmaceuticals product transactions	293	293
Total Pharmaceuticals Division	**5,868**	**5,868**
Diagnostics customer areas	2,628	2,745
Diabetes Care customer area	2	2
Divisional goodwill	472	472
Total Diagnostics Division	**3,102**	**3,219**

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

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. During 2020 the RHI Group made a comprehensive reassessment of the cash-generating units used for allocating goodwill in the Diagnostics Division. This reassessment was made in light of the following factors:

- Business transformations within the Diagnostics Division during 2020, notably the organisation changes announced in the second half of 2020.
- Business development activities in the Diagnostics Information Solutions area.
- Ongoing reprioritisation of business activities in light of the COVID-19 pandemic and other developments in the wider diagnostics business.

The conclusions of this reassessment were as follows:

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

Based on the above reassessment the RHI Group allocated the remaining goodwill in the Roche Diagnostics operating segment as listed below. The basis for the reallocation were the historical amounts of goodwill that arose from the individual transactions.

- 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 AVL Medical Instruments (2000), Igen (2004), BioVeris (2007), Ventana (2008), IQuum (2014) and GeneWeave Biosciences (2015)

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 is currently loss-making and is expected to continue to be loss-making according to the latest business plans. The Diagnostics customer areas business is developing a replacement product and is 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 is deemed to have been disposed of and has been fully impaired. The intangible assets relating to this acquisition have been 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 have been further delayed, in part due to a reprioritisation of resources to COVID-19-related projects. It is currently unclear when and whether there will be any future revenues to support the carrying value of the goodwill, and any synergistic benefits to other products in the same business would be incidental. Accordingly the goodwill is deemed to have been disposed of and has been fully impaired.

Impairment charge – 2019

There were no impairments of goodwill during 2019.

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

	2020			2019		
	Period of cash flow projections	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	6.5%	5 years	n/a	7.4%
Diagnostics Division	5 years	1.5%	6.5%	5 years	1.5%	7.4%

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, 2020.

10. 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, 2019				
Cost	16,570	5,031	1,065	22,666
Accumulated amortisation and impairment	(11,822)	(1,713)	(821)	(14,356)
Net book value	**4,748**	**3,318**	**244**	**8,310**
Year ended December 31, 2019				
At January 1, 2019	4,748	3,318	244	8,310
Business combinations [6]	465	2,003	0	2,468
Asset acquisitions	0	0	0	0
Additions	344	427	320	1,091
Disposals	(12)	(5)	0	(17)
Transfers	1,997	(1,997)	-	-
Amortisation charge	(1,263)	-	(116)	(1,379)
Impairment charge	(349)	(479)	0	(828)
Currency translation effects	3	0	0	3
At December 31, 2019	**5,933**	**3,267**	**448**	**9,648**
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**
Allocated by operating segment				
Pharmaceuticals	5,454	3,262	439	9,155
Diagnostics	479	5	9	493
Total RHI Group	**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	4,990	3,547	360	8,897
Diagnostics	847	349	7	1,203
Total RHI Group	**5,837**	**3,896**	**367**	**10,100**

As disclosed in Note 6, intangible assets at December 31, 2019 have been restated following the finalisation of the valuation of the net assets acquired related to the Spark Therapeutics acquisition in 2019. A reconciliation to the previously published intangible assets is provided in Note 6. Marketing intangibles and technology intangibles, which were previously presented separately, have been aggregated into 'Other intangibles'. Comparative information was adjusted.

Significant intangible assets at December 31, 2020 *in millions of USD*

	Operating segment	Net book value	Remaining amortisation period
Product intangibles in use			
Rozlytrek (Ignyta acquisition)	Pharmaceuticals	1,521	11 years
Esbriet (InterMune acquisition)	Pharmaceuticals	747	1 years
Flatiron Health acquisition	Pharmaceuticals	493	12 years
Gavreto (Blueprint Medicines licence transaction)	Pharmaceuticals	470	16 years
Roche Blood Glucose Monitoring (transferred from related parties)	Diagnostics	419	4 years
Xofluza (Shionogi license transaction)	Pharmaceuticals	413	15 years
Luxturna (Spark Therapeutics acquisition)	Pharmaceuticals	326	8 years
Foundation Medicine acquisition	Pharmaceuticals	231	4 years
Kapa acquisition	Diagnostics	207	10 years
Product intangibles not available for use			
SPK-8011 haemophilia A gene therapy (Spark Therapeutics acquisition)	Pharmaceuticals	1,118	n/a
Promedior acquisition	Pharmaceuticals	368	n/a
SPK-9001 haemophilia B gene therapy (Spark Therapeutics acquisition)	Pharmaceuticals	351	n/a
Stratos Genomics acquisition	Diagnostics	337	n/a
BioNTech licence transaction	Pharmaceuticals	232	n/a
Other intangibles – Technology intangibles in use			
Adaptive licence transaction	Pharmaceuticals	270	18 years

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

	Amortisation		Impairment	
	2020	2019	2020	2019
Cost of sales				
- Pharmaceuticals	(1,244)	(1,116)	(87)	0
- Diagnostics	(58)	(77)	0	(347)
Marketing and distribution				
- Pharmaceuticals	(11)	(20)	0	0
- Diagnostics	(1)	(1)	0	0
Research and development				
- Pharmaceuticals	(318)	(165)	(365)	(481)
- Diagnostics	(2)	0	0	0
Total	**(1,634)**	**(1,379)**	**(452)**	**(828)**

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, 2020 approximately 59% (2019: 61%) 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 – 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 8 years.

Impairment charges – 2019

Pharmaceuticals Division. Impairment charges totalling USD 481 million were recorded. The major items related to:

- A charge of USD 125 million due to the decision to stop the development of a compound with an alliance partner. The asset concerned, which was not yet being amortised, was fully written down.
- A charge of USD 99 million following clinical data assessment of two compounds. The assets concerned, which were not yet being amortised, were fully written down.
- A charge of USD 90 million for the full impairment of a compound purchased separately, driven by a change in the development plan. The asset concerned, which was not yet being amortised, was fully written down.
- A charge of USD 78 million for the partial impairment of a compound developed together with an alliance partner, mainly driven by reduced revenue forecasts. The asset concerned, which was not yet being amortised, was partially written down.
- A charge of USD 60 million due to the decision to stop the development of a compound and the related collaboration activities with an alliance partner. The asset concerned, which was not yet being amortised, was fully written down.
- A charge of USD 27 million due to the decision to stop the development of a compound purchased separately. The asset concerned, which was not yet being amortised, was fully written down.

Diagnostics Division. Impairment charges totalling USD 347 million were recorded which related to:

- A charge of USD 261 million for the impairment of Molecular Diagnostics product intangibles in use acquired as part of the GeneWeave acquisition. The main factors leading to this were updated assumptions on timelines, research and development expenses and production costs. The asset concerned, which was being amortised, was fully written down.
- A charge of USD 86 million for the impairment of sequencing business product intangibles in use acquired as part of the Ariosa acquisition mainly due to a change in timelines for the launch of related sequencing products. The asset concerned which was being amortised, was fully written down.

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

The RHI Group is party to in-licensing and similar arrangements with its alliance partners 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 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, 2020 *in millions of USD*

	Pharmaceuticals	Diagnostics	RHI Group
Within one year	650	18	668
Between one and two years	545	67	612
Between two and three years	392	4	396
Total	**1,587**	**89**	**1,676**

11. Inventories

Inventories *in millions of USD*

	2020	2019	2018
Raw materials and supplies	494	491	424
Work in process	42	51	56
Intermediates	661	512	721
Finished goods	2,736	2,034	1,480
Provision for slow-moving and obsolete inventory	(172)	(254)	(146)
Total inventories	**3,761**	**2,834**	**2,535**

Inventories expensed through cost of sales totalled USD 10.6 billion (2019: USD 9.6 billion). Inventory write-downs during the year resulted in an expense of USD 57 million (2019: USD 200 million).

12. Accounts receivable

Accounts receivable – trade and other *in millions of USD*

	2020	2019	2018
Trade receivables	4,296	4,019	3,695
Notes receivable	6	5	5
Other receivables	48	50	36
Allowances for doubtful accounts	(29)	(28)	(34)
Chargebacks and other allowances to be withheld upon settlement [3]	(352)	(388)	(390)
Accounts receivable – trade and other [3]	**3,969**	**3,658**	**3,312**

Accounts receivable – related parties *in millions of USD*

	2020	2019	2018
Cash pool balance – related parties	1,008	732	1,993
Trade receivables - related parties	1,407	1,392	1,323
Other receivables - related parties	178	199	105
Total accounts receivable – related parties [30]	**2,593**	**2,323**	**3,421**

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

	2020	2019
At January 1	(28)	(34)
Additional allowances created	(26)	(31)
Unused amounts reversed	22	33
Utilised during the year	3	4
At December 31	**(29)**	**(28)**

The entire amount of the allowances for doubtful accounts are related to third party receivables. Bad debt reversals recorded within marketing and distribution costs totalled USD 1 million (2019: bad debt reversals of USD 3 million).

13. Marketable securities

Marketable securities *in millions of USD*

	2020	2019	2018
Equity securities at fair value through profit or loss [29]	2	2	0
Debt securities at fair value through OCI	0	129	0
Total marketable securities	**2**	**131**	**0**

Debt securities – contracted maturity *in millions of USD*

	2020	2019	2018
Within one year	0	115	0
Between one and five years	0	14	0
More than five years	0	0	0
Total debt securities	**0**	**129**	**0**

14. Cash and cash equivalents

Cash and cash equivalents *in millions of USD*

	2020	2019	2018
Cash - cash in hand and in current or call accounts	1	127	0
Cash equivalents - time accounts with a maturity of three months or less	0	0	0
Total cash and cash equivalents	**1**	**127**	**0**
Cash overdraft [19]	0	0	(28)
Total cash and cash equivalents - Net	**1**	**127**	**(28)**

15. Other non-current assets

Other non-current assets *in millions of USD*

	2020	2019	2018
Equity investments at fair value through OCI	116	0	0
Equity investments at fair value through profit or loss [29]	8	11	15
Restricted cash	2	2	2
Other receivables – contracts with customers [3]	3	5	1
Other receivables – third	83	69	91
Total financial non-current assets	**212**	**87**	**109**
Long-term employee benefits	237	228	221
Other assets	193	150	128
Total non-financial non-current assets	**430**	**378**	**349**
Associates	2	3	0
Total other non-current assets	**644**	**468**	**458**

16. Other current assets

Other current assets *in millions of USD*

	2020	2019	2018
Restricted cash	0	0	10
Other receivables – contracts with customers [3]	364	293	417
Other receivables	36	75	49
Total financial current assets	**400**	**368**	**476**
Prepaid expenses and accrued income	493	323	188
Other assets	20	30	15
Total non-financial current assets	**513**	**353**	**203**
Total other current assets	**913**	**721**	**679**

Other current assets – related parties *in millions of USD*

	2020	2019	2018
Other current assets – related parties [30]	82	56	0
Total financial current assets – related parties	**82**	**56**	**0**
Total other current assets – related parties	**82**	**56**	**0**

17. Accounts payable

Accounts payable – trade and other *in millions of USD*

	2020	2019	2018
Trade payables	1,102	1,048	935
Other taxes payable	54	44	40
Other payables	25	13	20
Total accounts payable – trade and other	**1,181**	**1,105**	**995**

18. Other non-current liabilities

Other non-current liabilities *in millions of USD*

	2020	2019	2018
Deferred income	134	134	2
Lease liabilities [27]	450	403	-
Other long-term liabilities	33	38	73
Total other non-current liabilities	**617**	**575**	**75**

Other long-term liabilities are mainly related to accrued employee benefits. Following the implementation of IFRS 16 'Leases' (see Note 27), non-current lease liabilities of USD 307 million were recorded, mainly for leases formerly classified as operating leases where the RHI Group is the lessee, effective January 1, 2019.

