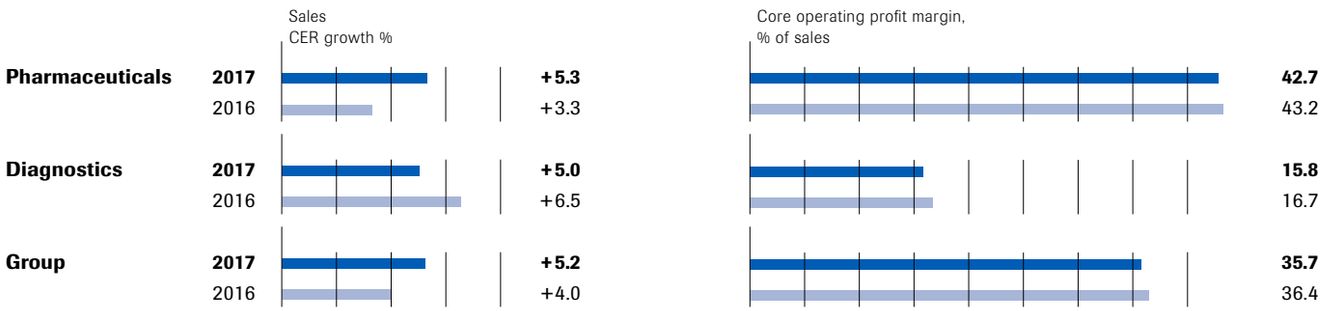
Finance Report 2017

Finance in Brief

Key results



	2017 (CHF m)	2016 (CHF m)	% change (CHF)	% change (CER)	% of sales 2017	% of sales 2016
IFRS results						
Sales	53,299	50,576	+5	+5		
Operating profit	13,003	14,069	–8	–8	24.4	27.8
Net income	8,825	9,733	–9	–9	16.6	19.2
Net income attributable to Roche shareholders	8,633	9,576	–10	–10	16.2	18.9
Diluted EPS (CHF)	10.04	11.13	–10	–10		
Dividend per share (CHF)	8.30[1)]	8.20	+1			
Core results						
Research and development	10,392	9,915	+5	+5	19.5	19.6
Core operating profit	19,012	18,420	+3	+3	35.7	36.4
Core EPS (CHF)	15.34	14.53	+6	+5		
Free cash flow						
Operating free cash flow	17,827	14,086	+27	+26	33.4	27.9
Free cash flow	13,420	9,130	+47	+47	25.2	18.1

	2017 (CHF m)	2016 (CHF m)	% change (CHF)	% change (CER)
Net debt	(6,963)	(13,248)	–47	–45
Capitalisation	47,967	48,757	–2	–1
– Debt	18,960	22,355	–15	–14
– Equity	29,007	26,402	+10	+10

1) Proposed by the Board of Directors.

CER (Constant Exchange Rates): The percentage changes at constant exchange rates are calculated using simulations by reconsolidating both the 2017 and 2016 results at constant exchange rates (the average rates for the year ended 31 December 2016). For the definition of CER see page 148.

Core results and Core EPS (earnings per share): These exclude non-core items such as global restructuring plans and amortisation and impairment of goodwill and intangible assets. This allows an assessment of both the actual results and the underlying performance of the business. A full income statement for the Group and the operating results of the divisions are shown on both an IFRS and core basis. The core concept is fully described on pages 141–144 and reconciliations between the IFRS and core results are given there.

Free cash flow is used to assess the Group's ability to generate the cash required to conduct and maintain its operations. It also indicates the Group's ability to generate cash to finance dividend payments, repay debt and to undertake merger and acquisition activities. The free cash flow concept is used in the internal management of the business. The free cash flow concept is fully described on pages 144–146 and reconciliations between the IFRS cash flow and free cash flow are given there.

Finance – 2017 in Brief

Roche in 2017

The **Roche Group** reported good overall results in 2017. Sales and core earnings per share both grew by 5% at constant exchange rates (CER). IFRS net income decreased by 9% due to significant impairments of goodwill and intangible assets.

Sales

Group sales increased by 5% (CER) to CHF 53.3 billion (5% growth in CHF terms).
Pharmaceuticals sales growth was 5% (CER) due to recently launched medicines Ocrevus, Tecentriq and Alecensa. In oncology there was continued growth in the HER2 franchise, while sales of Avastin decreased due to competitive pressure. Immunology sales increased, led by Xolair and Actemra/RoActemra. Sales of Tamiflu fell due to generic competition in the US. The entry of biosimilars had a negative impact on sales of MabThera/Rituxan in Europe.
Diagnostics sales showed growth of 5% (CER) with the immunodiagnostics business being the major contributor.

Operating results

Core operating profit increased by 3% (CER) to CHF 19.0 billion (3% increase in CHF terms).
Research and development expenditure grew by 5% (CER) to CHF 10.4 billion on a core basis, with the focus on the oncology and immunology therapeutic areas. Research and development costs represented 19.5% of Group sales.
IFRS operating results include non-core expenses (pre-tax) of CHF 6.0 billion. The major factors were CHF 3.5 billion for the impairment of goodwill and intangible assets, CHF 1.7 billion for the amortisation of intangible assets and CHF 1.2 billion from global restructuring plans, notably the Pharmaceuticals Division's strategic realignment of its manufacturing network.

Non-operating results

Financing costs (IFRS) decreased by CHF 0.3 billion to CHF 0.8 billion, driven by lower interest expenses and lower losses on bond redemptions.
Income tax expenses (IFRS) include transitional expenses of CHF 0.1 billion arising from changes to US tax rates. The core effective tax rate was 26.6%.

Net income

IFRS net income decreased by 9% at CER to CHF 8.8 billion (9% decrease in CHF terms).
Core earnings per share increased by 5% at CER (+6% in CHF terms).

Cash flows

Operating free cash flow increased significantly to CHF 17.8 billion. The underlying cash generation in both divisions, lower net working capital and lower capital expenditure led to an increase of operating free cash flow of 26% at CER (27% in CHF terms).
Free cash flow increased by 47% at CER (47% in CHF terms) to CHF 13.4 billion, driven by the higher operating free cash flow as well as lower pension contributions and lower interest paid.

Financial position

Net working capital decreased by 19% (CER), due to higher payables and accrued liabilities and lower inventories offset by an increase in receivables driven by increased sales.
Net debt decreased to CHF 7.0 billion, as the generated free cash flow more than offset the dividends paid. Net debt as a percentage of total assets was 9%.
Credit ratings strong: Moody's at A1 and Standard & Poor's at AA.

Shareholder return

Dividends. A proposal will be made to increase dividends by 1% to CHF 8.30 per share. This will represent the 31st consecutive year of dividend growth and will result in a pay-out ratio of 54.1%, subject to AGM approval.
Total Shareholder Return (TSR) was 9% representing the combined performance of share and non-voting equity security.

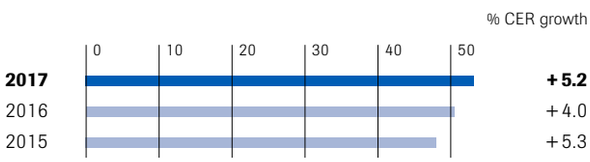
Roche Group

Roche Holding Ltd, Basel

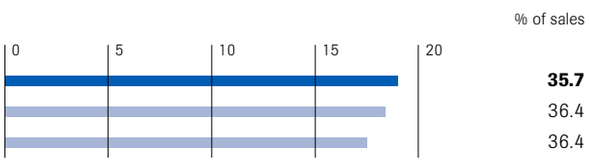
Financial Review

Roche Group results

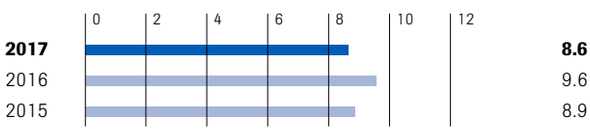
Sales in billions of CHF



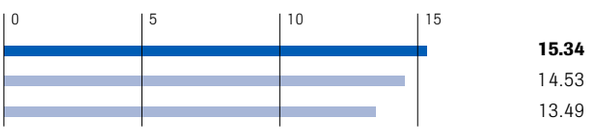
Core operating profit in billions of CHF



Net income attributable to Roche shareholders in billions of CHF



Core EPS in CHF



The Roche Group's results for 2017 showed sales growth of 5% at constant exchange rates (CER), with core operating profit up by 3% and Core EPS up by 5%. The sales growth was driven by the recently launched Pharmaceuticals products Ocrevus, Tecentriq and Alecensa, and by the immunodiagnostics business in the Diagnostics Division. The Group continued supporting the development and launch of new products, and reported growth in core operating profit despite the base effect of income from pension changes in the 2016 results. Operating free cash flow was CHF 17.8 billion, an increase of 26%, due to the cash generated from the business coupled with a decrease in net working capital and lower capital expenditure.

Sales in the Pharmaceuticals Division rose by 5% to CHF 41.2 billion with Ocrevus, Tecentriq and Alecensa contributing CHF 1.4 billion of new sales, representing 65% of the division's growth. In oncology, HER2 franchise sales increased by 7% to CHF 10.1 billion, led by Perjeta. MabThera/Rituxan sales were CHF 7.4 billion, a growth of 1% globally, despite sales in Europe being 11% lower following biosimilar entry. Sales of Avastin were CHF 6.7 billion, a decline of 2% due to competitive pressure. Sales in immunology grew to CHF 7.6 billion, with Xolair and Actemra/RoActemra increasing by 16% and 14% respectively. Sales of Tamiflu fell by 33% due to competition from generics in the US market. Diagnostics Division sales grew by 5%, with the major growth area being Centralised and Point of Care Solutions where sales increased by 7% led by its immunodiagnostics business.

IFRS operating profit was stable in the Pharmaceuticals Division and down by 74% in the Diagnostics Division, with both divisions impacted by impairment charges to goodwill and intangible assets. In Pharmaceuticals core operating profit increased by 4%, while in Diagnostics it remained stable, with the operating profit growth rates of both divisions being impacted by the base effect of income in 2016 from changes to the Group's Swiss pension plans. For Pharmaceuticals, marketing and distribution costs grew by 6% due to the launch of new products, notably Ocrevus and Tecentriq. There was continued investment in research and development, which totalled over CHF 10 billion for the Group. The major areas in Pharmaceuticals were oncology, with Tecentriq and the cancer immunotherapy portfolio being key drivers, immunology and neuroscience. Diagnostics activities increasingly focused on integrated core laboratory and digitalised data management projects and during 2017 the division acquired Viewics, a software company focused on laboratory business analytics.

Operating free cash flow was CHF 17.8 billion, an increase of CHF 3.7 billion or 26%. This was due to the high cash generation of the business, with sales growth exceeding the increases in cash expenses. Furthermore net working capital decreased overall in 2017 after an increase in 2016. The decrease was mainly due to higher payables partially offset by higher receivables. Capital expenditure decreased as well compared to 2016. The free cash flow was CHF 13.4 billion, an increase of CHF 4.3 billion, due to the higher operating free cash flow, lower pension contributions and lower interest payments.

Net income decreased by 9% at CER on an IFRS basis while it increased by 6% on a core basis. In addition to the items described above in the core results, the IFRS results include intangible asset impairment charges totalling CHF 3.5 billion, notably CHF 1.7 billion for the partial impairment of the Esbriet product intangible asset and impairments for the Diagnostics sequencing business of CHF 0.8 billion.

Global restructuring expenses were CHF 1.2 billion, in line with 2016 expenses. There was offsetting income of CHF 0.4 billion from the reversal of contingent consideration arrangements and CHF 0.2 billion of income from the release of legal provisions. Financing costs were lower due to decreasing interest expenses and lower losses on bond redemptions. The changes to US tax rates that will become effective from 1 January 2018 resulted in a transitional expense of CHF 0.1 billion in 2017 arising from the remeasurement of the Group's year-end deferred tax positions. Core EPS increased by 5% at CER, in line with the sales growth of 5%.

In 2017 compared to 2016, the Swiss franc was weaker against the euro and other European currencies and against several major currencies in the Asia-Pacific region. This was partially offset by the stronger Swiss franc against the Japanese yen. The Swiss franc remained stable against the US dollar. The net impact is negligible on the results expressed in Swiss francs compared to constant exchange rates for sales, core operating profit and Core EPS.

Income statement

	2017 (CHF m)	2016 (CHF m)	% change (CHF)	% change (CER)
IFRS results				
Sales	53,299	50,576	+5	+5
Royalties and other operating income	2,447	2,060	+19	+19
Cost of sales	(18,179)	(16,180)	+12	+12
Marketing and distribution	(9,847)	(9,140)	+8	+8
Research and development	(11,292)	(11,532)	–2	–2
General and administration	(3,425)	(1,715)	+100	+100
Operating profit	**13,003**	**14,069**	**–8**	**–8**
Financing costs	(839)	(1,099)	–24	–24
Other financial income (expense)	84	37	+127	+130
Profit before taxes	**12,248**	**13,007**	**–6**	**–6**
Income taxes	(3,423)	(3,274)	+5	+5
Net income	**8,825**	**9,733**	**–9**	**–9**
Attributable to				
– Roche shareholders	8,633	9,576	–10	–10
– Non-controlling interests	192	157	+22	+28
EPS – Basic (CHF)	10.12	11.24	–10	–10
EPS – Diluted (CHF)	10.04	11.13	–10	–10
Core results[1]				
Sales	53,299	50,576	+5	+5
Royalties and other operating income	2,447	2,060	+19	+19
Cost of sales	(14,366)	(13,469)	+7	+6
Marketing and distribution	(9,512)	(9,007)	+6	+6
Research and development	(10,392)	(9,915)	+5	+5
General and administration	(2,464)	(1,825)	+35	+36
Operating profit	**19,012**	**18,420**	**+3**	**+3**
Financing costs	(819)	(1,034)	–21	–21
Other financial income (expense)	75	37	+103	+105
Profit before taxes	**18,268**	**17,423**	**+5**	**+5**
Income taxes	(4,864)	(4,735)	+3	+3
Net income	**13,404**	**12,688**	**+6**	**+6**
Attributable to				
– Roche shareholders	13,192	12,507	+5	+5
– Non-controlling interests	212	181	+17	+22
Core EPS – Basic (CHF)	15.47	14.68	+5	+5
Core EPS – Diluted (CHF)	15.34	14.53	+6	+5

1) See pages 141–144 for the definition of core results and Core EPS.

Sales

In 2017 sales increased by 5% at CER (+5% in CHF; +5% in USD) to CHF 53.3 billion. Sales in the Pharmaceuticals Division rose 5% to CHF 41.2 billion, with growth in the oncology, immunology and neuroscience therapeutic areas. A key growth driver was the additional CHF 1.4 billion of sales for the recently launched products Ocrevus, Tecentriq and Alecensa. These three new products represented 65% of the division's growth and already account for 4% of the division's total sales. MabThera/Rituxan sales were CHF 7.4 billion, a growth of 1% driven by the US growth of 6%. The first biosimilar versions were launched in several EU markets in 2017 and contributed to a decrease of MabThera/Rituxan sales in Europe by 11%. Sales of Avastin were CHF 6.7 billion, a decline of 2% due to competitive pressure. The HER2 franchise continued to grow, with sales increasing by 7%. The main drivers of this growth were increased global demand for Perjeta and higher Herceptin sales, notably in the US. Immunology sales were CHF 7.6 billion, a growth of 9% coming from Actemra/RoActemra (+14%) and Xolair (+16%). Sales of Tamiflu fell by 33% due to competition from generics in the US market. The Diagnostics Division recorded sales of CHF 12.1 billion, an increase of 5%. The major growth area was Centralised and Point of Care Solutions, which represents 60% of the division's sales and which grew by 7%, led by the immunodiagnostics business.

Divisional operating results for 2017

	Pharmaceuticals (CHF m)	Diagnostics (CHF m)	Corporate (CHF m)	Group (CHF m)
Sales	41,220	12,079	–	53,299
Core operating profit	17,601	1,909	(498)	19,012
– margin, % of sales	42.7	15.8	–	35.7
Operating profit	13,242	304	(543)	13,003
– margin, % of sales	32.1	2.5	–	24.4
Operating free cash flow	16,817	1,553	(543)	17,827
– margin, % of sales	40.8	12.9	–	33.4

Divisional operating results – Development of results compared to 2016

	Pharmaceuticals	Diagnostics	Corporate	Group
Sales				
– % increase at CER	+5	+5	–	+5
Core operating profit				
– % increase at CER	+4	0	+22	+3
– margin: percentage point increase	–0.5	–0.8	–	–0.7
Operating profit				
– % increase at CER	0	–74	+27	–8
– margin: percentage point increase	–1.8	–8.0	–	–3.4
Operating free cash flow				
– % increase at CER	+21	+111	+10	+26
– margin: percentage point increase	+5.4	+6.3	–	+5.5

Core operating results

Core operating profit for the Group increased by 3% at CER. For the Pharmaceuticals Division core operating profit increased by 4%, while in the Diagnostics Division it was stable at CHF 1.9 billion. In 2016 there was income of CHF 426 million (pre-tax) from changes to the Group's pension plans in Switzerland. Excluding this item, core operating profit for the Group grew by 6% compared to 2016, with growth of 6% for the Pharmaceuticals Division and 4% for the Diagnostics Division.

Pharmaceuticals Division. The division's core operating profit increased by 4% at CER, which was below the 5% sales increase. There was increased expenditure on research and development, as well as launch expenses for Ocrevus and Tecentriq and other new products. Income from product disposals and other income was CHF 611 million in 2017 compared to CHF 325 million in 2016. The income from the pension plan changes in 2016 was CHF 310 million.

Diagnostics Division. Core operating profit was stable in CER, with an increase of 4% when the 2016 pension changes are excluded. Cost of sales increased due to an unfavourable product mix arising from higher instrument placements, notably in the Asia-Pacific region. Marketing and distribution increased, with higher spending in emerging markets, especially in China. General and administration increased due to the income from pension changes in 2016, with a base effect in 2016 of CHF 77 million.

Acquisitions

In 2017 the Group acquired a 100% controlling interest in mySugr GmbH, which has developed one of the leading mobile diabetes platforms in the market. The total cash consideration was CHF 70 million. In addition the Group acquired a 100% controlling interest in Viewics, Inc. for a consideration of CHF 80 million. Viewics is a software company focused on laboratory business analytics. On 22 December 2017 the Group announced an agreement to fully acquire Ignyta, Inc. with a total transaction value of USD 1.7 billion.

In 2017 there was CHF 353 million of non-core income from contingent consideration provisions, mainly due to the reversal of the remaining provision related to the Seragon acquisition and the partial reversal of the provisions related to the Dutalys and Trophos acquisitions. There were impairment charges of CHF 653 million related to these acquisitions, as noted below in the 'Impairment of goodwill and intangible assets' commentary. In 2016 there was CHF 408 million of non-core income from contingent consideration provisions and related intangible asset impairment charges of CHF 1,072 million. Non-core costs in 2016 also included expenses of CHF 167 million from the release of the Esbriet inventory fair value adjustment, which was fully unwound by mid-2016.

Further details are given in Notes 5 and 29 to the Annual Financial Statements.

Global restructuring plans

During 2017 the Group initiated various resourcing flexibility plans in its Pharmaceuticals Division to address various future challenges including biosimilar competition. The areas of the plans include biologics manufacturing, commercial operations and product development/ strategy. The Group also continued with the implementation of several major global restructuring plans initiated in prior years, notably the strategic realignment of the Pharmaceuticals Division's manufacturing network, and programmes to address long-term strategy in the Diagnostics Division.

Global restructuring plans: costs incurred for 2017 in millions of CHF

	Diagnostics[1]	Site consolidation[2]	Other plans[3]	Total
Global restructuring costs				
– Employee-related costs	152	13	258	423
– Site closure costs	48	245	2	295
– Divestment of products and businesses	–	166	–	166
– Other reorganisation expenses	92	160	72	324
Total global restructuring costs	**292**	**584**	**332**	**1,208**
Additional costs				
– Impairment of goodwill	–	–	–	–
– Impairment of intangible assets	–	–	–	–
– Legal and environmental cases	–	46	–	46
Total costs	**292**	**630**	**332**	**1,254**

1) Includes strategy plans in the Diagnostics Division and the Diabetes Care 'Autonomy and Speed' plan.
2) Includes the Pharmaceuticals Division's strategic realignment of its manufacturing network and resourcing flexibility in biologics manufacturing network.
3) Includes plans for resourcing flexibility in the Pharmaceuticals Division's commercial operations and global product development/strategy organisations.

Diagnostics Division. Strategy plans in the Diagnostics Division that were launched in 2016 incurred costs of CHF 212 million mainly for employee-related costs. Spending on other smaller plans within the division was CHF 80 million and included costs related to the 'Autonomy and Speed' initiative in Diabetes Care and certain IT projects.

Site consolidation. On 12 November 2015 the Pharmaceuticals Division announced a strategic realignment of its manufacturing network including exiting from the manufacturing sites at Clarecastle, Ireland; Leganés, Spain; Segrate, Italy; and Florence, US. Costs from this plan in 2017 were CHF 480 million, of which CHF 185 million were non-cash write-downs and accelerated depreciation of property, plant and equipment. Some employee-related provisions were reversed as the most likely scenario for the Segrate site was changed from closure to divestment. The divestments of the Florence, Segrate and Leganés sites have been completed and result in total costs of CHF 201 million. This includes CHF 100 million of accumulated currency translation losses on consolidation that were transferred to the income statement. The expected costs of the environmental remediation at the Clarecastle site were reassessed and resulted in an increase in provisions for environmental remediation. Other plans include the resourcing flexibility in biologics manufacturing network which resulted in headcount reductions in the US and also at the Kaiseraugst site in Switzerland and the exit from the small molecules manufacturing site at Toluca, Mexico.

Other global restructuring plans. The major item was CHF 247 million for resourcing flexibility in the Pharmaceuticals Division, including global field force reductions, notably in the US and Europe. The remaining CHF 85 million includes plans for the outsourcing of IT and other functions to shared service centres and external providers.

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

Impairment of goodwill and intangible assets

There were impairment charges of CHF 2,572 million in the Pharmaceuticals Division. The largest item was a charge of CHF 1,664 million for the partial impairment of the Esbriet product intangible acquired as part of the InterMune acquisition. An impairment charge was recorded in the first half of 2017 for this intangible asset following lower-than-expected sales of Esbriet in the first half of 2017 relative to the most recent long-term forecasts. The revised long-term forecasts prepared in the second half of 2017 show a further reduction in sales expectations which resulted in an additional impairment charge.

There was a charge of CHF 384 million for the full write-off of the goodwill relating to the Seragon acquisition due to the decision to stop development of the back-up compound acquired. In addition, there was an impairment of CHF 195 million relating to a compound acquired as part of the Trophos acquisition arising from the launch of a competitor product and an impairment of CHF 149 million due to the decision to stop development of one compound with an alliance partner following assessment of clinical and non-clinical data.

There was a related decrease in the contingent consideration provisions, mainly from the Seragon, Trophos and Dutalys acquisitions, which contributed to the income of CHF 353 million noted above in the 'Acquisitions' commentary.

The Diagnostics Division recorded impairment charges of CHF 946 million. The major part of this was in the sequencing business with impairment charges of CHF 674 million against goodwill and CHF 120 million against product intangible assets acquired as part of the Ariosa acquisition. These impairments are due to the latest long-term forecasts projecting a decrease in forecasted cash flows due to changed assumptions around market penetration, pricing and reimbursement and a revised time to market of the single molecule sequencing technology.

In addition, in the molecular diagnostics business, a partial impairment of CHF 152 million was also recorded against the product intangible assets acquired as part of the GeneWeave acquisition. This was also due to a decrease in forecasted cash flows, and follows a change in the timelines for future product development and updated market size assumptions.

Further details are given in Notes 8 and 9 to the Annual Financial Statements.

Pensions and other post-employment benefits

During 2016 operating income of CHF 426 million was recorded for past service costs from changes to the Group's pension plans in Switzerland that were announced in June 2016. This represented the one-time impact of the adjustment of the pension liability for the plan changes. Of this amount, CHF 310 million was recorded in the Pharmaceuticals Division, CHF 77 million in the Diagnostics Division and CHF 39 million in Corporate. The after-tax impact was CHF 341 million. This matter has a base effect on the growth rates shown in the 2017 results.

Further information on the Group's pensions and other post-employment benefits is given in Note 25 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, resulting in income of CHF 219 million in 2017. The expected costs of the environmental remediation at the Clarecastle site in Ireland were reassessed and resulted in an increase in provisions for environmental remediation. There were no other significant developments impacting the 2017 financial results. Further details are given in Note 19 to the Annual Financial Statements.

Treasury and taxation

Core financing costs were CHF 819 million, a decrease of 21%, due to lower interest expenses, lower interest costs of pension plans and lower losses on bond redemption. Core other financial income was CHF 75 million, including net income from equity securities of CHF 162 million, partly offset by net foreign exchange losses of CHF 115 million. Core tax expenses increased by 3% to CHF 4.9 billion and, since this was lower than the increase in profit before tax, the Group's effective core tax rate decreased to 26.6% compared to 27.2% in 2016. This was largely due to mix effects within the manufacturing supply chain.

On 22 December 2017 changes to US tax rates were enacted that will become effective from 1 January 2018. Among the changes is a decrease in the US Federal tax rate from 35% to 21%. These resulted in a transitional expense of CHF 116 million in 2017 arising from the remeasurement of the Group's deferred tax positions which has been treated as a non-core item. Had these new rates applied for the whole of 2017, and excluding any transition impacts, the Group's 2017 effective core tax rate in percentage terms would have been in the low twenties.

Net income and earnings per share

IFRS net income decreased by 9% in Swiss franc terms and at CER and Diluted EPS decreased by 10% in Swiss franc terms and at CER. Core net income increased by 6% and Core EPS increased by 5% at CER. The core basis excludes non-core items such as global restructuring costs, amortisation and impairment of goodwill and intangible assets, and alliance and business combination costs. Core EPS increased by 8% when excluding the base impact from the changes to the Group's Swiss pension plans in 2016.

Net income

	2017 (CHF m)	2016 (CHF m)	% change (CHF)	% change (CER)
IFRS net income	**8,825**	**9,733**	**–9**	**–9**
Reconciling items (net of tax)				
– Global restructuring plans	962	965	0	–1
– Intangible asset amortisation	1,178	912	+29	+29
– Goodwill and intangible asset impairment	2,651	1,146	+131	+132
– Alliances and business combinations	(347)	(222)	+56	+56
– Legal and environmental cases	(30)	57	–	–
– Pension plan settlements	18	(11)	–	–
– Transitional effect of changes in US tax rates	116	–	–	–
– Normalisation of equity compensation plan tax benefit	31	108	–71	–71
Core net income	**13,404**	**12,688**	**+6**	**+6**

Supplementary net income and EPS information is given on pages 141 to 144. This includes calculations of Core EPS and reconciles the core results to the Group's published IFRS results.

Financial position

Financial position

	2017 (CHF m)	2016 (CHF m)	% change (CHF)	% change (CER)
Pharmaceuticals				
Net working capital	3,420	4,582	–25	–24
Long-term net operating assets	23,539	26,174	–10	–8
Diagnostics				
Net working capital	2,594	2,796	–7	–10
Long-term net operating assets	12,849	13,392	–4	–4
Corporate				
Net working capital	(119)	(104)	+14	+15
Long-term net operating assets	(178)	(213)	–16	–21
Net operating assets	**42,105**	**46,627**	**–10**	**–9**
Net debt	(6,963)	(13,248)	–47	–45
Pensions	(6,620)	(6,940)	–5	–9
Income taxes	21	(390)	–	–
Other non-operating assets, net	464	353	+31	+30
Total net assets	**29,007**	**26,402**	**+10**	**+10**

Compared to the start of the year the Swiss franc depreciated significantly against the euro. This had a positive translation impact on balance sheet positions. The appreciation of the Swiss franc against the US dollar had a negative translation impact on net operating assets, which was mostly offset at Group level by the natural hedge from the Group's US dollar-denominated debt. The exchange rates used are given on page 28.

In the Pharmaceuticals Division net working capital decreased by 24% at CER. A major driver was higher liabilities for sales rebates and chargebacks. Another factor was inventories, where write-offs and a decrease in inventory levels for certain mature products were partly offset by higher inventories for launch products. This was offset by the increase in trade receivables due to higher sales and extended post-launch payment terms for Ocrevus in the US. Long-term net operating assets were lower due to the CHF 2.6 billion of impairments of intangible assets. In the Diagnostics Division the decrease in net working capital of 10% at CER was driven by an increase of other payables due to higher liabilities for pending rebates. Inventories decreased due to inventories optimisation initiatives and high demand. The decrease in trade payables followed the lower spending, while trade receivables increased due to higher sales. Long-term net operating assets decreased by 4% due to lower goodwill and intangible assets, partially offset by higher property, plant and equipment and lower provisions.

The decrease in net debt was due to free cash flow of CHF 13.4 billion, partly offset by dividend payments of CHF 7.1 billion. The net pension liability decreased by CHF 0.3 billion to CHF 6.6 billion due to improved asset performance. The net tax liabilities decreased mainly due to the deferred tax impact from the impairment of intangible assets, partially offset by the deferred tax impact from the changes in US tax rates announced in late 2017.

Free cash flow

Free cash flow

	2017 (CHF m)	2016 (CHF m)	% change (CHF)	% change (CER)
Pharmaceuticals	16,817	13,859	+21	+21
Diagnostics	1,553	720	+116	+111
Corporate	(543)	(493)	+10	+10
Operating free cash flow	**17,827**	**14,086**	**+27**	**+26**
Treasury activities	(498)	(1,218)	–59	–59
Taxes paid	(3,909)	(3,738)	+5	+5
Free cash flow	**13,420**	**9,130**	**+47**	**+47**

For the definition of free cash flow and a detailed breakdown see pages 144–146.

The Group's operating free cash flow for 2017 was CHF 17.8 billion, an increase of CHF 3.7 billion or 26% at CER. This reflects the higher cash generation of the business due to improved operating results with sales growth exceeding cash operating expenses. The development of the operating free cash flow was also positively impacted by net working capital, which decreased in 2017 after an increase in 2016. The decrease was mainly due to higher payables partially offset by higher receivables. There is also a base impact from inventories, where the build-up in 2016 was not repeated, and this contributed to the year-on-year growth in operating free cash flow. Capital expenditure was also lower than in the comparative period. The free cash flow in 2017 was CHF 13.4 billion, an increase of CHF 4.3 billion compared to 2016, due to the higher operating free cash flow, lower pension contributions and lower interest payments.

Pharmaceuticals Division operating results

Pharmaceuticals Division operating results

	2017 (CHF m)	2016 (CHF m)	% change (CHF)	% change (CER)
IFRS results				
Sales	41,220	39,103	+5	+5
Royalties and other operating income	2,284	1,944	+17	+18
Cost of sales	(11,978)	(10,393)	+15	+15
Marketing and distribution	(6,960)	(6,391)	+9	+9
Research and development	(9,704)	(10,156)	–4	–4
General and administration	(1,620)	(822)	+97	+98
Operating profit	**13,242**	**13,285**	**0**	**0**
– margin, % of sales	32.1	34.0	–1.9	–1.8
Core results[1]				
Sales	41,220	39,103	+5	+5
Royalties and other operating income	2,284	1,944	+17	+18
Cost of sales	(8,707)	(8,175)	+7	+6
Marketing and distribution	(6,720)	(6,362)	+6	+6
Research and development	(9,036)	(8,588)	+5	+6
General and administration	(1,440)	(1,013)	+42	+43
Core operating profit	**17,601**	**16,909**	**+4**	**+4**
– margin, % of sales	42.7	43.2	–0.5	–0.5
Financial position				
Net working capital	3,420	4,582	–25	–24
Long-term net operating assets	23,539	26,174	–10	–8
Net operating assets	**26,959**	**30,756**	**–12**	**–10**
Free cash flow[2]				
Operating free cash flow	16,817	13,859	+21	+21
– margin, % of sales	40.8	35.4	+5.4	+5.4

1) See pages 141–144 for the definition of core results.
2) See pages 144–146 for the definition of free cash flow.

Sales overview

Pharmaceuticals Division – Sales by therapeutic area

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
Oncology	25,743	24,841	+3	62.5	63.5
Immunology	7,611	6,970	+9	18.5	17.8
Neuroscience	1,542	657	+133	3.7	1.7
Ophthalmology	1,414	1,406	+1	3.4	3.6
Infectious diseases	1,357	1,773	–23	3.3	4.5
Other therapeutic areas	3,553	3,456	+3	8.6	8.9
Total sales	**41,220**	**39,103**	**+5**	**100**	**100**

Pharmaceuticals Division sales increased by 5% at CER to CHF 41.2 billion, with growth in the oncology, immunology and neuroscience therapeutic areas. The main products driving growth were the recently launched medicines Ocrevus, Tecentriq and Alecensa, which contributed CHF 1.4 billion at CER of new sales. These three new products represented 65% of the division's growth in 2017 and already account for 4% of the division's total sales. Other significant growth drivers were Perjeta, Xolair, Actemra/RoActemra and Herceptin. MabThera/Rituxan growth was led by immunology. The first biosimilar versions of MabThera/Rituxan were launched in several EU markets from mid-2017 and led to decreased sales in Europe. Avastin sales declined by 2% under competitive pressure and sales of Tamiflu fell by 33% due to generic competition in the US.