19. Other current liabilities

Other current liabilities *in millions of USD*

	2020	2019	2018
Deferred income	122	131	85
Lease liabilities [27]	93	80	-
Accrued payroll and related items	1,362	1,532	1,421
Interest payable	151	147	186
Accrued chargebacks and other allowances separately payable [3]	1,502	1,485	1,511
Accrued royalties and commissions	875	1,023	1,009
Other accrued liabilities	1,361	1,247	1,054
Cash overdrafts	0	0	28
Total other current liabilities	**5,466**	**5,645**	**5,294**

Following the implementation of IFRS 16 'Leases' (see Note 27), current lease liabilities of USD 67 million were recorded, mainly for leases formerly classified as operating leases where the RHI Group is the lessee, effective January 1, 2019.

20. Provisions and contingent liabilities

Provisions: movements in recognised liabilities *in millions of USD*

	Legal provisions	Environmental provisions	Restructuring provisions	Contingent consideration provisions	Other provisions	Total
Year ended December 31, 2019						
At January 1, 2019	500	162	149	289	889	1,989
Reclassification to lease liabilities on implementation of IFRS 16 'Leases' [27]	-	-	(23)	-	-	(23)
At January 1, 2019 (revised)	**500**	**162**	**126**	**289**	**889**	**1,966**
Additional provisions created	232	20	312	0	554	1,118
Unused amounts reversed	(10)	(4)	(29)	(124)	(59)	(226)
Utilised	(36)	(24)	(67)	(75)	(279)	(481)
Discount unwind [4]	0	5	0	5	0	10
Business combinations						
- Acquired companies	0	0	0	0	0	0
- Deferred consideration	-	-	-	-	0	0
- Contingent consideration	-	-	-	0	-	0
Asset acquisitions	-	-	-	-	-	-
At December 31, 2019	**686**	**159**	**342**	**95**	**1,105**	**2,387**
Current	670	35	247	10	1,005	1,967
Non-current	16	124	95	85	100	420
At December 31, 2019	**686**	**159**	**342**	**95**	**1,105**	**2,387**
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	-	
Asset acquisitions	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**
Expected outflow of resources						
- Within one year	317	23	86	10	676	1,112
- Between one to two years	16	30	0	0	40	86
- Between two to three years	0	16	89	50	22	177
- More than three years	0	71	5	9	32	117
At December 31, 2020	**333**	**140**	**180**	**69**	**770**	**1,492**

Following the implementation of IFRS 16 'Leases' (see Note 27), provisions of USD 23 million relating to onerous lease contracts were reclassified to lease liabilities, effective January 1, 2019.

In 2020 USD 808 million of provisions were utilised (2019: USD 481 million), of which USD 806 million (2019: USD 403 million) are included in the cash flows from operating activities and USD 2 million (2019: USD 78 million) are included in the cash flows from business combinations for payments made from deferred consideration arrangements (see Note 6).

Legal provisions

Legal provisions consist of 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, notably the Accutane case in the US, some of the provisions previously held were released which resulted in an income of USD 385 million. This was a major element in the expenses for legal cases in 2020, which show a net income of USD 322 million included in general and administration (2019: net expense of USD 233 million). Details of the major legal cases outstanding are disclosed below.

Environmental provisions

Provisions for environmental matters include various separate environmental issues. By their nature the amounts and timings of any outflows are difficult to predict. Significant provisions are discounted by 2.6% (2019: 3.2%) 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.

In the Pharmaceuticals Division the significant provisions relate to the resourcing flexibility plans as well as to the redesign and the strategic realignment of its manufacturing network. Further details are given in Note 7.

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 2.6% (2019: 3.2%) 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 29.

Other provisions

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

Other provisions *in millions of USD*

	2020	2019	2018
Sales returns	481	586	469
Employee provisions	235	221	228
Other items	54	298	192
Total other provisions	**770**	**1,105**	**889**

At December 31, 2019 and 2018 other items included provisions that had previously been recorded for the estimated amount of a potential obligation for past royalties relating to the PDL-1 inhibitor litigation described below. In November 2020 a settlement agreement was reached for this dispute and the agreed cash settlement was recorded against these provisions.

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 strategic alliances with various companies 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. Potential future payments may become due to certain collaboration partners achieving certain milestones as defined in the collaboration agreements. RHI Group's best estimate for future commitments of such payments are given in Note 10.

Legal cases

At December 31, 2020 provisions for legal cases were USD 298 million (2019: USD 655 million), mainly related to legal cases in the Pharmaceuticals Division of USD 32 million (2019: USD 362 million) and in the Diagnostics Division of USD 266 million (2019: USD 293 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.

Accutane. Hoffmann-La Roche Inc. ('HLR') and various other Roche affiliates have been named as defendants in numerous legal actions in the US and elsewhere relating to the acne medication Accutane. The litigation alleges that Accutane caused certain serious conditions, including, but not limited to, inflammatory bowel disease ('IBD'), birth defects and psychiatric disorders. In 2009 HLR announced that, following a re-evaluation of its portfolio of medicines that are now available from generic manufacturers, rapidly declining brand sales in the US and high costs from personal-injury lawsuits that it continues to defend vigorously, it had decided to immediately discontinue the manufacture and distribution of the product in the US.

All of the actions pending in federal court alleging IBD were consolidated for pre-trial proceedings in a Multi-District Litigation ('MDL') in the US District Court for the Middle District of Florida, Tampa Division. In August 2015 the MDL was closed. During the pendency of the MDL the District Court granted summary judgment in favour of HLR for all of the federal IBD cases that had proceeded and all were affirmed by the US Court of Appeals for the Eleventh Circuit. All of the actions pending in state court in New Jersey alleging IBD were consolidated for pre-trial proceedings in the Superior Court of New Jersey, Law Division, Atlantic County.

In February 2015 the Superior Court of New Jersey, Law Division, Atlantic County, held an eight-day evidentiary hearing on whether plaintiffs' experts can testify that Accutane causes Crohn's disease. On February 20, 2015 the Superior Court barred plaintiffs' experts because their methods did not meet the requirements for scientific reliability. On May 8, 2015 the Superior Court entered an order dismissing with prejudice an agreed-upon list of 2,076 Crohn's disease cases that were subject to the Superior Court's February 2015 order. On July 28, 2017 the New Jersey Appellate Division reversed the order excluding plaintiffs' experts from testifying that Accutane causes Crohn's disease and reinstated the dismissed cases finding that the trial court wrongfully barred plaintiffs' expert witnesses. HLR filed a petition for review to the New Jersey Supreme Court, which was granted on December 8, 2017. On August 1, 2018 the Supreme Court issued its decision on whether plaintiffs' experts can testify that Accutane causes Crohn's disease. The Supreme Court reversed the judgment of the New Jersey Appellate Division and concluded that the trial court properly had excluded the experts thereby dismissing 2,174 cases alleging that Accutane caused plaintiffs' Crohn's disease. Plaintiffs cannot further appeal. All 2,174 Crohn's disease cases were permanently dismissed.

On May 12, 2015 the Superior Court entered an order granting summary judgment and dismissing 18 cases filed by New Jersey residents on the basis that the drug label was adequate as a matter of law since 2002. In July 2015 the Superior Court granted HLR's motion for summary judgment as to the adequacy of the label for post-2002 ingestion cases in 44 other jurisdictions. The Superior Court applied New Jersey law to all of the jurisdictions and granted HLR's motion dismissing approximately 511 cases. In the alternative, the Superior Court applied the home state law and granted summary judgment in 24 jurisdictions and denied it in 20 jurisdictions; this would have resulted in 389 cases being dismissed. On July 25, 2017 the New Jersey Appellate Division affirmed the dismissal of 197 cases and reinstated judgments in 335 cases based on the strength of HLR's warnings after 2002. HLR and the dismissed plaintiffs filed petitions for review to the New Jersey Supreme Court, which was granted on December 8, 2017. On October 3, 2018 the Supreme Court issued its decision on those cases and reversed the judgment of the New Jersey Appellate Division that had reinstated 335 cases on the basis that the drug label was adequate as a matter of law since 2002. Plaintiffs cannot further appeal. 532 cases were permanently dismissed.

In January and October 2016 the Superior Court entered orders granting summary judgment and dismissing 191 cases for failure to prove Accutane proximately caused their ulcerative colitis. The plaintiffs appealed all of these decisions. During February and March 2017 the Superior Court held an evidentiary hearing on whether plaintiffs' experts can testify that Accutane causes ulcerative colitis. In April 2017 the Superior Court barred plaintiffs' experts because their methods did not meet the requirements for scientific reliability. In May 2017 the Superior Court entered an order dismissing 3,231 ulcerative colitis cases that were subject to the Superior Court's April 2017 order. The plaintiffs appealed these decisions.

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

PDL-1 inhibitor litigation. On July 26, 2017 Bristol-Myers Squibb Co. ('BMS') filed a lawsuit against Genentech, Inc. ('Genentech') in Delaware, US. BMS alleges that Genentech's sale of Tecentriq infringes their US Patent No. 9,402,899. BMS is seeking judgment in its favour, a finding of wilfulness and monetary damages. On October 4, 2017 Genentech filed its answer and counterclaims, seeking a declaratory judgment of invalidity of the 9,402,899 patent. In May 2019 BMS and Genentech agreed to drop the lawsuit without prejudice to the case being refiled at a later date. In November 2020 BMS and Genentech reached a settlement agreement for this dispute. Under the terms of the agreement, the two parties concluded a royalty agreement for future worldwide sales of Tecentriq and Genentech made a cash settlement for past royalties. Provisions had previously been recorded for the estimated amount of this potential obligation for past royalties, and the agreed cash settlement was recorded against these provisions. The matter is now concluded.

Average Wholesale Prices litigation. 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, 2020 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. 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, 2020 Roche is defending approximately 250 actions involving approximately 290 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 will appeal this decision.

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 District Court in favour of Genentech and remanded the case back to the District Court. 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. 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 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. The RHI Group is vigorously defending itself in this matter. The outcome of this matter cannot be determined at this time.

21. Debt

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

	2020	2019
At January 1	**42,395**	**42,293**
Proceeds from issue of bonds and notes	0	0
Proceeds from issue of related party debt	9,280	6,250
Redemption and repurchase of bonds and notes	0	(5,474)
Repayment of related party debt	(10,030)	(1,720)
Increase (decrease) in commercial paper	338	862
Increase (decrease) in other debt	2	0
Changes from financing cash flows	**(410)**	**(82)**
Net (gains) losses on redemption and repurchase of bonds and notes	0	199
Amortisation of debt discount [4]	7	11
Financing costs	**7**	**210**
Business combinations	**0**	**1**
Net foreign exchange (gains) losses	126	(27)
Changes in foreign exchanges rates	**126**	**(27)**
At December 31	**42,118**	**42,395**
Bonds and notes	8,672	8,540
Commercial paper	1,788	1,450
Amounts due to related parties [30]	31,655	32,405
Other borrowings	3	0
Total debt	**42,118**	**42,395**
Long-term debt	34,784	36,415
Short-term debt	7,334	5,980
Total debt	**42,118**	**42,395**

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*

	Effective interest rate		2020	2019	2018
	Underlying instrument	Including hedging			
US dollar notes – fixed rate					
2.25% notes due September 30, 2019, principal USD 1.5 billion (ISIN: US771196BA98)	2.34%	n/a	–	–	1,499
2.875% notes due September 29, 2021, principal USD 1.3 billion, outstanding USD 0.64 billion (ISIN: US771196BB71)	2.98%	n/a	643	643	1,297
1.75% notes due January 28, 2022, principal USD 0.65 billion (ISIN: US771196BM37)	1.87%	n/a	649	649	648
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	749
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	1,649
3.0% notes due November 10, 2025, principal USD 1.0 billion, outstanding USD 0.51 billion (ISIN: US771196BJ08)	3.14%	n/a	504	503	993
2.625% notes due May 15, 2026, principal USD 1.0 billion (ISIN: US771196BK70)	2.78%	n/a	994	992	991
2.375% notes due January 28, 2027, principal USD 0.85 billion (ISIN: US771196BL53)	2.54%	n/a	843	842	841
3.625% notes due September 17, 2028, principal USD 0.65 billion (ISIN: US771196BP67)	3.69%	n/a	648	648	648
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	1,082	1,152
4.0% notes due November 28, 2044, principal USD 0.65 billion (ISIN: US771196BH42)	4.16%	n/a	639	639	638
US dollar notes – floating rate					
Notes due September 30, 2019, principal USD 0.5 billion (ISIN: US771196AZ58)	1.65%	n/a	–	–	500
Euro Medium Term Note programme – fixed rate					
2.0% notes due March 13, 2020, principal USD 0.6 billion (ISIN: XS1197832089)	2.12%	n/a	–	–	599
6.5% notes due March 4, 2021, principal EUR 1.75 billion, outstanding EUR 1.14 billion (ISIN: XS0415624716)	6.66%	7.00%	1,402	1,275	1,301
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	325
Total bonds and notes			**8,672**	**8,540**	**13,830**

Bonds and notes maturity *in millions of USD*

	2020	2019	2018
Within one year	2,045	–	1,999
Between one and two years	649	1,918	599
Between two and three years	390	649	2,599
Between three and four years	589	390	648
Between four and five years	504	589	749
More than five years	4,495	4,994	7,236
Total bonds and notes	**8,672**	**8,540**	**13,830**

Unamortised discount included in carrying value of bonds and notes *in millions of USD*

	2020	2019	2018
US dollar notes	63	69	85
Euro notes	0	2	3
Total unamortised discount	**63**	**71**	**88**

Currency swaps. Proceeds from the EUR bonds at the amount of EUR 850 million were swapped into USD by entering into derivative contracts with related parties. The related party derivatives mirror exactly the terms of derivative contracts that a Roche Group affiliate outside the RHI Group has entered with third party financial institutions. As a result, in these financial statements, the bonds and notes have economic characteristics equivalent to USD bonds and notes.

Issuance of bonds and notes – 2020

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

Issuance of bonds and notes – 2019

In 2019 the RHI Group did not issue any bonds or notes.

Redemption and repurchase of bonds and notes – 2020

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

Redemption and repurchase of bonds and notes – 2019

Redemption of US dollar notes. On the due date of September 30, 2019 the RHI Group repaid the 2.25% fixed rate notes with a principal amount of USD 1.5 billion. The cash outflow was USD 1,500 million, plus accrued interest. The effective interest rate of these notes was 2.34%.

On the due date of September 30, 2019 the RHI Group repaid the floating rate notes with a principal amount of USD 0.5 billion. The cash outflow was USD 500 million, plus accrued interest. The effective interest rate of these notes was 1.65%.

On December 13, 2019 the RHI Group resolved to exercise its option to call for early redemption of the 2.0% fixed rate notes with a principal amount of USD 0.6 billion at par three months before the scheduled due date of March 13, 2020. The cash outflow was USD 600 million, plus accrued interest. The effective interest rate of these notes was 2.12%.

On December 5, 2019 the RHI Group completed a tender offer to redeem the following instruments:

- USD 656 million 2.875% fixed rate notes due September 29, 2021, effective interest 2.98%.
- USD 360 million 3.25% fixed rate notes due September 17, 2023, effective interest 3.32%.
- USD 1,061 million 3.35% fixed rate notes due September 30, 2024, effective interest 3.40%.
- USD 494 million 3.0% fixed rate notes due November 10, 2025, effective interest 3.14%.
- USD 37 million 5.25% fixed rate notes due July 15, 2035, effective interest 5.39%.
- USD 73 million 7.0% fixed rate notes due March 1, 2039, effective interest 7.43%.

The cash outflow was USD 2,874 million, plus accrued interest, and there was a loss on repurchase of USD 203 million, which included USD 4 million paid for bank fees.

Cash flows from redemption and repurchase of bonds and notes

Cash outflows from redemption and repurchase of bonds and notes *in millions of USD*

	2020	2019
Euro Medium Term Note programme – US dollar notes	0	(600)
US dollar notes	0	(4,874)
Total cash outflows from redemption and repurchase of bonds and notes	**0**	**(5,474)**

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, 2020. 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, 2020 unsecured commercial paper notes with a principal of USD 1.8 billion and an average interest rate of 0.12% were outstanding.

Movements in commercial paper obligations *in millions of USD*

	2020	2019
At January 1	1,450	588
Net cash proceeds (payments)	338	862
At December 31	**1,788**	**1,450**

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*

	2020	2019	2018
At January 1	32,405	27,875	26,702
Proceeds from issue of related party debt	9,280	6,250	8,660
Repayment of related party debt	(10,030)	(1,720)	(7,487)
At December 31	**31,655**	**32,405**	**27,875**

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*

	2020	2019
Term note 2.09% issued December 5, 2019	-	1,000
Term note 2.09% issued December 17, 2019	-	1,000
Term note 2.09% issued December 17, 2019	-	1,000
Term note 2.72% issued December 17, 2019	-	1,250
Term note 2.72% issued December 17, 2019	-	1,250
Term note 2.09% issued December 23, 2019	-	750
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	-
Total cash inflows from related party issues	**9,280**	**6,250**

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*

	2020	2019
Term note 3.1% due January 25, 2019	-	(750)
Term note 2.45% due August 29, 2019	-	(500)
Term note 2.49% due September 24, 2019	-	(400)
Term note 1.91% due October 2, 2019	-	(50)
Term note 0.6% due December 20, 2019	-	(20)
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)	-
Total cash outflows to related party issues	**(10,030)**	**(1,720)**

Amounts due to related parties *in millions of USD*

	Effective interest rate	2020	2019	2018
Term note 3.10% due January 25, 2019, principal USD 750 million	3.12%	–	–	750
Term note 2.45% due August 29, 2019, principal USD 500 million	2.47%	–	–	500
Term note 2.49% due September 24, 2019, principal USD 400 million	2.50%	–	–	400
Term note 1.91% due October 2, 2019, principal USD 50 million	1.92%	–	–	50
Term note 0.6% due December 20, 2019, principal CHF 20 million	0.59%	–	–	20
Term note 5.79% due February 25, 2020, principal USD 1,500 million	5.88%	–	1,500	1,500
Term note 2.09% due June 5, 2020, principal USD 1,000 million	2.10%	–	1,000	–
Term note 5.60% due June 8, 2020, principal USD 280 million	5.68%	–	280	280
Term note 2.09% due September 23, 2020, principal USD 750 million	2.10%	–	750	–
Term note 2.09% due December 17, 2020, principal USD 1,000 million	2.10%	–	1,000	–
Term note 2.09% due May 17, 2021, principal USD 1,000 million	2.10%	1,000	1,000	–
Term note 3.74% due August 25, 2021, principal USD 1,500 million	3.77%	1,500	1,500	1,500
Term note 4.65% due September 20, 2021, principal USD 1,000 million	4.71%	1,000	1,000	1,000
Term note 3.13% due March 25, 2022, principal USD 1,000 million	3.15%	1,000	1,000	1,000
Term note 3.74% due August 25, 2022, principal USD 1,500 million	3.77%	1,500	1,500	1,500
Term note 3.10% due November 11, 2022, principal USD 900 million	3.12%	900	900	900
Term note 4.55% due April 6, 2023, principal USD 875 million	4.60%	875	875	875
Term note 4.38% due June 14, 2023, principal USD 500 million	4.43%	500	500	500
Term note 4.38% due September 5, 2023, principal USD 1,000 million	4.43%	1,000	1,000	1,000
Term note 4.03% due September 29, 2023, 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 January 29, 2024, principal USD 750 million	4.07%	750	750	750
Term note 3.88% due February 27, 2024, principal USD 800 million	3.92%	800	800	800
Term note 3.48% due May 29, 2024, principal USD 1,000 million	3.51%	1,000	1,000	1,000
Term note 3.14% due August 27, 2024, principal USD 750 million	3.16%	750	750	750
Term note 3.14% due November 27, 2024, principal USD 800 million	3.16%	800	800	800
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 February 27, 2025, principal USD 750 million	3.17%	750	750	750
Term note 3.44% due March 24, 2025, principal USD 500 million	3.47%	500	500	500
Term note 3.36% due April 22, 2025, principal USD 500 million	3.39%	500	500	500
Term note 3.41% due August 26, 2025, principal USD 750 million	3.44%	750	750	750
Term note 6.5% due February 2, 2026, principal USD 200 million	6.66%	200	200	200
Term note 2.27% due February 25, 2026, principal USD 500 million	2.28%	500	–	–
Term note 2.54% due April 13, 2026, principal USD 750 million	2.57%	750	750	750
Term note 2.7% due May 4, 2026, principal USD 500 million	2.73%	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 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 February 2, 2027, principal USD 300 million	3.41%	300	300	300
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 16, 2027, principal USD 100 million	3.41%	100	100	100
Term note 3.38% due February 16, 2027, principal USD 500 million	3.41%	500	500	500
Term note 3.99% due August 25, 2027, principal USD 750 million	4.03%	750	750	750
Term note 2.72% due January 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	–	–
Term note 2.72% due June 17, 2029, principal USD 1,250 million	2.74%	1,250	1,250	–
Term note 1.31% due August 8, 2029, principal USD 280 million	1.31%	280	–	–
Term note 1.71% due February 4, 2030, principal USD 750 million	1.72%	750	–	–
Term note 1.71% due February 15, 2030, principal USD 500 million	1.72%	500	–	–
Term note 1.71% due February 18, 2030, principal USD 750 million	1.72%	750	–	–
Total amounts due to related parties		**31,655**	**32,405**	**27,875**