Ocrevus was launched in the US in April 2017 and has had a good uptake with sales of CHF 0.9 billion. The growth of Tecentriq sales was driven mainly by uptake in the US in metastatic urothelial carcinoma and in metastatic non-small cell lung cancer. Alecensa sales were 101% higher, led by the US and Japan. The HER2 franchise continued to grow, with sales increasing by 7%. A main driver of this growth was increased global demand for Perjeta in the neoadjuvant and metastatic settings. Herceptin sales were higher, notably in the US. Sales increases in immunology came from Xolair in the US and increasing use of Actemra/RoActemra in the US and in Europe.

Product sales

Pharmaceuticals Division – Sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
Oncology					
Herceptin	7,014	6,782	+3	17.0	17.3
Avastin	6,688	6,783	–2	16.2	17.3
MabThera/Rituxan[1)]	5,832	5,823	0	14.1	14.9
Perjeta	2,196	1,846	+19	5.3	4.7
Kadcyla	914	831	+10	2.2	2.1
Tarceva	843	1,024	–18	2.0	2.6
Tecentriq	487	157	+209	1.2	0.5
Xeloda	453	506	–10	1.1	1.3
Alecensa	362	182	+101	0.9	0.5
Gazyva/Gazyvaro	278	196	+41	0.7	0.5
Others	676	711	–5	1.8	1.8
Total Oncology	**25,743**	**24,841**	**+3**	**62.5**	**63.5**
Immunology					
Actemra/RoActemra	1,926	1,697	+14	4.7	4.3
Xolair	1,742	1,498	+16	4.2	3.8
MabThera/Rituxan[1)]	1,556	1,477	+5	3.8	3.8
Esbriet	869	768	+13	2.1	2.0
Pulmozyme	730	685	+6	1.8	1.8
CellCept	697	741	–6	1.7	1.9
Others	91	104	–11	0.2	0.2
Total Immunology	**7,611**	**6,970**	**+9**	**18.5**	**17.8**
Neuroscience					
Ocrevus	869	0	–	2.1	0
Madopar	334	290	+13	0.8	0.7
Others	339	367	–9	0.8	1.0
Total Neuroscience	**1,542**	**657**	**+133**	**3.7**	**1.7**
Ophthalmology					
Lucentis	1,414	1,406	+1	3.4	3.6
Total Ophthalmology	**1,414**	**1,406**	**+1**	**3.4**	**3.6**
Infectious diseases					
Tamiflu	535	794	–33	1.3	2.0
Rocephin	299	298	+1	0.7	0.8
Valcyte/Cymevene	235	306	–23	0.6	0.8
Pegasys	178	259	–32	0.4	0.7
Others	110	116	–6	0.3	0.2
Total Infectious diseases	**1,357**	**1,773**	**–23**	**3.3**	**4.5**
Other therapeutic areas					
Activase/TNKase	1,219	1,108	+10	3.0	2.8
Mircera	505	512	–1	1.2	1.3
NeoRecormon/Epogin	312	328	–5	0.8	0.8
Others	1,517	1,508	+2	3.6	4.0
Total other therapeutic areas	**3,553**	**3,456**	**+3**	**8.6**	**8.9**
Total sales	**41,220**	**39,103**	**+5**	**100**	**100**

1) Total MabThera/Rituxan sales of CHF 7,388 million (2016: CHF 7,300 million) split between oncology and immunology franchises.

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

MabThera/Rituxan regional sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
United States	4,133	3,911	+6	55.9	53.6
Europe	1,690	1,879	–11	22.9	25.7
Japan	293	291	+4	4.0	4.0
International	1,272	1,219	+4	17.2	16.7
Total sales	**7,388**	**7,300**	**+1**	**100**	**100**

Sales were 1% higher, driven by growth in the immunology segment. In the US, where MabThera/Rituxan is widely used across nearly all approved indications, sales increased by 6%. Sales were also higher in the International region, particularly in Brazil (+13%) due to higher government sales. Sales in Europe fell by 11%, driven by the launch of biosimilars in several EU markets during the year.

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

Herceptin regional sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
United States	2,697	2,509	+8	38.5	37.0
Europe	2,123	2,055	+2	30.3	30.3
Japan	295	309	–2	4.2	4.6
International	1,899	1,909	–1	27.0	28.1
Total sales	**7,014**	**6,782**	**+3**	**100**	**100**

Perjeta regional sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
United States	1,013	905	+12	46.1	49.0
Europe	767	628	+21	34.9	34.0
Japan	120	108	+15	5.5	5.9
International	296	205	+42	13.5	11.1
Total sales	**2,196**	**1,846**	**+19**	**100**	**100**

Kadcyla regional sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
United States	343	316	+9	37.5	38.0
Europe	347	331	+4	38.0	39.8
Japan	70	75	–3	7.7	9.0
International	154	109	+43	16.8	13.2
Total sales	**914**	**831**	**+10**	**100**	**100**

The HER2 franchise grew 7% to CHF 10.1 billion. Herceptin sales were higher by 3%, driven by 8% growth in the US mainly due to continued growth in early and metastatic breast cancer. There was also continued growth in Europe, driven by sales growth in the UK and Italy. Perjeta sales grew in all regions following increased demand in the neoadjuvant and metastatic settings. Kadcyla sales increased in the US and especially in the International region (+43%), with uptake in Turkey being a significant factor.

Avastin. For advanced colorectal, breast, lung, kidney, cervical and ovarian cancer, and relapsed glioblastoma (a type of brain tumour).

Avastin regional sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
United States	2,894	2,964	–2	43.3	43.7
Europe	1,776	1,841	–5	26.6	27.1
Japan	817	834	+1	12.2	12.3
International	1,201	1,144	+5	17.9	16.9
Total sales	**6,688**	**6,783**	**–2**	**100**	**100**

Overall sales were 2% below prior year. US sales decreased by 2% due to competition from immunotherapy medicines in lung cancer. In Europe sales declined by 5%, mainly driven by the delisting for metastatic breast cancer in France. Sales grew in the International region by 5%, in particular in China where sales increased due to broader market penetration in the lung and colorectal cancer setting. In Japan sales increased by 1% due to increasing volume growth partially offset by the negative impact from bi-annual government price cuts in 2016.

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

Actemra/RoActemra regional sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
United States	756	647	+17	39.3	38.1
Europe	631	558	+12	32.8	32.9
Japan	304	284	+10	15.8	16.7
International	235	208	+12	12.1	12.3
Total sales	**1,926**	**1,697**	**+14**	**100**	**100**

Sales increased by 14%, with growth in all regions, driven by continued uptake of the subcutaneous formulation.

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

Xolair regional sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
United States	1,742	1,498	+16	100	100
Total sales	**1,742**	**1,498**	**+16**	**100**	**100**

Sales grew by 16%, driven by market expansion outpacing competitive erosion in allergic asthma and continued growth in chronic idiopathic urticaria.

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

Ocrevus regional sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
United States	860	0	–	99.0	–
Europe	4	0	–	0.5	–
International	5	0	–	0.5	–
Total sales	**869**	**0**	**–**	**100**	**–**

Ocrevus was approved for sale by the US Food and Drug Administration (FDA) on 28 March 2017 and has shown a strong uptake since being launched. Ocrevus was approved in the European Union for RMS and PPMS in January 2018.

Lucentis. For wet age-related macular degeneration (wet AMD), macular oedema following retinal vein occlusion (RVO) and diabetic macular oedema (DME).

Lucentis regional sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
United States	1,414	1,406	+1	100	100
Total sales	**1,414**	**1,406**	**+1**	**100**	**100**

Sales increased by 1% in the US, mainly driven by the launch of prefilled syringes and growth in the new indications of Diabetic Retinopathy (DR) and Myopic Choroidal Neovascularisation (mCNV).

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

Activase/TNKase regional sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
United States	1,168	1,062	+10	95.8	95.8
International	51	46	+8	4.2	4.2
Total sales	**1,219**	**1,108**	**+10**	**100**	**100**

Sales were 10% higher, led by the US, and mainly due to an increase in penetration and eligibility at the treatment centres.

Tarceva. For advanced non-small cell lung (NSCLC) and pancreatic cancer.

Tarceva regional sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
United States	457	560	–18	54.2	54.7
Europe	140	174	–21	16.6	17.0
Japan	92	104	–9	10.9	10.2
International	154	186	–18	18.3	18.1
Total sales	**843**	**1,024**	**–18**	**100**	**100**

Sales were 18% lower, with declining sales mainly in the US, Europe and the International region due to increasing competitive pressure.

Pharmaceuticals Division – Sales by region

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
United States	20,496	18,594	+10	49.7	47.6
Europe	9,051	9,159	–2	22.0	23.4
Japan	3,713	3,711	+3	9.0	9.5
International	7,960	7,639	+4	19.3	19.5
– EEMEA [1)]	*1,524*	*1,621*	*–4*	*3.7*	*4.1*
– Latin America	*2,121*	*1,868*	*+11*	*5.1*	*4.8*
– Asia-Pacific	*3,397*	*3,291*	*+3*	*8.2*	*8.4*
– Other regions	*918*	*859*	*+5*	*2.3*	*2.2*
Total sales	**41,220**	**39,103**	**+5**	**100**	**100**

1) Eastern Europe, Middle East and Africa.

United States. Sales grew by 10% led by the uptake following the launches of Ocrevus and Tecentriq. Xolair sales (+16%) and Activase/TNKase sales (+10%) both increased due to patient uptake. The HER2 franchise and MabThera/Rituxan also continued to grow (+9% and +6% respectively). Tamiflu sales declined mainly due to competition from generics, and sales of Avastin fell by 2% due to competition from immunotherapy medicines. Lucentis sales were broadly stable, while sales of Tarceva were lower due to competitive pressure. Mandatory discounts to hospitals under the 340B Drug Discount Program increased, although at a lower rate than in 2016. This was mainly due to higher utilisation of oncology products.

Europe. Sales decreased by 2%, mainly due to lower MabThera/Rituxan sales driven by competition from biosimilar versions which have been launched in several EU markets in 2017. The HER2 franchise continued to grow (+6%) and was driven by Perjeta sales, especially in the UK and Spain. Actemra/RoActemra sales increased due to growing demand for the subcutaneous formulation. Avastin sales decreased primarily as a result from a delisting for metastatic breast cancer in France. Tamiflu sales in Europe were 74% lower due to the base effect of a governmental order in the UK in 2016.

Japan. Sales grew by 3%. Alecensa sales increased by 41% due to further proceeded market penetration, Tamiflu by 25% and Actemra/RoActemra by 10% and the osteoporosis medicine Edirol grew by 11%. This was partially offset by lower sales of various established products.

International. Sales increased by 4% driven by Latin America and Asia-Pacific. Sales in China mainly grew due to additional reimbursement as well as broader market penetration for Avastin. Sales in Brazil increased, led by Herceptin, which saw higher demand. In Russia, sales declined as a result from the competition by non-comparable biologics for Herceptin.

Pharmaceuticals Division – Sales for E7 leading emerging markets

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
Brazil	958	741	+18	2.3	1.9
China	1,799	1,721	+6	4.3	4.4
India	63	81	–24	0.2	0.2
Mexico	280	272	+5	0.7	0.7
Russia	98	149	–41	0.2	0.4
South Korea	319	325	–4	0.8	0.8
Turkey	286	297	+16	0.7	0.8
Total sales	**3,803**	**3,586**	**+6**	**9.2**	**9.2**

Competition from generic medicines and biosimilars

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

Patents and their expiry are, and always have been, an integral part of the Group's business model and future growth will remain driven by innovation. The latest information from clinical studies is included in the Annual Report on pages 40 to 53 and details of the Group's Product Development Portfolio are available for download at:
http://www.roche.com/research_and_development/who_we_are_how_we_work/pipeline.htm

2017 product sales affected by recent patent expiry

	2017 (CHF m)	2016 (CHF m)	% change (CER)	Comment
Tamiflu	535	794	–33	Patent expiry in US and other major markets in 2016
Pegasys	178	259	–32	US patent expiry in 2018, other major markets from 2017
Valcyte/Cymevene	235	306	–23	US patent expiry in 2015, other major markets from 2017

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

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

The 'composition of matter' patents for MabThera/Rituxan and Herceptin in the EU have expired. The first biosimilar versions of MabThera/Rituxan were launched in several EU markets from mid-2017 and these were the major driver in the sales decline in Europe in 2017.

2017 product sales affected by biosimilar launches

	2017 (CHF m)	2016 (CHF m)	% change (CER)	Comment
MabThera/Rituxan – Europe	1,690	1,879	–11	First biosimilar launches from mid-2017

Based on publicly available information from competitor companies, the Group currently anticipates the following potential developments in 2018:

- In the US, there are still many uncertainties surrounding when specific biosimilar versions of the Group's biologic medicines will be approved by the Food and Drug Administration. The first biosimilar versions of MabThera/Rituxan could come to market in the US around mid- to end-2018.
- In Europe, the first biosimilar versions of Herceptin could come to market during the first half of 2018.
- In Japan, the first biosimilar version of MabThera/Rituxan was approved and listed in late 2017. The first biosimilar versions of Herceptin could also come to market in Japan during 2018.

Sales in 2017 for MabThera/Rituxan, Herceptin and Avastin are disclosed above in the previous sections, including regional breakdowns.

Operating results

Pharmaceuticals Division – Royalties and other operating income

	2017 (CHF m)	2016 (CHF m)	% change (CER)
Royalty income	1,551	1,521	+2
Income from out-licensing agreements	122	98	+24
Income from disposal of products and other	611	325	+89
Total – IFRS and Core basis	**2,284**	**1,944**	**+18**

The increase of 18% at CER was mainly due to higher income from product disposals, which in 2017 included the sale of the worldwide rights for Bonviva and Bondronat (both excluding US and Japan), Dilatrend and Kytril (excluding Japan). Royalty income increased by 2% mainly due to a net increase in sales across the royalty portfolio, partly offset by the expiration of the royalty bearing Eylea patents. Income from out-licensing agreements increased by 24% due to the out-licensing of lebrikizumab rights.

Pharmaceuticals Division – Cost of sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)
Manufacturing cost of goods sold and period costs	(5,562)	(5,211)	+5
Royalty expenses	(852)	(811)	+5
Collaboration and profit-sharing agreements	(2,271)	(2,126)	+7
Impairment of property, plant and equipment	(22)	(27)	–15
Cost of sales – Core basis	**(8,707)**	**(8,175)**	**+6**
Global restructuring plans	(377)	(737)	–49
Amortisation of intangible assets	(1,230)	(1,314)	–6
Impairment of intangible assets	(1,664)	0	–
Business combinations – inventory fair value adjustment	0	(167)	–
Total – IFRS basis	**(11,978)**	**(10,393)**	**+15**

Core costs increased by 6% at CER and, as a percentage of sales, cost of sales increased by 0.2 percentage points to 21.1%. Manufacturing cost of sales grew by 5%, in line with the sales growth. Increased costs from new manufacturing facilities being brought online in recent years were partly offset by lower inventory write-offs. Royalty expenses were 5% higher due to Ocrevus sales in 2017. Non-core costs include the amortisation of intangible assets, mainly related to the Esbriet product intangibles acquired in the InterMune acquisition of 2014. The 2017 results additionally include CHF 1,664 million of impairment of these Esbriet intangibles, due to the lower-than-expected sales of Esbriet in 2017 and a reduction in sales expectations in the latest long-term forecasts. The 2016 results included the final fair value unwind adjustment of CHF 167 million for the acquired Esbriet inventories.

Pharmaceuticals Division – Marketing and distribution

	2017 (CHF m)	2016 (CHF m)	% change (CER)
Marketing and distribution – Core basis	**(6,720)**	**(6,362)**	**+6**
Global restructuring plans	(234)	(26)	Over +500
Amortisation of intangible assets	(6)	(3)	+88
Total – IFRS basis	**(6,960)**	**(6,391)**	**+9**

Core costs increased by 6% at CER, and as a percentage of sales, they remained stable at 16.3%. Costs were incurred to ensure increased patient access and for the launches of Ocrevus, Tecentriq, Hemlibra and other products. Restructuring costs relate to resourcing flexibility initiatives in sales affiliates.

Pharmaceuticals Division – Research and development

	2017 (CHF m)	2016 (CHF m)	% change (CER)
Research and development – Core basis	**(9,036)**	**(8,588)**	**+6**
Global restructuring plans	(21)	(90)	–78
Amortisation of intangible assets	(123)	(135)	–8
Impairment of intangible assets	(524)	(1,343)	–61
Total – IFRS basis	**(9,704)**	**(10,156)**	**–4**

Core costs increased by 6% at CER and, as a percentage of sales, decreased by 0.1 percentage points to 21.9%. The oncology franchise remained the primary area of research and development, with Tecentriq and the cancer immunotherapy portfolio being key drivers. Neuroscience and immunology were also significant areas of spending, in both early-stage research and late-stage development. In addition, the Pharmaceuticals Division in-licensed pipeline compounds and technologies with a total value of CHF 736 million (2016: CHF 1,033 million), which are capitalised as intangible assets. The impairment charges of CHF 524 million include an impairment of CHF 195 million for a compound acquired as part of the Trophos acquisition arising from the launch of a competitor product and an impairment of CHF 149 million due to the decision to stop development of one compound with an alliance partner following assessment of clinical and non-clinical data. Impairments totalling CHF 121 million were recorded following the write-off of intangible assets acquired in the Dutalys and Santaris acquisitions.

Pharmaceuticals Division – General and administration

	2017 (CHF m)	2016 (CHF m)	% change (CER)
Administration	(1,234)	(1,142)	+8
Pensions – past service costs	31	311	–90
Gains (losses) on disposal of property, plant and equipment	17	(2)	–
Business taxes and capital taxes	(293)	(281)	+5
Other general items	39	101	–65
General and administration – Core basis	**(1,440)**	**(1,013)**	**+43**
Global restructuring plans	(245)	(82)	+196
Impairment of goodwill and intangible assets	(384)	(95)	+307
Alliances and business combinations	324	376	–14
Legal and environmental cases	143	(18)	–
Pensions – settlement gains (losses)	(18)	10	–
Total – IFRS basis	**(1,620)**	**(822)**	**+98**

Core costs increased by 43% at CER and, as a percentage of sales, increased to 3.5% from 2.6% due to income from pension changes in 2016 of CHF 310 million. Excluding this, core costs increased by 10% mainly due to higher legal service costs. There were also higher personnel costs across the division. Impairments consist of the write-off of CHF 384 million of goodwill due to the decision to stop development of the back-up compound acquired as part of the Seragon acquisition. The alliance and business combination income includes the reversal of the contingent consideration provisions for the Seragon, Trophos and Dutalys acquisitions. Global restructuring costs primarily relate to the divestment of the Florence, Segrate and Leganés sites.

Roche Pharmaceuticals and Chugai subdivisional operating results

Pharmaceuticals subdivisional operating results in millions of CHF

	Roche Pharmaceuticals		Chugai		Pharmaceuticals Division	
	2017	2016	2017	2016	2017	2016
Sales						
– External customers	37,507	35,392	3,713	3,711	41,220	39,103
– Within division	1,222	1,363	670	568	1,892	1,931
Core operating profit	16,729	16,065	881	717	17,601	16,909
– margin, % of sales to external customers	44.6	45.4	23.7	19.3	42.7	43.2
Operating profit	12,395	12,476	856	682	13,242	13,285
– margin, % of sales to external customers	33.0	35.3	23.1	18.4	32.1	34.0
Operating free cash flow	16,056	13,592	761	267	16,817	13,859
– margin, % of sales	42.8	38.4	20.5	7.2	40.8	35.4

Pharmaceuticals Division total core operating profit and operating profit both include the elimination of CHF minus 9 million of unrealised intercompany gains between Roche Pharmaceuticals and Chugai (2016: CHF plus 127 million).

The decrease in the exchange rate of the Japanese yen has a negative impact of 4% on the Chugai results when expressed in Swiss francs. Sales by Chugai to third parties increased by 3% in Japanese yen, while sales within the division increased by 22% in Japanese yen. Chugai core operating profit increased by 27% due to higher sales and milestone income. This was partially offset by increased research and development costs and higher general and administration costs. Operating free cash flow at Chugai increased by CHF 494 million due to a decrease of inventories and higher operating profit.

Financial position

Pharmaceuticals Division – Net operating assets

	2017 (CHF m)	2016 (CHF m)	% change (CHF)	% change (CER)	Movement: Transactions (CHF m)	Movement: CTA (CHF m)
Trade receivables	6,569	5,851	+12	+13	748	(30)
Inventories	5,126	5,634	–9	–8	(476)	(32)
Trade payables	(1,765)	(1,645)	+7	+8	(132)	12
Net trade working capital	**9,930**	**9,840**	**+1**	**+2**	**140**	**(50)**
Other receivables/(payables)	(6,510)	(5,258)	+24	+24	(1,261)	9
Net working capital	**3,420**	**4,582**	**–25**	**–24**	**(1,121)**	**(41)**
Property, plant and equipment	14,358	13,944	+3	+4	551	(137)
Goodwill and intangible assets	11,196	14,869	–25	–22	(3,194)	(479)
Provisions	(2,449)	(2,751)	–11	–11	304	(2)
Other long-term assets, net	434	112	+288	+301	327	(5)
Long-term net operating assets	**23,539**	**26,174**	**–10**	**–8**	**(2,012)**	**(623)**
Net operating assets	**26,959**	**30,756**	**–12**	**–10**	**(3,133)**	**(664)**

The absolute amount of the movement between the 2017 and 2016 consolidated balances reported in Swiss francs is split between actual 2017 transactions (translated at average rates for 2016) and the currency translation adjustment (CTA) that arises on consolidation. The 2017 transactions include non-cash movements and therefore the movements in this table are not the same as the amounts shown in the operating free cash flow (which only includes the cash movements). A full consolidated balance sheet is given on page 43 of the Annual Financial Statements, and a reconciliation between that balance sheet and the information given above is on page 147.

Currency translation effects on balance sheet amounts. Compared to the start of the year the Swiss franc appreciated against the US dollar, resulting in a negative translation impact on net operating assets. This is partially offset by the positive translation impact from the euro against which the Swiss franc depreciated. The exchange rates used are given on page 28.

Net working capital. Net working capital decreased by 24%, due to lower inventories and a higher net liability for other receivables/payables. Inventories decreased due to inventory write-offs and lower inventory levels for certain mature products, partly offset by higher inventories for launch products. The net liability for other receivables/payables increased due to higher accruals for sales rebates and chargebacks and for payroll. Other accrued liabilities in 2017 also included CHF 261 million for the Genentech property purchase option exercise obligation, which is due in July 2018. Partially offsetting these effects, trade receivables increased due to higher sales and also due to extended payment terms for Ocrevus in the US.

Long-term net operating assets. Overall long-term net operating assets decreased by 8%. Goodwill and intangible assets decreased due to the significant impairments recorded in 2017. Capital expenditure included manufacturing investments in the US and Germany and by Chugai in Japan, and also site development at the Basel and Kaiseraugst sites in Switzerland and at the South San Francisco campus. Provisions decreased following the reversal of contingent consideration and legal provisions and the utilisation of restructuring provisions. Other long-term net assets increased due to the reclassification from long-term to short-term of the CHF 261 million of liabilities for the Genentech property purchase option exercise obligation due in July 2018.

Free cash flow

Pharmaceuticals Division – Operating free cash flow

	2017 (CHF m)	2016 (CHF m)	% change (CHF)	% change (CER)
Operating profit	**13,242**	**13,285**	**0**	**0**
– Depreciation, amortisation and impairment	5,280	4,358	+21	+21
– Provisions	(303)	(589)	–49	–48
– Equity compensation plans	388	371	+5	+5
– Other	625	519	+20	+22
Operating profit cash adjustments	**5,990**	**4,659**	**+29**	**+29**
Operating profit, net of operating cash adjustments	**19,232**	**17,944**	**+7**	**+7**
(Increase) decrease in net working capital	297	(586)	–	–
Investments in property, plant and equipment	(2,061)	(2,510)	–18	–18
Investments in intangible assets	(651)	(989)	–34	–34
Operating free cash flow	**16,817**	**13,859**	**+21**	**+21**
– as % of sales	40.8	35.4	+5.4	+5.4

See pages 144–146 for the definition of free cash flow and a detailed breakdown.

The Pharmaceuticals Division's operating free cash flow increased by 21% to CHF 16.8 billion. The main contribution came from operating profit, net of operating cash adjustments, with an increase of 7% at CER. This was higher than the increase in core operating profit of 4% due to the base effect of the income from pension changes in 2016. Net working capital absorbed less cash than at the start of the year, mainly due to higher payables, partially offset by higher receivables. Most of the reduction in balance sheet inventories during 2017 came from non-cash effective write-downs. However, the build-up of inventories that occurred in 2016 was not repeated and this contributed to the year-on-year growth in operating free cash flow. Capital expenditure was CHF 2.1 billion, with the major items as described above in the 'Financial position' section. Capital expenditure and investments in intangible assets were lower than in 2016, which contributed to the year-on-year growth in operating free cash flow.

Diagnostics Division operating results

Diagnostics Division operating results

	2017 (CHF m)	2016 (CHF m)	% change (CHF)	% change (CER)
IFRS results				
Sales	12,079	11,473	+5	+5
Royalties and other operating income	163	116	+41	+40
Cost of sales	(6,201)	(5,787)	+7	+7
Marketing and distribution	(2,887)	(2,749)	+5	+5
Research and development	(1,588)	(1,376)	+15	+15
General and administration	(1,262)	(464)	+172	+172
Operating profit	**304**	**1,213**	**–75**	**–74**
– margin, % of sales	2.5	10.6	–8.1	–8.0
Core results[1]				
Sales	12,079	11,473	+5	+5
Royalties and other operating income	163	116	+41	+40
Cost of sales	(5,659)	(5,294)	+7	+7
Marketing and distribution	(2,792)	(2,645)	+6	+5
Research and development	(1,356)	(1,327)	+2	+2
General and administration	(526)	(402)	+31	+31
Core operating profit	**1,909**	**1,921**	**–1**	**0**
– margin, % of sales	15.8	16.7	–0.9	–0.8
Financial position				
Net working capital	2,594	2,796	–7	–10
Long-term net operating assets	12,849	13,392	–4	–4
Net operating assets	**15,443**	**16,188**	**–5**	**–5**
Free cash flow[2]				
Operating free cash flow	1,553	720	+116	+111
– margin, % of sales	12.9	6.3	+6.6	+6.3

1) See pages 141–144 for the definition of core results.
2) See pages 144–146 for the definition of free cash flow.

Sales

The Diagnostics Division continued to increase sales with growth of 5% at CER to CHF 12.1 billion. Centralised and Point of Care Solutions, with 7% sales growth, was the main contributor, led by its immunodiagnostics business. Molecular Diagnostics sales increased by 4%, mainly driven by biochemical reagents, molecular diagnostics instruments and the human papillomavirus (HPV) screening. Diabetes Care sales decreased by 4% due to continued challenging market conditions in the US. The growth in Tissue Diagnostics was driven by the advanced staining product portfolio.

Diagnostics Division – Sales by business area

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
Centralised and Point of Care Solutions	7,179	6,698	+7	59.4	58.3
Diabetes Care	1,965	2,016	–4	16.3	17.6
Molecular Diagnostics	1,920	1,845	+4	15.9	16.1
Tissue Diagnostics	1,015	914	+11	8.4	8.0
Total sales	**12,079**	**11,473**	**+5**	**100**	**100**

Centralised and Point of Care Solutions. With an increase in sales of 7%, this business area was the major contributor to the divisional sales performance. Growth was primarily driven by the immunodiagnostics business (+13%), which represented 32% of divisional sales. Sales growth was also supported by the clinical chemistry business (+3%). Regionally, sales grew in Asia-Pacific (+17%) due to growth in China. The 3% sales growth reported in the Europe, Middle East and Africa ('EMEA') region was mainly due to the immunodiagnostics business (+7%).

Centralised and Point of Care Solutions regional sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
Europe, Middle East and Africa (EMEA)	2,577	2,488	+3	35.9	37.1
North America	1,465	1,444	+1	20.4	21.6
Rest of the World	3,137	2,766	+14	43.7	41.3
Total sales	**7,179**	**6,698**	**+7**	**100**	**100**

Diabetes Care. Sales decreased by 4% due to the continuation of challenging market conditions in the US, leading to a decline in North America sales of 23%. The decrease of 3% in EMEA was due to competitive pressure and increasing reimbursement of competitor systems for continuous glucose monitoring, notably in Germany. Sales growth in the Rest of the World was driven by new business in Latin America (Argentina and Brazil) and Asia-Pacific (China and India).

Diabetes Care regional sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
Europe, Middle East and Africa (EMEA)	1,236	1,258	–3	62.9	62.4
North America	221	285	–23	11.2	14.1
Rest of the World	508	473	+6	25.9	23.5
Total sales	**1,965**	**2,016**	**–4**	**100**	**100**

Molecular Diagnostics. Overall sales rose by 4% with growth in the underlying molecular business also being 4% and sales in the sequencing business reporting a decrease, mainly in the US market. The growth in the molecular business sales came mainly from biochemical reagents, molecular diagnostics instruments and the human papillomavirus (HPV) screening. Regional growth was led by Asia-Pacific (+10%), notably China, and EMEA (+4%).

Molecular Diagnostics regional sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
Europe, Middle East and Africa (EMEA)	708	668	+4	36.9	36.2
North America	726	725	0	37.8	39.3
Rest of the World	486	452	+8	25.3	24.5
Total sales	**1,920**	**1,845**	**+4**	**100**	**100**

Tissue Diagnostics. Sales rose by 11%, driven by 11% growth in the advanced staining portfolio, 13% growth in companion diagnostics and 12% growth in the primary staining business. Regionally, sales in Asia-Pacific grew by 20%, with China as the main growth factor.

Tissue Diagnostics regional sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
Europe, Middle East and Africa (EMEA)	252	223	+13	24.8	24.4
North America	599	553	+8	59.0	60.5
Rest of the World	164	138	+20	16.2	15.1
Total sales	**1,015**	**914**	**+11**	**100**	**100**

Diagnostics Division – Sales by region

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
Europe, Middle East and Africa (EMEA)	4,773	4,637	+2	39.5	40.4
North America	3,011	3,007	0	24.9	26.2
Asia-Pacific	2,939	2,559	+15	24.4	22.3
Latin America	884	792	+10	7.3	6.9
Japan	472	478	+2	3.9	4.2
Total sales	**12,079**	**11,473**	**+5**	**100**	**100**

In the EMEA region, the division's largest market, the main driver of the sales increase was Centralised and Point of Care Solutions. In North America sales were stable; the sales growth in Tissue Diagnostics (+8%) and Centralised and Point of Care Solutions (+1%) were fully offset by lower sales in the Diabetes Care business, which fell by 23% due to continued price pressure. The sales increase in Asia-Pacific was mainly in China, which grew by 21%. In Latin America sales rose by 10% due to new tender business and local inflationary price increases. Sales growth in Japan was led by the Centralised and Point of Care Solutions business.

Diagnostics Division – Sales for E7 leading emerging markets

	2017 (CHF m)	2016 (CHF m)	% change (CER)	% of sales (2017)	% of sales (2016)
Brazil	283	234	+11	2.3	2.0
China	1,882	1,586	+21	15.7	13.9
India	163	139	+13	1.3	1.2
Mexico	124	122	+2	1.0	1.1
Russia	147	118	+9	1.2	1.0
South Korea	203	188	+5	1.7	1.6
Turkey	131	130	+21	1.1	1.1
Total sales	**2,933**	**2,517**	**+17**	**24.3**	**21.9**

Operating results

Diagnostics Division – Royalties and other operating income

	2017 (CHF m)	2016 (CHF m)	% change (CER)
Royalty income	111	98	+12
Income from out-licensing agreements	27	3	Over +500
Income from disposal of products and other	25	15	+60
Total – IFRS and Core basis	**163**	**116**	**+40**

The increase of 40% at CER was due to increased royalty income mainly from patent disputes combined with additional income from new licence agreements.

Diagnostics Division – Cost of sales

	2017 (CHF m)	2016 (CHF m)	% change (CER)
Manufacturing cost of goods sold and period costs	(5,494)	(5,127)	+7
Royalty expenses	(165)	(167)	–1
Cost of sales – Core basis	**(5,659)**	**(5,294)**	**+7**
Global restructuring plans	(107)	(100)	+5
Amortisation of intangible assets	(315)	(323)	–3
Impairment of intangible assets	(120)	(70)	+72
Total – IFRS basis	**(6,201)**	**(5,787)**	**+7**

Core costs increased by 7% at CER. This was driven in part by an unfavourable product mix from higher instrument placements, notably in the Asia-Pacific region. The remainder of the increase arose from higher depreciation of placed instruments. The core cost of sales ratio increased to 46.8% from 46.1%. Impairment charges relate to the partial impairment of sequencing business intangible assets acquired as part of the Ariosa acquisition. Global restructuring costs were mainly related to site closures and costs for the initiative to harmonise processes and systems.

Diagnostics Division – Marketing and distribution

	2017 (CHF m)	2016 (CHF m)	% change (CER)
Marketing and distribution – Core basis	**(2,792)**	**(2,645)**	**+5**
Global restructuring plans	(92)	(102)	–9
Amortisation of intangible assets	(3)	(2)	+87
Total – IFRS basis	**(2,887)**	**(2,749)**	**+5**

Core costs increased by 5% at CER, primarily due to increased spending in emerging markets in the Asia-Pacific region, especially in China, and in the EMEA region. On a core basis, marketing and distribution costs as a percentage of sales were stable at 23.1%. Global restructuring costs were mainly due to organisational changes from divisional strategy plans.

Diagnostics Division – Research and development

	2017 (CHF m)	2016 (CHF m)	% change (CER)
Research and development – Core basis	**(1,356)**	**(1,327)**	**+2**
Global restructuring plans	(66)	(43)	+51
Amortisation of intangible assets	(14)	(6)	+117
Impairment of intangible assets	(152)	0	–
Total – IFRS basis	**(1,588)**	**(1,376)**	**+15**

Core costs increased by 2% at CER. There was increased spending in integrated core laboratory and digitalised data management projects. This was partially offset by decreased spending in Diabetes Care and Molecular Diagnostics for blood screening and HPV. As a percentage of sales, research and development core costs decreased to 11.2% from 11.6% in 2016. Impairment charges relate to the partial impairment of Molecular Diagnostics intangible assets acquired as part of the GeneWeave acquisition.

Diagnostics Division – General and administration

	2017 (CHF m)	2016 (CHF m)	% change (CER)
Administration	(532)	(494)	+7
Pensions – past service costs	6	77	–92
Gains (losses) on disposal of property, plant and equipment	(2)	1	–
Business taxes and capital taxes	(1)	(18)	–92
Other general items	3	32	–97
General and administration – Core basis	**(526)**	**(402)**	**+31**
Global restructuring plans	(27)	(66)	–60
Impairment of goodwill and intangible assets	(674)	0	–
Alliances and business combinations	27	26	+4
Legal and environmental cases	(58)	(28)	+105
Pensions – settlement gains (losses)	(4)	6	–
Total – IFRS basis	**(1,262)**	**(464)**	**+172**

Core costs increased by 31% at CER compared to 2016 due to the base effect of income from changes in the Group's Swiss pension plans in 2016. Excluding this effect, core general and administration costs increased by 10%. Administration costs increased by 7%. This was due to IT costs, additional headcount, notably in China, and the creation of new legal entities in the Diabetes Care business. Business taxes included income from a settlement agreement for the Medical Devices Excise Tax in the US. Other general items in 2016 included income from underspending in IT and infrastructure areas. As a percentage of sales, core costs increased to 4.4% from 3.5% in 2016. The impairment relates to goodwill for the sequencing business. Legal expenses mainly arose from increasing litigation costs in the sequencing business.

Financial position

Diagnostics Division – Net operating assets

	2017 (CHF m)	2016 (CHF m)	% change (CHF)	% change (CER)	Movement: Transactions (CHF m)	Movement: CTA (CHF m)
Trade receivables	3,137	3,023	+4	+3	94	20
Inventories	2,280	2,294	–1	–5	(109)	95
Trade payables	(1,007)	(1,024)	–2	–4	43	(26)
Net trade working capital	**4,410**	**4,293**	**+3**	**+1**	**28**	**89**
Other receivables/(payables)	(1,816)	(1,497)	+21	+20	(300)	(19)
Net working capital	**2,594**	**2,796**	**–7**	**–10**	**(272)**	**70**
Property, plant and equipment	6,431	5,873	+10	+6	346	212
Goodwill and intangible assets	7,249	8,459	–14	–13	(1,051)	(159)
Provisions	(842)	(950)	–11	–11	104	4
Other long-term assets, net	11	10	+10	+54	5	(4)
Long-term net operating assets	**12,849**	**13,392**	**–4**	**–4**	**(596)**	**53**
Net operating assets	**15,443**	**16,188**	**–5**	**–5**	**(868)**	**123**

The absolute amount of the movement between the 2017 and 2016 consolidated balances reported in Swiss francs is split between actual 2017 transactions (translated at average rates for 2016) and the currency translation adjustment (CTA) that arises on consolidation. The 2017 transactions include non-cash movements and therefore the movements in this table are not the same as the amounts shown in the operating free cash flow (which only include the cash movements). A full consolidated balance sheet is given on page 43 of the Annual Financial Statements, and a reconciliation between that balance sheet and the information given above is on page 147.

Currency translation effects on balance sheet amounts. Compared to the start of the year the Swiss franc depreciated significantly against the euro, resulting in a positive translation impact on net operating assets. This was mostly offset by the appreciation of the Swiss franc against the US dollar. The exchange rates used are given on page 28.

Net working capital. Net trade working capital increased by 1% at CER. Trade receivables increased by 3% driven by sales increase. Inventories decreased by 5% due to inventories optimisation initiatives and high demand. Trade payables decreased by 4% due to lower spending. The net liability for other receivables/payables increased due to higher liabilities for sales rebates.

Long-term net operating assets. Long-term net operating assets decreased by 4% at CER due to lower goodwill and intangible assets, partially offset by higher property, plant and equipment and lower provisions. The 13% decrease in goodwill and intangible assets was due to the impairments in the sequencing business and in Molecular Diagnostics. Property, plant and equipment increased by 6% due to higher instrument placements and manufacturing site expansion in China and Germany. Provisions decreased by 11% following the payment of milestones related to recent acquisitions.

Free cash flow

Diagnostics Division – Operating free cash flow

	2017 (CHF m)	2016 (CHF m)	% change (CHF)	% change (CER)
Operating profit	**304**	**1,213**	**–75**	**–74**
– Depreciation, amortisation and impairment	2,339	1,374	+70	+70
– Provisions	12	38	–68	–70
– Equity compensation plans	73	69	+6	+6
– Other	204	95	+115	+115
Operating profit cash adjustments	**2,628**	**1,576**	**+67**	**+66**
Operating profit, net of operating cash adjustments	**2,932**	**2,789**	**+5**	**+5**
(Increase) decrease in net working capital	118	(430)	–	–
Investments in property, plant and equipment	(1,444)	(1,627)	–11	–12
Investments in intangible assets	(53)	(12)	+342	+357
Operating free cash flow	**1,553**	**720**	**+116**	**+111**
– as % of sales	12.9	6.3	+6.6	+6.3

For the definition of free cash flow and a detailed breakdown see pages 144–146.

The operating free cash flow of the Diagnostics Division was a net cash inflow of CHF 1,553 million compared to CHF 720 million in 2016. The cash generation of the business, measured by the operating profit, net of operating cash adjustments, increased by 5%, in line with the sales growth of 5%. The build-up in net working capital in 2016, notably in inventories, was not repeated and this contributed to the year-on-year growth in operating free cash flow. Capital expenditure was CHF 1.4 billion, with the major items as described above in the 'Financial position' section. Capital expenditure was lower than in 2016, which included significant site expansions.

Corporate operating results

Corporate operating results summary

	2017 (CHF m)	2016 (CHF m)	% change (CER)
Administration	(454)	(422)	+8
Pensions – past service costs	–	39	–
Business taxes and capital taxes	(17)	(17)	–4
Other general items	(27)	(10)	+179
General and administration costs – Core basis [1]	**(498)**	**(410)**	**+22**
Global restructuring plans	(39)	13	–
Alliances and business combinations	(1)	(1)	–15
Legal and environmental cases	(5)	(31)	–82
Total costs – IFRS basis	**(543)**	**(429)**	**+27**
Financial position			
Net working capital	(119)	(104)	+15
Long-term net operating assets	(178)	(213)	–21
Net operating assets	**(297)**	**(317)**	**–9**
Free cash flow [2]			
Operating free cash flow	(543)	(493)	+10

1) See pages 141–144 for the definition of core results.
2) See pages 144–146 for the definition of free cash flow and a detailed breakdown.

General and administration costs increased by 22% at CER on a core basis, driven by the base effect of income from pension changes in 2016. Excluding this, core costs were higher by 11% due to impairment of corporate assets, increased personnel related costs and corporate project activities. Total costs on IFRS basis increased by 27% and included restructuring expenses in 2017 which offset legal and environmental costs in 2016.

The change in net operating assets was due to the utilisation of provisions for ongoing environmental remediation activities at Nutley in the US and at Grenzach in Germany and also due to the impairment of assets. Corporate operating free cash flow showed a higher outflow, which was broadly in line with the growth of core costs excluding the impact of the pension plans changes.

Foreign exchange impact on operating results

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

Growth (reported at CER and in CHF)

	% change (CER)		% change (CHF)	
	2017	2016	2017	2016
Pharmaceuticals Division				
Sales	+5	+3	+5	+5
Core operating profit	+4	+4	+4	+5
Diagnostics Division				
Sales	+5	+7	+5	+6
Core operating profit	0	+1	–1	–1
Group				
Sales	+5	+4	+5	+5
Core operating profit	+3	+4	+3	+5

Exchange rates against the Swiss franc

	31 December 2017	Average 2017	31 December 2016	Average 2016
1 USD	0.98	0.98	1.02	0.99
1 EUR	1.17	1.11	1.07	1.09
100 JPY	0.87	0.88	0.88	0.91

In 2017 compared to 2016, the Swiss franc was weaker against the euro and other European currencies and against several major currencies in the Asia-Pacific region. This was partially offset by the Swiss franc being stronger against the Japanese yen. The Swiss franc remained stable against the US dollar. The net impact is negligible on the results expressed in Swiss francs compared to constant exchange rates for sales, core operating profit and Core EPS.

The sensitivity of Group sales and core operating profit to a 1% change in average foreign currency exchange rates against the Swiss franc during 2017 is shown in the table below.

Currency sensitivities

Impact of 1% increase in average exchange rate versus the Swiss franc	Sales (CHF m)	Core operating profit (CHF m)
US dollar	+241	+101
Euro	+96	+43
Japanese yen	+42	+25
All other currencies	+137	+73

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

Treasury and taxation results

Treasury and taxation results

	2017 (CHF m)	2016 (CHF m)	% change (CHF)	% change (CER)
IFRS results				
Operating profit	13,003	14,069	–8	–8
Financing costs	(839)	(1,099)	–24	–24
Other financial income (expense)	84	37	+127	+130
Profit before taxes	**12,248**	**13,007**	**–6**	**–6**
Income taxes	(3,423)	(3,274)	+5	+5
Net income	**8,825**	**9,733**	**–9**	**–9**
Attributable to				
– Roche shareholders	8,633	9,576	–10	–10
– Non-controlling interests	192	157	+22	+28
Core results [1]				
Operating profit	19,012	18,420	+3	+3
Financing costs	(819)	(1,034)	–21	–21
Other financial income (expense)	75	37	+103	+105
Profit before taxes	**18,268**	**17,423**	**+5**	**+5**
Income taxes	(4,864)	(4,735)	+3	+3
Net income	**13,404**	**12,688**	**+6**	**+6**
Attributable to				
– Roche shareholders	13,192	12,507	+5	+5
– Non-controlling interests	212	181	+17	+22
Financial position				
Net debt	(6,963)	(13,248)	–47	–45
Pensions	(6,620)	(6,940)	–5	–9
Income taxes	21	(390)	–	–
Financial non-current assets	557	536	+4	+4
Derivatives, net	(22)	(262)	–92	–92
Collateral, net	39	302	–87	–87
Interest payable	(218)	(289)	–25	–23
Other non-operating assets, net	108	66	+64	+69
Total net assets (liabilities)	**(13,098)**	**(20,225)**	**–35**	**–34**
Free cash flow [2]				
Treasury activities	(498)	(1,218)	–59	–59
Taxes paid	(3,909)	(3,738)	+5	+5
Total	**(4,407)**	**(4,956)**	**–11**	**–11**

1) See pages 141–144 for the definition of core results.
2) See pages 144–146 for the definition of free cash flow.

Financing costs

Core financing costs were CHF 819 million, a decrease of 21% at CER compared to 2016. Interest expenses (including amortisation of debt discount and issue costs) decreased by 15% to CHF 598 million from CHF 707 million in 2016 due to the continued repayment and refinancing of debt at lower interest rates. Losses on bond redemptions in 2017 were CHF 74 million compared to CHF 142 million in 2016. The net interest cost of defined benefit pension plans decreased by 22% at CER to CHF 147 million mainly due to lower discount rates in Germany at the end of 2016. A full analysis of financing costs is given in Note 3 to the Annual Financial Statements and details of the debt repayments and redemptions are given in Note 20.

Other financial income (expense)

Core other financial income (expense) was a net income of CHF 75 million compared to a net income of CHF 37 million in 2016 due to lower foreign exchange losses and higher net income from equity securities. The net foreign exchange results reflect hedging costs and losses on unhedged positions and were a net loss of CHF 115 million compared to a net loss of CHF 124 million in 2016. Core net income from equity securities was CHF 162 million in 2017 compared to CHF 154 million in 2016. A full analysis of other financial income (expense) is given in Note 3 to the Annual Financial Statements.

Income taxes

The Group's effective core tax rate decreased by 0.6 percentage points to 26.6% in 2017. This was largely due to mix effects within the manufacturing supply chain.

The IFRS results show an increase in the effective tax rate of 2.7 percentage points mainly due to the transitional effect of changes in US tax rates, as described below, and the non-core results including significant goodwill impairments that are not tax deductible. The IFRS results also include non-core income from the releases of contingent consideration provisions that is not taxable, hence the net tax effect in the 'Alliances and business combinations' line in the table below.

Changes to US tax rates were enacted on 22 December 2017 that will become effective from 1 January 2018. Among the changes is a decrease in the US Federal tax rate from 35% to 21%. The Group has carried out a remeasurement of its deferred tax positions and as a consequence the net deferred tax asset recorded on the balance sheet was reduced by CHF 346 million as of the end of 2017. This resulted in a transitional expense of CHF 116 million in 2017 which has been treated as a non-core item. The remaining adjustments of CHF 230 million were recorded to other comprehensive income, in so far as they relate to temporary differences arising on items that were themselves recorded to other comprehensive income, such as actuarial gains/losses on US pension plans. Had these new rates applied for the whole of 2017, and excluding any transition impacts, the Group's 2017 effective core tax rate in percentage terms, would have been in the low twenties.

Further details of the Group's income tax expenses and related balance sheet positions are given in Note 4 to the Annual Financial Statements.

Analysis of the Group's effective tax rate

	2017			2016		
	Profit before tax (CHF m)	Income taxes (CHF m)	Tax rate (%)	Profit before tax (CHF m)	Income taxes (CHF m)	Tax rate (%)
Group's effective tax rate – Core basis	**18,268**	**(4,864)**	**26.6**	**17,423**	**(4,735)**	**27.2**
Global restructuring plans	(1,210)	248	20.5	(1,235)	270	21.9
Goodwill and intangible assets	(5,209)	1,380	26.5	(3,291)	1,233	37.5
Alliances and business combinations	345	2	–0.6	181	41	–22.7
Legal and environmental cases	76	(46)	60.5	(87)	30	34.5
Transitional effect of changes in US tax rates	–	(116)	–	–	–	–
Normalisation of equity compensation plan tax benefit	–	(31)	–	–	(108)	–
Other	(22)	4	18.2	16	(5)	31.3
Group's effective tax rate – IFRS basis	**12,248**	**(3,423)**	**27.9**	**13,007**	**(3,274)**	**25.2**

Financial position

The decrease in net debt was due to free cash flow of CHF 13.4 billion, partly offset by dividend payments of CHF 7.1 billion. The net pension liability decreased due to improved asset performance. The net tax liabilities decreased mainly due to the deferred tax impact from the impairment of intangible assets, partially offset by the deferred tax impact from the changes in US tax rates announced in late 2017. At 31 December 2017 the Group held financial long-term assets with a market value of CHF 0.5 billion, which consist mostly of holdings in biotechnology and other pharmaceuticals companies acquired as part of licensing transactions or scientific collaborations. Compared to the start of the year, the Swiss franc appreciated against the US dollar, which had a positive translation impact on the Group's net debt, due to the US dollar-denominated debt translating into a lower Swiss franc amount at year-end.

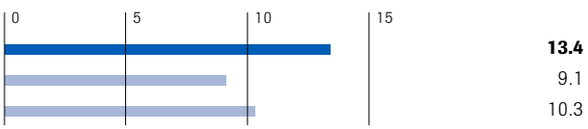
Free cash flow

The cash outflow from treasury activities decreased to CHF 0.5 billion due to lower pension contributions and lower interest payments in 2017, as well as the base effect of investments in financial long-term assets in 2016. Total taxes paid in 2017 were up by 5% to CHF 3.9 billion due to higher tax payments in the US.

Cash flows and net debt

Operating free cash flow in billions of CHF

Free cash flow in billions of CHF



Free cash flow in millions of CHF

	Pharmaceuticals	Diagnostics	Corporate	Group
2017				
Operating profit – IFRS basis	13,242	304	(543)	13,003
Operating profit cash adjustments	5,990	2,628	(8)	8,610
Operating profit, net of operating cash adjustments	**19,232**	**2,932**	**(551)**	**21,613**
(Increase) decrease in net working capital	297	118	12	427
Investments in property, plant and equipment	(2,061)	(1,444)	(4)	(3,509)
Investments in intangible assets	(651)	(53)	0	(704)
Operating free cash flow	**16,817**	**1,553**	**(543)**	**17,827**
Treasury activities				(498)
Taxes paid				(3,909)
Free cash flow				**13,420**
2016				
Operating profit – IFRS basis	13,285	1,213	(429)	14,069
Operating profit cash adjustments	4,659	1,576	(50)	6,185
Operating profit, net of operating cash adjustments	**17,944**	**2,789**	**(479)**	**20,254**
(Increase) decrease in net working capital	(586)	(430)	(7)	(1,023)
Investments in property, plant and equipment	(2,510)	(1,627)	(7)	(4,144)
Investments in intangible assets	(989)	(12)	0	(1,001)
Operating free cash flow	**13,859**	**720**	**(493)**	**14,086**
Treasury activities				(1,218)
Taxes paid				(3,738)
Free cash flow				**9,130**

For the definition of free cash flow and a detailed breakdown see pages 144–146.

Operating free cash flow increased by CHF 3.7 billion, or 26% at CER, to CHF 17.8 billion. A major factor in this significant increase was the growth in the underlying cash generated from operations, which increased by 7% to CHF 21.6 billion. The lower net working capital also contributed to the overall operating free cash flow and, compared to the increase in net working capital in 2016, especially impacted the year-on-year growth rate. In addition, capital expenditure was 15% lower than 2016.

The cash outflow from treasury activities went down to CHF 0.5 billion due to lower pension contributions and lower interest payments in 2017 as well as the base effect of higher investments in financial long-term assets in 2016. Taxes paid were 5% higher at CHF 3.9 billion due to higher US tax payments. The free cash flow of CHF 13.4 billion was significantly higher than in 2016, due to the higher operating free cash flow and lower net cash outflow from treasury operations.

Net debt in millions of CHF

At 1 January 2017	
Cash and cash equivalents	4,163
Marketable securities	4,944
Long-term debt	(16,992)
Short-term debt	(5,363)
Net debt at beginning of period	**(13,248)**
Change in net debt during 2017	
Free cash flow	13,420
Dividend payments	(7,140)
Transactions in own equity instruments	(358)
Business combinations, net of divestments of subsidiaries	(269)
Hedging and collateral arrangements	235
Currency translation, fair value and other movements	397
Change in net debt	**6,285**
At 31 December 2017	
Cash and cash equivalents	4,719
Marketable securities	7,278
Long-term debt	(15,839)
Short-term debt	(3,121)
Net debt at end of period	**(6,963)**

For the definition of net debt see page 147.

Net debt – currency profile in millions of CHF

	Cash and marketable securities		Debt	
	2017	2016	2017	2016
US dollar[1]	1,935	1,106	(14,991)	(16,073)
Euro	4,422	2,986	(2,907)	(2,852)
Swiss franc	2,751	2,411	(2,607)	(2,605)
Japanese yen	2,057	1,656	(3)	(6)
Pound sterling	278	271	(247)	(249)
Other	554	677	1,795	(570)
Total	**11,997**	**9,107**	**(18,960)**	**(22,355)**

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

The net debt position of the Group at 31 December 2017 was CHF 7.0 billion, a decrease of CHF 6.3 billion from 31 December 2016. The decrease was due to the strong free cash flow partly offset by dividend payments of CHF 7.1 billion.

The issuance, redemption and repurchase of bonds and notes during 2017 (see Note 20 to the Annual Financial Statements) had an impact on liquid funds, but had no impact on the net debt position.

Contractual obligations and commitments

The Group has obligations and commitments, as set out in the table below. Carrying values are as shown in the consolidated balance sheet. The potential obligations shown are not discounted and are not risk-adjusted. Any amounts denominated in foreign currencies are translated into Swiss francs at the 31 December 2017 exchange rates.

Contractual obligations and commitments as at 31 December 2017 in millions of CHF

	Potential obligation (undiscounted)					
	Less than 1 year	1–2 years	2–5 years	Over 5 years	Total	Carrying value
On-balance sheet						
Debt [20]						
– Bonds and notes	2,661	2,422	5,461	12,199	22,743	17,986
– Other debt	970	1	3	0	974	974
Contingent consideration provisions [19, 29]	197	197	735	294	1,423	591
Accounts payable [16]	3,454	0	0	0	3,454	3,454
Derivative financial instruments [18]	93	10	15	1	119	119
Unfunded defined benefit plans [25]	157	162	529	6,465	7,313	5,411
Total on-balance sheet commitments	**7,532**	**2,792**	**6,743**	**18,959**	**36,026**	**28,535**
Off-balance sheet						
Capital commitments for property, plant and equipment [7]	1,049	112	23	0	1,184	0
Operating leases [7]	366	272	480	228	1,346	0
Contract manufacturing commitments [29]	398	284	818	355	1,855	0
Alliance collaboration commitments [9]	837	433	804	496	2,570	0
Total off-balance sheet commitments	**2,650**	**1,101**	**2,125**	**1,079**	**6,955**	**0**
Total contractual commitments	**10,182**	**3,893**	**8,868**	**20,038**	**42,981**	**28,535**

References are to the Notes in the Annual Financial Statements.

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

Contingent consideration provisions. These are potential payments arising from business combinations. The carrying values are risk-adjusted and discounted.

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

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

Operating leases. These are the future obligations under non-cancellable lease contracts. In 2019 the Group will implement IFRS 16 'Leases' and at that point these obligations will be reported in the balance sheet.

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

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

Provisions for legal and environmental matters. These are not included in the above table as the timing and amount of any cash outflow is uncertain and contingent on the development of the matters in question.

Pensions and other post-employment benefits

Post-employment benefit plans are classified for IFRS as 'defined contribution plans' if the Group pays fixed contributions into a separate fund or to a third-party financial institution and will have no further legal or constructive obligation to pay further contributions. In 2017 expenses for the Group's defined contribution plans were CHF 482 million (2016: CHF 473 million). All other plans are classified as 'defined benefit plans', even if the Group's potential obligation is minor or has a relatively remote possibility of arising. Plans are usually established as trusts which are independent of the Group and are funded by payments from the Group and by employees, but in some cases the plan is unfunded and the Group pays pensions to retired employees directly from its own financial resources.

Defined benefit plans

During 2016 operating income of CHF 426 million was recorded for past service costs from changes to the Group's pension plans in Switzerland. This represents the impact of the adjustment of the pension liability for the plan changes announced in 2016. In 2017 expenses for the Group's defined benefit plans were CHF 658 million (2016 excluding past service costs: CHF 718 million). Based on the revised actuarial assumptions at the end of 2017, expenses for the Group's defined benefit plans in 2018 are expected to be approximately CHF 651 million, in line with 2017. These estimates for 2018 pension expenses do not include any settlement or past service/curtailment effects that might arise during the year.

Funding status and balance sheet position

	2017 (CHF m)	2016 (CHF m)
Funded plans		
– Fair value of plan assets	14,356	13,571
– Defined benefit obligation	(15,705)	(15,734)
Over (under) funding	**(1,349)**	**(2,163)**
Unfunded plans		
– Defined benefit obligation	(5,411)	(4,931)
Total funding status	**(6,760)**	**(7,094)**
Limit on asset recognition	0	0
Reimbursement rights	140	154
Net recognised asset (liability)	**(6,620)**	**(6,940)**

Overall the funding status on an IFRS basis of the Group's funded defined benefit plans increased to 91% compared to 86% at the start of the year. Plan assets increased by CHF 0.8 billion driven by higher returns on assets which are partially offset by other items including settlement payments made in the US and Ireland. The funded status of the pension funds is monitored by the local pension fund governance bodies as well as being closely reviewed at a Group level. During 2017 additional contributions were paid into the Group's pension plans in the US and the UK. The total cash outflow from the Group's defined benefit plans in 2017 was CHF 538 million compared to CHF 880 million in 2016, which included additional contributions that were paid into the Group's pension plans in Switzerland, the US and Ireland in that year.

The unfunded plans are mainly those in the Group's German affiliates, where the fully reserved pension obligations are invested in the local affiliate's operations. The unfunded liabilities for these plans increased by CHF 480 million during 2017 mainly due to the currency translation effect from the increase in the euro against the Swiss franc during the year.

Full details of the Group's pensions and other post-employment benefits are given in Note 25 to the Annual Financial Statements.

Roche shares

Share price and market capitalisation (at 31 December)

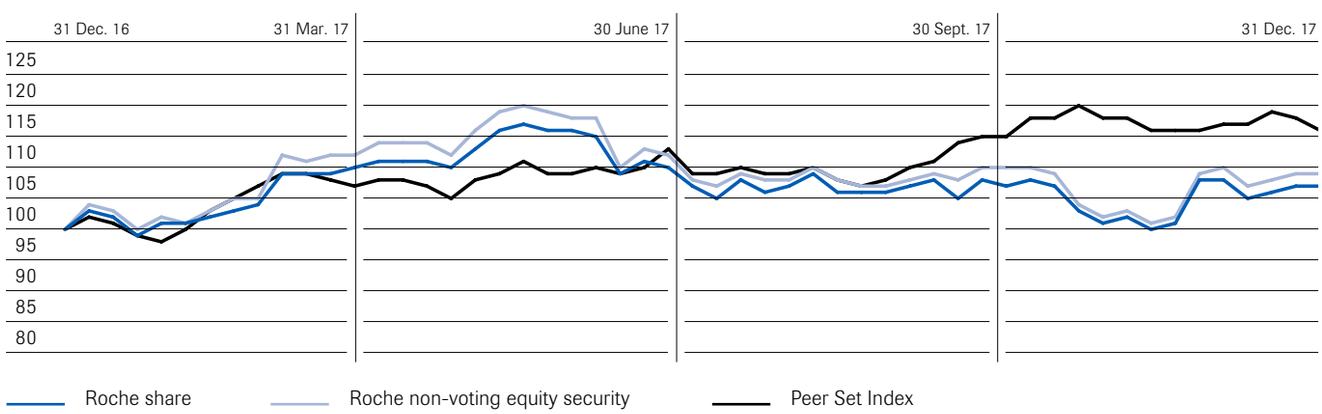
	2017	2016	% change (CHF)
Share price (CHF)	246.20	238.00	+3.4
Non-voting equity security *(Genussschein)* price (CHF)	246.50	232.60	+6.0
Market capitalisation (billions of CHF)	210	199	+5.7

In 2017 Roche ranked number 11 among a peer group consisting of Roche and 15 other healthcare companies[1)] for Total Shareholder Return (TSR), defined as share price growth plus dividends, measured in Swiss francs at actual exchange rates. At constant exchange rates (CER) Roche ranked number 10, with the year-end return being +7% for Roche shares and +9% for Roche non-voting equity securities. The combined performance of share and non-voting equity security was +9% compared to a weighted average return for the peer group of +16% in CHF terms and +18% at CER.

The healthcare sector experienced a positive performance together with the world markets in 2017 driven by a recovery in the global economy and the normalisation of monetary policy in both the US and the EU being more gradual than expected. The Swiss Market Index (SMI) posted gains in 2017. However, the performance was mixed relative to other major global indices, as currency movements continued to influence investors' exposure to Swiss equities, with the SMI underperforming major US indices but outperforming European indices. In this context, even with positive read-outs at the end of the 2017, the Roche share performance continues to be impacted by investor concern over the biosimilar impact and competition in cancer immunotherapy.

1) Peer group for 2017: Abbott, AbbVie, Amgen, Astellas, AstraZeneca, Bayer, Bristol-Myers Squibb, GlaxoSmithKline, Johnson & Johnson, Lilly, Merck & Co., Novartis, Pfizer, Roche, Sanofi and Takeda.

Total Shareholder Return development



Source: Datastream. Data for Roche and the peer index has been re-based to 100 at 1 January 2017. The Peer Index was converted into Swiss francs at daily actual exchange rates. Currency fluctuations have an influence on the representation of the relative performance of Roche versus the peer index.

Proposed dividend

The Board of Directors is proposing an increase of 1% in the dividend for 2017 to CHF 8.30 per share and non-voting equity security (2016: CHF 8.20) for approval at the Annual General Meeting. This is the 31st consecutive increase in the dividend. If the dividend proposal is approved by shareholders, dividend payments on the total shares and non-voting equity securities will amount to CHF 7.2 billion (2016: CHF 7.1 billion), resulting in a pay-out ratio (based on core net income) of 54.1% (2016: 56.4%). Based on the prices at year-end 2017, the dividend yield on the Roche share was 3.4% (2016: 3.4%) and the yield on the non-voting equity security was 3.4% (2016: 3.5%). Further information on the Roche securities is given on pages 149 to 150.

Information per share and non-voting equity security

	2017 (CHF)	2016 (CHF)	% change (CHF)
EPS – Basic	10.12	11.24	–10
EPS – Diluted	10.04	11.13	–10
Core EPS – Basic	15.47	14.68	+5
Core EPS – Diluted	15.34	14.53	+6
Equity attributable to Roche shareholders per share	30.97	28.07	+10
Dividend per share	8.30	8.20	+1

For further details please refer to Notes 21 and 27 of the Annual Financial Statements and page 144. The pay-out ratio is calculated as dividend per share divided by core earnings per share.

Debt

Debt redemptions. During 2017 there were the following redemptions:
- On the due date of 23 March 2017 of CHF 1,500 million of bonds.
- On the due date of 29 September 2017 of USD 1,150 million of bonds.
- On 17 November 2017 the Group completed a tender offer to repurchase EUR 176 million of notes due 4 March 2021 and GBP 123 million of notes due 29 August 2023.

Debt issuances. During 2017 there were the following issuances:
- On 23 March 2017 the Group issued CHF 400 million of bonds due on 23 September 2018, CHF 750 million of bonds due on 23 September 2024 and CHF 350 million of bonds due on 23 March 2029.

All the above transactions are further described in Note 20 to the Annual Financial Statements.

The maturity schedule of the Group's bonds and notes outstanding at 31 December 2017 is shown in the table below.

Bonds and notes: nominal amounts at 31 December 2017 by contractual maturity

	US dollar (USD m)	Euro (EUR m)	Pound sterling (GBP m)	Swiss franc (CHF m)	Total[1] (USD m)	Total[1] (CHF m)
2018	–	1,000	–	1,000	2,216	2,169
2019	2,000	–	–	–	2,000	1,957
2020	600	–	–	–	600	587
2021	1,300	1,140[2]	–	–	2,662	2,605
2022	650	–	–	500	1,161	1,136
2023–2027	4,500	1,650	77	750	7,340	7,183
2028 and beyond	2,164	–	–	350	2,521	2,467
Total	**11,214**	**3,790**	**77**	**2,600**	**18,500**	**18,104**

1) Total translated at 31 December 2017 exchange rates.
2) Of the proceeds from these bonds and notes, EUR 850 million has been swapped into US dollars, and therefore in the consolidated results these bonds and notes have economic characteristics equivalent to US dollar-denominated bonds and notes.

The Group plans to meet its debt obligations using existing liquid funds as well as cash generated from business operations. In 2017 the free cash flow was CHF 13.4 billion, which included the cash generated from operations, as well as payment of interest and tax.

For short-term financing requirements, the Group has a commercial paper programme in the US under which it can issue up to USD 7.5 billion of unsecured commercial paper notes and has committed credit lines of USD 7.5 billion available as back-stop lines. Commercial paper notes totalling USD 0.8 billion were outstanding as of 31 December 2017 (2016: USD 2.1 billion). For longer-term financing the Group maintains strong long-term investment-grade credit ratings of AA by Standard & Poor's and A1 by Moody's which should facilitate efficient access to international capital markets.

Further information on the Group's debt is given in Note 20 to the Annual Financial Statements.

Credit ratings for the Roche Group at 31 December 2017

	Short-term	Long-term	Outlook
Moody's	P-1	A1	Stable
Standard & Poor's	A-1+	AA	Stable

Financial risks

At 31 December 2017 the Group has a net debt position of CHF 7.0 billion (2016: CHF 13.2 billion). The financial assets of the Group are managed in a conservative way with the objective to meet the Group's financial obligations at all times.

Asset allocation. A considerable portion of the cash and marketable securities the Group currently holds is being used for debt redemptions. Liquid funds are either held as cash or are invested in high-quality, investment-grade fixed income securities with an investment horizon to meet those liquidity requirements.

Cash and marketable securities

	2017		2016	
	(CHF m)	(% of total)	(CHF m)	(% of total)
Cash and cash equivalents	4,719	39	4,163	46
Money market instruments	6,107	51	3,366	36
Debt securities	1,161	10	1,509	17
Equity securities	10	0	69	1
Total cash and marketable securities	**11,997**	**100**	**9,107**	**100**

Credit risk. Credit risk arises from the possibility that counterparties to transactions may default on their obligations causing financial losses for the Group. The rating profile of the Group's CHF 12.0 billion of cash and fixed income marketable securities remained strong with 91% being invested in the A-AAA range. The Group has signed netting and collateral agreements with the counterparties in order to mitigate counterparty risk on derivative positions.

The Group has trade receivables of CHF 10.4 billion. Since the beginning of 2010 there have been financial difficulties in Southern European countries, notably Spain, Italy, Greece and Portugal. The Group is a leading supplier to the healthcare sectors in these countries and at 31 December 2017 has trade receivables of EUR 0.5 billion (CHF 0.6 billion) with public customers in these countries. This is an increase of 13% compared to 31 December 2016 in euro terms due to the substantial collections in late 2016 prior to the year-end. The Group uses different measures to improve collections in these countries, including intense communication with customers, factoring, negotiations of payment plans, charging of interest for late payments, and legal actions. Since 2011 the Group's trade receivables balance in Southern Europe has decreased by 60% in euro terms.