22. 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, 2019						
At January 1, 2019	1	(24,021)	(1)	48	(3)	(23,976)
Net income recognised in income statement	–	6,540	–	–	–	6,540
Financial assets at fair value through OCI						
- Fair value gains (losses) - equity investments at fair value through OCI	–	–	0	–	–	0
- 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	–	–	3	–	–	3
- 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	–	–	–	(55)	–	(55)
- Transferred to income statement [a)]	–	–	–	20	–	20
- Income taxes [5]	–	–	–	7	–	7
Currency translation of foreign operations						
- Exchange differences	–	–	0	–	5	5
Defined benefit plans						
- Remeasurement gains (losses) [25]	–	(53)	–	–	–	(53)
- Income taxes [5]	–	13	–	–	–	13
Other comprehensive income, net of tax	**–**	**(40)**	**2**	**(28)**	**5**	**(61)**
Total comprehensive income	**–**	**6,500**	**2**	**(28)**	**5**	**6,479**
Dividends	–	(3,000)	–	–	–	(3,000)
Equity compensation plans	–	(1,133)	–	–	–	(1,133)
Changes in non-controlling interests	–	(2)	–	–	–	(2)
At December 31, 2019	**1**	**(21,656)**	**1**	**20** [b)]	**2**	**(21,632)**

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 5 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, 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) [25]	–	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.

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, 2020 the RHI Group had a negative equity of USD 18.5 billion (December 31, 2019: USD 21.6 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, 2020 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 2020. All the shares are indirectly owned by Roche Holding Ltd, a public company registered in Switzerland.

Dividends

During 2020 the RHI Board of Directors resolved to declare the following dividends to RHI's sole stockholder, Roche Finance Ltd, which were paid during 2020.

Date declared	Dividend per share (USD per share)	Total cash distribution (USD millions)
January 9, 2020	1,500,000	1,500
July 8, 2020	1,500,000	1,500
October 21, 2020	500,000	500
Total	**3,500,000**	**3,500**

Dividends paid during 2020 amounted to USD 3.5 billion. On January 14, 2021 the RHI Board of Directors resolved to declare a dividend of USD 2.8 billion to RHI's sole stockholder, Roche Finance Ltd.

Own equity instruments

The RHI Group holds none of its own equity shares.

Reserves

Fair value reserve. At December 31, 2020 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.

23. Non-controlling interests

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

	2020	2019
At January 1	2	1
Total net income recognised in income statement	(2)	(2)
Total comprehensive income	**(2)**	**(2)**
Equity compensation plans	1	1
Changes in non-controlling interests	0	2
At December 31	**1**	**2**

24. Employee benefits

Employee remuneration *in millions of USD*

	2020	2019
Wages and salaries	4,307	4,362
Social security costs	213	205
Defined contribution plans [25]	345	329
Operating expenses for defined benefit plans [25]	99	89
Equity compensation plans [26]	592	450
Termination costs [7]	57	326
Other employee benefits	832	848
Employee remuneration included in operating results	**6,445**	**6,609**
Net interest cost of defined benefit plans [25]	47	58
Total employee remuneration	**6,492**	**6,667**

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.

25. 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 345 million (2019: USD 329 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 payments to the plans. Where there is an underfunding, this would normally be remedied by additional company contributions. In 2020 and 2019 no such payments 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 2020 and 2019 no payments were made by the RHI Group to these plans. At December 31, 2020 the IFRS funding status was 57% (2019: 50%), including reimbursement rights, for the funded OPEB plans.

Defined benefit plans: income statement *in millions of USD*

	2020			2019		
	Pension plans	Other post-employment benefit plans	Total expense	Pension plans	Other post-employment benefit plans	Total expense
Current service cost	85	14	99	76	13	89
Past service (income) cost	0	0	0	0	0	0
Settlement (gain) loss	0	0	0	0	0	0
Total operating expenses	**85**	**14**	**99**	**76**	**13**	**89**
Net interest cost of defined benefit plans	24	23	47	28	30	**58**
Total expense recognised in income statement	**109**	**37**	**146**	**104**	**43**	**147**

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 2020 the IFRS funding status of the funded defined benefit plans increased to 88% (2019: 82%).

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*

	2020			2019		
	Pension plans	Other post-employment benefit plans	Total	Pension plans	Other post-employment benefit plans	Total
Funded plans						
- Fair value of plan assets	4,131	375	4,506	3,675	366	4,041
- Defined benefit obligation	(4,258)	(862)	(5,120)	(3,905)	(1,010)	(4,915)
Over (under) funding	**(127)**	**(487)**	**(614)**	**(230)**	**(644)**	**(874)**
Unfunded plans						
- Defined benefit obligation	(612)	(400)	(1,012)	(531)	(263)	(794)
Total funding status	**(739)**	**(887)**	**(1,626)**	**(761)**	**(907)**	**(1,668)**
Reimbursement rights	-	133	133	-	136	136
Net recognised asset (liability)	**(739)**	**(754)**	**(1,493)**	**(761)**	**(771)**	**(1,532)**
Reported in balance sheet						
- Defined benefit plan assets	25	133	158	0	136	136
- Defined benefit plan liabilities	(764)	(887)	(1,651)	(761)	(907)	(1,668)

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 2020 the actual return on plan assets was a gain of USD 697 million (2019: gain of USD 751 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*

	2020			2019		
	Pension plans	Other post-employment benefit plans	Total	Pension plans	Other post-employment benefit plans	Total
At January 1	3,675	502	4,177	3,198	429	3,627
Interest income on plan assets and reimbursement rights	115	15	130	133	17	150
Remeasurements on plan assets and reimbursement rights	507	55	562	515	108	623
Employer contributions	0	(2)	(2)	0	0	0
Employee contributions	0	8	8	0	9	9
Benefits paid – funded plans	(166)	(70)	(236)	(171)	(61)	(232)
Benefits paid – settlements	0	0	0	0	0	0
At December 31	**4,131**	**508**	**4,639**	**3,675**	**502**	**4,177**

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

	2020	2019
Equity securities	538	528
Debt securities	3,085	2,659
Property	117	120
Cash and money market instruments	97	53
Other investments	669	681
At December 31	**4,506**	**4,041**

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 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*

	2020			2019		
	Pension plans	Other post-employment benefit plans	Total	Pension plans	Other post-employment benefit plans	Total
At January 1	4,436	1,273	5,709	3,871	1,138	5,009
Current service cost	85	14	99	76	13	89
Interest cost	139	38	177	161	47	208
Remeasurements:						
– demographic assumptions	(51)	(37)	(88)	(6)	(5)	(11)
– financial assumptions	408	55	463	516	147	663
– experience adjustments	70	(6)	64	26	(2)	24
Employee contributions	0	8	8	0	9	9
Benefits paid – funded plans	(166)	(70)	(236)	(171)	(61)	(232)
Benefits paid – unfunded plans	(51)	(13)	(64)	(37)	(13)	(50)
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	**4,870**	**1,262**	**6,132**	**4,436**	**1,273**	**5,709**
Composition of plan						
Active members	1,704	337	2,041	1,519	315	1,834
Deferred vested members	855	9	864	783	8	791
Retired members	2,311	916	3,227	2,134	950	3,084
At December 31	**4,870**	**1,262**	**6,132**	**4,436**	**1,273**	**5,709**
Duration in years	13.2	12.5	13.1	12.9	12.6	12.8

Actuarial assumptions

The actuarial assumptions used in these financial statements are based on the requirements set out in IAS 19 'Employee Benefits'. They are unbiased and mutually compatible estimates of variables that determine the ultimate cost of providing post-employment benefits. They are set on an annual basis by local management, based on advice from actuaries, and are subject to approval by 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	2020	2019	2020	2019
Pri-2012 projected with MP-2019	22.0	22.2	23.4	23.7

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

	2020		2019	
	Weighted average	Range	Weighted average	Range
Discount rates	2.52%	2.50% - 2.60%	3.20%	3.20%
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%	6.10%	6.10%
Ultimate medical cost trend rate (in 2038)	4.50%	4.50%	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*

	2020	2019
Increase (decrease) in defined benefit obligation		
1 year increase in life expectancy	158	147
Discount rate		
0.25% increase	(190)	(174)
0.25% decrease	200	184
Expected inflation rates		
0.25% increase	48	52
0.25% decrease	(46)	(41)
Immediate medical cost trend rate		
1.00% increase	135	143
1.00% decrease	(114)	(118)

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*

	2020	2019
Employer contributions, net of reimbursements – funded plans	2	0
Benefits paid – unfunded plans	(64)	(50)
Total cash inflow (outflow)	**(62)**	**(50)**

Based on the most recent actuarial valuations, the RHI Group expects no employer contributions for funded plans in 2021. Benefits paid for unfunded plans in 2021 are estimated to be approximately USD 68 million.