Liquidity risk. Liquidity risk arises through a surplus of financial obligations over available financial assets due at any point in time. The Group's approach to liquidity risk is to maintain sufficient readily available reserves in order to meet its liquidity requirements at any point in time. In addition to the current liquidity position, the Group has good cash generation ability. Those future cash flows will be used to repay debt instruments in the coming years.

Roche enjoys strong long-term investment-grade credit ratings of AA by Standard & Poor's and A1 by Moody's. At the same time Roche is rated at the highest available short-term ratings by those agencies. In the event of financing requirements, the ratings and overall creditworthiness of the Roche Group should permit efficient access to international capital markets, including the commercial paper market. The Group has committed credit lines with various financial institutions totalling USD 7.5 billion available as back-stop lines for the commercial paper programme. As at 31 December 2017 no debt has been drawn under these credit lines.

Market risk. Market risk arises from changing market prices of the Group's financial assets or financial liabilities. The exposures are predominantly related to changes in interest rates, foreign exchange rates and equity prices. The Group uses Value-at-Risk (VaR) to assess the impact of market risk on its financial instruments. VaR data indicates the value range within which a given financial instrument will fluctuate with a pre-set probability as a result of movements in market prices. The Group's VaR remained stable during 2017.

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

Further information on financial risk management and financial risks and the VaR methodology is included in Note 29 to the Annual Financial Statements.

International Financial Reporting Standards

The Roche Group has been using International Financial Reporting Standards (IFRS) to report its consolidated results since 1990. In 2017 the Group has implemented various minor amendments to existing standards and interpretations, which have no material impact on the Group's overall results and financial position.

New and revised standards that will be applied in 2018

The Group has assessed the expected impacts of the various new and revised standards and interpretations that will be mandatory from 1 January 2018 which the Group has not yet applied, as summarised below. The Group does not anticipate that these will have a material impact on the Group's overall results and financial position. Furthermore, no restatements of the 2017 comparative results will be necessary when the new standards are applied in 2018. See Note 32 to the Annual Financial Statements for further details.

IFRS 9 'Financial Instruments'. The Group will implement the new standard effective 1 January 2018 and will apply the exemption from full retrospective application for the classification and measurement requirements, including impairment, meaning that the comparative 2017 results will not be restated when the new standard is applied. The standard deals with the classification, recognition and measurement (including impairment) of financial instruments, the impairment of financial assets, including trade and lease receivables and also introduces a new hedge accounting model.

IFRS 15 'Revenues from Contracts with Customers'. The Group will implement the new standard effective 1 January 2018 and will apply the full retrospective method for the transition. Since the new standard does not change the amounts of revenue recognised for 2017 no restatements of the comparative 2017 results will be necessary. The new standard contains a new set of principles on when and how to recognise and measure revenue as well as new requirements related to presentation. The core principle in that framework is that revenue should be recognised dependent on the transfer of promised goods or services to the customer for an amount that reflects the consideration which should be received in exchange for those goods or services.

New and revised standards that will be applied in 2019 and beyond

IFRS 16 'Leases'. The Group will implement the new standard effective 1 January 2019 and will apply the cumulative catch-up method option for the transition, meaning that the comparative 2018 results will not be restated when the new standard is applied. The main impact of the new standard will be to bring operating leases on-balance sheet. The Group is assessing the potential impact, but currently anticipates that the new standard will result in the carrying value of leased assets being increased by approximately CHF 1.2 billion, with lease liabilities increased by a similar amount at the date of implementation. The application of the new standard will result in part of what is currently reported as operating lease costs being recorded as interest expenses. Given the leases involved and the prevailing low interest rate environment the Group does not currently expect this effect to be material.

See Note 32 to the Annual Financial Statements for further details of these matters.

Roche Group Consolidated Financial Statements

Roche Group consolidated income statement for the year ended 31 December 2017 in millions of CHF

	Pharmaceuticals	Diagnostics	Corporate	Group
Sales [2]	**41,220**	**12,079**	**–**	**53,299**
Royalties and other operating income [2]	2,284	163	–	2,447
Cost of sales	(11,978)	(6,201)	–	(18,179)
Marketing and distribution	(6,960)	(2,887)	–	(9,847)
Research and development [2]	(9,704)	(1,588)	–	(11,292)
General and administration	(1,620)	(1,262)	(543)	(3,425)
Operating profit [2]	**13,242**	**304**	**(543)**	**13,003**
Financing costs [3]				(839)
Other financial income (expense) [3]				84
Profit before taxes				**12,248**
Income taxes [4]				(3,423)
Net income				**8,825**
Attributable to				
– Roche shareholders [21]				8,633
– Non-controlling interests [23]				192
Earnings per share and non-voting equity security [27]				
Basic (CHF)				10.12
Diluted (CHF)				10.04

Roche Group consolidated income statement for the year ended 31 December 2016 in millions of CHF

	Pharmaceuticals	Diagnostics	Corporate	Group
Sales [2]	**39,103**	**11,473**	**–**	**50,576**
Royalties and other operating income [2]	1,944	116	–	2,060
Cost of sales	(10,393)	(5,787)	–	(16,180)
Marketing and distribution	(6,391)	(2,749)	–	(9,140)
Research and development [2]	(10,156)	(1,376)	–	(11,532)
General and administration	(822)	(464)	(429)	(1,715)
Operating profit [2]	**13,285**	**1,213**	**(429)**	**14,069**
Financing costs [3]				(1,099)
Other financial income (expense) [3]				37
Profit before taxes				**13,007**
Income taxes [4]				(3,274)
Net income				**9,733**
Attributable to				
– Roche shareholders [21]				9,576
– Non-controlling interests [23]				157
Earnings per share and non-voting equity security [27]				
Basic (CHF)				11.24
Diluted (CHF)				11.13

Roche Group consolidated statement of comprehensive income in millions of CHF

	Year ended 31 December	
	2017	2016
Net income recognised in income statement	**8,825**	**9,733**
Other comprehensive income		
Remeasurements of defined benefit plans [21]	404	174
Items that will never be reclassified to the income statement	**404**	**174**
Available-for-sale investments [21]	(22)	20
Cash flow hedges [21]	(11)	55
Currency translation of foreign operations [21]	362	496
Items that are or may be reclassified to the income statement	**329**	**571**
Other comprehensive income, net of tax	**733**	**745**
Total comprehensive income	**9,558**	**10,478**
Attributable to		
– Roche shareholders [21]	9,390	10,193
– Non-controlling interests [23]	168	285
Total	**9,558**	**10,478**

Roche Group consolidated balance sheet in millions of CHF

	31 December 2017	31 December 2016	31 December 2015
Non-current assets			
Property, plant and equipment [7]	20,912	19,957	18,473
Goodwill [8]	10,077	11,282	11,082
Intangible assets [9]	8,368	12,046	13,861
Deferred tax assets [4]	3,576	2,826	2,564
Defined benefit plan assets [25]	801	738	642
Other non-current assets [14]	1,370	1,300	959
Total non-current assets	**45,104**	**48,149**	**47,581**
Current assets			
Inventories [10]	7,407	7,928	7,648
Accounts receivable [11]	9,577	8,760	8,329
Current income tax assets [4]	348	335	239
Other current assets [15]	2,243	2,540	2,795
Marketable securities [12]	7,278	4,944	5,440
Cash and cash equivalents [13]	4,719	4,163	3,731
Total current assets	**31,572**	**28,670**	**28,182**
Total assets	**76,676**	**76,819**	**75,763**
Non-current liabilities			
Long-term debt [20]	(15,839)	(16,992)	(17,100)
Deferred tax liabilities [4]	(495)	(838)	(545)
Defined benefit plan liabilities [25]	(7,421)	(7,678)	(8,341)
Provisions [19]	(1,548)	(1,777)	(2,204)
Other non-current liabilities [17]	(206)	(532)	(505)
Total non-current liabilities	**(25,509)**	**(27,817)**	**(28,695)**
Current liabilities			
Short-term debt [20]	(3,121)	(5,363)	(6,151)
Current income tax liabilities [4]	(3,408)	(2,713)	(2,781)
Provisions [19]	(2,042)	(2,271)	(2,432)
Accounts payable [16]	(3,454)	(3,375)	(3,207)
Other current liabilities [18]	(10,135)	(8,878)	(9,197)
Total current liabilities	**(22,160)**	**(22,600)**	**(23,768)**
Total liabilities	**(47,669)**	**(50,417)**	**(52,463)**
Total net assets	**29,007**	**26,402**	**23,300**
Equity			
Capital and reserves attributable to Roche shareholders [21]	26,441	23,911	20,979
Equity attributable to non-controlling interests [23]	2,566	2,491	2,321
Total equity	**29,007**	**26,402**	**23,300**

Roche Group consolidated statement of cash flows in millions of CHF

	Year ended 31 December	
	2017	2016
Cash flows from operating activities		
Cash generated from operations [28]	22,256	21,225
(Increase) decrease in net working capital	427	(1,023)
Payments made for defined benefit plans [25]	(538)	(880)
Utilisation of provisions [19]	(621)	(762)
Disposal of products	410	179
Other operating cash flows	(1)	–
Cash flows from operating activities, before income taxes paid	**21,933**	**18,739**
Income taxes paid	(3,909)	(3,738)
Total cash flows from operating activities	**18,024**	**15,001**
Cash flows from investing activities		
Purchase of property, plant and equipment	(3,509)	(4,144)
Purchase of intangible assets	(704)	(1,001)
Disposal of property, plant and equipment	100	151
Disposal of intangible assets	–	–
Business combinations [5]	(280)	(74)
Divestment of subsidiaries [22]	11	–
Interest and dividends received [28]	30	24
Sales of equity securities and debt securities	762	597
Purchases of equity securities and debt securities	(319)	(631)
Sales (purchases) of money market instruments and time accounts over three months, net	(2,612)	683
Other investing cash flows	62	(118)
Total cash flows from investing activities	**(6,459)**	**(4,513)**
Cash flows from financing activities		
Proceeds from issue of bonds and notes [20]	1,502	3,158
Redemption and repurchase of bonds and notes [20]	(3,068)	(3,985)
Increase (decrease) in commercial paper [20]	(1,258)	(454)
Increase (decrease) in other debt [20]	(385)	(133)
Hedging and collateral arrangements	235	(211)
Changes in non-controlling interests	–	–
Equity contribution by non-controlling interests	5	–
Interest paid	(648)	(849)
Dividends paid [28]	(7,140)	(7,040)
Equity-settled equity compensation plans, net of transactions in own equity [26]	(358)	(557)
Other financing cash flows	–	–
Total cash flows from financing activities	**(11,115)**	**(10,071)**
Net effect of currency translation on cash and cash equivalents	106	15
Increase (decrease) in cash and cash equivalents	**556**	**432**
Cash and cash equivalents at 1 January	4,163	3,731
Cash and cash equivalents at 31 December [13]	**4,719**	**4,163**

The Group has expanded the presentation of investing cash flows relating to marketable securities. Sales and purchases of money market instruments and time accounts over three months are now shown separately, on a net basis. The comparative period information has been restated accordingly.

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

	Share capital	Retained earnings	Fair value reserves	Hedging reserves	Translation reserves	Total	Non-controlling interests	Total equity
Year ended 31 December 2016								
At 1 January 2016	**160**	**28,591**	**155**	**27**	**(7,954)**	**20,979**	**2,321**	**23,300**
Net income recognised in income statement	–	9,576	–	–	–	9,576	157	9,733
Available-for-sale investments	–	–	26	–	–	26	(6)	20
Cash flow hedges	–	–	–	37	–	37	18	55
Currency translation of foreign operations	–	–	4	(1)	365	368	128	496
Remeasurements of defined benefit plans	–	186	–	–	–	186	(12)	174
Total comprehensive income	**–**	**9,762**	**30**	**36**	**365**	**10,193**	**285**	**10,478**
Dividends	–	(6,909)	–	–	–	(6,909)	(132)	(7,041)
Equity compensation plans, net of transactions in own equity	–	(344)	–	–	–	(344)	9	(335)
Changes in non-controlling interests [23]	–	(8)	–	–	–	(8)	8	–
At 31 December 2016	**160**	**31,092**	**185**	**63**	**(7,589)**	**23,911**	**2,491**	**26,402**
Year ended 31 December 2017								
At 1 January 2017	**160**	**31,092**	**185**	**63**	**(7,589)**	**23,911**	**2,491**	**26,402**
Net income recognised in income statement	–	8,633	–	–	–	8,633	192	8,825
Available-for-sale investments	–	–	(26)	–	–	(26)	4	(22)
Cash flow hedges	–	–	–	–	–	–	(11)	(11)
Currency translation of foreign operations	–	–	(1)	(2)	385	382	(20)	362
Remeasurements of defined benefit plans	–	401	–	–	–	401	3	404
Total comprehensive income	**–**	**9,034**	**(27)**	**(2)**	**385**	**9,390**	**168**	**9,558**
Dividends	–	(6,998)	–	–	–	(6,998)	(121)	(7,119)
Equity compensation plans, net of transactions in own equity	–	146	–	–	–	146	15	161
Changes in non-controlling interests [23]	–	(8)	–	–	–	(8)	8	–
Equity contribution by non-controlling interests [23]	–	–	–	–	–	–	5	5
At 31 December 2017	**160**	**33,266**	**158**	**61**	**(7,204)**	**26,441**	**2,566**	**29,007**

Notes to the Roche Group Consolidated Financial Statements

1. General accounting principles

Basis of preparation

The consolidated financial statements (hereafter 'the Annual Financial Statements') of the Roche Group have been prepared in accordance with International Financial Reporting Standards (IFRS) and comply with Swiss law. They have been prepared using the historical cost convention except for items that are required to be accounted for at fair value. They were approved for issue by the Board of Directors on 29 January 2018 and are subject to approval by the Annual General Meeting of shareholders on 13 March 2018.

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

The Group's significant accounting policies and changes in accounting policies are disclosed in Note 32.

Key accounting judgements, estimates and assumptions

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

Revenue. The nature of the Group's business is such that many sales transactions do not have a simple structure and may consist of multiple components occurring at different times. The Group is also party to out-licensing agreements which involve upfront and milestone payments occurring over several years and which may also involve certain future obligations. Revenue is only recognised when, in management's judgement, the significant risks and rewards of ownership have been transferred and when the Group does not retain continuing managerial involvement or effective control over the goods sold or when the obligation has been fulfilled. For some transactions this can result in cash receipts being initially recognised as deferred income and then released to income over subsequent periods on the basis of the performance of the conditions specified in the agreement. There may be circumstances such that the level of sales returns, and hence revenues, cannot be reliably measured. In such cases sales are only recognised when the right of return expires, which is generally upon prescription of the products to patients. In order to estimate this, management uses publicly available information about prescriptions as well as information provided by wholesalers and other intermediaries.

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. At 31 December 2017 the Group had CHF 3,023 million in provisions and accruals for expected sales returns, chargebacks and other rebates, including Medicaid in the US and similar rebates in other countries. The provisions and accruals relating to the US Pharmaceuticals business amounted to CHF 1,445 million, of which CHF 337 million related to 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, which could have an effect on sales and earnings in the period of the adjustment. At 31 December 2017 the Group had CHF 517 million in provisions for doubtful receivables (see Note 11). Such estimates are based on analyses of ageing of customer balances, specific credit circumstances, historical trends and the Group's experience, taking also into account current economic conditions.

Business combinations. The Group initially recognises the fair value of identifiable assets acquired, the liabilities assumed, any non-controlling interest and the consideration transferred in a business combination. Management judgement is particularly involved in the 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. At 31 December 2017 the Group had CHF 20,912 million in property, plant and equipment (see Note 7), CHF 10,077 million in goodwill (see Note 8) and CHF 8,368 million in intangible assets (see Note 9). Goodwill and intangible assets not yet available for use are reviewed annually for impairment. Property, plant and equipment 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.

Pensions and other post-employment benefits. The Group operates a number of defined benefit plans and the fair values of the recognised plan assets and liabilities are based upon statistical and actuarial calculations. 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 31 December 2017 the present value of the Group's defined benefit obligation is CHF 21,116 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 Group provides for anticipated legal settlement costs when there is a probable outflow of resources that can be reliably estimated. At 31 December 2017 the Group had CHF 485 million in legal provisions. The status of significant legal cases is disclosed in Note 19. These estimates consider the specific circumstances of each legal case, relevant legal advice and are inherently 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 progresses. Where no reliable estimate can be made, no provision is recorded and contingent liabilities are disclosed where material.

Environmental provisions. The Group provides for anticipated environmental remediation costs when there is a probable outflow of resources that can be reasonably estimated. At 31 December 2017 the Group had CHF 523 million in environmental provisions (see Note 19). Environmental provisions consist primarily of costs to fully clean and refurbish contaminated sites, including landfills, and to treat and contain contamination at certain other sites. These estimates are inherently 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 Group at the remediation sites, and the financial capabilities of other potentially responsible parties. The estimates could change substantially over time as new facts emerge and each environmental remediation progresses.

Contingent consideration provisions. The Group makes provision for the estimated fair value of contingent consideration arrangements arising from business combinations. At 31 December 2017 the Group had CHF 591 million in contingent consideration provisions (see Note 19) and the total potential payments under contingent consideration arrangements from business combinations could be up to CHF 1,423 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 31 December 2017 the Group had a current income tax net liability of CHF 3,060 million and a deferred tax net asset of CHF 3,081 million (see Note 4). 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 income tax liabilities for management's best estimate of the ultimate liability that is expected to arise based on the specific circumstances and the Group's historical experience. Factors that may have an impact on 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. 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 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 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.

2. Operating segment information

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

Divisional information in millions of CHF

	Pharmaceuticals		Diagnostics		Corporate		Group	
	2017	2016	2017	2016	2017	2016	2017	2016
Revenues from external customers								
Sales	41,220	39,103	12,079	11,473	–	–	53,299	50,576
Royalties and other operating income	2,284	1,944	163	116	–	–	2,447	2,060
Total	**43,504**	**41,047**	**12,242**	**11,589**	**–**	**–**	**55,746**	**52,636**
Revenues from other operating segments								
Sales	–	–	14	13	–	–	14	13
Royalties and other operating income	–	–	–	–	–	–	–	–
Elimination of interdivisional revenue	–	–	–	–	–	–	(14)	(13)
Total	**–**	**–**	**14**	**13**	**–**	**–**	**–**	**–**
Segment results								
Operating profit	13,242	13,285	304	1,213	(543)	(429)	13,003	14,069
Capital expenditure								
Business combinations	–	–	193	–	–	–	193	–
Additions to property, plant and equipment	2,030	2,154	1,443	1,629	4	7	3,477	3,790
Additions to intangible assets	736	1,033	33	32	–	–	769	1,065
Total	**2,766**	**3,187**	**1,669**	**1,661**	**4**	**7**	**4,439**	**4,855**
Research and development								
Research and development costs	9,704	10,156	1,588	1,376	–	–	11,292	11,532
Other segment information								
Depreciation of property, plant and equipment	1,165	1,212	1,024	938	7	8	2,196	2,158
Amortisation of intangible assets	1,359	1,452	332	331	–	–	1,691	1,783
Impairment of property, plant and equipment	184	256	37	35	12	–	233	291
Impairment of goodwill	384	95	674	–	–	–	1,058	95
Impairment of intangible assets	2,188	1,343	272	70	–	–	2,460	1,413
Inventory fair value adjustment	–	167	–	–	–	–	–	167
Equity compensation plan expenses	388	371	73	69	34	33	495	473

Pharmaceuticals subdivisional information in millions of CHF

	Roche Pharmaceuticals		Chugai		Pharmaceuticals Division	
	2017	2016	2017	2016	2017	2016
Revenues from external customers						
Sales	37,507	35,392	3,713	3,711	41,220	39,103
Royalties and other operating income	2,231	1,912	53	32	2,284	1,944
Total	**39,738**	**37,304**	**3,766**	**3,743**	**43,504**	**41,047**
Revenues from other operating segments						
Sales	1,222	1,363	670	568	1,892	1,931
Royalties and other operating income	82	58	257	141	339	199
Elimination of income within division	–	–	–	–	(2,231)	(2,130)
Total	**1,304**	**1,421**	**927**	**709**	**–**	**–**
Segment results						
Operating profit	12,395	12,476	856	682	13,251	13,158
Elimination of results within division	–	–	–	–	(9)	127
Operating profit	**12,395**	**12,476**	**856**	**682**	**13,242**	**13,285**
Capital expenditure						
Business combinations	–	–	–	–	–	–
Additions to property, plant and equipment	1,732	1,978	298	176	2,030	2,154
Additions to intangible assets	700	964	36	69	736	1,033
Total	**2,432**	**2,942**	**334**	**245**	**2,766**	**3,187**
Research and development						
Research and development costs	9,012	9,399	834	784	9,846	10,183
Elimination of costs within division	–	–	–	–	(142)	(27)
Total	**9,012**	**9,399**	**834**	**784**	**9,704**	**10,156**
Other segment information						
Depreciation of property, plant and equipment	1,039	1,080	126	132	1,165	1,212
Amortisation of intangible assets	1,344	1,437	15	15	1,359	1,452
Impairment of property, plant and equipment	184	255	–	1	184	256
Impairment of goodwill	384	95	–	–	384	95
Impairment of intangible assets	2,168	1,323	20	20	2,188	1,343
Inventory fair value adjustment	–	167	–	–	–	167
Equity compensation plan expenses	384	367	4	4	388	371

Net operating assets in millions of CHF

	Assets			Liabilities			Net assets		
	2017	2016	2015	2017	2016	2015	2017	2016	2015
Pharmaceuticals	39,174	42,212	42,460	(12,215)	(11,456)	(11,844)	26,959	30,756	30,616
Diagnostics	19,833	20,329	19,408	(4,390)	(4,141)	(3,976)	15,443	16,188	15,432
Corporate	133	146	149	(430)	(463)	(515)	(297)	(317)	(366)
Total operating	**59,140**	**62,687**	**62,017**	**(17,035)**	**(16,060)**	**(16,335)**	**42,105**	**46,627**	**45,682**
Non-operating	17,536	14,132	13,746	(30,634)	(34,357)	(36,128)	(13,098)	(20,225)	(22,382)
Group	**76,676**	**76,819**	**75,763**	**(47,669)**	**(50,417)**	**(52,463)**	**29,007**	**26,402**	**23,300**

Net operating assets – Pharmaceuticals subdivisional information in millions of CHF

	Assets			Liabilities			Net assets		
	2017	2016	2015	2017	2016	2015	2017	2016	2015
Roche Pharmaceuticals	35,690	38,783	39,696	(11,930)	(11,175)	(11,514)	23,760	27,608	28,182
Chugai	4,900	4,897	4,246	(974)	(1,025)	(1,002)	3,926	3,872	3,244
Elimination within division	(1,416)	(1,468)	(1,482)	689	744	672	(727)	(724)	(810)
Pharmaceuticals Division	**39,174**	**42,212**	**42,460**	**(12,215)**	**(11,456)**	**(11,844)**	**26,959**	**30,756**	**30,616**

Information by geographical area in millions of CHF

	Revenues from external customers		Property, plant and equipment	Non-current assets Goodwill and intangible assets
	Sales	Royalties and other operating income		
2017				
Switzerland	574	480	5,411	2,723
Germany	3,041	29	4,038	1,042
Rest of Europe	10,135	17	982	482
Europe	**13,750**	**526**	**10,431**	**4,247**
United States	23,122	1,853	6,685	13,956
Rest of North America	897	1	74	21
North America	**24,019**	**1,854**	**6,759**	**13,977**
Latin America	3,024	–	328	9
Japan	4,214	53	1,611	208
Rest of Asia	6,824	14	1,671	2
Asia	**11,038**	**67**	**3,282**	**210**
Africa, Australia and Oceania	1,468	–	112	2
Total	**53,299**	**2,447**	**20,912**	**18,445**
2016				
Switzerland	577	219	5,028	3,294
Germany	3,004	28	3,623	1,038
Rest of Europe	10,264	3	957	355
Europe	**13,845**	**250**	**9,608**	**4,687**
United States	21,192	1,767	6,758	18,417
Rest of North America	851	1	90	–
North America	**22,043**	**1,768**	**6,848**	**18,417**
Latin America	2,681	–	354	10
Japan	4,211	32	1,483	209
Rest of Asia	6,461	10	1,559	3
Asia	**10,672**	**42**	**3,042**	**212**
Africa, Australia and Oceania	1,335	–	105	2
Total	**50,576**	**2,060**	**19,957**	**23,328**

Supplementary unaudited information on sales by therapeutic areas in the Pharmaceuticals Division and by business areas in the Diagnostics Division are given in the Financial Review. Sales are allocated to geographical areas by destination according to the location of the customer. Royalties and other operating income are allocated according to the location of the Group company that receives the revenue.

Major customers

In total three US national wholesale distributors represent approximately a third of the Group's revenues in 2017. The three US national wholesale distributors are McKesson Corp. with CHF 7 billion (2016: CHF 6 billion), AmerisourceBergen Corp. with CHF 6 billion (2016: CHF 6 billion) and Cardinal Health, Inc. with CHF 5 billion (2016: CHF 4 billion). Approximately 96% of these revenues were in the Pharmaceuticals operating segment, with the residual in the Diagnostics segment.

Supplementary revenues information

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, which could have an effect on sales and earnings in the period of the adjustment.

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

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

	2017	2016
Gross sales	49,502	45,774
Government and regulatory mandatory price reductions	(5,490)	(4,414)
Contractual price reductions	(2,078)	(1,702)
Cash discounts	(432)	(369)
Customer returns reserves	(133)	(86)
Others	(149)	(100)
Net sales	**41,220**	**39,103**

Government and regulatory mandatory price reductions. These consist of mandatory price reductions. The major elements are 340B Drug Discount Program, Medicaid, and other plans in the US, which totalled USD 4.7 billion, equivalent to CHF 4.7 billion (2016: USD 3.7 billion, equivalent to CHF 3.7 billion).

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

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

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

Sales reductions that are expected to be withheld by the customer upon settlement, such as contractual price reductions and cash discounts, are recorded in the balance sheet as a deduction from trade receivables (see Note 11). Sales reductions that are separately payable to customers, governmental health authorities or healthcare regulatory authorities are recorded in the balance sheet as accrued liabilities (see Note 18). Provisions for sales returns are recorded in the balance sheet as other provisions (see Note 19).

Revenues – Royalties and other operating income in millions of CHF

	2017	2016
Royalty income	1,662	1,619
Income from out-licensing agreements	149	101
Income from disposal of products and other	636	340
Total royalty and other operating income	**2,447**	**2,060**

In 2017 income from out-licensing agreements included an upfront payment from the exclusive licence agreement with Dermira for the development and worldwide commercialisation of lebrikizumab for atopic dermatitis and other potential indications. Income from disposal of products included the divestment of the worldwide rights for both Bonviva and Bondronat (both excluding US and Japan), Dilatrend and Kytril (excluding Japan).

In 2016 income from product disposals and other operating income included the product divestment of Xenical.

3. Net financial expense

Financing costs in millions of CHF

	2017	2016
Interest expense	(585)	(688)
Amortisation of debt discount [20]	(13)	(19)
Net gains (losses) on debt derivatives	–	1
Net gains (losses) on redemption and repurchase of bonds and notes [20]	(74)	(142)
Discount unwind [19]	(20)	(65)
Net interest cost of defined benefit plans [25]	(147)	(186)
Total financing costs	**(839)**	**(1,099)**

Other financial income (expense) in millions of CHF

	2017	2016
Net gains (losses) on sale of equity securities	186	162
Net gains (losses) on equity security derivatives	–	–
Dividend income	2	2
Write-downs and impairments of equity securities	(17)	(10)
Net income from equity securities	**171**	**154**
Interest income	30	22
Net gains (losses) on sale of debt securities	3	3
Net interest income and income from debt securities	**33**	**25**
Net foreign exchange gains (losses)	(238)	44
Net gains (losses) on foreign currency derivatives	123	(168)
Foreign exchange gains (losses)	**(115)**	**(124)**
Net other financial income (expense)	(3)	(18)
Associates [22]	(2)	–
Total other financial income (expense)	**84**	**37**

Net financial expense in millions of CHF

	2017	2016
Financing costs	(839)	(1,099)
Other financial income (expense)	84	37
Net financial expense	**(755)**	**(1,062)**
Financial result from Treasury management	(606)	(876)
Financial result from Pension management	(147)	(186)
Associates [22]	(2)	–
Net financial expense	**(755)**	**(1,062)**

4. Income taxes

Income tax expenses in millions of CHF

	2017	2016
Current income taxes	(4,846)	(3,576)
Deferred taxes	1,423	302
Total income tax (expense)	**(3,423)**	**(3,274)**

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

The Group's average expected tax rate decreased to 21.5% in 2017 (2016: 24.7%). The decrease was mainly due to the lower proportion of the Group's profits from the US, which has a relatively higher local tax rate than the Group's average tax rate. The lower proportion of US profits was driven by goodwill impairments in 2017.

The Group's effective tax rate increased to 27.9% in 2017 (2016: 25.2%). The main drivers for the increase were the goodwill impairments mentioned above, which are not tax deductible, the impact from the intra-group transfer of intangible rights in 2016 and the transitional effect of changes in US tax rates.

On 22 December 2017 changes to US tax rates were enacted that will become effective from 1 January 2018. Among the changes is a decrease in the US Federal tax rate from 35% to 21%. The Group has carried out a remeasurement of its deferred tax positions and as a consequence the net deferred tax asset recorded on the balance sheet was reduced by CHF 346 million as of the end of 2017. This resulted in a transitional expense of CHF 116 million in 2017. The remaining adjustments of CHF 230 million were recorded to other comprehensive income, in so far as they relate to temporary differences arising on items that were themselves recorded to other comprehensive income, such as actuarial gains/losses on US pension plans.

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

Reconciliation of the Group's effective tax rate

	2017	2016
Average expected tax rate	21.5%	24.7%
Tax effect of		
– Non-taxable income/non-deductible expenses	+4.8%	+1.3%
– Equity compensation plans	+0.2%	+0.8%
– Research and development tax credits and manufacturing deductions	–2.9%	–2.6%
– US state tax impacts	+0.5%	+0.7%
– Tax on unremitted earnings	+1.7%	+1.7%
– Utilisation of previously unrecognised tax losses	–	–0.3%
– Deferred tax on intra-group transfers	–	–2.3%
– Transitional effect of changes in US tax rates	+0.9%	–
– Prior year and other differences	+1.2%	+1.2%
Group's effective tax rate	**27.9%**	**25.2%**

The income tax benefit recorded in respect of equity compensation plans, which varies according to the price of the underlying equity, was CHF 87 million (2016: CHF 3 million). Had the income tax benefits been recorded solely on the basis of the IFRS 2 expense multiplied by the applicable tax rate, then a benefit of approximately CHF 118 million (2016: CHF 111 million) would have been recorded.

Tax effects of other comprehensive income in millions of CHF

	2017			2016		
	Pre-tax amount	Tax	After-tax amount	Pre-tax amount	Tax	After-tax amount
Remeasurements of defined benefit plans	732	(328)	404	192	(18)	174
Available-for-sale investments	(37)	15	(22)	13	7	20
Cash flow hedges	(31)	20	(11)	81	(26)	55
Currency translation of foreign operations	362	–	362	496	–	496
Other comprehensive income	**1,026**	**(293)**	**733**	**782**	**(37)**	**745**

Income tax assets (liabilities) in millions of CHF

	2017	2016	2015
Current income taxes			
– Assets	348	335	239
– Liabilities	(3,408)	(2,713)	(2,781)
Net current income tax assets (liabilities)	**(3,060)**	**(2,378)**	**(2,542)**
Deferred taxes			
– Assets	3,576	2,826	2,564
– Liabilities	(495)	(838)	(545)
Net deferred tax assets (liabilities)	**3,081**	**1,988**	**2,019**

Current income tax liabilities include accruals for uncertain tax positions.

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

	2017	2016
Net current income tax asset (liability) at 1 January	(2,378)	(2,542)
Income taxes paid	3,909	3,738
Business combinations	–	–
(Charged) credited to the income statement	(4,846)	(3,576)
(Charged) credited to equity from equity compensation plans and other transactions with shareholders	152	69
Currency translation effects and other movements	103	(67)
Net current income tax asset (liability) at 31 December	**(3,060)**	**(2,378)**

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

	Property, plant and equipment	Intangible assets	Defined benefit plans	Other temporary differences	Total
Year ended 31 December 2016					
At 1 January 2016	(754)	(3,531)	1,622	4,682	2,019
(Charged) credited to the income statement	(88)	971	(50)	(531)	302
(Charged) credited to other comprehensive income [21]	–	–	(18)	(19)	(37)
(Charged) credited to equity from equity compensation plans and other transactions with shareholders	–	–	–	(322)	(322)
Currency translation effects and other movements	(20)	(88)	16	118	26
At 31 December 2016	**(862)**	**(2,648)**	**1,570**	**3,928**	**1,988**
Year ended 31 December 2017					
At 1 January 2017	(862)	(2,648)	1,570	3,928	1,988
Business combinations [5]	–	(28)	–	–	(28)
(Charged) credited to the income statement	198	1,812	(98)	(489)	1,423
(Charged) credited to other comprehensive income [21]	–	–	(328)	35	(293)
(Charged) credited to equity from equity compensation plans and other transactions with shareholders	–	–	–	(128)	(128)
Currency translation effects and other movements	6	119	37	(43)	119
At 31 December 2017	**(658)**	**(745)**	**1,181**	**3,303**	**3,081**

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

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

Unrecognised tax losses: expiry

	2017 Amount (CHF m)	2017 Applicable tax rate	Amount (CHF m)	2016 Applicable tax rate
Within one year	–	–	186	12%
Between one and five years	2,358	12%	2,095	12%
More than five years	9,103	5%	8,021	4%
Total unrecognised tax losses	**11,461**	**6%**	**10,302**	**6%**

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

Deferred tax liabilities have not been established for the withholding tax and other taxes that would be payable on the remittance of earnings of foreign subsidiaries, where such amounts are currently regarded as permanently reinvested for the purpose of these financial statements. The total unremitted earnings of the Group, regarded as permanently reinvested for the purpose of these financial statements, were CHF 29.1 billion at 31 December 2017 (2016: CHF 29.9 billion).

5. Business combinations

Acquisitions – 2017

mySugr GmbH. On 29 June 2017 the Group acquired a 100% controlling interest in mySugr GmbH ('mySugr'), a private company based in Vienna, Austria. mySugr has developed one of the leading mobile diabetes platforms in the market and will become part of the Group's new digital health services in diabetes care. The acquisition of mySugr expands the Group's leading position in the area of diabetes management. mySugr is reported in the Diagnostics operating segment as part of the Diabetes Care business. The total cash consideration was EUR 64 million.

Viewics, Inc. On 27 November 2017 the Group acquired a 100% controlling interest in Viewics, Inc. ('Viewics'), a US privately owned company based in San Jose, California. Viewics is a software company focused on a laboratory business analytics solution. The acquisition of Viewics expands the Group's leading position in the integrated core lab with business analytics capabilities, enabling laboratories to make faster data-driven informed decisions on their operations and processes. Viewics is reported in the Diagnostics operating segment. The total consideration was USD 81 million, of which USD 62 million was paid in cash, USD 9 million was deferred consideration which will be paid over the period from the date of control to 2021 and USD 10 million arose from a contingent consideration arrangement. The contingent payments are based on the achievement of performance-related milestones and the range of undiscounted outcomes is between zero and USD 10 million.

The identifiable assets acquired and liabilities assumed are set out in the table below. The amounts for mySugr and Viewics are provisional based on preliminary information and valuations of the assets and liabilities and subject to adjustment during 2018.

Acquisitions – 2017: net assets acquired in millions of CHF

	mySugr	Viewics	Total
Intangible assets			
– Product intangibles: in use	20	40	60
– Product intangibles: not available for use	–	–	–
– Marketing intangibles: in use	29	–	29
Cash and cash equivalents	1	4	5
Deferred tax liabilities	(12)	(16)	(28)
Other net assets (liabilities)	(2)	1	(1)
Net identifiable assets	**36**	**29**	**65**
Fair value of previously held interest	(11)	(8)	(19)
Goodwill	45	59	104
Total consideration	**70**	**80**	**150**
Cash	70	62	132
Deferred consideration [19]	–	8	8
Contingent consideration [19]	–	10	10
Total consideration	**70**	**80**	**150**

The fair value of the product intangible asset for mySugr is determined using a replacement cost method. The fair value of the other intangible assets is determined using an excess earning method that is based on management forecasts and observable market data for discount rates, tax rates and foreign exchange rates. The present value is calculated using a risk-adjusted discount rate of 13.0% for mySugr and 9.5% for Viewics. The valuations were performed by independent valuers.

The Viewics accounts receivable is comprised of gross contractual amounts due of CHF 2 million which were all expected to be collectable at the date of the acquisition.

Goodwill represents a control premium, the acquired work force and the synergies that can be expected from integrating the acquired companies into the Group's existing business. None of the goodwill is expected to be deductible for income tax purposes.

The Group recognised a financial gain of CHF 7 million and CHF 2 million respectively for fair valuing the 12% interest in mySugr and the 10% interest in Viewics held by the Group prior to the transaction. This gain is included in other financial income (expense) for 2017.

Directly attributable transaction costs of CHF 2 million were reported in the Diagnostics operating segment within general and administration expenses.

The impact of the mySugr and Viewics acquisitions on the 2017 results for the Diagnostics Division and the Group were not material.

Future acquisitions

Ignyta, Inc. On 22 December 2017 the Group announced that it had entered into a merger agreement with Ignyta, Inc. ('Ignyta') to fully acquire Ignyta at a price of USD 27.00 per share in an all-cash transaction. This corresponds to a total transaction value of USD 1.7 billion on a fully diluted basis. Ignyta is a publicly owned US company based in San Diego, California, and is listed on Nasdaq under the stock code 'RXDX'. The closing of the transaction is expected to take place in the first half of 2018 and will be subject to a majority of Ignyta's outstanding shares being tendered to the Group, to the expiration or termination of the waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976 and other customary conditions. Upon closing, Ignyta will be reported in the Pharmaceuticals Division.

Acquisitions – 2016

The Group did not complete any business combinations in 2016.

Cash flows from business combinations

Acquisitions: net cash outflow in millions of CHF

	Pharmaceuticals	Diagnostics	2017 Total	Pharmaceuticals	Diagnostics	2016 Total
Cash consideration paid	–	(132)	(132)	–	–	–
Deferred consideration paid	–	(5)	(5)	–	(5)	(5)
Contingent consideration paid [19]	(5)	(141)	(146)	–	(69)	(69)
Cash in acquired company	–	5	5	–	–	–
Transaction costs	–	(2)	(2)	–	–	–
Total net cash outflow	**(5)**	**(275)**	**(280)**	**–**	**(74)**	**(74)**

6. Global restructuring plans

During 2017 the Group initiated various resourcing flexibility plans in its Pharmaceuticals Division to address various future challenges including biosimilar competition. The areas of the plans include biologics manufacturing, commercial operations and product development/strategy. The Group also continued with the implementation of several major global restructuring plans initiated in prior years, notably the strategic realignment of the Pharmaceuticals Division's manufacturing network, and programmes to address long-term strategy in the Diagnostics Division.

Global restructuring plans: costs incurred in millions of CHF

	Diagnostics[1]	Site consolidation[2]	Other plans[3]	Total
Year ended 31 December 2017				
Global restructuring costs				
– Employee-related costs	152	13	258	423
– Site closure costs	48	245	2	295
– Divestment of products and businesses	–	166	–	166
– Other reorganisation expenses	92	160	72	324
Total global restructuring costs	**292**	**584**	**332**	**1,208**
Additional costs				
– Impairment of goodwill	–	–	–	–
– Impairment of intangible assets	–	–	–	–
– Legal and environmental cases	–	46	–	46
Total costs	**292**	**630**	**332**	**1,254**
Year ended 31 December 2016				
Global restructuring costs				
– Employee-related costs	90	86	127	303
– Site closure costs	33	367	3	403
– Other reorganisation expenses	189	271	67	527
Total global restructuring costs	**312**	**724**	**197**	**1,233**
Additional costs				
– Impairment of goodwill	–	–	–	–
– Impairment of intangible assets	–	–	–	–
– Legal and environmental cases	–	24	–	24
Total costs	**312**	**748**	**197**	**1,257**

1) Includes strategy plans in the Diagnostics Division and the Diabetes Care 'Autonomy and Speed' plan.
2) Includes the Pharmaceuticals Division's strategic realignment of its manufacturing network and resourcing flexibility in biologics manufacturing network.
3) Includes plans for resourcing flexibility in the Pharmaceuticals Division's commercial operations and global product development/strategy organisations and the Pharmaceuticals Division's research and development strategic realignment and outsourcing of IT and other functions.

Diagnostics Division

In 2017 strategy plans in the Diagnostics Division that were launched in 2016 incurred costs of CHF 212 million mainly for employee-related costs (2016: CHF 106 million related to site closures and employees). Spending on other smaller plans within the division was CHF 80 million (2016: CHF 206 million) and included costs related to the 'Autonomy and Speed' initiative in Diabetes Care and certain IT projects.

Site consolidation

On 12 November 2015 the Pharmaceuticals Division announced a strategic realignment of its manufacturing network including exiting from the manufacturing sites at Clarecastle, Ireland; Leganés, Spain; Segrate, Italy; and Florence, US. Costs from this plan in 2017 were CHF 480 million (2016: CHF 733 million), of which CHF 185 million were non-cash impairments and accelerated depreciation of property, plant and equipment (2016: CHF 337 million). Some employee-related provisions were reversed as the most likely scenario for the Segrate site was changed from closure to divestment. The divestment of the Florence, Segrate and Leganés sites have been completed in 2017 and result in total costs of CHF 201 million. This includes CHF 100 million of accumulated currency translation losses on consolidation that were transferred to the income statement (see Note 22). The expected costs of the environmental remediation at the Clarecastle site were reassessed and resulted in an increase in provisions for environmental remediation (see Note 19). Other plans include the resourcing flexibility in biologics manufacturing network which resulted in headcount reductions in the US and also at the Kaiseraugst site in Switzerland and the exit from the small molecules manufacturing site at Toluca, Mexico.

The divestment of the Nutley site in the US was completed in the second half of 2016 and resulted in an increase in provisions for environmental remediation.

Other global restructuring plans

In 2017 total costs were CHF 332 million, with the major item being CHF 247 million for resourcing flexibility in the Pharmaceuticals Division, including global field force reductions, notably in the US and Europe. The remaining CHF 85 million includes plans for the outsourcing of IT and other functions to shared service centres and external providers.

In 2016 total costs were CHF 197 million, with the major items being CHF 74 million from the Pharmaceuticals Division research and development strategic realignment and CHF 90 million in informatics mainly for the outsourcing of IT functions to shared service centres and external providers. The remaining minor plans totalled CHF 33 million.

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

	2017	2016
Employee-related costs		
– Termination costs	378	231
– Defined benefit plans	(7)	11
– Other employee-related costs	52	61
Total employee-related costs	**423**	**303**
Site closure costs		
– Impairment of property, plant and equipment	192	258
– Accelerated depreciation of property, plant and equipment	48	128
– (Gains) losses on disposal of property, plant and equipment	–	(54)
– Other site closure costs	55	71
Total site closure costs	**295**	**403**
Divestment of products and businesses		
– (Gains) losses on divestment of subsidiaries [22]	126	–
– Other (gains) losses on divestment of products and businesses	40	–
Total costs on divestment of products and businesses	**166**	**–**
Other reorganisation expenses	324	527
Total global restructuring costs	**1,208**	**1,233**
Additional costs		
– Impairment of goodwill	–	–
– Impairment of intangible assets	–	–
– Legal and environmental cases	46	24
Total costs	**1,254**	**1,257**

Global restructuring plans: classification of costs in millions of CHF

	2017			2016		
	Depreciation, amortisation and impairment	Other costs	Total	Depreciation, amortisation and impairment	Other costs	Total
Cost of sales						
– Pharmaceuticals	203	174	377	351	386	737
– Diagnostics	32	75	107	27	73	100
Marketing and distribution						
– Pharmaceuticals	1	233	234	2	24	26
– Diagnostics	1	91	92	–	102	102
Research and development						
– Pharmaceuticals	–	21	21	2	88	90
– Diagnostics	–	66	66	3	40	43
General and administration						
– Pharmaceuticals	–	291	291	1	81	82
– Diagnostics	3	24	27	–	66	66
– Corporate	–	39	39	–	11	11
Total	**240**	**1,014**	**1,254**	**386**	**871**	**1,257**
Total by operating segment						
– Roche Pharmaceuticals	204	719	923	356	579	935
– Chugai	–	–	–	–	–	–
– Diagnostics	36	256	292	30	281	311
– Corporate	–	39	39	–	11	11
Total	**240**	**1,014**	**1,254**	**386**	**871**	**1,257**

7. Property, plant and equipment

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

	Land	Buildings and land improvements	Machinery and equipment	Construction in progress	Total
At 1 January 2016					
Cost	933	14,064	18,300	2,897	36,194
Accumulated depreciation and impairment	–	(5,877)	(11,806)	(38)	(17,721)
Net book value	**933**	**8,187**	**6,494**	**2,859**	**18,473**
Year ended 31 December 2016					
At 1 January 2016	933	8,187	6,494	2,859	18,473
Business combinations	–	–	–	–	–
Additions	22	242	1,103	2,423	3,790
Disposals	(8)	(41)	(70)	(1)	(120)
Transfers	8	740	900	(1,648)	–
Depreciation charge	–	(593)	(1,565)	–	(2,158)
Impairment charge	(3)	(107)	(165)	(16)	(291)
Other	–	(1)	(10)	(2)	(13)
Currency translation effects	26	133	90	27	276
At 31 December 2016	**978**	**8,560**	**6,777**	**3,642**	**19,957**
Cost	981	14,772	19,723	3,671	39,147
Accumulated depreciation and impairment	(3)	(6,212)	(12,946)	(29)	(19,190)
Net book value	**978**	**8,560**	**6,777**	**3,642**	**19,957**
Year ended 31 December 2017					
At 1 January 2017	978	8,560	6,777	3,642	19,957
Business combinations	–	–	–	–	–
Additions	–	272	1,135	2,070	3,477
Disposals	(3)	(26)	(73)	(4)	(106)
Divestment of subsidiaries [22]	(3)	–	–	–	(3)
Transfers	24	1,322	975	(2,321)	–
Depreciation charge	–	(645)	(1,551)	–	(2,196)
Impairment charge	(1)	(46)	(178)	(8)	(233)
Other	–	–	(57)	–	(57)
Currency translation effects	(15)	(28)	65	51	73
At 31 December 2017	**980**	**9,409**	**7,093**	**3,430**	**20,912**
Cost	980	15,602	19,982	3,445	40,009
Accumulated depreciation and impairment	–	(6,193)	(12,889)	(15)	(19,097)
Net book value	**980**	**9,409**	**7,093**	**3,430**	**20,912**

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

	2017	2016
Cost of sales	(210)	(280)
Marketing and distribution	(1)	–
Research and development	(1)	(11)
General and administration	(21)	–
Total impairment charge	**(233)**	**(291)**

Impairment charges for property, plant and equipment were mainly related to global restructuring plans (see Note 6).

In 2017 no reimbursements were received from insurance companies in respect of impairments to property, plant and equipment (2016: none). In 2017 no borrowing costs were capitalised as property, plant and equipment (2016: none).

Divestment of Nutley site in 2016

On 29 September 2016, the Group completed the divestment of the Nutley site. The total net consideration received in cash was CHF 96 million.

Genentech property purchase option exercise in 2015

In 2004 Genentech entered into a Master Lease Agreement ('MLA') with Slough SSF LLC ('Slough'), which was subsequently acquired by Health Care Properties, for the lease of property adjacent to Genentech's South San Francisco site, which was to be developed by Slough. The development included a total of eight buildings and construction was completed during 2008, at which time Genentech fully occupied the property. The property lease was until 2020 with extension options to 2030. On 1 November 2015 Genentech exercised a purchase option contained in the MLA to acquire the eight buildings and land. At 31 December 2015 the Group recorded an addition to 'land' and 'buildings and land improvements' and corresponding liabilities for the cash outflows in 2016 and 2018. The Group also reclassified the finance lease accounting balances that previously applied to these buildings. In November 2016 the first closing payment of USD 311 million was made. The final closing payment of USD 269 million is due in July 2018 and is recorded as a current liability (see Note 18).

Leasing arrangements where the Group is the lessee

Finance leases. At 31 December 2017 the capitalised cost of property, plant and equipment under finance leases was CHF 11 million (2016: CHF 18 million) and the net book value of these assets was CHF 5 million (2016: CHF 8 million). The carrying value of the leasing obligation was CHF 5 million (2016: CHF 5 million), which is reported as part of Debt (see Note 20).

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

	Future minimum lease payments		Present value of minimum lease payments	
	2017	2016	2017	2016
Within one year	1	1	1	1
Between one and five years	4	4	4	4
More than five years	–	–	–	–
Total	**5**	**5**	**5**	**5**
Future finance charges	–	–	–	–
Total future minimum lease payments (undiscounted)	**5**	**5**	**5**	**5**

Operating leases. Group companies are party to a number of operating leases, mainly for property rentals and motor vehicles. The arrangements do not impose any significant restrictions on the Group. Total operating lease rental expense was CHF 461 million (2016: CHF 458 million).

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

	2017	2016
Within one year	366	311
Between one and five years	752	664
More than five years	228	188
Total minimum payments	**1,346**	**1,163**

Leasing arrangements where the Group is the lessor

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. Lease income from finance leases is recognised over the term of the lease based on the effective interest rate method.

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

	Gross investment in lease		Present value of minimum lease receipts	
	2017	2016	2017	2016
Within one year	40	39	36	34
Between one and five years	93	92	84	85
More than five years	5	4	5	3
Total	**138**	**135**	**125**	**122**
Unearned finance income	(12)	(12)	n/a	n/a
Unguaranteed residual value	n/a	n/a	1	1
Net investment in lease	**126**	**123**	**126**	**123**

The accumulated allowance for uncollectible minimum lease payments was CHF 1 million (2016: CHF 1 million).

Operating leases. Certain assets, mainly Diagnostics instruments, are leased to third parties through operating lease arrangements. Such assets are reported within property, plant and equipment. Lease income from operating leases is recognised over the lease term on a straight-line basis.

At 31 December 2017 machinery and equipment with an original cost of CHF 4.8 billion (2016: CHF 4.4 billion) and a net book value of CHF 1.7 billion (2016: CHF 1.5 billion) was being leased to third parties.

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

	2017	2016
Within one year	57	64
Between one and five years	94	86
More than five years	3	4
Total minimum receipts	**154**	**154**

Capital commitments

The Group has non-cancellable capital commitments for the purchase or construction of property, plant and equipment totalling CHF 1.2 billion (2016: CHF 1.4 billion).

8. Goodwill

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

	2017	2016
At 1 January		
Cost	12,655	12,342
Accumulated impairment	(1,373)	(1,260)
Net book value	**11,282**	**11,082**
Year ended 31 December		
At 1 January	11,282	11,082
Business combinations [5]	104	–
Impairment charge	(1,058)	(95)
Currency translation effects	(251)	295
At 31 December	**10,077**	**11,282**
Cost	12,461	12,655
Accumulated impairment	(2,384)	(1,373)
Net book value	**10,077**	**11,282**
Allocated to the following cash-generating units		
Roche Pharmaceuticals	4,677	5,241
Foundation Medicine	97	101
Chugai	96	97
Total Pharmaceuticals Division	**4,870**	**5,439**
Diabetes Care	880	827
Centralised and Point of Care Solutions	1,730	1,785
Molecular Diagnostics	379	396
Tissue Diagnostics	–	–
Sequencing	–	700
Divisional goodwill	2,218	2,135
Total Diagnostics Division	**5,207**	**5,843**

Impairment charge – 2017

During 2017 impairment charges totalling CHF 1,058 million which related to:

- A charge of CHF 674 million in the Diagnostics Division for the full write-off of the sequencing business goodwill. The factors leading to this impairment were: (i) a decrease in forecasted cash flows relative to the previous year's long-term forecast due to changed assumptions around market penetration, pricing and reimbursement; and (ii) a revised time to market of the single molecule sequencing technology. In addition impairment charges of CHF 120 million were recorded for sequencing business product intangibles in use acquired as part of the Ariosa acquisition (see Note 9).
- A charge of CHF 384 million in the Pharmaceuticals Division for the full write-off of the goodwill relating to the Seragon acquisition due to the decision to stop development of the back-up compound acquired.

Impairment charge – 2016

During 2016, a goodwill impairment charge of CHF 95 million was recorded in the Pharmaceuticals Division for the full write-off of goodwill from the Anadys Pharmaceuticals, Inc. acquisition in 2011 which is deemed to have been disposed of.

Impairment testing

Pharmaceuticals Division. The division's operating segments are the cash-generating units used for the testing of goodwill. Part of the goodwill arising from the Foundation Medicine acquisition is recorded and monitored at a Roche Pharmaceuticals level as it relates to the strategic development of Roche Pharmaceuticals. Therefore the cash-generating unit for this strategic goodwill is Roche Pharmaceuticals. The recoverable amount used in the impairment testing is the higher of value in use and fair value less costs of disposal. For Chugai and Foundation Medicine the fair value less costs of disposal is determined with reference to the publicly quoted share prices of Chugai and Foundation Medicine shares.

Diagnostics Division. The division's business areas are the cash-generating units used for the testing of goodwill. The goodwill arising from the Corange/Boehringer Mannheim acquisition and part of the goodwill from the Ventana acquisition is recorded and monitored at a divisional level as it relates to the strategic development of the whole division and cannot be meaningfully allocated to the division's business areas. Therefore the cash-generating unit for this goodwill is the entire division. The goodwill arising from the Viewics acquisition is monitored at the divisional level. The recoverable amount used in the impairment testing is based on value in use.

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

Key assumptions used in value in use calculations

	2017			2016		
	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						
– Roche Pharmaceuticals	5 years	n/a	6.8%	5 years	n/a	6.5%
Diagnostics Division						
– Sequencing	10 years	1.5%	6.8%	10 years	1.5%	6.5%
– Other Diagnostics businesses	5 years	1.5%	6.8%	5 years	1.5%	6.5%

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. The ten years period of cash flow projections reflects the long-term nature of the development of the sequencing business.

Sensitivity analysis

Management has performed sensitivity analyses for Roche Pharmaceuticals and the Diagnostics Division, which increased the discount rate by 1% combined with decreasing the forecast cash flows by 5%, and for Chugai and Foundation Medicine, which decreased the publicly quoted share prices by 5%. The results of the sensitivity analyses demonstrated that the above changes in the key assumptions would not cause the carrying values of goodwill to exceed the recoverable amounts at 31 December 2017.

9. Intangible assets

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

	Product intangibles: in use	Product intangibles: not available for use	Marketing intangibles: in use	Technology intangibles: in use	Total
At 1 January 2016					
Cost	22,746	5,025	56	1,013	28,840
Accumulated amortisation and impairment	(13,093)	(1,128)	(33)	(725)	(14,979)
Net book value	**9,653**	**3,897**	**23**	**288**	**13,861**
Year ended 31 December 2016					
At 1 January 2016	9,653	3,897	23	288	13,861
Additions	105	926	18	16	1,065
Disposal	–	–	–	–	–
Transfers	252	(252)	–	–	–
Amortisation charge	(1,700)	–	(5)	(78)	(1,783)
Impairment charge	(70)	(1,343)	–	–	(1,413)
Currency translation effects	220	91	1	4	316
At 31 December 2016	**8,460**	**3,319**	**37**	**230**	**12,046**
Cost	23,579	5,795	66	1,057	30,497
Accumulated amortisation and impairment	(15,119)	(2,476)	(29)	(827)	(18,451)
Net book value	**8,460**	**3,319**	**37**	**230**	**12,046**
Allocated by operating segment					
Roche Pharmaceuticals	7,089	2,045	3	182	9,319
Chugai	26	64	21	–	111
Diagnostics	1,345	1,210	13	48	2,616
Total Group	**8,460**	**3,319**	**37**	**230**	**12,046**
Year ended 31 December 2017					
At 1 January 2017	8,460	3,319	37	230	12,046
Business combinations [5]	60	–	29	–	89
Additions	75	644	12	38	769
Disposal	–	–	–	–	–
Transfers	467	(501)	–	34	–
Amortisation charge	(1,592)	–	(9)	(90)	(1,691)
Impairment charge	(1,784)	(676)	–	–	(2,460)
Currency translation effects	(267)	(114)	1	(5)	(385)
At 31 December 2017	**5,419**	**2,672**	**70**	**207**	**8,368**
Cost	22,425	5,626	109	1,094	29,254
Accumulated amortisation and impairment	(17,006)	(2,954)	(39)	(887)	(20,886)
Net book value	**5,419**	**2,672**	**70**	**207**	**8,368**
Allocated by operating segment					
Roche Pharmaceuticals	4,047	2,025	2	140	6,214
Chugai	27	58	27	–	112
Diagnostics	1,345	589	41	67	2,042
Total Group	**5,419**	**2,672**	**70**	**207**	**8,368**

Significant intangible assets at 31 December 2017 in millions of CHF

	Operating segment	Net book value	Remaining amortisation period
Product intangibles in use			
InterMune acquisition	Roche Pharmaceuticals	2,878	4 years
Foundation Medicine acquisition	Roche Pharmaceuticals	386	7 years
Ariosa acquisition	Diagnostics	312	17 years
Kapa acquisition	Diagnostics	264	13 years
CMI acquisition	Diagnostics	259	14 years
IQuum acquisition	Diagnostics	190	16 years
Product intangibles not available for use			
BioNTech licence transaction	Roche Pharmaceuticals	303	n/a
GeneWeave acquisition	Diagnostics	268	n/a
Genia acquisition	Diagnostics	248	n/a
Technology intangibles in use			
Dutalys acquisition	Roche Pharmaceuticals	65	3 years

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

	Amortisation		Impairment	
	2017	2016	2017	2016
Cost of sales				
– Pharmaceuticals	(1,230)	(1,314)	(1,664)	–
– Diagnostics	(315)	(323)	(120)	(70)
Marketing and distribution				
– Pharmaceuticals	(6)	(3)	–	–
– Diagnostics	(3)	(2)	–	–
Research and development				
– Pharmaceuticals	(123)	(135)	(524)	(1,343)
– Diagnostics	(14)	(6)	(152)	–
Total	**(1,691)**	**(1,783)**	**(2,460)**	**(1,413)**

Internally generated intangible assets

The 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 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 or separate purchases. At 31 December 2017 approximately 68% (2016: 70%) of the projects in the Pharmaceuticals Division have known decision points within the next twelve months which in certain circumstances could lead to impairment. Due to the inherent uncertainties in the research and development processes, intangible assets not available for use are particularly at risk of impairment if the project is not expected to result in a commercialised product.

Intangible asset impairment

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

Impairment charges – 2017

Pharmaceuticals Division. Impairment charges totalling CHF 2,188 million were recorded which related to:

- A charge of CHF 1,664 million for the partial impairment of the Esbriet product intangible in use acquired as part of the InterMune acquisition. The asset concerned was written down to its estimated recoverable value of CHF 2,878 million. The main factor leading to this was a decrease in forecasted cash flows relative to the previous year's long-term forecast due to a reduction in sales expectations. The intangible asset continues to be amortised over its remaining estimated useful life of four years.
- A charge of CHF 195 million due to the launch of a competitor product for the compound acquired as part of the Trophos acquisition. The asset concerned, which was not yet being amortised, was written down to its estimated recoverable value of CHF 101 million.
- A charge of CHF 149 million due to the decision to stop development of one compound with an alliance partner following an assessment of clinical and non-clinical data. The asset concerned, which was not yet being amortised, was fully written down.
- A charge of CHF 74 million due to the decision to stop development of one compound acquired as part of the Dutalys acquisition. The asset concerned, which was not yet being amortised, was fully written down.
- A charge of CHF 47 million due to the decision to stop development of one compound acquired as part of the Santaris acquisition following a clinical data assessment. The asset concerned, which was not yet being amortised, was fully written down.
- A charge of CHF 39 million due to the decision to stop development of two compounds with two different alliance partners. The assets concerned, which were not yet being amortised, were fully written down.
- A charge of CHF 20 million following clinical data assessments. The assets concerned, which were not yet being amortised, were fully written down.

Diagnostics Division. Impairment charges totalling CHF 272 million were recorded which related to:

- A charge of CHF 152 million for the partial impairment of Molecular Diagnostics product intangibles not available for use acquired as part of the GeneWeave acquisition. The factor leading to this partial impairment was 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. The asset concerned, which was not yet being amortised, was written down to its estimated recoverable value of CHF 268 million.
- A charge of CHF 120 million for the partial impairment of sequencing business product intangibles in use acquired as part of the Ariosa acquisition. The factor leading to this impairment was a decrease in forecasted cash flows following revised assumptions on pricing and penetration rate due to market dynamics. The asset concerned, which was being amortised, was written down to its estimated recoverable value of CHF 312 million.

Impairment charges – 2016

Pharmaceuticals Division. Impairment charges totalling CHF 1,343 million were recorded which related to:

- A decision to stop development of one compound acquired as part of the Seragon acquisition following a clinical data assessment (CHF 885 million). The asset concerned, which was not yet being amortised, was fully written down.
- A delay in the development of the compound acquired as part of the Trophos acquisition following regulatory feedback (CHF 187 million). The asset concerned, which was not yet being amortised, was written down to its estimated recoverable value of CHF 301 million.
- A portfolio reassessment of one compound (CHF 162 million). The asset concerned, which was not yet being amortised, was fully written down.
- A clinical data assessment of two development projects with two different alliance partners (CHF 67 million). The assets concerned, which were not yet being amortised, were fully written down.
- A decision to stop development of three compounds (CHF 42 million). The assets concerned, which were not yet being amortised, were fully written down.

Diagnostics Division. Impairment charges totalling CHF 70 million were recorded which related to:

- Sequencing product intangibles in use (CHF 63 million) as a result of a decision to stop the product development, commercialisation and licence agreement with an alliance partner. The asset concerned, which was being amortised, was fully written down.
- Tissue Diagnostics product intangibles in use (CHF 7 million) as a result of a strategic portfolio reassessment. 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 Group is party to in-licensing and similar arrangements with its alliance partners and intangible asset purchase agreements from third parties. These arrangements and purchase agreements may require the Group to make certain milestone or other similar payments dependent upon the achievement of agreed objectives or performance targets as defined in the collaboration and purchase agreements.

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

Potential future third-party collaboration and purchase payments at 31 December 2017 in millions of CHF

	Pharmaceuticals	Diagnostics	Group
Within one year	815	22	837
Between one and two years	430	3	433
Between two and three years	708	3	711
Total	**1,953**	**28**	**1,981**

10. Inventories

Inventories in millions of CHF

	2017	2016	2015
Raw materials and supplies	1,182	1,194	1,091
Work in process	101	114	133
Intermediates	4,660	5,372	5,458
Finished goods	2,052	1,880	1,485
Provision for slow-moving and obsolete inventory	(588)	(632)	(519)
Total inventories	**7,407**	**7,928**	**7,648**

Inventories expensed through cost of sales totalled CHF 11.3 billion (2016: CHF 11.1 billion). Inventory write-downs during the year resulted in an expense of CHF 663 million (2016: CHF 772 million).

11. Accounts receivable

Accounts receivable in millions of CHF

	2017	2016	2015
Trade receivables	10,371	9,416	9,011
Notes receivable	102	83	90
Other receivables	36	34	37
Allowances for doubtful accounts	(517)	(538)	(567)
Chargebacks and other allowances to be withheld upon settlement [2]	(415)	(235)	(242)
Total accounts receivable	**9,577**	**8,760**	**8,329**

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

	2017	2016
At 1 January	(538)	(567)
Additional allowances created	(91)	(196)
Unused amounts reversed	77	151
Utilised during the year	43	72
Currency translation effects	(8)	2
At 31 December	**(517)**	**(538)**

Bad debt expenses recorded as marketing and distribution costs totalled CHF 12 million (2016: expense of CHF 10 million).

12. Marketable securities

Marketable securities in millions of CHF

	2017	2016	2015
Available-for-sale financial assets			
Equity securities	10	69	105
Debt securities	1,161	1,509	1,390
Money market instruments and time accounts over three months	6,107	3,366	3,945
Other investments	–	–	–
Total marketable securities	**7,278**	**4,944**	**5,440**

Marketable securities are held for fund management purposes and are primarily denominated in Swiss francs, US dollars and euros. Money market instruments are contracted to mature within one year of 31 December 2017.

Debt securities – contracted maturity in millions of CHF

	2017	2016	2015
Within one year	217	364	302
Between one and five years	867	906	959
More than five years	77	239	129
Total debt securities	**1,161**	**1,509**	**1,390**

13. Cash and cash equivalents

Cash and cash equivalents in millions of CHF

	2017	2016	2015
Cash – cash in hand and in current or call accounts	3,419	3,304	2,826
Cash equivalents – time accounts with a maturity of three months or less	1,300	859	905
Total cash and cash equivalents	**4,719**	**4,163**	**3,731**

14. Other non-current assets

Other non-current assets in millions of CHF

	2017	2016	2015
Available-for-sale investments – held at fair value [29]	294	249	219
Available-for-sale investments – held at cost	252	279	90
Loans receivable	8	7	11
Long-term trade receivables	38	27	16
Restricted cash	2	2	2
Other receivables	91	88	76
Total financial non-current assets	**685**	**652**	**414**
Long-term employee benefits	249	254	243
Other assets	400	394	302
Total non-financial non-current assets	**649**	**648**	**545**
Associates [22]	36	–	–
Total other non-current assets	**1,370**	**1,300**	**959**

The available-for-sale investments are mainly equity investments in private biotechnology companies, which are kept as part of the Group's strategic alliance efforts. Some unquoted equity investments classified as available-for-sale are measured at cost, as their fair value cannot be measured reliably.

15. Other current assets

Other current assets in millions of CHF

	2017	2016	2015
Accrued interest income	45	51	52
Derivative financial instruments [29]	97	185	169
Restricted cash	–	8	–
Cash collateral receivables	50	337	579
Other receivables	801	768	728
Total financial current assets	**993**	**1,349**	**1,528**
Prepaid expenses and accrued income	559	544	508
Other taxes recoverable	516	482	529
Other assets	175	165	230
Total non-financial current assets	**1,250**	**1,191**	**1,267**
Total other current assets	**2,243**	**2,540**	**2,795**

Other receivables are mainly related to royalty and licensing income receivables.