26. 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 equity compensation plans *in millions of USD*

	2020	2019
Cost of sales	89	81
Marketing and distribution	140	108
Research and development	280	197
General and administration	83	64
Total operating expenses	**592**	**450**
Equity compensation plans		
Roche Stock-settled Stock Appreciation Rights	110	94
Roche Restricted Stock Unit Plan	482	355
Roche Performance Share Plan	0	1
Total operating expenses	**592**	**450**
Of which		
- Equity-settled	592	450
- Cash-settled	–	–

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

	2020	2019
Recharges and prepayments to related parties for equity compensation plans	(1,039)	(955)
Total cash inflow (outflow) from equity-settled equity compensation plans	**(1,039)**	**(955)**

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

	2020		2019	
	Number of rights (thousands)	Weighted average exercise price (CHF)	Number of rights (thousands)	Weighted average exercise price (CHF)
Outstanding at January 1	24,350	247.37	36,267	238.00
Granted	6,745	308.31	5,816	272.44
Forfeited	(771)	276.82	(1,355)	246.79
Exercised	(6,300)	244.86	(16,261)	235.64
Expired	(8)	217.53	(15)	158.33
Transfer of expatriate employees	72	249.87	(102)	227.57
Outstanding at December 31	**24,088**	**264.15**	**24,350**	**247.37**
- of which exercisable	11,735	247.55	11,254	247.61

Roche S-SARs – terms of rights outstanding at December 31, 2020

Year of grant	Rights outstanding Number outstanding (thousands)	Rights outstanding Weighted average years remaining contractual life	Rights outstanding Weighted average exercise price (CHF)	Rights exercisable Number exercisable (thousands)	Rights exercisable Weighted average exercise price (CHF)
2014	744	0.27	263.67	744	263.67
2015	1,410	1.27	256.76	1,410	256.76
2016	2,235	2.27	250.87	2,235	250.87
2017	3,271	3.27	251.30	3,271	251.30
2018	5,517	4.27	221.56	2,969	221.62
2019	4,604	8.29	272.58	981	272.70
2020	6,307	9.27	308.32	125	308.05
Total	**24,088**	**5.73**	**264.15**	**11,735**	**247.55**

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, 2020. 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

	2020 Number of awards (thousands)	2019 Number of awards (thousands)
Outstanding at January 1	3,243	2,659
Granted	1,726	1,918
Forfeited	(310)	(344)
Transferred to participants	(1,467)	(984)
Transfer of expatriate employees	212	(6)
Outstanding at December 31	**3,404**	**3,243**
- of which vested and transferable	0	1

Roche Performance Share Plan. Before 2019 the Roche Group offered future share and non-voting equity security awards (or, at the discretion of the Roche Group Board of Directors, their cash equivalent) to certain directors and key senior managers. These are non-tradable equity-settled awards. Under this program there remains one annual three-year cycle. The Roche Performance Share Plan (PSP) 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 shares or non-voting equity securities for which an individual award has been granted. The amount of shares or non-voting equity securities allocated will depend upon the individual's salary level, the achievement of performance targets linked to the Roche Group's Total Shareholder Return (shares and non-voting equity securities combined) relative to the Roche Group's peers during the three-year period from the date of the grant, and the discretion of the Roche Group Board of Directors. Each award granted will result in between zero and two shares or non-voting equity securities (before value adjustment), depending upon the achievement of the performance targets. In 2019 and 2020 no new PSP awards were granted.

Roche Performance Share Plan – terms of outstanding awards at December 31, 2020

	2018-2020
Number of awards outstanding (thousands)	6
Vesting period	3 years
Allocated to recipients in	Feb. 2021
Fair value per unit at grant (CHF)	238.35
Total fair value at grant (CHF millions)	**2**

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 2020

	Roche Stock-settled Stock Appreciation Rights	Roche Restricted Stock Unit Plan
Vesting period	Progressively over 4 years	Progressively over 4 years
Contractual life	10 years	n/a
Number granted during year (thousands)	6,745	1,726
Weighted average fair value (CHF)	20	308
Model used	Binomial	Market price [a]
Inputs to option pricing model		
- Share price at grant date (CHF)	308	308
- Exercise price (CHF)	308	-
- Expected volatility [b]	19.2%	n/a
- Expected dividend yield	7.0%	n/a
- Early exercise factor [c]	1.31	n/a
- Expected exit rate	8.5%	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.

c) The early exercise factor describes the ratio between the expected market price at the exercise date and the exercise price at which early exercises can be expected, based on historically observed behaviour.

27. Leases

Implementation of IFRS 16 'Leases'

Effective January 1, 2019 the RHI Group implemented IFRS 16 'Leases'. IFRS 16 replaced existing leases guidance, including IAS 17 'Leases', and sets out the principles for recognition and measurement of leases.

The main effect on the RHI Group as a lessee was that IFRS 16 introduced a single, on-balance sheet lease accounting model. It requires a lessee to recognise assets and liabilities for its leases. The lease liability reflects the present value of the remaining lease payments, and the right-of-use asset corresponds to the lease liability, adjusted for payments made before the lease commencement date, lease incentives and other items related to the lease agreement. As a result, right-of-use assets totalling USD 326 million and lease liabilities totalling USD 374 million have been recorded on the balance sheet effective January 1, 2020.

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

Transition impact of IFRS 16 on RHI Group consolidated balance sheet (selected items) *in millions of USD*

	As originally published for December 31, 2018	Application of IFRS 16	Revised for January 1, 2019
Right-of-use assets	-	326	326
Non-current provisions [20]	(502)	17	(485)
Other non-current liabilities	(75)	(284)	(359)
Current provisions [20]	(1,487)	6	(1,481)
Other current liabilities	(5,294)	(65)	(5,359)
Total net assets	**(23,975)**	**0**	**(23,975)**
Capital and reserves attributable to Roche Holdings, Inc. shareholder [22]	(23,976)	0	(23,976)
Equity attributable to non-controlling interests [23]	1	0	1
Total equity	**(23,975)**	**0**	**(23,975)**

The weighted average incremental borrowing rate applied to lease liabilities recognised on transition was 2.41%.

The operating lease commitments reported in the 2018 Annual Financial Statements, applying the previous leasing standard IAS 17, can be reconciled to the lease liabilities recognised on transition to IFRS 16 as shown in the table below. The RHI Group did not have any finance lease liabilities applying the previous standard IAS 17.

Reconciliation of lease liabilities recognised on transition on January 1, 2019 *in millions of USD*

Operating lease commitments (undiscounted) as reported at December 31, 2018 applying IAS 17	430
Recognition exemption for short-term leases and leases of low-value assets	(8)
Lease arrangements with commencement date after December 31, 2018	(34)
Discounting	(36)
Other	22
Lease liabilities recognised on transition on January 1, 2019 applying IFRS 16	**374**
Thereof	
- Other non-current liabilities [18]	307
- Other current liabilities [19]	67
Total	**374**

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

Transition approach and use of practical expedients. The RHI Group applied the cumulative catch-up method for the transition with no restatement of comparative information and with no net impact on retained earnings. Right-of-use assets were generally measured at an amount equal to the lease liability, adjusted for payments made before the lease commencement date, lease incentives and other items related to the lease agreement that were recognised on the balance sheet immediately before the date of initial application. Some practical expedients permitted by the standard were used, notably:

- To not reassess upon transition whether an existing contract contains a lease. The definition of a lease under IFRS 16 was applied only to contracts entered into or changed on or after January 1, 2019.
- The recognition exemptions for short-term leases and leases of low-value assets.
- For motor vehicles to not separate non-lease components and instead to account for the lease and non-lease components as a single lease component.
- To apply IAS 37 for onerous leases instead of performing an impairment review.

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 in carrying value of assets *in millions of USD*

	Land	Buildings and land improvements	Machinery and equipment	Total
Year ended December 31, 2019				
At January 1, 2019	-	-	-	-
Cumulative catch-up for previously reported operating leases on implementation of IFRS 16	15	267	44	326
At January 1, 2019 (revised)	**15**	**267**	**44**	**326**
Business combinations [6]	0	66	0	66
Asset Acquisitions	0	0	0	0
Additions	0	97	33	130
Disposals	0	(23)	(14)	(37)
Depreciation charge	(1)	(57)	(19)	(77)
Impairment reversal (charge)	0	12	0	12
Other	0	9	0	9
At December 31, 2019	**14**	**371**	**44**	**429**
Cost	15	426	60	501
Accumulated depreciation and impairment	(1)	(55)	(16)	(72)
Net book value	**14**	**371**	**44**	**429**

Right-of-use assets: movements in carrying value of assets *in millions of USD*

	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**

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

	2020	2019
Cost of sales	(1)	0
Research and development	0	0
General and administration	(2)	12
Total impairment reversal (charge)	**(3)**	**12**

In 2020 impairment charges for right-of-use assets were mainly related to global restructuring plans (see Note 7). In 2019 an income of USD 12 million was recognised within general and administration which related to an impairment reversal of right-of-use assets from a lease arrangement assessed to be an onerous contract in 2018.

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*

	2020	2019
At January 1	483	-
Cumulative catch-up for previously reported operating leases on implementation of IFRS 16	n/a	374
At January 1 (revised)	**483**	**374**
Increase from new lease arrangements	162	130
Repayment of lease liabilities	(100)	(79)
Business combinations	0	87
Asset acquisitions	1	0
Disposals	(35)	(37)
Interest expense on lease liabilities [4]	12	10
Other	20	(2)
At December 31	**543**	**483**
Non-current lease liabilities [18]	450	403
Current lease liabilities [19]	93	80
Total lease liabilities	**543**	**483**

The maturity analysis of lease liabilities is given in Note 29 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 2020 was USD 8 million (2019: USD 7 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 2020 was USD 1 million (2019: USD 1 million).

Expenses for variable lease payments not included in the measurement of lease liabilities was USD 11 million in 2020 (2019: USD 20 million). There was no income from subleasing right-of-use assets in 2020 and 2019. In 2020 and 2019 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.

Leases: cash flows *in millions of USD*

	2020	2019
Included in cash flows from operating activities	(20)	(28)
Included in cash flows from financing activities	(100)	(79)
Total lease payments	**(120)**	**(107)**

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 second half of 2022. The initial right-of-use asset and lease liability related to this agreement are estimated to be approximately USD 670 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*

	2020	2019
Selling profit or loss as the difference between sales and cost of sales	7	3
Finance income on the net investment in the lease	5	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 131 million (2019: USD 119 million).

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

	Gross investment in lease		Present value of minimum lease receipts	
	2020	2019	2020	2019
Within one year	55	57	48	50
Between one and two years	33	40	31	38
Between two and three years	26	15	24	14
Between three and four years	15	11	14	10
Between four and five years	10	5	9	4
More than five years	5	3	5	3
Total	**144**	**131**	**131**	**119**
Unearned finance income	(13)	(12)	(n/a)	n/a
Unguaranteed residual value	n/a	n/a	0	0
Net investment in lease	**131**	**119**	**131**	**119**

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 2020 was USD 97 million (2019: USD 91 million) and was included in sales. Of this USD 87 million (2019: USD 78 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*

			2020			2019
	Leased out	Own use	Total	Leased out	Own use	Total
At January 1						
Cost	746	4,779	5,525	687	4,568	5,255
Accumulated depreciation and impairment	(489)	(3,057)	(3,546)	(453)	(2,948)	(3,401)
Net book value	**257**	**1,722**	**1,979**	**234**	**1,620**	**1,854**
Year ended December 31						
At January 1	257	1,722	1,979	**234**	**1,620**	**1,854**
Business combinations	0	0	0	0	20	20
Asset acquisitions	0	1	1	0	0	0
Additions	120	175	295	127	101	228
Disposals	(14)	(10)	(24)	(13)	(17)	(30)
Transfers	1	121	122	0	354	354
Depreciation charge	(97)	(317)	(414)	(90)	(306)	(396)
Impairment charge	0	(2)	(2)	0	(2)	(2)
Other	0	(15)	(15)	(1)	(48)	(49)
At December 31	**267**	**1,675**	**1,942**	**257**	**1,722**	**1,979**
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**

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

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

	2020	2019
Within one year	14	12
Between one and two years	12	9
Between two and three years	10	8
Between three and four years	9	7
Between four and five years	8	5
More than five years	4	5
Total minimum receipts	**57**	**46**

28. 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.