16. Accounts payable

Accounts payable in millions of CHF

	2017	2016	2015
Trade payables	2,786	2,689	2,449
Other taxes payable	418	402	405
Dividends payable	2	2	2
Other payables	248	282	351
Total accounts payable	**3,454**	**3,375**	**3,207**

17. Other non-current liabilities

Other non-current liabilities in millions of CHF

	2017	2016	2015
Deferred income	86	91	78
Other long-term liabilities	120	441	427
Total other non-current liabilities	**206**	**532**	**505**

Other long-term liabilities are mainly related to accrued employee benefits and included (in 2016 and 2015) the Genentech property purchase option exercise obligation due in July 2018 (see Note 7).

18. Other current liabilities

Other current liabilities in millions of CHF

	2017	2016	2015
Deferred income	372	184	171
Accrued payroll and related items	2,853	2,356	2,402
Interest payable	218	289	445
Derivative financial instruments [29]	119	447	639
Cash collateral payables	11	35	125
Accrued chargebacks and other allowances separately payable [2]	2,242	1,704	1,458
Accrued royalties and commissions	1,148	974	1,073
Other accrued liabilities	3,172	2,889	2,884
Total other current liabilities	**10,135**	**8,878**	**9,197**

At 31 December 2017 other accrued liabilities included CHF 261 million for the short-term Genentech property purchase option exercise obligation, which is due in July 2018 (see Note 7).

19. Provisions and contingent liabilities

Provisions: movements in recognised liabilities in millions of CHF

	Legal provisions	Environmental provisions	Restructuring provisions	Contingent consideration provisions	Other provisions	Total
Year ended 31 December 2016						
At 1 January 2016	700	585	621	1,492	1,238	4,636
Additional provisions created	59	38	405	39	428	969
Unused amounts reversed	(23)	–	(110)	(447)	(269)	(849)
Utilised	(53)	(119)	(240)	(69)	(355)	(836)
Discount unwind [3]	–	10	–	53	2	65
Business combinations						
– Acquired companies [5]	–	–	–	–	–	–
– Deferred consideration [5]	–	–	–	–	–	–
– Contingent consideration [5]	–	–	–	–	–	–
Currency translation effects	22	4	(2)	21	18	63
At 31 December 2016	**705**	**518**	**674**	**1,089**	**1,062**	**4,048**
Current	677	111	376	330	777	2,271
Non-current	28	407	298	759	285	1,777
At 31 December 2016	**705**	**518**	**674**	**1,089**	**1,062**	**4,048**
Year ended 31 December 2017						
At 1 January 2017	705	518	674	1,089	1,062	4,048
Additional provisions created	60	68	543	13	523	1,207
Unused amounts reversed	(219)	(4)	(167)	(366)	(181)	(937)
Utilised	(37)	(81)	(259)	(146)	(249)	(772)
Discount unwind [3]	–	4	–	14	2	20
Business combinations						
– Acquired companies [5]	–	–	–	–	–	–
– Deferred consideration [5]	–	–	–	–	8	8
– Contingent consideration [5]	–	–	–	10	–	10
Currency translation effects	(24)	18	31	(23)	4	6
At 31 December 2017	**485**	**523**	**822**	**591**	**1,169**	**3,590**
Current	471	119	450	182	820	2,042
Non-current	14	404	372	409	349	1,548
At 31 December 2017	**485**	**523**	**822**	**591**	**1,169**	**3,590**
Expected outflow of resources						
Within one year	471	119	450	182	820	2,042
Between one and two years	8	164	193	103	56	524
Between two and three years	1	138	98	94	67	398
More than three years	5	102	81	212	226	626
At 31 December 2017	**485**	**523**	**822**	**591**	**1,169**	**3,590**

The Group has revised the presentation of provisions. Contingent consideration provisions are now presented separately and employee provisions are now included as part of 'Other provisions'. The comparative period information has been restated accordingly.

In 2017 CHF 772 million of provisions were utilised (2016: CHF 836 million), of which CHF 621 million (2016: CHF 762 million) are included in the cash flows from operating activities and CHF 151 million (2016: CHF 74 million) are included in the cash flows from business combinations for payments made from deferred and contingent consideration arrangements (see Note 5).

Legal provisions

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

As part of the regular review of litigation matters, management has reassessed the provisions recorded for certain litigation matters. Based on the development of the various litigations, notably the Accutane case, some of the provisions previously held were released, resulting in income of CHF 219 million in 2017. This was a major element in the 2017 legal expenses, which show a net income of CHF 142 million (2016: net expense of CHF 39 million). Details of the major legal cases outstanding are disclosed below.

Environmental provisions

Provisions for environmental matters include various separate environmental issues in a number of countries. By their nature the amounts and timings of any outflows are difficult to predict. Significant provisions are discounted by between 2% and 4% where the time value of money is material. The significant provisions relate to the US site in Nutley, New Jersey, which was divested in September 2016, the estimated remediation costs for a landfill site near Grenzach, Germany, that was used by manufacturing operations that were closed some years ago and the estimated remediation costs for the manufacturing site at Clarecastle, Ireland. In 2017 the expected costs of environmental remediation at the Clarecastle site were reassessed and accordingly the environmental provisions were increased by CHF 46 million. This was a major element in the 2017 environmental expenses, which show a net expense of CHF 62 million (2016: net expense of CHF 38 million).

The Group's procedures on environmental protection are included in the Annual Report on pages 74 to 85. These include the actions taken by the Group with regard to climate change, notably the Group's commitment to reduce greenhouse gas emissions.

Restructuring provisions

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

In the Pharmaceuticals Division the significant provisions relate to the strategic realignment of the manufacturing network including exiting from four manufacturing sites, the resourcing flexibility plans to address various future challenges including biosimilar competition, the research and development strategic alignment and the outsourcing of IT functions to shared service centres and external providers (see Note 6).

Contingent consideration provisions

The Group is party to certain contingent consideration arrangements arising from business combinations. Significant provisions are discounted using an average discount rate of 3.1% (2016: 3.2%) where the time value of money is material. Additional details on measurement, on main movements of the provisions 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 CHF

	2017	2016	2015
Employee provisions	362	345	313
Sales returns	366	436	616
Other items	441	281	309
Total other provisions	**1,169**	**1,062**	**1,238**

Contingent liabilities

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

The Group has entered into strategic alliances with various companies in order to gain access to potential new products or to utilise other companies to help develop the 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. The Group's best estimates of future commitments for such payments are given in Note 9.

Pharmaceuticals legal cases

At 31 December 2017 provisions for legal cases in the Pharmaceuticals Division were CHF 369 million (2016: CHF 592 million). Provisions have been recorded, and in some cases settled, mainly relating to the 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.

At 31 December 2016 there was one case on appeal (USD 25 million) where a jury in the New Jersey Superior Court had ruled in favour of the plaintiff and subsequently had its verdict reversed in favour of HLR. In January 2017 the New Jersey Supreme Court reinstated the case and remanded it to the Appellate Division for consideration of other issues. In May 2017 the Appellate Division again ruled in favour of HLR, reversed the verdict and remanded for a new trial. The plaintiff filed a petition for review to the Supreme Court, which remains pending.

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 20 February 2015 the Superior Court barred plaintiffs' experts because their methods did not meet the requirements for scientific reliability. On 8 May 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 28 July 2017 the New Jersey Appellate Division reversed the order excluding plaintiff's 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 8 December 2017. Oral argument is expected in 2018.

On 12 May 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 25 July 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 8 December 2017. Oral argument is expected in 2018.

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 have appealed all of these decisions. During February and March 2017 the Superior Court of New Jersey, Law Division, Atlantic County, 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 have appealed these decisions.

At 31 December 2017 HLR was defending approximately 2,500 actions involving approximately 2,500 plaintiffs brought in various state courts throughout the US for personal injuries allegedly resulting from their use of Accutane. There are approximately 3,619 cases on appeal. If any cases survive the appeals, additional trials may be scheduled. Individual trial results depend on a variety of factors, including many that are unique to the particular case and therefore the trial results to date may not be predictive of future trial results. The Group continues to defend vigorously the remaining personal injury cases and claims. Based on the development of the litigation some of the provisions previously held were released in 2017.

Avastin/Lucentis investigations. On 14 February 2013 the Italian Antitrust Authority ('AGCM') announced an investigation to determine whether Roche, Genentech and Novartis had entered into an agreement to restrict competition in the Italian market for drugs, with reference in particular to Avastin (marketed by Roche) and Lucentis (marketed by Novartis). Avastin and Lucentis are two different drugs that were developed and approved for different therapeutic purposes and contain different active pharmaceutical ingredients. On 5 March 2014 the AGCM issued a verdict that alleges that Roche and Novartis colluded to artificially differentiate Avastin and Lucentis in order to foster the sales of Lucentis in Italy. The AGCM fined Roche EUR 90.5 million and Novartis EUR 92 million. Roche appealed the AGCM verdict to the Tribunale Amministrativo Regionale del Lazio ('TAR'). On 2 December 2014 the TAR upheld the decision by the AGCM. Roche strongly disagrees with the verdict of the TAR and has appealed to the Consiglio di Stato. On 30 May 2014 the Italian Ministry of Health notified Roche S.p.A. of its intention to seek damages related to this matter. In July 2014 Roche paid the EUR 90.5 million fine under protest to avoid additional penalty fees and recorded an expense within general and administration. The fine and related interest will be reimbursed if Roche wins the case. On 23 January 2018 the European Court of Justice rendered its decision on five questions which were referred to the European Court of Justice by the Consiglio di Stato. The principles defined in this decision will be used by the Consiglio di Stato to render their final verdict on the case. The outcome of these matters cannot be determined at this time.

PDL-1 inhibitor litigation. On 26 July 2017 Bristol-Myers Squibb Co. ('BMS') filed a lawsuit against Genentech in Delaware. 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 4 October 2017 Genentech filed its answer and counterclaims, seeking a declaratory judgment of invalidity of the 9,402,899 patent. The outcome of this matter cannot be determined at this time.

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 31 December 2017 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.

Rituxan arbitration. In October 2008 Genentech and Biogen Idec Inc. filed a complaint in California against Sanofi-Aventis Deutschland GmbH, Sanofi-Aventis US LLC and Sanofi-Aventis US Inc. ('Sanofi') seeking a declaratory judgment that certain Genentech products, including Rituxan, do not infringe Sanofi's US Patent Nos. 5,849,522 and 6,218,140 and that the '522 and '140 patents are invalid. Sanofi alleged that Rituxan and another Genentech product infringe certain claims of the '522 and '140 patents. In March 2011 the district court ruled as a matter of law that Genentech and Biogen Idec do not infringe the asserted patent claims. In May 2011 Sanofi appealed the court's non-infringement ruling. The appellate court affirmed the district court's judgment of no patent infringement.

In addition, in October 2008 Sanofi affiliate Hoechst GmbH ('Hoechst') filed with the ICC International Court of Arbitration (Paris) a request for arbitration with Genentech, relating to a terminated patent-licence agreement between one of Hoechst's predecessors and Genentech that pertained to the above-mentioned patents and related patents outside the US. Hoechst sought payment of patent-licence royalties on sales of certain Genentech products, including Rituxan, damages for breach of contract, and other relief. In various arbitral awards in September 2012 and February 2013, the arbitrator found Genentech liable to Hoechst for patent-licence royalties on Rituxan, and he awarded the royalties and interest that Hoechst had sought. In February 2013 the Group recorded a back royalty expense of CHF 42 million, net of the assumed reimbursement of a portion of the Group's obligation by its co-promotion partner in the US.

Hoechst initiated proceedings in the US, France and Germany seeking to enforce the arbitral awards. In October 2013 Genentech paid the awarded royalties and interest to Hoechst under protest. Genentech is seeking annulment of the arbitral awards through proceedings it initiated in the Court of Appeal of Paris. There was a hearing in those proceedings in June 2014. In September 2014 the Paris Court of Appeal stayed the annulment proceedings to seek guidance from the EU Court of Justice on a specific legal question that had been raised by Genentech relating to the arbitral award's non-compliance under EU competition laws. In November 2014 Hoechst filed notices of appeal to the French Supreme Court seeking to review the Paris Court of Appeal's decision to seek guidance from the EU Court of Justice. On 18 November 2015 the French Supreme Court denied Hoechst's challenge to the decision of the Paris Court of Appeal to refer the specific legal question to the EU Court of Justice. On 7 July 2016 the EU Court of Justice issued its opinion in the case, finding that where a licensee may freely terminate a licence, the licence is not anti-competitive. On 26 September 2017 the Paris Court of Appeal issued a decision dismissing the appeal and ruling in favour of Hoechst. It is expected that the matter will be finally concluded in the first quarter of 2018.

In addition, the matters 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.

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 31 December 2017 Roche is defending approximately 284 actions involving approximately 329 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.

EMA investigation. On 23 October 2012 the European Medicines Agency ('EMA') announced that it would start an infringement procedure to investigate allegations regarding an alleged breach of medicines safety reporting obligations in relation to 19 centrally authorised medicines. On 19 November 2013 the EMA announced the results of the Pharmacovigilance Risk Assessment Committee assessment of Roche's medicines. The EMA found no impact regarding the benefit-risk balance of any of Roche's medicines and confirmed the benefit-risk profiles based on available safety information. The EMA and other health authorities have confirmed all medicines remain authorised without changes to the treatment advice for patients and healthcare professionals. All corrective and preventative actions resulting from the inspections were implemented. A re-inspection by authorities in November 2013 led to certain findings which Roche addressed accordingly. On 14 April 2014 the EMA issued its report to the European Commission that summarises the EMA's findings in relation to the investigation. On 6 July 2015 the European Commission issued a notification to the EMA, returning the case file to the EMA for a new period of inquiry. On 4 July 2016 the EMA announced that it had concluded its second inquiry and sent, on 1 July 2016, the final updated report to the European Commission. On 15 December 2017 the European Commission announced that it has closed the infringement procedure without imposing any penalty. The matter is now concluded.

Hemlibra (emicizumab) litigation. On 4 May 2017 Baxalta Inc. ('Baxalta'), a subsidiary of Shire plc., filed a patent infringement and declaratory judgment of patent infringement suit in the US District Court for the District of Delaware, alleging that Genentech, Inc. and Chugai Pharmaceutical Co., Ltd. currently or imminently would manufacture, use, sell, offer for sale, or import into the US Hemlibra (emicizumab), which would infringe Baxalta's US Patent No. 7,033,590. Baxalta is seeking a judgment of infringement, injunctive and monetary relief, attorneys' fees, costs and expenses. On 11 May 2017 Genentech was served with the complaint. Genentech's response and counterclaims to the complaint were filed on 30 June 2017. On 19 June 2017 Chugai waived service. On 13 September 2017 Chugai filed a motion to dismiss the complaint for lack of personal jurisdiction. On 16 November 2017 the Food and Drug Administration ('FDA') approved Hemlibra (emicizumab) for haemophilia A with inhibitors for use in the US. On 14 December 2017 Baxalta filed a motion for a preliminary injunction seeking to prevent Genentech from marketing or selling Hemlibra to patients in the US, but excluding inhibitor patients who are already being treated with it and excluding inhibitor patients who are less well served by existing bypass treatments or cannot receive prophylactic bypass treatments. The outcome of this matter cannot be determined at this time.

Securities litigation. On 6 June 2017 a class action was filed in the United States District Court for the District of New Jersey against Roche Holding Ltd and two of its current officers. The lawsuit brings claims under the federal securities laws in connection with the Group's public disclosures, in particular with respect to matters relating to two of Roche's drugs, Herceptin and Perjeta. Other substantially similar lawsuits may follow. The Group will vigorously defend itself in this matter. The outcome of this matter cannot be determined at this time.

Arbitration against Chugai. In May 2017 Medical Research Council and LifeArc (formerly Medical Research Council Technology) ('Claimants') requested arbitration against Chugai Pharmaceutical Co., Ltd. with an arbitrator being appointed on 9 August 2017. Sums are sought from Chugai for alleged breach of obligations under a collaboration agreement dated 15 August 1990 in connection with the development of the humanised anti-human IL-6 receptor monoclonal antibody, Actemra. It is claimed that Chugai is obliged to pay royalties to the Claimants pursuant to the collaboration agreement. Chugai considers that the claims are without merit and Chugai will vigorously defend itself in the arbitration. The outcome of this matter cannot be determined at this time.

20. Debt

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

	2017	2016
At 1 January	**22,355**	**23,251**
Proceeds from issue of bonds and notes	1,502	3,158
Redemption and repurchase of bonds and notes	(3,068)	(3,985)
Increase (decrease) in commercial paper	(1,258)	(454)
Increase (decrease) in other debt	(385)	(133)
Changes from financing cash flows	**(3,209)**	**(1,414)**
Net (gains) losses on redemption and repurchase of bonds and notes	84	142
Amortisation of debt discount [3]	13	19
Financing costs	**97**	**161**
Business combinations	**1**	**–**
Net foreign currency transaction (gains) losses	174	(93)
Currency translation effects	(430)	462
Changes in foreign exchanges rates	**(256)**	**369**
Changes in fair values of hedging instruments	(28)	(17)
Other changes	–	5
At 31 December	**18,960**	**22,355**
Bonds and notes	17,986	19,644
Commercial paper	774	2,116
Amounts due to banks and other financial institutions	176	570
Finance lease obligations [7]	5	5
Other borrowings	19	20
Total debt	**18,960**	**22,355**
Long-term debt	15,839	16,992
Short-term debt	3,121	5,363
Total debt	**18,960**	**22,355**

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

Bonds and notes

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

	Effective interest rate Underlying instrument	Effective interest rate Including hedging	2017	2016	2015
US dollar notes – fixed rate					
1.35% notes due 29 September 2017, principal USD 0.85 billion (ISIN: US771196BC54)	1.41%	0.78%	–	869	842
6.0% notes due 1 March 2019, principal USD 4.5 billion (ISIN: USU75000AM82 and US771196AS16)	6.37%	6.03%	–	–	1,499
2.25% notes due 30 September 2019, principal USD 1.5 billion (ISIN: US771196BA98)	2.34%	1.44%	1,466	1,545	1,501
2.875% notes due 29 September 2021, principal USD 1.3 billion (ISIN: US771196BB71)	2.98%	n/a	1,269	1,325	1,280
1.75% notes due 28 January 2022, principal USD 0.65 billion (ISIN: US771196BM37)	1.87%	1.79%	630	660	–
3.35% notes due 30 September 2024, principal USD 1.65 billion (ISIN: US771196BE11)	3.40%	n/a	1,612	1,685	1,629
3.0% notes due 10 November 2025, principal USD 1.0 billion (ISIN: US771196BJ08)	3.14%	n/a	971	1,014	979
2.625% notes due 15 May 2026, principal USD 1.0 billion (ISIN: US771196BK70)	2.78%	n/a	969	1,011	–
2.375% notes due 28 January 2027, principal USD 0.85 billion (ISIN: US771196BL53)	2.54%	n/a	822	858	–
7.0% notes due 1 March 2039, principal USD 2.5 billion, outstanding USD 1.19 billion (ISIN: USU75000AN65 and US771196AU61)	7.43%	7.38%	1,120	1,167	1,213
4.0% notes due 28 November 2044, principal USD 0.65 billion (ISIN: US771196BH42)	4.16%	n/a	624	652	630
US dollar notes – floating rate					
Notes due 29 September 2017, principal USD 0.3 billion (ISIN: US771196BD38)	0.77%	n/a	–	307	296
Notes due 30 September 2019, principal USD 0.5 billion (ISIN: US771196AZ58)	1.42%	n/a	489	511	494
Euro Medium Term Note programme – fixed rate					
5.625% notes due 4 March 2016, principal EUR 2.75 billion (ISIN: XS0415624120)	5.70%	6.36%	–	–	2,270
2.0% notes due 25 June 2018, principal EUR 1.0 billion (ISIN: XS0760139773)	2.07%	n/a	1,168	1,072	1,079
2.0% notes due 13 March 2020, principal USD 0.6 billion (ISIN: XS1197832089)	2.12%	1.50%	581	613	595
6.5% notes due 4 March 2021, principal EUR 1.75 billion, outstanding EUR 1.14 billion (ISIN: XS0415624716)	6.66%	6.96%	1,328	1,408	1,415
0.5% notes due 27 February 2023, principal EUR 0.65 billion (ISIN: XS1371715118)	0.63%	n/a	755	692	–
5.375% notes due 29 August 2023, principal GBP 0.25 billion, outstanding GBP 0.08 billion (ISIN: XS0175478873)	5.46%	n/a	100	249	291
0.875% notes due 25 February 2025, principal EUR 1.0 billion (ISIN: XS1195056079)	0.93%	n/a	1,165	1,069	1,076
Swiss franc bonds – fixed rate					
4.5% bonds due 23 March 2017, principal CHF 1.5 billion (ISIN: CH0039139263)	4.77%	n/a	–	1,499	1,495
1.0% bonds due 21 September 2018, principal CHF 0.6 billion (ISIN: CH0180513068)	1.04%	0.88%	598	602	603
0.0% bonds due 23 September 2018, principal CHF 0.4 billion (ISIN: CH0358654967)	–0.45%	n/a	401	–	–
1.625% bonds due 23 September 2022, principal CHF 0.5 billion (ISIN: CH0180513183)	1.64%	1.38%	502	504	499
0.1% bonds due 23 September 2024, principal CHF 0.75 billion (ISIN: CH0358654975)	0.11%	–0.09%	748	–	–
0.45% bonds due 23 March 2029, principal CHF 0.35 billion (ISIN: CH0359915409)	0.46%	n/a	350	–	–
Genentech Senior Notes					
5.25% Senior Notes due 15 July 2035, principal USD 0.5 billion, outstanding USD 0.325 billion (ISIN: US368710AC32)	5.39%	n/a	318	332	321
Total bonds and notes			**17,986**	**19,644**	**20,007**

Bonds and notes maturity in millions of CHF

	2017	2016	2015
Within one year	2,167	2,675	2,931
Between one and two years	1,955	1,674	2,634
Between two and three years	581	2,055	1,682
Between three and four years	2,597	613	2,832
Between four and five years	1,132	2,733	595
More than five years	9,554	9,894	9,333
Total bonds and notes	**17,986**	**19,644**	**20,007**

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

	2017	2016	2015
US dollar notes	88	102	85
Euro notes	14	17	15
Swiss franc bonds	–	2	9
Pound sterling notes	1	2	2
Total unamortised discount	**103**	**123**	**111**

Issuance of bonds and notes – 2017

On 23 March 2017 the Group completed an offering of CHF 1.5 billion fixed rate bonds issued in three tranches, of which CHF 400 million for bonds with a zero coupon which will mature on 23 September 2018, CHF 750 million for bonds with a 0.10% coupon which will mature on 23 September 2024, and CHF 350 million for bonds with a 0.45% coupon which will mature on 23 March 2029. These bonds are listed at the SIX Swiss Exchange. The Group received CHF 1,502 million aggregate net proceeds from the issuance and sale of these fixed rate bonds.

Issuance of bonds and notes – 2016

On 26 February 2016 the Group issued EUR 650 million fixed rate notes with a coupon of 0.5% under the Euro Medium Term Note programme. The notes will mature on 27 February 2023 and are listed on the Luxembourg Stock Exchange. The Group received CHF 703 million aggregate net proceeds from the issuance and sale of these fixed notes.

On 1 March 2016 the Group completed an offering of USD 1.0 billion fixed rate notes with a coupon of 2.625%. The notes will mature on 15 May 2026. The Group received CHF 987 million aggregate net proceeds from the issuance and sale of these fixed notes.

On 31 October 2016 the Group completed an offering of USD 650 million and USD 850 million fixed rate notes with a coupon of 1.75% and 2.375%, respectively. The notes will mature on 28 January 2022 and 28 January 2027, respectively. The Group received CHF 1,468 million aggregate net proceeds from the issuance and sale of these fixed notes.

Redemption and repurchase of bonds and notes – 2017

Redemption of Swiss franc bonds. On the due date of 23 March 2017 the Group redeemed the 4.5% fixed rate bonds with a principal amount of CHF 1.5 billion. The cash outflow was CHF 1,500 million, plus accrued interest. The effective interest rate of these bonds was 4.77%.

Redemption of US dollar notes. On the due date of 29 September 2017 the Group redeemed the 1.35% fixed rate notes with a principal amount of USD 0.85 billion. The cash outflow was CHF 825 million, plus accrued interest. The effective interest rate of these notes was 1.41%.

On the due date of 29 September 2017 the Group redeemed floating rate notes with a principal amount of USD 0.3 billion. The cash outflow was CHF 291 million, plus accrued interest. The effective interest rate of these notes was 0.77%.

Redemption of pound sterling notes. On 17 November 2017 the Group completed a tender offer to repurchase GBP 123 million of the 5.375% fixed rate notes due 29 August 2023. The cash outflow was CHF 200 million, plus accrued interest and there was a loss on repurchase of CHF 37 million. The effective interest rate of these notes was 5.46%.

Redemption of euro notes. On 17 November 2017 the Group completed a tender offer to repurchase EUR 176 million of the 6.5% fixed rate notes due 4 March 2021. The cash outflow was CHF 252 million, plus accrued interest and there was a loss on repurchase of CHF 47 million. The effective interest rate of these notes was 6.66%.

There was an additional CHF 10 million gain recognised as part of net (gains) losses on redemption and repurchase of bonds and notes coming from a termination of a cross-currency swap used to hedge the tendered portion of the euro notes.

Redemption and repurchase of bonds and notes – 2016

Redemption of US dollar notes. On 30 December 2015 the Group resolved to exercise its option to call for early partial redemption of the 6.0% fixed rate notes due 1 March 2019. On 24 March 2016 the Group redeemed an outstanding principal of USD 600 million at an amount equal to the sum of the present values of the remaining scheduled payments of these notes discounted to the redemption date at the US Treasury rate plus 0.50%, together with accrued and unpaid interest on the principal. The cash outflow was CHF 660 million, plus accrued interest. At 31 December 2015 the Group revised the carrying value of these notes to take into account the changes to the amounts and timings of the estimated cash flows which resulted in an increase in carrying value of USD 74 million (CHF 72 million) which was recorded within financing costs as a loss on redemption in 2015. In 2016 there was an additional CHF 4 million loss recorded on redemption. The effective interest rate of these notes was 6.37%.

On 22 June 2016 the Group resolved to exercise its option to call for early partial redemption of the 6.0% fixed rate notes due 1 March 2019. On 25 August 2016 the Group redeemed an outstanding principal of USD 857 million at an amount equal to the sum of the present values of the remaining scheduled payments of these notes discounted to the redemption date at the US Treasury rate plus 0.50%, together with accrued and unpaid interest on the principal. The cash outflow was CHF 924 million, plus accrued interest and there was a loss on redemption of CHF 99 million. The effective interest rate of these notes was 6.37%.

On 19 December 2016 the Group completed a tender offer to repurchase USD 80 million of the 7.0% fixed rate notes due 1 March 2039. The cash outflow was CHF 118 million, plus accrued interest and there was a loss on repurchase of CHF 39 million. The effective interest rate of these notes was 7.43%.

Redemption of euro notes. On the due date of 4 March 2016 the Group redeemed the 5.625% fixed rate notes with a principal of EUR 2.1 billion. The cash outflow was CHF 2,283 million, plus accrued interest. The effective interest rate of these notes was 5.70%.

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

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

	2017	2016
Euro Medium Term Note programme – Euro notes	–	703
US dollar notes	–	2,455
Swiss franc bonds	1,502	–
Total cash inflows from issuance of bonds and notes	**1,502**	**3,158**

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

	2017	2016
Euro Medium Term Note programme – Pound sterling notes	(200)	–
Euro Medium Term Note programme – Euro notes	(252)	(2,283)
US dollar notes	(1,116)	(1,702)
Swiss franc bonds	(1,500)	–
Total cash outflows from redemption and repurchase of bonds and notes	**(3,068)**	**(3,985)**

Commercial paper

Roche Holdings, Inc. commercial paper program. Roche Holdings, Inc. has an established commercial paper program under which it can issue up to USD 7.5 billion of unsecured commercial paper notes guaranteed by Roche Holding Ltd. The total committed credit lines that are available as a back-stop supporting the commercial paper program are USD 7.5 billion at 31 December 2017. The maturity of the notes under the program cannot exceed 365 days from the date of issuance. At 31 December 2017 unsecured commercial paper notes with a principal amount of USD 0.8 billion and an average interest rate of 1.40% were outstanding.

Movements in commercial paper obligations in millions of CHF

	2017	2016
At 1 January	2,116	2,501
Net cash proceeds (payments)	(1,258)	(454)
Currency translation effects	(84)	69
At 31 December	**774**	**2,116**

Amounts due to banks and other financial institutions

These amounts are denominated in various currencies and the average interest rate was 6.98% (2016: 4.12%). At 31 December 2017 the amounts outstanding of CHF 176 million (2016: CHF 570 million) are due within one year.

21. Equity attributable to Roche shareholders

Changes in equity attributable to Roche shareholders in millions of CHF

			Reserves			
	Share capital	Retained earnings	Fair value	Hedging	Translation	Total
Year ended 31 December 2016						
At 1 January 2016	160	28,591	155	27	(7,954)	20,979
Net income recognised in income statement	–	9,576	–	–	–	9,576
Available-for-sale investments						
– Fair value gains (losses) taken to equity	–	–	110	–	–	110
– Transferred to income statement	–	–	(97)	–	–	(97)
– Income taxes [4]	–	–	7	–	–	7
– Non-controlling interests	–	–	6	–	–	6
Cash flow hedges						
– Gains (losses) taken to equity	–	–	–	29	–	29
– Transferred to income statement [a)]	–	–	–	52	–	52
– Income taxes [4]	–	–	–	(26)	–	(26)
– Non-controlling interests	–	–	–	(18)	–	(18)
Currency translation of foreign operations						
– Exchange differences	–	–	4	(1)	493	496
– Non-controlling interests	–	–	–	–	(128)	(128)
Defined benefit plans						
– Remeasurement gains (losses) [25]	–	178	–	–	–	178
– Limit on asset recognition [25]	–	14	–	–	–	14
– Income taxes [4]	–	(18)	–	–	–	(18)
– Non-controlling interests	–	12	–	–	–	12
Other comprehensive income, net of tax	**–**	**186**	**30**	**36**	**365**	**617**
Total comprehensive income	**–**	**9,762**	**30**	**36**	**365**	**10,193**
Dividends	–	(6,909)	–	–	–	(6,909)
Equity compensation plans, net of transactions in own equity	–	(344)	–	–	–	(344)
Changes in non-controlling interests	–	(8)	–	–	–	(8)
At 31 December 2016	**160**	**31,092**	**185**	**63**	**(7,589)**	**23,911**

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

Changes in equity attributable to Roche shareholders in millions of CHF

	Share capital	Retained earnings	Reserves: Fair value	Reserves: Hedging	Reserves: Translation	Total
Year ended 31 December 2017						
At 1 January 2017	160	31,092	185	63	(7,589)	23,911
Net income recognised in income statement	–	8,633	–	–	–	8,633
Available-for-sale investments						
– Fair value gains (losses) taken to equity	–	–	68	–	–	68
– Transferred to income statement	–	–	(105)	–	–	(105)
– Income taxes [4]	–	–	15	–	–	15
– Non-controlling interests	–	–	(4)	–	–	(4)
Cash flow hedges						
– Gains (losses) taken to equity	–	–	–	129	–	129
– Transferred to income statement [a)]	–	–	–	(160)	–	(160)
– Income taxes [4]	–	–	–	20	–	20
– Non-controlling interests	–	–	–	11	–	11
Currency translation of foreign operations						
– Exchange differences	–	–	(1)	(2)	265	262
– Accumulated differences transferred to income statement on divestment of subsidiaries [22]	–	–	–	–	100	100
– Non-controlling interests	–	–	–	–	20	20
Defined benefit plans						
– Remeasurement gains (losses) [25]	–	732	–	–	–	732
– Limit on asset recognition [25]	–	–	–	–	–	–
– Income taxes [4]	–	(328)	–	–	–	(328)
– Non-controlling interests	–	(3)	–	–	–	(3)
Other comprehensive income, net of tax	**–**	**401**	**(27)**	**(2)**	**385**	**757**
Total comprehensive income	**–**	**9,034**	**(27)**	**(2)**	**385**	**9,390**
Dividends	–	(6,998)	–	–	–	(6,998)
Equity compensation plans, net of transactions in own equity	–	146	–	–	–	146
Changes in non-controlling interests	–	(8)	–	–	–	(8)
At 31 December 2017	**160**	**33,266**	**158**	**61**	**(7,204)**	**26,441**

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

Genentech transaction

The Group completed the purchase of the non-controlling interests in Genentech effective 26 March 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 the Group 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 Group at that time was reduced by CHF 52.2 billion, of which CHF 8.5 billion was allocated to eliminate the book value of Genentech non-controlling interests. This accounting effect significantly impacted the Group's net equity, but has no effect on the Group's business or its dividend policy.

Share capital

At 31 December 2017 the authorised and issued share capital of Roche Holding Ltd, which is the Group's parent company, consisted of 160 million shares with a nominal value of CHF 1.00 each, as in the preceding year. The shares are bearer shares and the Group does not maintain a register of shareholders. Based on information supplied to the Group, a shareholder group with pooled voting rights owns 45.01% (2016: 45.01%) of the issued shares. On 24 March 2011 the shareholder group announced that it would continue the shareholder pooling agreement existing since 1948 with a modified shareholder composition. The shareholder group with pooled voting rights now holds 72,018,000 shares, corresponding to 45.01% of the shares issued. This figure does not include any shares without pooled voting rights that are held outside this group by individual members of the group. Ms Maja Oeri, formerly a member of the pool, now holds 8,091,900 shares representing 5.057% of the voting rights independently of the pool. This is further described in Note 30. Based on information supplied to the Group, Novartis Holding AG, Basel, owns 33.333% (participation below 33⅓%) of the issued shares (2016: 33.333%).

Non-voting equity securities *(Genussscheine)*

At 31 December 2017 702,562,700 non-voting equity securities have been authorised and were in issue as in the preceding year. Under Swiss company law these non-voting equity securities have no nominal value, are not part of the share capital and cannot be issued against a contribution which would be shown as an asset in the balance sheet of Roche Holding Ltd. Each non-voting equity security confers the same rights as any of the shares to participate in the net profit and any remaining proceeds from liquidation following repayment of the nominal value of the shares and, if any, participation certificates. In accordance with the law and the Articles of Incorporation of Roche Holding Ltd, the Company is entitled at all times to exchange all or some of the non-voting equity securities into shares or participation certificates.

Dividends

On 14 March 2017 the shareholders approved the distribution of a dividend of CHF 8.20 per share and non-voting equity security (2016: CHF 8.10) in respect of the 2016 business year. The distribution to holders of outstanding shares and non-voting equity securities totalled CHF 6,998 million (2016: CHF 6,909 million) and has been recorded against retained earnings in 2017. The Board of Directors has proposed dividends for the 2017 business year of CHF 8.30 per share and non-voting equity security which, if approved, would result in a total distribution to shareholders of CHF 7,159 million. This is subject to approval at the Annual General Meeting on 13 March 2018.

Own equity instruments

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

	2017 (millions)	2016 (millions)
Shares	0.1	0.1
Non-voting equity securities	8.6	10.5
Total	**8.7**	**10.6**

Own equity instruments are recorded within equity at original purchase cost. At 31 December 2017 the fair value of shares was CHF 5 million and the fair value of non-voting equity securities was CHF 2.1 billion. Own equity instruments are held for the Group's potential conversion obligations that may arise from the Group's equity compensation plans (see Note 26).

Reserves

Fair value reserve. The fair value reserve represents the cumulative net change in the fair value of available-for-sale financial assets until the asset is sold, impaired or otherwise disposed of.

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

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

22. Subsidiaries and associates

Chugai

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

Consolidated subsidiary. Chugai is a fully consolidated subsidiary of the Group. This is based on the Group's interest in Chugai at 31 December 2017 of 61.3% (2016: 61.4%) and the Roche relationship with Chugai that is founded on the Basic Alliance, Licensing and Research Collaboration Agreements.

The common stock of Chugai is publicly traded and is listed on the Tokyo Stock Exchange under the stock code 'TSE:4519'. Chugai prepares financial statements in accordance with International Financial Reporting Standards (IFRS) that are filed on a quarterly basis with the Tokyo Stock Exchange. Due to certain consolidation entries there are minor differences between Chugai's stand-alone IFRS results and the results of Chugai as consolidated by the Roche Group in accordance with IFRS.

Chugai summarised financial information in millions of CHF

	2017	2016
Income statement		
Sales [2]	4,383	4,279
Royalties and other operating income [2]	310	173
Total revenues	**4,693**	**4,452**
Operating profit [2]	856	682
Balance sheet		
Non-current assets	2,272	2,083
Current assets	5,182	5,068
Non-current liabilities	(280)	(285)
Current liabilities	(1,060)	(1,079)
Total net assets	**6,114**	**5,787**
Cash flows		
Cash flows from operating activities	945	351
Cash flows from investing activities	(322)	(91)
Cash flows from financing activities	(260)	(303)

Dividends. The dividends distributed to third parties holding Chugai shares during 2017 totalled CHF 102 million (2016: CHF 110 million) and have been recorded against non-controlling interests (see Note 23). Dividends paid by Chugai to Roche are eliminated on consolidation as intercompany items.

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

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

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

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

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

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

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

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

Foundation Medicine

On 7 April 2015 the Group acquired a controlling interest in Foundation Medicine, Inc. ('FMI'), a publicly owned US company based in Cambridge, Massachusetts, and entered into an Investor Rights Agreement, a Research and Development Collaboration Agreement and several Commercial Collaboration Agreements.

FMI is a fully consolidated subsidiary of the Group. This is based on the Group's interest in FMI at 31 December 2017 of 57.5% (2016: 59.6%) and the Roche relationship with FMI that is founded on the above agreements. The common stock of FMI is publicly traded and is listed on the Nasdaq under the stock code 'FMI'. FMI prepares financial statements in accordance with US GAAP that are filed on a quarterly basis with the SEC. Due to certain consolidation entries there are differences between FMI's stand-alone US GAAP results and the results of FMI as consolidated by the Roche Group in accordance with IFRS.

Dividends. There were no dividends distributed to third parties holding FMI shares during 2017 and 2016.

Associates

On 1 June 2017 the Group acquired an interest in Senseonics Holding, Inc. ('Senseonics'), a publicly owned US company based in Germantown, Maryland, which resulted in the Group having a 23.0% interest in Senseonics. This investment has been assessed and is treated as an associate of the Group. The Group's interest in Senseonics at 31 December 2017 was 20.7%. The common stock of Senseonics is publicly traded and is listed on the New York Stock Exchange (NYSE-MKT) under the stock code 'SENS'. Senseonics prepares financial statements in accordance with US GAAP that are filed on a quarterly basis with the SEC. The Group accounts for Senseonics using the equity method based on Senseonics' financial statements that are publicly available. The Group's share of Senseonics' results, a loss of CHF 2 million, is included in other financial income (expenses) (see Note 3) and the carrying value of the Group's share of Senseonics' net assets at 31 December 2017, an asset of CHF 36 million, is included in other non-current assets (see Note 14).

Divestment of subsidiaries

On 1 February 2017 the Group sold its wholly owned subsidiary Roche Carolina Inc. in Florence, US, to a third party as part of the previously announced Pharmaceuticals Division's strategic realignment of its manufacturing network. The total consideration received was USD 8 million in cash. A total loss on divestment of CHF 95 million was reported as global restructuring costs in the Roche Pharmaceuticals operating segment and included in general and administration.

On 1 September 2017 the Group sold its wholly owned subsidiary at the Segrate site, Italy, to a third party as part of the previously announced Pharmaceuticals Division's strategic realignment of its manufacturing network. The total consideration was EUR 9 million of which EUR 2 million were received in 2017 and the remaining EUR 7 million will be received in 2018 and 2019. A total loss on divestment of CHF 31 million was reported as global restructuring costs in the Roche Pharmaceuticals operating segment and included in general and administration.

The total gains (losses) on these divestments are shown in the table below.

Gains (losses) on divestment of subsidiaries – 2017 in millions of CHF

Consideration	**11**
Property, plant and equipment	3
Other net assets (liabilities)	9
Currency translation of foreign operations transferred to income statement	100
Total net assets disposed	**112**
Provisions and accruals for residual obligations retained by the Group	(25)
Gains (losses) on divestment of subsidiaries [6]	**(126)**

23. Non-controlling interests

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

	2017	2016
At 1 January	2,491	2,321
Net income recognised in income statement		
– Chugai	244	186
– Other non-controlling interests	(52)	(29)
Total net income recognised in income statement	**192**	**157**
Available-for-sale investments	4	(6)
Cash flow hedges	(11)	18
Currency translation of foreign operations	(20)	128
Remeasurements of defined benefit plans	3	(12)
Other comprehensive income, net of tax	**(24)**	**128**
Total comprehensive income	**168**	**285**
Business combinations	–	–
Dividends to non-controlling shareholders		
– Chugai [22]	(102)	(110)
– Other non-controlling interests	(19)	(22)
Equity compensation plans, net of transactions in own equity	15	9
Changes in non-controlling interests	8	8
Equity contribution by non-controlling interests	5	–
At 31 December	**2,566**	**2,491**
Chugai	2,302	2,170
Other non-controlling interests	264	321
Total non-controlling interests	**2,566**	**2,491**

24. Employee benefits

Employee remuneration in millions of CHF

	2017	2016
Wages and salaries	10,629	9,949
Social security costs	1,075	1,000
Defined contribution plans [25]	482	473
Operating expenses for defined benefit plans [25]	511	106
Equity compensation plans [26]	495	473
Termination costs [6]	378	231
Other employee benefits	817	837
Employee remuneration included in operating results	**14,387**	**13,069**
Net interest cost of defined benefit plans [25]	147	186
Total employee remuneration	**14,534**	**13,255**

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

Defined contribution plans

Defined contribution plans are funded through payments by employees and by the Group to funds administered by third parties. The Group's expenses for these plans were CHF 482 million (2016: CHF 473 million). No assets or liabilities are recognised in the Group's balance sheet in respect of such plans, apart from regular prepayments and accruals of the contributions withheld from employees' wages and salaries and of the Group's contributions. The Group's major defined contribution plan is the US Roche 401(k) Savings Plan.

Defined benefit plans

Plans are usually established as trusts independent of the Group and are funded by payments from Group companies and by employees. In some cases, notably for the major defined benefit plans in Germany, the plans are unfunded and the Group pays pensions to retired employees directly from its own financial resources. Plans are usually governed by a senior governing body, such as a Board of Trustees, which is typically composed of both employee and employer representatives. Funding of these plans is determined by local regulations using independent actuarial valuations. Separate independent actuarial valuations are prepared in accordance with the requirements of IAS 19 for use in the Group's financial statements. The Group's major pension plans are located in Switzerland, the US and Germany, which in total account for 82% of the Group's defined benefit obligation (2016: 81%).

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

In 2016 operating income of CHF 426 million was recorded for past service costs from changes to the Group's pension plans in Switzerland that were announced in June 2016. This represents the impact of the adjustment of the pension liability for plan changes. Of this amount, CHF 310 million was recorded in the Pharmaceuticals Division, CHF 77 million in the Diagnostics Division and CHF 39 million in Corporate. The past service income was recorded within general and administration. As part of the adjustments to the pension plans in Switzerland, the Group made payments of CHF 165 million to the pension funds.

Pension plans in the US. The Group's major defined benefit plans in the US have been closed to new members since 2007. New employees in the US now join the defined contribution plan. The largest of the remaining defined benefit plans are funded pension plans together with smaller unfunded supplementary retirement plans. The benefits are based on the highest average annual rate of earnings during a specified period and length of employment. The plans are non-contributory for employees, with the Group making periodic payments to the plans. Where there is an under-funding, this would normally be remedied by additional company contributions. In 2017 payments made by the Group were USD 80 million (2016: USD 233 million). The decrease in payments compared to 2016 is due to additional contributions made in 2016 to benefit from a lower insurance fee to Pension Benefit Guaranty Corporation, a US government agency overseeing occupational pension schemes in the US. In 2017 the Group entered into an annuity buyout agreement with an insurance company and paid USD 330 million from plan assets to settle the defined benefit obligation for some retired employees. This led to a settlement loss of USD 10 million in 2017.

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

Pension plans in the Rest of the World. These represent approximately 12% of the Group's defined benefit obligation (2016: 12%) and consist of a number of smaller plans in various countries. Of these the largest are the pension plans at Chugai, which are independently managed by Chugai, and the main pension plan in the United Kingdom. The Chugai plans are fully described in Chugai's own IFRS financial statements. The UK pension plan is funded by regular employee and company contributions, with benefits based on final salary and length of employment. This plan has been closed to new members since 2003 and has been replaced with a defined contribution plan. In 2016 the Group made payments of EUR 66 million to the pension funds in Ireland in relation to the restructuring of the manufacturing site at Clarecastle, Ireland. In 2017 further measures were taken. The Group entered into an annuity buyout agreement with an insurance company and paid EUR 97 million from plan assets to settle the defined benefit obligation for all retired employees. In addition transfer value payments of EUR 14 million from plan assets were made to deferred employees to settle the defined benefit obligation. The Group recorded a settlement loss of EUR 11 million from these transactions in 2017.

Other post-employment benefit ('OPEB') plans. These represent approximately 6% of the Group's defined benefit obligation (2016: 7%) and consist of post-employment healthcare and life insurance schemes, mainly in the US. These plans are mainly unfunded and/or are contributory for employees, with the Group reimbursing retired employees directly from its own financial resources. The Group's major OPEB plans in the US have been closed to new members since 2011. Part of the costs of these plans is reimbursable under the Medicare Prescription Drug, Improvement, and Modernization Act of 2003. There is no statutory funding requirement for these plans. The Group is funding these plans to the extent that it is tax efficient. In 2017 there were no payments made by the Group to these plans (2016: none). At 31 December 2017 the IFRS funding status was 43% (2016: 44%), including reimbursement rights, for the funded OPEB plans in the US.

Defined benefit plans: income statement in millions of CHF

	2017			2016		
	Pension plans	Other post-employment benefit plans	Total expense	Pension plans	Other post-employment benefit plans	Total expense
Current service cost	516	16	532	523	14	537
Past service (income) cost	(43)	–	(43)	(415)	–	(415)
Settlement (gain) loss	22	–	22	(16)	–	(16)
Total operating expenses	**495**	**16**	**511**	**92**	**14**	**106**
Net interest cost of defined benefit plans	113	34	147	153	33	186
Total expense recognised in income statement	**608**	**50**	**658**	**245**	**47**	**292**

Funding status

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

In 2017 the IFRS funding status of the funded defined benefit plans improved to 91% (2016: 86%).

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

Defined benefit plans: funding status in millions of CHF

	2017			2016		
	Pension plans	Other post-employment benefit plans	Total	Pension plans	Other post-employment benefit plans	Total
Funded plans						
– Fair value of plan assets	14,040	316	14,356	13,257	314	13,571
– Defined benefit obligation	(14,652)	(1,053)	(15,705)	(14,672)	(1,062)	(15,734)
Over (under) funding	**(612)**	**(737)**	**(1,349)**	**(1,415)**	**(748)**	**(2,163)**
Unfunded plans						
– Defined benefit obligation	(5,109)	(302)	(5,411)	(4,625)	(306)	(4,931)
Total funding status	**(5,721)**	**(1,039)**	**(6,760)**	**(6,040)**	**(1,054)**	**(7,094)**
Limit on asset recognition	–	–	–	–	–	–
Reimbursement rights	–	140	140	–	154	154
Net recognised asset (liability)	**(5,721)**	**(899)**	**(6,620)**	**(6,040)**	**(900)**	**(6,940)**
Reported in balance sheet						
– Defined benefit plan assets	661	140	801	584	154	738
– Defined benefit plan liabilities	(6,382)	(1,039)	(7,421)	(6,624)	(1,054)	(7,678)

Plan assets

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

Plan assets are managed using internal and external asset managers. The actual performance is continually monitored by the pension fund governance bodies as well as being closely monitored at a corporate level. In these financial statements the difference between the interest income and actual return on plan assets is a remeasurement that is recorded directly to other comprehensive income. During 2017 the actual return on plan assets was a gain of CHF 1,381 million (2016: gain of CHF 986 million).

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

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

	2017			2016		
	Pension plans	Other post-employment benefit plans	Total	Pension plans	Other post-employment benefit plans	Total
At 1 January	13,257	468	13,725	12,056	432	12,488
Interest income on plan assets	209	17	226	240	18	258
Remeasurements on plan assets	1,119	32	1,151	707	55	762
Currency translation effects	(58)	(19)	(77)	(7)	9	2
Employer contributions	392	–	392	736	(4)	732
Employee contributions	137	10	147	114	9	123
Benefits paid – funded plans	(562)	(50)	(612)	(517)	(49)	(566)
Benefits paid – settlements	(449)	–	(449)	(69)	–	(69)
Administration costs	(5)	(2)	(7)	(3)	(2)	(5)
At 31 December	**14,040**	**456**	**14,496**	**13,257**	**468**	**13,725**

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

	2017	2016
Equity securities	4,921	4,621
Debt securities	5,391	5,315
Property	1,896	1,660
Cash and money market instruments	216	227
Other investments	1,932	1,748
At 31 December	**14,356**	**13,571**

Assets are invested in a variety of different classes in order to maintain a balance between risk and return as follows:

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

Included within the fair value of plan assets are the Group's shares and non-voting securities with a fair value of CHF 121 million (2016: CHF 120 million) and debt instruments issued by the Group with a fair value of CHF 9 million (2016: CHF 18 million).

Defined benefit obligation

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

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

Defined benefit plans: defined benefit obligation in millions of CHF

	2017			2016		
	Pension plans	Other post-employment benefit plans	Total	Pension plans	Other post-employment benefit plans	Total
At 1 January	19,297	1,368	20,665	18,941	1,232	20,173
Current service cost	516	16	532	523	14	537
Interest cost	322	51	373	393	51	444
Remeasurements:						
– demographic assumptions	62	(4)	58	(334)	–	(334)
– financial assumptions	120	44	164	749	104	853
– experience adjustments	213	(16)	197	65	(14)	51
Currency translation effects	263	(55)	208	(9)	41	32
Employee contributions	137	10	147	114	9	123
Benefits paid – funded plans	(562)	(50)	(612)	(517)	(49)	(566)
Benefits paid – unfunded plans	(137)	(9)	(146)	(128)	(20)	(148)
Benefits paid – settlements	(449)	–	(449)	(69)	–	(69)
Past service (income) cost	(43)	–	(43)	(415)	–	(415)
Settlement (gain) loss	22	–	22	(16)	–	(16)
At 31 December	**19,761**	**1,355**	**21,116**	**19,297**	**1,368**	**20,665**
Composition of plan						
Active members	9,545	365	9,910	9,297	369	9,666
Deferred vested members	1,770	15	1,785	1,664	15	1,679
Retired members	8,446	975	9,421	8,336	984	9,320
At 31 December	**19,761**	**1,355**	**21,116**	**19,297**	**1,368**	**20,665**
Plans by geography						
Switzerland	8,554	–	8,554	8,342	–	8,342
United States	4,028	1,318	5,346	4,280	1,329	5,609
Germany	4,661	–	4,661	4,080	–	4,080
Rest of the World	2,518	37	2,555	2,595	39	2,634
At 31 December	**19,761**	**1,355**	**21,116**	**19,297**	**1,368**	**20,665**
Duration in years	15.3	12.9	15.2	16.0	13.3	15.8

Actuarial assumptions

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

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

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

		Male		Female	
Country	Mortality table	2017	2016	2017	2016
Switzerland	BVG 2015 projected with CMI model	21.5	21.2	23.4	23.0
United States	RP-2014 projected with MP-2014	22.3	22.2	23.9	23.8
Germany	Heubeck tables 2005G	19.3	19.1	23.3	23.2

The mortality assumptions used for the pension plans in Switzerland were based on BVG 2015 applying the Continuous Mortality Investigation ('CMI') model. A long-term rate of 1.25% (2016: 1.25%) was used for longevity improvements.

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

	2017		2016	
	Weighted average	Range	Weighted average	Range
Discount rates	1.80%	0.60%–6.80%	1.88%	0.10%–5.80%
Expected rates of salary increases	2.52%	0.00%–4.50%	2.56%	0.00%–4.50%
Expected rates of pension increases	0.67%	0.00%–3.00%	0.59%	0.00%–3.00%
Expected inflation rates	2.14%	1.50%–3.50%	1.92%	0.00%–3.50%
Immediate medical cost trend rate	6.50%	6.30%–6.50%	6.78%	5.90%–6.80%
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 or government bonds in countries where there is not a deep market in corporate bonds. Expected rates of salary increases are based on expected inflation rates with an adjustment to reflect the Group's latest expectation of long-term real salary increases. Expected rates of pension increases are generally linked to the expected inflation rate or the funding status of the plan. Expected inflation rates are derived by looking at the level of inflation implied by the financial markets in conjunction with the economists' price inflation forecasts, historic price inflation as well as other economic variables and circumstances. Medical cost trend rates take into account the benefits set out in the plan terms and expected future changes in medical costs. Since the Group's major post-employment medical plans are for US employees, these rates are driven by developments in the US.

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

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

	2017	2016
Increase (decrease) in defined benefit obligation		
1 year increase in life expectancy	635	723
Discount rates		
0.25% increase	(767)	(825)
0.25% decrease	816	878
Expected inflation rates		
0.25% increase	255	374
0.25% decrease	(242)	(335)
Immediate medical cost trend rate		
1.00% increase	156	177
1.00% decrease	(129)	(146)

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

Cash flows

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

Defined benefit plans: cash flows in millions of CHF

	2017	2016
Employer contributions, net of reimbursements – funded plans	(392)	(732)
Benefits paid – unfunded plans	(146)	(148)
Total cash inflow (outflow)	**(538)**	**(880)**

Based on the most recent actuarial valuations, the Group expects that employer contributions for funded plans in 2018 will be approximately CHF 434 million, which includes an estimated CHF 154 million of additional contributions, mostly related to the US defined benefit plans. Benefits paid for unfunded plans in 2018 are estimated to be approximately CHF 167 million, which mostly relate to the German defined benefit plans.

26. Equity compensation plans

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

Expenses for equity compensation plans in millions of CHF

	2017	2016
Cost of sales	90	87
Marketing and distribution	112	108
Research and development	183	168
General and administration	110	110
Total operating expenses	**495**	**473**
Equity compensation plans		
Roche Stock-settled Stock Appreciation Rights	186	198
Roche Restricted Stock Unit Plan	240	209
Roche Performance Share Plan	11	13
Roche Connect	23	20
Roche Option Plan	3	3
Bonus Stock Awards	6	6
Chugai and Foundation Medicine plans	26	24
Total operating expenses	**495**	**473**
of which		
– Equity-settled	495	473
– Cash-settled	–	–

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

	2017	2016
Roche Option Plan exercises	36	16
Chugai and Foundation Medicine plans' exercises	14	7
Roche Connect costs	(23)	(20)
Transactions in own equity	(385)	(560)
Total cash inflow (outflow) from equity-settled equity compensation plans, net of transactions in own equity	**(358)**	**(557)**

The net cash outflow from transactions in own equity mainly arises from sales and purchases of equity instruments which are held for the Group's potential conversion obligations that may arise from the Group's equity compensation plans (see Note 21).

Equity compensation plans

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

Roche S-SARs – movement in number of rights outstanding

	2017 Number of rights (thousands)	2017 Weighted average exercise price (CHF)	2016 Number of rights (thousands)	2016 Weighted average exercise price (CHF)
Outstanding at 1 January	42,178	220.22	35,814	206.02
Granted	11,412	251.42	11,356	250.82
Forfeited	(1,848)	252.73	(1,122)	253.57
Exercised	(8,168)	176.27	(3,829)	169.02
Expired	(29)	151.92	(41)	160.35
Outstanding at 31 December	**43,545**	**235.31**	**42,178**	**220.22**
– of which exercisable	23,524	221.24	24,074	194.87

Roche S-SARs – terms of rights outstanding at 31 December 2017

Year of grant	Number outstanding (thousands)	Weighted average years remaining contractual life	Rights outstanding Weighted average exercise price (CHF)	Number exercisable (thousands)	Rights exercisable Weighted average exercise price (CHF)
2011	1,403	0.19	140.23	1,403	140.23
2012	5,183	1.26	157.94	5,183	157.94
2013	4,189	2.26	214.81	4,189	214.81
2014	5,213	3.26	263.49	5,213	263.49
2015	6,687	4.27	256.76	4,286	256.79
2016	9,959	5.27	250.81	3,166	250.78
2017	10,911	6.27	251.40	84	251.92
Total	**43,545**	**4.20**	**235.31**	**23,524**	**221.24**

Roche Restricted Stock Unit Plan. The Group issues Restricted Stock Units (RSUs) awards to certain directors, management and employees selected at the discretion of the Group. The RSUs, which are non-tradable, represent the right to receive non-voting equity securities which vest only after a three-year period, subject to performance conditions, if any. There are currently no performance conditions on outstanding RSUs at 31 December 2017. Under the Roche RSU Plan 20 million non-voting equity securities will be available for issuance over a ten-year period. The Roche RSU Plan also includes a value adjustment which will be an amount equivalent to the sum of shareholder distributions made by the Group during the vesting period attributable to the number of non-voting equity securities for which an individual award has been granted.

Roche RSUs – movement in number of awards outstanding

	2017 Number of awards (thousands)	2016 Number of awards (thousands)
Outstanding at 1 January	2,343	1,952
Granted	1,373	1,308
Forfeited	(209)	(127)
Transferred to participants	(694)	(790)
Outstanding at 31 December	**2,813**	**2,343**
– of which vested and transferable	1	–

Roche Performance Share Plan. The Group offers future share and non-voting equity security awards (or, at the discretion of the Board of Directors, their cash equivalent) to certain directors and key senior managers. These are non-tradable equity-settled awards. The programme currently operates in annual three-year cycles. 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 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 Group's Total Shareholder Return (shares and non-voting equity securities combined) relative to the Group's peers during the three-year period from the date of the grant, and the discretion of the Board of Directors. Each award will result in between zero and two shares or non-voting equity securities (before value adjustment), depending upon the achievement of the performance targets.

Roche Performance Share Plan – terms of outstanding awards at 31 December 2017

	2015–2017	2016–2018	2017–2019
Number of awards outstanding (thousands)	64	41	47
Vesting period	3 years	3 years	3 years
Allocated to recipients in	Feb. 2018	Feb. 2019	Feb. 2020
Fair value per unit at grant (CHF)	217.45	264.36	226.66
Total fair value at grant (CHF millions)	**17**	**11**	**11**

Roche Connect. This programme enables all employees worldwide, except for those in the US and certain other countries, to make regular deductions from their salaries to purchase non-voting equity securities. It is administered by independent third parties. The Group contributes to the programme, which allows the employees to purchase non-voting equity securities at a discount (usually 20%). The administrator purchases the necessary non-voting equity securities directly from the market. At 31 December 2017 the administrator held 2.8 million non-voting equity securities (2016: 2.6 million). In 2017 the cost of the plan was CHF 23 million (2016: CHF 20 million).

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

Roche Option Plan – movement in number of options outstanding

	2017		2016	
	Number of options (thousands)	Weighted average exercise price (CHF)	Number of options (thousands)	Weighted average exercise price (CHF)
Outstanding at 1 January	834	216.02	794	203.49
Granted	156	250.90	160	250.44
Forfeited	(31)	256.52	(20)	250.14
Exercised	(205)	178.25	(100)	164.90
Expired	–	–	–	–
Outstanding at 31 December	**754**	**231.82**	**834**	**216.02**
– of which exercisable	459	219.10	537	194.88

Roche Option Plan – terms of options outstanding at 31 December 2017

			Options outstanding		Options exercisable
Year of grant	Number outstanding (thousands)	Weighted average years remaining contractual life	Weighted average exercise price (CHF)	Number exercisable (thousands)	Weighted average exercise price (CHF)
2011	28	0.17	140.10	28	140.10
2012	106	1.25	157.63	106	157.63
2013	89	2.25	214.00	89	214.00
2014	99	3.25	263.21	99	263.21
2015	136	4.26	256.80	89	256.82
2016	145	5.26	250.40	47	250.38
2017	151	6.28	250.87	1	251.90
Total	**754**	**3.91**	**231.82**	**459**	**219.10**

The weighted average share price of Roche non-voting equity securities during the year was CHF 247.10 (2016: CHF 244.39).

Bonus Stock Awards. The Chairman of the Board of Directors and the Chief Executive Officer will be granted Bonus Stock Awards in lieu of their cash-settled bonus for the financial year 2017. These will be issued by the end of April 2018. The number of awards and fair value per award will be calculated at the grant date.

Fair value measurement

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

Fair value measurement in 2017

	Roche Stock-settled Stock Appreciation Rights	Roche Restricted Stock Unit Plan	Roche Performance Share Plan	Roche Option Plan
Vesting period	Progressively over 3 years	Cliff vesting after 3 years	Cliff vesting after 3 years	Progressively over 3 years
Contractual life	7 years	n/a	n/a	7 years
Number granted during year (thousands)	11,412	1,373	47	156
Weighted average fair value (CHF)	19	251	227	19
Model used	Binomial	Market price[a)]	Monte Carlo[b)]	Binomial
Inputs to option pricing model				
– Share price at grant date (CHF)	251	251	233	251
– Exercise price (CHF)	251	–	–	251
– Expected volatility[c)]	19.3%	n/a	n/a	19.3%
– Expected dividend yield	4.9%	n/a	n/a	4.9%
– Early exercise factor[d)]	1.33	n/a	n/a	1.33
– Expected exit rate	8.2%	n/a	n/a	8.2%

a) The fair value of the Roche RSUs is equivalent to the share price on the date of grant.
b) The input parameters were the covariance matrix between Roche and the other individual companies of the peer group based on a three-year history and a risk-free interest rate of minus 0.956%. The valuation takes into account the defined rank and performance structure which determines the pay-out of the plan.
c) 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.
d) 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. Earnings per share and non-voting equity security

Basic earnings per share and non-voting equity security

	2017	2016
Net income attributable to Roche shareholders (CHF millions)	**8,633**	**9,576**
Number of shares (millions) [21]	160	160
Number of non-voting equity securities (millions) [21]	703	703
Weighted average number of own shares and non-voting equity securities held (millions)	(10)	(11)
Weighted average number of shares and non-voting equity securities in issue (millions)	**853**	**852**
Basic earnings per share and non-voting equity security (CHF)	**10.12**	**11.24**

Diluted earnings per share and non-voting equity security

	2017	2016
Net income attributable to Roche shareholders (CHF millions)	8,633	9,576
Increase in non-controlling interests' share of Group net income, assuming all outstanding Chugai stock options exercised (CHF millions)	(1)	(1)
Net income used to calculate diluted earnings per share (CHF millions)	**8,632**	**9,575**
Weighted average number of shares and non-voting equity securities in issue (millions)	853	852
Adjustment for assumed exercise of equity compensation plans, where dilutive (millions)	7	8
Weighted average number of shares and non-voting equity securities in issue used to calculate diluted earnings per share (millions)	**860**	**860**
Diluted earnings per share and non-voting equity security (CHF)	**10.04**	**11.13**

28. Statement of cash flows

Cash flows from operating activities

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

Cash generated from operations in millions of CHF

	2017	2016
Net income	8,825	9,733
Add back non-operating (income) expense		
– Financing costs [3]	839	1,099
– Other financial income (expense) [3]	(84)	(37)
– Income taxes [4]	3,423	3,274
Operating profit	**13,003**	**14,069**
Depreciation of property, plant and equipment [7]	2,196	2,158
Amortisation of intangible assets [9]	1,691	1,783
Impairment of goodwill [8]	1,058	95
Impairment of intangible assets [9]	2,460	1,413
Impairment (reversal) of property, plant and equipment [7]	233	291
Operating (income) expense for defined benefit plans [25]	511	106
Operating expense for equity-settled equity compensation plans [26]	495	473
Net (income) expense for provisions [19]	270	120
Bad debt (reversal) expense	12	10
Inventory write-downs	663	772
Inventory fair value adjustment	–	167
Net (gain) loss on disposal of products	(410)	(179)
Other adjustments	74	(53)
Cash generated from operations	**22,256**	**21,225**

Cash flows from investing activities

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

Interest and dividends received in millions of CHF

	2017	2016
Interest received	28	22
Dividends received	2	2
Total	**30**	**24**

Cash flows from financing activities

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

Dividends paid in millions of CHF

	2017	2016
Dividends to Roche Group shareholders	(6,998)	(6,909)
Dividends to non-controlling shareholders – Chugai	(102)	(110)
Dividends to non-controlling shareholders – Other	(19)	(22)
Increase (decrease) in dividends payable	–	–
Dividend withholding tax	(21)	1
Total	**(7,140)**	**(7,040)**

Liabilities arising from financing activities

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

		Cash flows			Non-cash changes		
	At 1 January	Outflow (Inflow)	Financing costs	Business combinations	Fair value and other	Foreign exchange rates	At 31 December
2017							
Debt [20]	(22,355)	3,209	(97)	(1)	28	256	(18,960)
Interest payable [18]	(289)	648	(585)	–	3	5	(218)
Derivative financial instruments, net [15, 18, 29]	(262)	17	10	–	213	–	(22)
Cash collateral receivables (payables), net [15, 18, 29]	302	(252)	–	–	1	(12)	39
Total	**(22,604)**	**3,622**	**(672)**	**(1)**	**245**	**249**	**(19,161)**
2016							
Debt [20]	(23,251)	1,414	(161)	–	12	(369)	(22,355)
Interest payable [18]	(445)	849	(687)	–	(1)	(5)	(289)
Derivative financial instruments, net [15,18, 29]	(470)	363	–	–	(152)	(3)	(262)
Cash collateral receivables (payables), net [15, 18, 29]	454	(152)	–	–	–	–	302
Total	**(23,712)**	**2,474**	**(848)**	**–**	**(141)**	**(377)**	**(22,604)**

Significant non-cash transactions

In 2017 there were no significant non-cash transactions (2016: none), except for contingent consideration arrangements arising from business combinations (see Notes 5 and 29).

29. Risk management

Group risk management

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

Financial risk management

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

Financial risk management within the Group is governed by policies reviewed by the boards of directors of Roche, Chugai and Foundation Medicine 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, type of authorised financial instruments and monitoring procedures. As a general principle, the policies prohibit the use of derivative financial instruments for speculative trading purposes. Policy implementation and day-to-day risk management are carried out by the relevant treasury functions and regular reporting on these risks is performed by the relevant accounting and controlling functions within Roche, Chugai and Foundation Medicine.

Credit risk

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

Accounts receivable. At 31 December 2017 the Group has trade receivables of CHF 10.4 billion (2016: CHF 9.4 billion). These are subject to a policy of active credit risk management which focuses on the assessment of country risk, credit availability, ongoing credit evaluation and account monitoring procedures. The objective of trade receivables management is to maximise the collection of unpaid amounts.