Cash generated from operations *in millions of USD*

	2020	2019
Net income	7,106	6,538
Add back non-operating (income) expense		
- Financing costs [4]	447	799
- Financing costs – related parties [30]	1,140	1,087
- Other financial (income) expense [4]	9	(29)
- Other financial (income) expense – related parties [30]	(36)	(42)
- Income taxes [5]	1,222	1,369
Operating profit	**9,888**	**9,722**
Depreciation of property, plant and equipment [8]	698	658
Depreciation of right-of-use assets [27]	92	77
Amortisation of intangible assets [10]	1,634	1,379
Impairment of goodwill [9]	117	0
Impairment of intangible assets [10]	452	828
Impairment (reversal) of property, plant and equipment [8]	5	234
Impairment (reversal) of right-of-use assets [27]	3	(12)
Operating (income) expenses for defined benefit plans [25]	99	89
Operating expense for equity-settled equity compensation plans [26]	592	450
Net (income) expense for provisions [20]	(100)	892
Bad debt (reversal) expense	(1)	(3)
Inventory write-downs [11]	57	200
Net (gain) loss on disposal of products	(25)	0
Other adjustments	(17)	(21)
Cash generated from operations	**13,494**	**14,493**

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 [21, 30]	Interest payable [19, 30]	Principal portion of lease liabilities	Derivative financial instruments, net [29, 30]	Total
Year ended December 31, 2019					
At January 1, 2019	(42,293)	(619)	-	(78)	(42,990)
Implementation of IFRS 16 'Leases' [27]	0	-	(374)	-	(374)
At January 1, 2019 (revised)	**(42,293)**	**(619)**	**(374)**	**(78)**	**(43,364)**
Cash flows					
- Outflow (inflow)	82	1,458	69	9	1,618
Non-cash changes					
- Financing costs	(210)	(1,594)	(10)	0	(1,814)
- Business combinations	(1)	0	(87)	0	(88)
- Asset acquisitions	0	0	0	0	0
- Fair value and other	0	(12)	(81)	(71)	(164)
- Foreign exchange rates	27	0	0	0	27
At December 31, 2019	**(42,395)**	**(767)**	**(483)**	**(140)**	**(43,785)**
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)

Significant non-cash transactions

In 2020 there were no significant non-cash transactions (2019: none) except for the leasing transactions where the RHI Group is a lessee (see Note 27).

29. 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, 2020 the RHI Group has trade and other receivables of USD 4.4 billion (2019: USD 4.1 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*

	Total	Current	Overdue 1-3 months	Overdue 3-12 months	Overdue more than 1 year	Credit impaired
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, 2019						
Gross carrying amount	3,686	3,482	152	40	12	0
RHI Group's expected credit loss rate	1%	0.4%	4%	5%	42%	0%
Allowance for doubtful accounts	(28)	(15)	(6)	(2)	(5)	0

At December 31, 2020 the RHI Group's trade receivables balance are 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 71% of RHI's consolidated third party trade receivables (2019: USD 3.0 billion representing 75%). The remaining accounts receivable balance is 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, 2020 no collateral was considered to measure expected credit losses for trade receivables (2019: none). Of the overall balance of trade receivables in 2020, USD 258 million representing 6% was overdue (2019: USD 204 million representing 6%).

Accounts receivable – related parties. In addition to third party accounts receivable, at December 31, 2020 the RHI Group had USD 2.6 billion accounts receivable balances with related parties mainly in the European Union and Switzerland (2019: USD 2.3 billion). Accounts receivable balances with related parties of USD 1.0 billion at December 31, 2020 (2019: USD 0.7 billion) are 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, excluding receivables on cash pool balances, amounted to USD 1.6 billion at December 31, 2020 (2019: USD 1.6 billion). 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, 2020 USD 1.6 billion are not overdue for more than 90 days (2019: USD 1.6 billion). Accounts receivable from related parties balances that are more than 90 days overdue are 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
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
At December 31, 2019						
Gross carrying amount	1,591	1,465	99	13	14	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 – general approach

As disclosed in Note 30, amounts deposited with Roche Pharmholding B.V. in its function as corporate cash pool leader for numerous Roche affiliates of USD 1.0 billion at December 31, 2020 (2019: USD 0.7 billion) are immediately available and bear variable interest referenced to one month LIBOR. Impairment on amounts deposited with Roche Pharmholding B.V. 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 an ultimate parent of Roche Pharmholding B.V. 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 Pharmholding B.V. is low. On the basis of the information available, the RHI Group determined that any allowance for doubtful accounts for receivables from Roche Pharmholding B.V. is clearly immaterial and has therefore not recognised allowances for doubtful accounts in respect of amounts owed by Roche Pharmholding B.V.

Cash and marketable securities (excluding equity securities). At December 31, 2020 the RHI Group has cash and cash equivalents of USD 1 million (2019: USD 127 million) and marketable securities (excluding equity securities) of nil (2019: USD 129 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, and reflect the short maturities of the exposures. 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, 2020 the RHI Group did not hold any marketable securities (excluding equity securities). Marketable securities (excluding equity securities) of USD 129 million held at December 31, 2019 had a credit rating in the A- range.

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 2020 and 2019, respectively.

Contract terms. At December 31, 2020 there are no significant financial assets whose terms have been renegotiated (2019: none).

Impairment losses on financial assets excluding equity investments/securities. During 2020 there were no impairment losses (2019: 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, 2020 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 (2019: 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*

	Carrying value	Total	Less than 1 year	1–2 years	2–5 years	Over 5 years
At December 31, 2020						
Debt [21]						
– Bonds and notes	8,672	11,816	2,404	893	2,151	6,368
– Other debt	33,446	37,768	6,368	4,311	13,286	13,803
Contingent consideration [20]	69	73	10	0	63	0
Accounts payable [17]	1,181	1,181	1,181	–	–	–
Payables – related parties [30]	4,244	4,244	3,837	214	193	0
– of which derivative financial instruments	*43*	*43*	*43*	*0*	*0*	*0*
Other non-current liabilities [18]	617	654	–	255	77	322
– of which lease liabilities	*450*	*487*	–	*95*	*74*	*318*
Other current liabilities [19]	5,466	5,476	5,476	–	–	–
– of which lease liabilities	*93*	*103*	*103*	–	–	–
Total financial liabilities	**53,695**	**61,212**	**19,276**	**5,673**	**15,770**	**20,493**
At December 31, 2019						
Debt [21]						
– Bonds and notes	8,540	12,032	350	2,270	2,333	7,079
– Other debt	33,855	38,521	7,033	4,462	13,414	13,612
Contingent consideration [20]	95	107	10	0	97	0
Accounts payable [17]	1,105	1,105	1,105	–	–	–
Payables – related parties [30]	3,493	3,493	2,876	617	0	0
– of which derivative financial instruments	*140*	*140*	*17*	*123*	*0*	*0*
Other non-current liabilities [18]	575	641	0	252	79	310
– of which lease liabilities	*403*	*469*	–	*91*	*76*	*302*
Other current liabilities [19]	5,645	5,660	5,660	0	0	0
– of which lease liabilities	*80*	*95*	*95*	–	–	–
Total financial liabilities	**53,308**	**61,559**	**17,034**	**7,601**	**15,923**	**21,001**

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*

	2020	2019
VaR - Interest rate component	233	345
VaR - Foreign exchange component	0	0
VaR - Other price component	12	7
Diversification	(17)	(5)
VaR - Total market risk	**228**	**347**

The interest rate component decreased due the reduction in the underlying interest rates across major currencies. The foreign exchange component remained stable at a low level. The other price component increased mainly due to higher prices of equity investments and equity securities.

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*

	2020	2019	2018
Capital and reserves attributable to RHI shareholder [22]	(18,473)	(21,632)	(23,976)
Equity attributable to non-controlling interests [23]	1	2	1
Total equity	**(18,472)**	**(21,630)**	**(23,975)**
Total debt [21]	**42,118**	**42,395**	**42,293**
Capitalisation	**23,646**	**20,765**	**18,318**

The RHI Group's net equity was significantly impacted by the 2009 Genentech transaction (see Note 22). 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 – 2020 *in millions of USD*

	Financial instruments mandatorily at fair value through profit or loss	Financial instruments at fair value through OCI	Fair value – hedging instruments	Financial assets at amortised cost	Other financial liabilities	Total carrying value	Fair value
At December 31, 2020							
Other non-current assets [15]							
- Equity investments	8	116	-	-	-	124	124
- Other financial non-current assets	-	-	-	88	-	88	88
Accounts receivable [12]	-	-	-	3,969	-	3,969	3,969
Receivables - related parties [30]	-	-	31	2,644	-	2,675	2,675
- of which derivative financial instruments	-	-	*31*	-	-	*31*	*31*
Marketable securities [13]							
- Equity securities	2	-	-	-	-	2	2
- Debt securities	-	0	-	-	-	0	0
Cash and cash equivalents [14]	-	-	-	1	-	1	1
Other current assets [16]							
- Other financial current assets	-	-	-	400	-	400	400
Total financial assets	**10**	**116**	**31**	**7,102**	**-**	**7,259**	**7,259**
Debt [21]							
- 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 [20]	(69)	-	-	-	-	(69)	(69)
Accounts payable [17]	-	-	-	-	(1,181)	(1,181)	(1,181)
Payables – related parties [30]	-	-	(43)	-	(4,201)	(4,244)	(4,244)
- of which derivative financial instruments	-	-	*(43)*	-	-	*(43)*	*(43)*
Other non-current liabilities [18]	-	-	-	-	(617)	(617)	(617)
Other current liabilities [19]	-	-	-	-	(5,466)	(5,466)	(5,466)
Total financial liabilities	**(69)**	**-**	**(43)**	**-**	**(53,583)**	**(53,695)**	**(55,300)**

Carrying value and fair value of financial instruments – 2019 *in millions of USD*

	Financial instruments mandatorily at fair value through profit or loss	Financial instruments at fair value through OCI	Fair value – hedging instruments	Financial assets at amortised cost	Other financial liabilities	Total carrying value	Fair value
At December 31, 2019							
Other non-current assets [15]							
- Equity investments	11	0	–	–	–	11	11
- Other financial non-current assets	–	–	–	76	–	76	76
Accounts receivable [12]	–	–	–	3,658	–	3,658	3,658
Receivables - related parties [30]	–	–	0	2,379	–	2,379	2,379
- of which derivative financial instruments	–	–	*0*	–	–	*0*	*0*
Marketable securities [13]							
- Equity securities	2	–	–	–	–	2	2
- Debt securities	–	129	–	–	–	129	129
Cash and cash equivalents [14]	–	–	–	127	–	127	127
Other current assets [16]							
- Other financial current assets	–	–	–	368	–	368	368
Total financial assets	**13**	**129**	**0**	**6,608**	**–**	**6,750**	**6,750**
Debt [21]							
- Bonds and notes	–	–	–	–	(8,540)	(8,540)	(9,692)
- Amounts due to related parties [30]	–	–	–	–	(32,405)	(32,405)	(32,405)
- Other debt	–	–	–	–	(1,450)	(1,450)	(1,450)
Contingent consideration [20]	(95)	–	–	–	–	(95)	(95)
Accounts payable [17]	–	–	–	–	(1,105)	(1,105)	(1,105)
Payables – related parties [30]	–	–	(140)	–	(3,353)	(3,493)	(3,493)
- of which derivative financial instruments	–	–	*(140)*	–	–	*(140)*	*(140)*
Other non-current liabilities [18]	–	–	–	–	(575)	(575)	(575)
Other current liabilities [19]	–	–	–	–	(5,645)	(5,645)	(5,645)
Total financial liabilities	**(95)**	**–**	**(140)**	**–**	**(53,073)**	**(53,308)**	**(54,460)**

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

Fair value hierarchy

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

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

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

	Level 1	Level 2	Level 3	Total
At December 31, 2020				
Marketable securities [13]				
- 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 [30]	–	31	–	31
Equity investments at fair value through OCI [15]	116	0	–	116
Equity investments at fair value through profit or loss [15]	0	8	–	8
Financial assets recognised at fair value	**118**	**39**	–	**157**
Derivative financial instruments – related parties [30]	–	(43)	–	(43)
Contingent consideration [20]	–	–	(69)	(69)
Financial liabilities recognised at fair value	–	**(43)**	**(69)**	**(112)**

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

	Level 1	Level 2	Level 3	Total
At December 31, 2019				
Marketable securities [13]				
- Equity securities at fair value through profit or loss	2	–	–	2
- Debt securities at fair value through OCI	129	0	–	129
Derivative financial instruments – related parties [30]	–	0	–	0
Equity investments at fair value through OCI [15]	0	0	–	0
Equity investments at fair value through profit or loss [15]	0	11	–	11
Financial assets recognised at fair value	**131**	**11**	–	**142**
Derivative financial instruments – related parties [30]	–	(140)	–	(140)
Contingent consideration [20]	–	–	(95)	(95)
Financial liabilities recognised at fair value	–	**(140)**	**(95)**	**(235)**

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:

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

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 (2019: 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*

	2020	2019
At January 1	(95)	(289)
Arising from business combinations	0	0
Utilised for settlements [6]	0	75
Total gains and losses included in the income statement		
- Unused amounts reversed - recorded within general and administration	29	124
- Additional amount created - recorded within general and administration	0	0
- Discount unwind included in financing costs	(3)	(5)
At December 31	**(69)**	**(95)**

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 2.6% (2019: 3.2%). 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, 2020 the total potential payments under contingent consideration arrangements arising from business combinations could be up to USD 0.2 billion (2019: USD 0.2 billion) as follows:

Potential payments under contingent consideration arrangements *in millions of USD*

Acquisition	Year acquired	Operating segment	2020	2019
Genia	2014	Diagnostics	163	163
Others	Various	Diagnostics	10	10
At December 31			**173**	**173**

Derivative financial instruments

The RHI Group has entered into various currency swaps with related parties for certain non-US dollar debt instruments. Cash collateral agreements were entered into with the counterparties to the currency swaps to mitigate counterparty risk. At December 31, 2020 and December 31, 2019 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
	2020	2019	2018	2020	2019	2018
Foreign currency derivatives						
- Forward exchange contracts	31	0	0	(1)	(17)	(10)
- Cross-currency swaps	0	0	0	(42)	(123)	(68)
Total derivative financial instruments related parties	**31**	**0**	**0**	**(43)**	**(140)**	**(78)**

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 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, 2020 and December 31, 2019, respectively, none of the above potential sources of ineffectiveness, individually or collectively, resulted in material amounts of actual ineffectiveness being reported for any hedge accounting relationships.

The table below shows fair values and nominal amounts of derivative financial instruments, including a range of the maturity of the nominal amount of the hedging instruments, which are designated as hedging instruments in a cash flow hedge. At December 31, 2020 and 2019, respectively the RHI Group has the following cash flow hedge which are designated in a qualifying hedge relationship.

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

Fair values and nominal amounts of derivatives used for hedge accounting – *at December 31, 2019*

	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	123	2021
Total		**0**	**123**	

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 30). 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 has 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 are denominated in euro. At December 31, 2020 such instruments are recorded as a net fair value liability of USD 42 million (2019: USD 123 million). There was no ineffective portion.

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

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

	2020		2019	
At December 31	Assets	Liabilities	Assets	Liabilities
Risk hedged by cross-currency swaps: interest rate and foreign exchange rate fluctuations				
- Bonds and notes	-	1,045	-	951

Hedging reserve for continuing hedging relationships *in millions of USD*

	2020		2019	
	Total	Cross-currency swaps	Total	Cross-currency swaps
At January 1	20	20	48	48
- Gains (losses) taken to equity	78	78	(55)	(55)
- Transferred to income statement [a)]	(93)	(93)	20	20
- Income taxes	3	3	7	7
At December 31	**8**	**8**	**20**	**20**

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

In 2020 there are no hedging relationships for which hedge accounting is no longer applied (2019: none). The changes in the hedging reserve within equity are shown in Note 22.

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

Expected cash flows of qualifying cash flow hedges *in millions of USD*

	2020			2019		
	Total	Less than 1 year	More than 1 year	Total	Less than 1 year	More than 1 year
Cash inflows	1,114	1,114	0	1,075	62	1,013
Cash outflows	(1,164)	(1,164)	0	(1,239)	(76)	(1,163)
Total cash inflow (outflow)	**(50)**	**(50)**	**0**	**(164)**	**(14)**	**(150)**

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*

	2020			2019		
	Total	Less than 1 year	More than 1 year	Total	Less than 1 year	More than 1 year
Cash inflows	68	68	0	124	62	62
Cash outflows	(76)	(76)	0	(152)	(76)	(76)
Total cash inflow (outflow)	**(8)**	**(8)**	**0**	**(28)**	**(14)**	**(14)**

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.

30. 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 out-licensing agreements.

Related party transactions *in millions of USD*

	Year ended December 31,	
	2020	2019
Sales	2,707	2,101
Royalty income	4,059	4,028
Contract revenue	369	94
Purchases of pharmaceutical products and materials	(7,169)	(5,887)
Purchases of diagnostic instruments, reagents and consumables	(763)	(561)
Transfers of intangible assets from related parties	837	182
Transfers of intangible assets to related parties	(401)	(17)
Payments issued under marketing and distribution cost-sharing and collaboration agreements	(122)	(82)
Reimbursements received under marketing and distribution cost-sharing and collaboration agreements	74	35
Payments issued under research and development cost-sharing and collaboration agreements	(1,895)	(1,631)
Reimbursements received under research and development cost-sharing and collaboration agreements	920	653
Services rendered	165	133
Services received	(289)	(200)
Other income (expense)	(94)	10
Financing costs – related parties		
Interest expense	(1,098)	(1,037)
Guarantee fees	(42)	(50)
Total financing costs – related parties	**(1,140)**	**(1,087)**
Other financial income (expense) – related parties		
Net gains (losses) on foreign currency derivatives	26	(18)
Other financial income (expense)	10	60
Total other financial income (expense) – related parties	**36**	**42**

Related party balances *in millions of USD*

	2020	2019	2018
Other current assets [16]	82	56	0
Accounts receivable [12]	2,593	2,323	3,421
Of which			
- derivative financial assets [28, 29]	*31*	*0*	*0*
Total receivables – related parties [29]	**2,675**	**2,379**	**3,421**
Long-term debt	(28,155)	(27,875)	(26,155)
Short-term debt	(3,500)	(4,530)	(1,720)
Total debt – related parties [21, 29]	**(31,655)**	**(32,405)**	**(27,875)**
Other non-current liabilities	(407)	(494)	(281)
Other current liabilities	(1,818)	(1,510)	(790)
Accounts payable	(2,019)	(1,489)	(1,318)
Of which			
- derivative financial liabilities [28, 29]	*(43)*	*(140)*	*(78)*
- interest payables	*(386)*	*(620)*	*(433)*
Total payables – related parties [29]	**(4,244)**	**(3,493)**	**(2,389)**

Accounts receivable from related parties, include surplus funds deposited with Roche Pharmholding B.V. in its function as corporate cash pool leader for numerous Roche affiliates. Amounts deposited of USD 1.0 billion (2019: USD 0.7 billion) are immediately available and bear variable interest referenced to one month LIBOR of the respective currency. Where there is no LIBOR available for a currency, variable interest is based on another mutually agreed money market interest rate. LIBOR will be replaced with other reference rates during 2021. See Note 29 for further information on these receivables.

Derivative financial instruments with related parties, used for hedge accounting are included in accounts payable – related parties and at December 31, 2020 such instruments are recorded as a net fair value liability of USD 42 million (2019: USD 123 million).

Subsidiaries and associates

A listing of the major RHI Group subsidiaries is included in Note 31. 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 2020 and 2019.

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 'Roche Long-Term' and 'Roche Performance Share Plan'. The terms, vesting conditions and fair value of these awards are disclosed in Note 26.

Remuneration of members of the RHI Group Executive Committee *in thousands of USD*

	2020	2019
Salaries, including bonuses and expenses	7,086	9,785
Social security costs	123	177
Pensions and other post-employment benefits	570	634
Equity compensation plans	1,344	1,807
Other employee benefits	222	230
Total	**9,345**	**12,633**

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 25.

31. 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 interest	
			2020	2019
Foundation Medicine GmbH	Germany	Penzberg	98.9%	98.9%
Viewics India Private Limited	India	Pune	100%	100%
Spark Therapeutics Ireland Limited	Ireland	Dublin	100%	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%
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%	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%	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%
GeneWEAVE Biosciences, Inc.		Los Gatos	–	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.		South San Francisco	98.9%	–
Memory Pharmaceuticals Corp.		Little Falls	100%	100%
Promedior, Inc.		South San Francisco	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%	–
Roche Health Solutions Inc.		Indianapolis	–	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%
Viewics, Inc.		Santa Clara	100%	100%

32. 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 recoded 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 out-license 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 arrangements 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 arrangements 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 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 improvements	40 years
Buildings	10-50 years
Machinery and equipment	4-15 years
Diagnostic instruments	3-5 years
Office equipment	3-6 years
Motor vehicles	5-8 years

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

Leases

Where the RHI Group is the lessee – policy applicable from January 1, 2019. 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 lessee – policy applicable before January 1, 2019. The RHI Group classified leases that substantially transferred all of the risks and rewards of ownership as finance leases. Finance leases were capitalised as property, plant and equipment at the start of the lease at fair value, or the present value of the minimum lease payments, if lower. The rental obligation, net of finance charges, was reported within debt. Finance lease assets were depreciated over the shorter of the lease term and its useful life. The interest element of the lease payment is charged against income over the lease term based on the effective interest rate method. All other leases were classified as operating leases. Operating leases existed when substantially all of the risks and rewards of ownership were not transferred to the RHI Group. Payments made under operating leases were charged against income on a straight-line basis over the period of the lease.

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. 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 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. 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. The impairment testing methodology is further described in Note 9.

Inventories

Inventories are stated at the lower of cost and net realisable value. The cost of finished goods 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 Pharmholding B.V.

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 29: 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 Pharmholding B.V. 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 Pharmholding B.V. 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 Pharmholding B.V. 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 non-financial item at the date of recognition. For all other cash flow hedges, the cumulative changes in the fair value of the hedging instrument that have been recorded in other comprehensive income are included in 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 2020 the RHI Group has applied the amendments to IFRS 3 'Business Combinations', effective January 1, 2020. The nature and the effects of the changes from applying these amendments most relevant to the RHI Group's financial statements are given below.

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

'Definition of a Business' (Amendments to IFRS 3)

In October 2018 the International Accounting Standards Board issued amendments to IFRS 3 'Business Combinations' that have been endorsed by the EU in April 2020 and are mandatorily applicable in 2020. The amendments further clarify the definition of a business and add an optional 'concentration test' 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. The effect of the amendments is particularly applicable for many of the acquisitions carried out by the RHI Group, since the value in the acquired companies often largely consists of the rights to a single product or technology. The RHI Group applied these amendments prospectively and with no restatement of comparative period information.

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, 2021 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 2021.

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 2020 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 12 to 95) give a true and fair view of the consolidated financial position of the Group as at 31 December 2020, 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

Income tax - uncertain tax positions

Acquisition of Spark Therapeutics, Inc.

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period. These matters were addressed in the context of our audit of the consolidated financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Chargebacks, other rebates and sales returns in the US pharmaceuticals business

Key Audit Matter

The Group's pharmaceuticals business makes sales to various customers in the US that fall under certain commercial and government-mandated contracts, purchasing and reimbursement arrangements, of which the most significant are Medicaid and the 340B Drug Discount Program. The Group also provides a right of return to its US customers for certain products, with return periods that in some cases extend several years into the future. These arrangements result in deductions to gross amounts invoiced in arriving at revenue and create obligations for the Group to provide customers with credits, chargebacks or rebate payments. The estimated amounts are deducted from gross sales and recorded as accrued liabilities (rebates) or provisions for sales returns, or as a deduction from accounts receivable (chargebacks). These estimates are based on analyses of existing contractual or legislatively mandated obligations, recent trends and historical experience.

Management has determined accrued liabilities and deductions to accounts receivable for expected chargebacks and other rebates, predominantly Medicaid, of USD 1,515 million to be necessary at 31 December 2020. Additionally, provisions for sales returns mainly relating to products at or near loss of exclusivity of USD 472 million were recorded at 31 December 2020.

We focused on this area because the arrangements are complex and because establishing an appropriate year-end position requires significant judgement and estimation by management. The assumptions required for estimating provisions for sales returns are also made more complicated given the recent loss of exclusivity in the US for some of the Group's pharmaceutical products.

Our response

Our audit procedures included, amongst others, on a sample basis, obtaining management's calculations for accrued liabilities, provisions and accounts receivable deductions, testing the accuracy of the calculations and assessing the appropriateness of key inputs and assumptions used in the estimates. In performing our assessment, we referenced internal and external sources of information, including the terms of the applicable contracts, US government pricing information, historical rates of chargebacks and other rebates, historical rates of sales returns and consideration of current trends.

We also evaluated the accuracy of management's estimates by comparing rates used in historical estimates to the rates of actual rebate payments and chargebacks. We assessed changes in the accrual rates used within the estimates for 2020 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 85 (Significant accounting policies, note 32), page 18 (General accounting principles – Key accounting judgements, estimates and assumptions, note 1) and pages 23, 40, 42 and 43 (Financial disclosures, note 3 Revenue, note 12 Accounts receivable, note 19 Other current liabilities and note 20 Provisions and contingent liabilities).

Carrying value of product intangible assets

Key Audit Matter

The Group has significant product intangible assets (31 December 2020 – USD 9,733 million) acquired through business combinations, asset acquisitions or in-licensing arrangements. These comprise product intangibles in use (USD 5,837 million) being amortised and product intangibles not available for use (USD 3,896 million) not being amortised. An impairment assessment is carried out for all product intangibles when there is evidence that an asset may be impaired, with intangible assets that are not yet available for use also being tested for impairment annually.

Product intangibles in use (USD 5,837 million) predominantly relate to acquired products that have been launched, with the key risk being the ability to successfully commercialise the products concerned. Key estimates and assumptions include revenue growth, the timing and impact of loss of exclusivity, discount rates and the development and commercialisation of competing products. The drivers of revenue growth include persistence rate, treatment rate and market share.

Product intangibles not available for use (USD 3,896 million) mostly represent in-process research and development assets. 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, useful lives and the discount rates. 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 rates. We assessed the key inputs such as projected pricing and volumes, and the products' projected share of the therapeutic area or in vitro diagnostic market, by comparing relevant assumptions to industry forecasts, reviewing analyst commentaries and by retrospective assessment of the accuracy of previous projections. 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, for product intangibles not yet available for use, our audit included assessing 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 refer to the following:

Page 85 (Significant accounting policies, note 32), page 18 (General accounting principles – Key accounting judgements, estimates and assumptions, note 1) and pages 37 (Financial disclosures, note 10 Intangible assets).

Income tax - uncertain tax positions

Key Audit Matter

The Group operates across a wide range of different tax jurisdictions around the world and thus its tax treatments in tax filings are subject to challenge by local tax authorities in respect of cross-border transfer pricing arrangements for goods and services, financing and transaction-related tax matters in connection with the integration of investments, divestments and licensing contracts. Tax treatments involving uncertainty include agreements and transfer pricing arrangements between affiliates involved in the Group's global manufacturing supply chains.

Where it is not probable that the tax authority will accept a treatment, the tax liability recognised in the financial statements reflects management's best estimate of the outcome based on the facts known in the relevant jurisdiction. The Group has open tax and transfer pricing matters with various tax authorities where the range of possible outcomes is broad. At 31 December 2020, the Group has recognised income tax liabilities of USD 812 million which includes accruals for uncertain tax positions.

We focused on this area as there is uncertainty regarding the estimates of the amounts of tax receivable or payable, and these therefore require a significant level of expertise and judgement.

Our response

Our audit procedures included, amongst others, obtaining an understanding of uncertain tax positions through inquiry of employees of the tax department and management of affiliates. We inspected documentation in relation to tax exposure items including correspondence with tax authorities and reports issued by tax advisors to verify whether uncertain tax positions have been considered and provided for where necessary.

For significant items we challenged management's judgement regarding the eventual resolution of the uncertainties with the assistance of our local country tax specialists and re-performed the calculation of the estimated exposure. We inspected third-party transfer pricing studies and evaluated, where applicable, past experience of management's interactions with the tax authorities in the respective jurisdiction. Additionally, we used our own tax specialists' expertise to assess the appropriateness of the key assumptions made by management and to conclude on a best estimate of the outcome.

Our audit approach included additional audit procedures performed at Group level 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 85 (Significant accounting policies, note 32), page 18 (General accounting principles – Key accounting judgements, estimates and assumptions, note 1) and pages 26 (Financial disclosures, note 5 Income taxes).

Acquisition of Spark Therapeutics, Inc.

Key Audit Matter

The Group acquired Spark Therapeutics, Inc. ('Spark') on 17 December 2019 for a total consideration of USD 4,772 million. The consideration was primarily allocated to intangible assets (USD 2,468 million) and a residual of USD 2,348 million was recognised as goodwill.

Management was required to apply judgement in identifying and valuing the intangible assets and deferred tax assets in the purchase price allocation exercise and in the allocation of goodwill arising from the transaction to an appropriate cash-generating unit.

The key assumptions relating to the valuation of the intangible assets included probability of technical success, revenue forecasts considering the competitive environment, discount rate, cost of debt and tax rate.

The goodwill arising from the transaction was attributed to the Roche Pharmaceuticals cash-generating unit which reflects the benefits to the Group's research and development activities in the haemophilia treatment field as well as access to Spark's gene therapy expertise.

Our response

Our audit procedures in relation to the acquisition of Spark included, amongst others, an inspection of the legal agreements supporting the transaction. We also examined information contained within due diligence and valuation reports as well as internal management presentations to the Board of Directors.

We challenged the appropriateness of the methodology and assumptions used by management to value the identified intangible assets. With the support of our own valuation and tax specialists we evaluated the appropriateness of the discount rate, the cost of debt and the tax rate applied. Our life science expert assisted us in challenging key assumptions made by management in determining the revenue growth, probability of technical success and competitive environment, specifically as it relates to the two largest intangible assets identified.

We challenged the key assumptions based on our sector expertise and with reference to available industry forecasts and analysts' commentaries. We compared management's assumptions with external data where it was available. We performed sensitivity analysis over key assumptions to identify those that were more likely to lead to a material misstatement so we could focus our work and assess management's allowance for risk. Throughout our procedures we challenged management's external valuers.

We obtained an understanding of Spark's integrated gene therapy platform that comprises multiple elements including in-licensed and in-house developed technologies, expertise and know-how of Spark personnel, and processes in the areas of vector design, vector manufacturing and investigational new drug enabling studies and regulatory processes for gene therapy. We challenged the level of goodwill recognised and assessed the appropriateness of management's decision to allocate the goodwill to the Roche Pharmaceuticals cash-generating unit based on expected synergies and how those would be used within the Roche business. We have also assessed whether the Group's disclosures in relation to the acquisition meet the requirements of the relevant accounting standards.

For further information on acquisition of Spark Therapeutics, Inc. refer to the following:

Page 85 (Significant accounting policies, note 32), page 18 (General accounting principles – Key accounting judgements, estimates and assumptions, note 1) and pages 28 (Financial disclosures, Mergers and acquisitions, note 6).

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 skepticism 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 5, 2021