At 31 December 2017 the Group's combined trade receivables balance with three US national wholesale distributors, McKesson Corp., AmerisourceBergen Corp. and Cardinal Health, Inc., was equivalent to CHF 2.4 billion representing 23% of the Group's consolidated trade receivables (2016: CHF 1.7 billion representing 18%). There is no other significant concentration of counterparty credit risk due to the Group's large number of customers and their wide geographical spread. Risk limits and exposures are continuously monitored by country and by the nature of counterparties. The Group obtains credit insurance and similar enhancements when appropriate to protect the collection of trade receivables. At 31 December 2017 no collateral was held for trade receivables (2016: none).

Since 2010 there have been financial difficulties in Southern European countries, notably Spain, Italy, Greece and Portugal. The Group is a leading supplier to the healthcare sectors in these countries and has trade receivables of CHF 0.9 billion (2016: CHF 0.8 billion) with the public and private customers in these countries. The Group uses different measures to improve collections in these countries, including intense communication with customers, factoring, negotiations of payments plans, charging of interest for late payments, and legal action.

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

Accounts receivable (not overdue): nature and geographical location of counterparties in millions of CHF

	2017				2016			
Regions	Total	Public	Wholesalers/ distributors	Private	Total	Public	Wholesalers/ distributors	Private
Switzerland	36	15	8	13	32	13	7	12
Europe	1,629	693	326	610	1,546	515	315	716
North America	3,092	56	2,295	741	2,413	55	1,713	645
Latin America	586	84	202	300	590	63	176	351
Japan	1,267	–	1,262	5	1,216	1	1,207	8
Asia, Australia and Oceania	1,192	60	491	641	1,121	46	521	554
Rest of the World	827	165	259	403	802	137	292	373
Total	**8,629**	**1,073**	**4,843**	**2,713**	**7,720**	**830**	**4,231**	**2,659**

The ageing of accounts receivable that were not impaired is shown in the table below.

Ageing of accounts receivable that are not impaired in millions of CHF

	2017	2016
Neither overdue nor impaired	8,629	7,720
Overdue under 1 month	203	330
Overdue 1–3 months	283	234
Overdue 3–6 months	251	263
Overdue 6–12 months	211	213
Overdue more than 1 year	–	–
Total accounts receivable	**9,577**	**8,760**

Cash and marketable securities. At 31 December 2017 the Group has cash and marketable securities of CHF 12.0 billion (2016: CHF 9.0 billion). These are subject to a policy of restricting exposures to high-quality counterparties and setting defined limits for individual counterparties. These limits and counterparty credit ratings are reviewed regularly. Investments in marketable securities are entered into on the basis of guidelines with regard to liquidity, quality and maximum amount. As a general rule, the Group invests only in high-quality securities with adequate liquidity. Cash and short-term time deposits are subject to rules which limit the Group's exposure to individual financial institutions.

Rating analysis of cash and fixed income marketable securities (market values)

	2017		2016	
	(CHF m)	(% of total)	(CHF m)	(% of total)
AAA range	1,924	16	966	11
AA range	1,845	15	1,741	19
A range	7,249	60	5,686	63
BBB range	797	7	381	4
Below BBB range	112	1	112	1
Unrated	60	1	152	2
Total	**11,987**	**100**	**9,038**	**100**

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

Contract terms. At 31 December 2017 there are no significant financial assets whose terms have been renegotiated (2016: none).

Impairment losses. During 2017 total impairment losses for available-for-sale financial assets amounted to CHF 17 million (2016: CHF 10 million).

Liquidity risk

Liquidity risk arises through a surplus of financial obligations over available financial assets due at any point in time. The Group's approach to liquidity risk is to maintain sufficient readily available reserves in order to meet its liquidity requirements at any point in time. Roche and Chugai enjoy strong credit quality and are rated by at least one major credit rating agency. The ratings will permit efficient access to the international capital markets in the event of major financing requirements. At 31 December 2017 the Group has unused committed credit lines with various financial institutions totalling CHF 7.6 billion (2016: CHF 8.0 billion), of which CHF 7.3 billion serve as a back-stop line for the commercial paper program.

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

Contractual maturities of financial liabilities in millions of CHF

	Carrying value	Total	Less than 1 year	1–2 years	2–5 years	Over 5 years
Year ended 31 December 2017						
Debt [20]						
– Bonds and notes	17,986	22,743	2,661	2,422	5,461	12,199
– Other debt	974	974	970	1	3	–
Contingent consideration [19]	591	650	185	109	278	78
Accounts payable [16]	3,454	3,454	3,454	–	–	–
Derivative financial instruments [18]	119	119	93	10	15	1
Total financial liabilities	**23,124**	**27,940**	**7,363**	**2,542**	**5,757**	**12,278**
Year ended 31 December 2016						
Debt [20]						
– Bonds and notes	19,644	25,197	3,280	2,189	6,768	12,960
– Other debt	2,711	2,711	2,706	1	4	–
Contingent consideration [19]	1,089	1,194	339	186	455	214
Accounts payable [16]	3,375	3,375	3,375	–	–	–
Derivative financial instruments [18]	447	447	210	10	225	2
Total financial liabilities	**27,266**	**32,924**	**9,910**	**2,386**	**7,452**	**13,176**

Take-or-pay commitments. The Group has entered into contract manufacturing agreements with various companies to further develop manufacturing capacity and flexibility, mainly in the Pharmaceuticals Division. There are future minimum take-or-pay commitments within some of these agreements with a total potential commitment from the Group of CHF 1.9 billion at 31 December 2017 (2016: CHF 1.4 billion).

Market risk

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

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

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

Market risk of financial instruments in millions of CHF

	2017	2016
VaR – Interest rate component	306	310
VaR – Foreign exchange component	24	38
VaR – Other price component	38	38
Diversification	(43)	(59)
VaR – Total market risk	**325**	**327**

The interest rate component remained largely stable. The foreign exchange component decreased due to a favourable exposure mix. The other price component arises mainly from movements in equity security prices and remained largely stable.

Foreign exchange risk

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

Interest rate risk

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

Other price risk

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

Capital management

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

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

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

Capital in millions of CHF

	2017	2016	2015
Capital and reserves attributable to Roche shareholders [21]	26,441	23,911	20,979
Equity attributable to non-controlling interests [23]	2,566	2,491	2,321
Total equity	**29,007**	**26,402**	**23,300**
Total debt [20]	**18,960**	**22,355**	**23,251**
Capitalisation	**47,967**	**48,757**	**46,551**

The Group's net equity was significantly impacted by the 2009 Genentech transaction (see Note 21).

The Group is not subject to regulatory capital adequacy requirements as known in the financial services industry. The Group has majority shareholdings in Chugai and Foundation Medicine (see Note 22). Chugai and Foundation Medicine are public companies and their objectives, policies and processes for managing their own capital are determined by local management.

Financial instrument accounting classifications and fair values

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

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

	Available-for-sale	Fair value – hedging instruments	Fair value – designated	Loans and receivables	Other financial liabilities	Total carrying value	Fair value
Year ended 31 December 2017							
Other non-current assets [14]							
– Available-for-sale investments	546	–	–	–	–	546	546
– Other financial non-current assets	–	–	–	139	–	139	139
Accounts receivable [11]	–	–	–	9,577	–	9,577	9,577
Marketable securities [12]	7,278	–	–	–	–	7,278	7,278
Cash and cash equivalents [13]	–	–	–	4,719	–	4,719	4,719
Other current assets [15]							
– Derivative financial instruments	–	97	–	–	–	97	97
– Other financial current assets	–	–	–	896	–	896	896
Total financial assets	**7,824**	**97**	**–**	**15,331**	**–**	**23,252**	**23,252**
Debt [20]							
– Bonds and notes	–	–	–	–	(17,986)	(17,986)	(19,166)
– Other debt	–	–	–	–	(974)	(974)	(974)
Contingent consideration [19]	–	–	(591)	–	–	(591)	(591)
Accounts payable [16]	–	–	–	–	(3,454)	(3,454)	(3,454)
Derivative financial instruments [18]	–	(119)	–	–	–	(119)	(119)
Total financial liabilities	**–**	**(119)**	**(591)**	**–**	**(22,414)**	**(23,124)**	**(24,304)**
Year ended 31 December 2016							
Other non-current assets [14]							
– Available-for-sale investments	528	–	–	–	–	528	528
– Other financial non-current assets	–	–	–	124	–	124	124
Accounts receivable [11]	–	–	–	8,760	–	8,760	8,760
Marketable securities [12]	4,944	–	–	–	–	4,944	4,944
Cash and cash equivalents [13]	–	–	–	4,163	–	4,163	4,163
Other current assets [15]							
– Derivative financial instruments	–	185	–	–	–	185	185
– Other financial current assets	–	–	–	1,164	–	1,164	1,164
Total financial assets	**5,472**	**185**	**–**	**14,211**	**–**	**19,868**	**19,868**
Debt [20]							
– Bonds and notes	–	–	–	–	(19,644)	(19,644)	(20,848)
– Other debt	–	–	–	–	(2,711)	(2,711)	(2,711)
Contingent consideration [19]	–	–	(1,089)	–	–	(1,089)	(1,089)
Accounts payable [16]	–	–	–	–	(3,375)	(3,375)	(3,375)
Derivative financial instruments [18]	–	(447)	–	–	–	(447)	(447)
Total financial liabilities	**–**	**(447)**	**(1,089)**	**–**	**(25,730)**	**(27,266)**	**(28,470)**

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

Fair value hierarchy

The table below analyses financial instruments carried at fair value, by valuation method. The different levels have been defined as follows:
- Level 1 – quoted prices (unadjusted) in active markets for identical assets and liabilities.
- Level 2 – observable inputs other than quoted prices in active markets for identical assets and liabilities.
- Level 3 – unobservable inputs.

Fair value hierarchy of financial instruments in millions of CHF

	Level 1	Level 2	Level 3	Total
Year ended 31 December 2017				
Marketable securities				
– Equity securities	10	–	–	10
– Debt securities	1,118	43	–	1,161
– Money market instruments and time accounts over three months	50	6,057	–	6,107
Derivative financial instruments	–	97	–	97
Available-for-sale investments – held at fair value [14]	121	173	–	294
Financial assets recognised at fair value	**1,299**	**6,370**	**–**	**7,669**
Derivative financial instruments	–	(119)	–	(119)
Contingent consideration	–	–	(591)	(591)
Financial liabilities recognised at fair value	**–**	**(119)**	**(591)**	**(710)**
Year ended 31 December 2016				
Marketable securities				
– Equity securities	69	–	–	69
– Debt securities	1,509	–	–	1,509
– Money market instruments and time accounts over three months	133	3,233	–	3,366
Derivative financial instruments	–	185	–	185
Available-for-sale investments – held at fair value [14]	132	117	–	249
Financial assets recognised at fair value	**1,843**	**3,535**	**–**	**5,378**
Derivative financial instruments	–	(447)	–	(447)
Contingent consideration	–	–	(1,089)	(1,089)
Financial liabilities recognised at fair value	**–**	**(447)**	**(1,089)**	**(1,536)**

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

The Group determines Level 2 fair values using the following valuation techniques:
- Marketable securities and derivative financial instruments are based on valuation models that use observable market data for interest rates, yield curves, foreign exchange rates and implied volatilities for similar instruments at the measurement date.
- Available-for-sale investments are based on a valuation model derived from the most recently published observable financial prices.

The 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 (2016: none).

Level 3 fair values

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

Contingent consideration arrangements in millions of CHF

	2017	2016
At 1 January	(1,089)	(1,492)
Arising from business combinations [5]	(10)	–
Utilised for settlements [5]	146	69
Total unrealised gains and losses included in the income statement		
– Unused amounts reversed	366	447
– Additional amount created	(13)	(39)
– Discount unwind included in financing costs	(14)	(53)
Total gains and losses included in other comprehensive income		
– Currency translation effects	23	(21)
At 31 December	**(591)**	**(1,089)**

During 2017 contingent consideration provisions decreased mainly due to the reversal of some of the provisions and to the payment of milestones. There was CHF 353 million of income, net, mainly from the reversal of the remaining provision related to the Seragon acquisition and from the partial reversal of provisions mainly related to the Dutalys and Trophos acquisitions. Payments of CHF 146 million were made for milestones related to the Genia, CMI, Ariosa, Santaris and other acquisitions.

Contingent consideration arrangements

The Group is party to certain contingent consideration arrangements arising from business combinations. The fair values are determined considering the expected payments, discounted to present value using a risk-adjusted average discount rate of 3.1% (2016: 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 31 December 2017 the total potential payments under contingent consideration arrangements could be up to CHF 1.4 billion (2016: CHF 2.9 billion) as follows:

Potential payments under contingent consideration arrangements in millions of CHF

Acquisition	Year acquired	Operating segment	2017	2016
Trophos	2015	Roche Pharmaceuticals	409	376
Dutalys	2014	Roche Pharmaceuticals	254	363
Santaris	2014	Roche Pharmaceuticals	148	203
Seragon	2014	Roche Pharmaceuticals	–	997
GeneWeave	2015	Diagnostics	166	198
Genia	2014	Diagnostics	164	230
Ariosa	2015	Diagnostics	147	179
CMI	2013	Diagnostics	–	184
Others	–	Diagnostics	135	144
At 31 December			**1,423**	**2,874**

Derivative financial instruments

The Group has entered into various currency swaps for certain non-US dollar debt instruments. Cash collateral agreements were entered into with the counterparties to the currency swaps to mitigate counterparty risk. The following table sets out the carrying value of derivative financial instruments and the amounts that are subject to master netting agreements.

Derivative financial instruments in millions of CHF

	Assets			Liabilities		
	2017	2016	2015	2017	2016	2015
Foreign currency derivatives						
– Forward exchange contracts	92	162	134	(92)	(219)	(71)
– Cross-currency swaps	–	–	–	(9)	(220)	(561)
– Other	–	–	–	–	–	–
Interest rate derivatives						
– Swaps	5	23	35	(18)	(8)	(7)
– Other	–	–	–	–	–	–
Other derivatives	–	–	–	–	–	–
Carrying value of derivative financial instruments [15, 18]	**97**	**185**	**169**	**(119)**	**(447)**	**(639)**
Derivatives subject to master netting agreements	(70)	(72)	(54)	70	72	54
Collateral arrangements	25	13	(42)	14	289	496
Net amount	**52**	**126**	**73**	**(35)**	**(86)**	**(89)**

Collateral arrangements

On 17 November 2017 the Group completed a tender offer to repurchase EUR 176 million of the 6.5% fixed rate notes due 4 March 2021. As a result a hedge was terminated and cash was received by the Group from a counterparty.

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

	2017	2016
At 1 January	302	454
Net cash delivered by (to) the Group	(252)	(152)
Fair value and other	1	–
Currency translation effects	(12)	–
At 31 December	**39**	**302**

Hedge accounting

At 31 December 2017 the Group has the following cash flow hedges and fair value hedges which are designated in a qualifying hedge relationship.

Cash flow hedges. The Group has entered into cross-currency swaps to hedge foreign exchange and interest rate risk on some of the bonds and notes issued by the Group which are denominated in euro. At 31 December 2017 such instruments are recorded as a net fair value liability of CHF 9 million (2016: CHF 220 million). There was no ineffective portion.

Chugai has entered into foreign exchange forward contracts to hedge a part of its foreign translation exposure to Swiss franc and US dollar. At 31 December 2017 such instruments are recorded as fair value assets of CHF 4 million (2016: fair value assets of CHF 45 million). There was no ineffective portion.

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

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

	2017			2016		
	Total	Less than 1 year	More than 1 year	Total	Less than 1 year	More than 1 year
Cash inflows	3,005	1,488	1,517	3,509	1,568	1,941
Cash outflows	(3,111)	(1,493)	(1,618)	(3,899)	(1,576)	(2,323)
Total cash inflow (outflow)	**(106)**	**(5)**	**(101)**	**(390)**	**(8)**	**(382)**

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 and loss in millions of CHF

	2017			2016		
	Total	Less than 1 year	More than 1 year	Total	Less than 1 year	More than 1 year
Cash inflows	258	64	194	419	84	335
Cash outflows	(297)	(74)	(223)	(550)	(111)	(439)
Total cash inflow (outflow)	**(39)**	**(10)**	**(29)**	**(131)**	**(27)**	**(104)**

The changes in the hedging reserve within equity are shown in Note 21.

Fair value hedges. The Group has entered into some interest rate swaps to hedge some of its fixed-term debt instruments. At 31 December 2017 such instruments are recorded as fair value liabilities of CHF 18 million (2016: CHF 10 million) and fair value assets of CHF 5 million (2016: CHF 23 million). During 2017 a loss of CHF 28 million was recorded on these interest rate swaps (2016: loss of CHF 17 million). As the fair value hedge had been highly effective since inception, the result of the interest rate swaps was largely offset by changes in the fair value of the hedged debt instruments.

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

30. Related parties

Controlling shareholders

The share capital of Roche Holding Ltd, which is the Group's parent company, consists of 160,000,000 bearer shares.

At 31 December 2017 and 2016, based on information supplied to the Group, a shareholder group with pooled voting rights owned 72,018,000 shares, which represented 45.01% of the issued shares. This group consisted of Ms Vera Michalski-Hoffmann, Ms Maja Hoffmann, Mr André Hoffmann, Dr Andreas Oeri, Ms Sabine Duschmalé-Oeri, Ms Catherine Oeri, Dr Jörg Duschmalé, Mr Lukas Duschmalé and the charitable foundation Wolf. The shareholder pooling agreement has existed since 1948. The figures above do not include any shares without pooled voting rights that are held outside this group by individual members of the group. Ms Maja Oeri, formerly a member of the pool, now holds 8,091,900 shares representing 5.057% of the voting rights independently of the pool.

Mr André Hoffmann and Dr Andreas Oeri are members of the Board of Directors of Roche Holding Ltd. Mr Hoffmann received remuneration totalling CHF 439,392 (2016: CHF 439,411) and Dr Oeri received remuneration totalling CHF 360,000 (2016: CHF 360,000).

There were no other transactions between the Group and the individual members of the above shareholder group with the exception of Dr Jörg Duschmalé who works as a post-doc at Roche.

Subsidiaries and associates

A listing of the Group subsidiaries and associates is included in Note 31. This listing excludes the subsidiaries of Chugai and FMI as well as not material companies, notably companies that are inactive, dormant or in liquidation. Transactions between the parent company and its subsidiaries and between subsidiaries are eliminated on consolidation. There were no significant transactions between the Group and its associates.

Key management personnel

Total remuneration of key management personnel was CHF 53 million (2016: CHF 54 million).

Members of the Board of Directors of Roche Holding Ltd receive an annual remuneration and payment for their time and expenses related to their membership of Board committees. Dr Franz and members of the Corporate Executive Committee (CEC) of Roche Holding Ltd receive remuneration, which consists of an annual salary, bonus and an expense allowance. The Group pays social insurance contributions in respect of the above remuneration and pays contributions to pension and other post-employment benefit plans for the Chairman of the Board of Directors and members of the CEC. The members of the CEC also participate in certain equity compensation plans as described below. The terms, vesting conditions and fair value of these awards are disclosed in Note 26. New members of the CEC are included in the table below for the full calendar year in which they joined the CEC. Similarly, members of the CEC retiring part way through the year are included for the full calendar year in which they left the CEC.

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

	2017	2016
Salaries, including cash-settled bonus	24	25
Bonus Stock Awards	6	6
Social security costs	2	2
Pensions and other post-employment benefits	4	4
Equity compensation plans	12	12
Board fees	4	4
Other employee benefits	1	1
Total	**53**	**54**

For the purposes of these remuneration disclosures the values for equity compensation plans, including the Bonus Stock Awards, are calculated based on the fair value used in Note 26. These represent the cost to the Group of such awards at grant date and reflect, amongst other matters, the observed exercise behaviour and exit rate for the whole population that receive the awards and initial simulations of any performance conditions.

The detailed disclosures regarding executive remuneration that are required by Swiss law are included in the Remuneration Report included in the Annual Report on pages 120 to 146. In those disclosures the values for equity compensation plans, including the Bonus Stock Awards, represent the fair value that the employee receives taking into account the preliminary assessment of any completed performance conditions. These fair values are shown in the table below, which reconciles those disclosures required by Swiss law to the above related party disclosures for key management personnel.

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

	2017	2016
Total remuneration of the members of the Board of Directors and Corporate Executive Committee (IFRS basis – see table above)	53	54
Deduct		
– Bonus Stock Awards (IFRS basis)	(6)	(6)
– Equity compensation plans (IFRS basis)	(12)	(12)
Add back		
– Bonus Stock Awards (Swiss legal basis)	3	3
– Equity compensation plans (Swiss legal basis)	14	15
Total remuneration of the members of the Board of Directors and Corporate Executive Committee (Swiss legal basis)	**52**	**54**
Of which (including social security costs)		
– Board of Directors (page 133 of the Annual Report)	10	10
– Corporate Executive Committee (page 141 of the Annual Report)	42	44

Bonus Stock Awards. The Chairman of the Board of Directors and the Chief Executive Officer will be granted Bonus Stock Awards in lieu of their cash-settled bonus for the financial year 2017. These will be issued by the end of April 2018. The number of awards and fair value per award will be calculated at the grant date.

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

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

	2017	2016
Roche Stock-settled Stock Appreciation Rights	248,961	286,142
Roche Restricted Stock Unit Plan	0	0
Roche Performance Share Plan	33,682	29,865

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

	2017	2016
Roche Connect	0.3	0.3

Transactions with former members of the Board of Directors and Corporate Executive Committee. Pensions totalling CHF 2 million were paid by the Group to former Corporate Executive Committee members (2016: CHF 2 million).

Defined benefit plans

Transactions between the Group and the various defined benefit plans for the employees of the Group are described in Note 25.

31. List of subsidiaries and associates

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

Listed companies

Country	Company	City	Share capital (in millions)		Equity interest (in %)
Switzerland	Roche Holding Ltd Stock Exchange: SIX Swiss Exchange Zurich Valor Share: 1203211 Valor *Genussschein:* 1203204 ISIN Share: CH0012032113 ISIN *Genussschein:* CH0012032048 Market capitalisation: CHF 210,426.0 million	Basel	CHF	160.0	
Japan	Chugai Pharmaceutical Co., Ltd. Stock Exchange: Tokyo Stock Code: TSE:4519 ISIN: JP3519400000 Market capitalisation: JPY 3,154,897 million	Tokyo	JPY	335.2	61.3
United States	Foundation Medicine, Inc. Stock Exchange: Nasdaq Stock Code: FMI ISIN: US3504651007 Market capitalisation: USD 2,492.15 million	Cambridge	USD	(–)	57.5
United States	Senseonics Holdings, Inc. Stock Exchange: New York Stock Exchange (NYSE-MKT) Stock Code: SENS ISIN: US81727U1051 Market capitalisation: USD 363.77 million	Germantown	USD	0.1	20.7

Non-listed companies

Country	Company	City		Share capital (in millions)	Equity interest (in %)
Algeria	Roche Algérie SPA	Hydra	DZD	1.0	48
Argentina	Productos Roche S.A. Química e Industrial	Tigre	ARS	844.1	100
	Roche Diabetes Care Argentina S.A.	Tigre	ARS	87.4	100
	Vanguardia en productos farmacéuticos (VANPROFARMA) S.A.	Buenos Aires	ARS	13.8	100
Australia	Roche Diabetes Care Australia Pty Limited	Bella Vista	AUD	14.1	100
	Roche Diagnostics Australia Pty. Limited	North Ryde	AUD	5.0	100
	Roche Products Pty. Limited	Dee Why	AUD	65.0	100
Austria	mySugr GmbH	Vienna	EUR	5.7	100
	Roche Austria GmbH	Vienna	EUR	14.5	100
	Roche Diabetes Care Austria GmbH	Vienna	EUR	(–)	100
	Roche Diagnostics GmbH	Vienna	EUR	1.1	100
Bangladesh	Roche Bangladesh Limited	Dhaka	BDT	27.2	100
Belarus	FLLC "Roche Products Limited"	Minsk	USD	1.5	100
Belgium	N.V. Roche S.A.	Brussels	EUR	32.0	100
	Roche Diagnostics Belgium NV	Brussels	EUR	3.8	100
Bermuda	Chemical Manufacturing and Trading Company Limited	Hamilton	USD	(–)	100
	Hoffmann-La Roche Products Limited	Hamilton	USD	(–)	100
	Roche Capital Services Ltd.	Hamilton	RUB	(–)	100
	Roche Catalyst Investments Ltd.	Hamilton	USD	(–)	100
	Roche Financial Investments Ltd.	Hamilton	USD	(–)	100
	Roche Financial Management Ltd.	Hamilton	USD	(–)	100
	Roche Financial Services Ltd.	Hamilton	USD	(–)	100
	Roche International Ltd.	Hamilton	USD	(–)	100
	Roche Intertrade Limited	Hamilton	USD	10.0	100
	Roche Operations Ltd.	Hamilton	USD	(–)	100
	Roche Services Holdings Ltd.	Hamilton	USD	(–)	100
	Sapac Corporation Ltd.	Hamilton	CAD	(–)	100
	Syntex Pharmaceuticals International Limited	Hamilton	USD	(–)	100
Bolivia	Roche Bolivia SRL.	Santa Cruz	BOB	0.1	100
Bosnia and Herzegovina	Roche d.o.o. farmaceutsko drustvo – Roche Ltd. Pharmaceutical Company	Sarajevo	BAM	13.1	100
Brazil	Produtos Roche Químicos e Farmacêuticos S.A.	São Paulo	BRL	41.7	100
	Roche Diabetes Care Brasil Ltda.	São Paulo	BRL	44.4	100
	Roche Diagnostica Brasil Ltda.	São Paulo	BRL	415.9	100
Bulgaria	Roche Bulgaria EOOD	Sofia	BGN	5.1	100
Cameroon	Roche Cameroun SARL	Douala	XAF	60.0	100
Canada	Hoffmann-La Roche Limited	Mississauga	CAD	40.3	100
Chile	Roche Chile Limitada	Santiago de Chile	CLP	70.9	100
China	Roche (China) Holding Ltd.	Shanghai	USD	37.3	100
	Roche Diagnostics (Hong Kong) Limited	Hong Kong	HKD	10.0	100
	Roche Diagnostics (Shanghai) Ltd.	Shanghai	USD	31.0	100
	Roche Diagnostics (Suzhou) Limited	Suzhou	USD	100.0	100
	Roche Hong Kong Limited	Hong Kong	HKD	10.0	100
	Roche R&D Center (China) Ltd.	Shanghai	USD	35.8	100
	Shanghai IEN Pharma Co., Ltd	Shanghai	USD	25.0	100
	Shanghai Roche Pharmaceuticals Limited	Shanghai	USD	278.7	70
Colombia	Productos Roche S.A.	Bogotá	COP	26,923.7	100
Costa Rica	Roche Servicios S.A.	Heredia	USD	8.1	100
Côte d'Ivoire	Roche Côte d'Ivoire SARL	Abidjan	XOF	50.0	100
Croatia	Roche d.o.o.	Zagreb	HRK	4.8	100
Czech Republic	Roche s.r.o.	Prague	CZK	200.0	100
Denmark	Roche a/s, Medicinalvarer og Kemikalier	Hvidovre	DKK	4.0	100
	Roche Diagnostics a/s	Hvidovre	DKK	1.3	100
	Roche Innovation Center Copenhagen A/S	Hoersholm	DKK	100.1	100
Dominican Republic	Productos Roche Dominicana, S.R.L.	Santo Domingo	DOP	0.6	100
Ecuador	Roche Ecuador S.A.	Quito	USD	28.1	100
Egypt	Roche Egypt for Manufacturing and Trading SAE	Cairo	EGP	1.0	100
	Roche Egypt LLC	Cairo	EGP	0.1	95
	RoDiagnostics Egypt for Trading S.A.E	Giza	EGP	5.0	100
El Salvador	Productos Roche (El Salvador) S.A. de C.V.	San Salvador	SVC	0.2	100
Estonia	Roche Eesti OÜ	Tallinn	EUR	0.1	100
Finland	Roche Diagnostics Oy	Espoo	EUR	0.2	100
	Roche Oy	Espoo	EUR	(–)	100
France	Institut Roche SAS	Boulogne-Billancourt	EUR	(–)	100
	Roche Diabetes Care France SAS	Meylan	EUR	4.5	100
	Roche Diagnostics France SAS	Meylan	EUR	16.0	100
	Roche SAS	Boulogne-Billancourt	EUR	38.2	100
	Trophos SA	Marseille	EUR	1.9	100
Georgia	Roche Georgia LLC	Tbilisi	GEL	0.5	100

Country	Company	City		Share capital (in millions)	Equity interest (in %)
Germany	Ascur Versicherungsvermittlungs GmbH	Grenzach-Wyhlen	EUR	(–)	100
	Galenus Mannheim Pharma GmbH	Mannheim	EUR	(–)	100
	Roche Beteiligungs GmbH	Grenzach-Wyhlen	EUR	3.6	100
	Roche Deutschland Holding GmbH	Grenzach-Wyhlen	EUR	6.0	100
	Roche Diabetes Care Deutschland GmbH	Mannheim	EUR	(–)	100
	Roche Diabetes Care GmbH	Mannheim	EUR	(–)	100
	Roche Diagnostics Deutschland GmbH	Mannheim	EUR	1.0	100
	Roche Diagnostics GmbH	Mannheim	EUR	94.6	100
	Roche Diagnostics IT Solutions GmbH	Berlin	EUR	(–)	100
	Roche mtm laboratories AG	Mannheim	EUR	1.4	100
	Roche Pharma AG	Grenzach-Wyhlen	EUR	61.4	100
	Roche PVT GmbH	Waiblingen	EUR	(–)	100
	Roche Real Estate Services Mannheim GmbH	Mannheim	EUR	1.8	100
	Roche Registration GmbH	Grenzach-Wyhlen	EUR	(–)	100
	Signature Diagnostics GmbH	Potsdam	EUR	0.1	100
Ghana	Roche Products Ghana Limited	Accra	GHS	1.2	100
Greece	Roche (Hellas) S.A.	Athens	EUR	80.1	100
	Roche Diagnostics (Hellas) S.A.	Athens	EUR	27.8	100
Guatemala	Productos Roche Guatemala (Sociedad Anónima)	Guatemala	GTQ	0.6	100
Honduras	Productos Roche (Honduras), S.A.	Tegucigalpa	HNL	(–)	100
Hungary	Roche (Hungary) Ltd	Budapest	HUF	30.0	100
	Roche Services (Europe) Ltd	Budapest	HUF	3.0	100
India	Roche Diabetes Care India Private Limited	Mumbai	INR	15.2	100
	Roche Diagnostics India Private Limited	Mumbai	INR	149.2	100
	Roche Products (India) Private Limited	Mumbai	INR	14.0	100
	Viewics India Private Limited	Pune	INR	(–)	100
Indonesia	P.T. Roche Indonesia	Jakarta	IDR	1,323.0	98.6
Iran	Roche Pars Co. (Ltd.)	Tehran	IRR	41,610.0	100
Ireland	Roche Ireland Limited	Clarecastle	EUR	2.4	100
	Roche Products (Ireland) Limited	Dublin	EUR	(–)	100
Israel	Medingo Ltd.	Yoqneam Illit	ILS	8.0	100
	Roche Pharmaceuticals (Israel) Ltd.	Hod Hasharon	ILS	(–)	100
Italy	Roche Diabetes Care Italy S.p.A.	Monza	EUR	40.2	100
	Roche Diagnostics S.p.A.	Monza	EUR	18.1	100
	Roche S.p.A.	Monza	EUR	34.1	100
Japan	Roche DC Japan K. K.	Tokyo	JPY	10.0	100
	Roche Diagnostics K.K.	Tokyo	JPY	2,500.0	100
Jordan	F. Hoffmann-La Roche Ltd / Jordan P.S.C.	Amman	JOD	(–)	100
Kazakhstan	Roche Kazakhstan LLP	Almaty	KZT	150.0	100
Kenya	Roche Kenya Limited	Nairobi	KES	40.0	100
Latvia	Roche Latvija SIA	Riga	EUR	1.7	100
Lebanon	Roche Lebanon SARL	Beirut	LBP	1,000.0	100
Lithuania	UAB Roche Lietuva	Vilnius	EUR	0.2	100
Macedonia	Roche Makedonija DOOEL	Skopje	EUR	0.3	100
Malaysia	Roche (Malaysia) Sdn. Bhd.	Kuala Lumpur	MYR	4.0	100
	Roche Diagnostics (Malaysia) Sdn. Bhd.	Petaling Jaya	MYR	0.9	100
	Roche Services (Asia Pacific) Sdn. Bhd.	Kuala Lumpur	MYR	0.5	100
	Syntex Pharmaceuticals Sdn. Bhd.	Kuala Lumpur	MYR	(–)	100
Mauritius	Roche Products (Mauritius) Ltd	Quatre Bornes	MUR	4.0	100
Mexico	Productos Roche, S.A. de C.V.	Mexico City	MXN	82.6	100
	Roche DC México, S.A. de C.V.	Mexico City	MXN	3.9	100
	Roche Servicios de México, S.A. de C.V.	Mexico City	MXN	3.5	100
Morocco	Roche S.A.	Casablanca	MAD	59.5	100
Myanmar	Roche Myanmar Company Limited	Yangon	USD	(–)	100
Netherlands	Roche Diabetes Care Nederland B.V.	Almere	EUR	(–)	100
	Roche Diagnostics Nederland B.V.	Almere	EUR	2.3	100
	Roche Finance Europe B.V.	Woerden	EUR	2.0	100
	Roche Nederland B.V.	Woerden	EUR	10.9	100
	Roche Pharmholding B.V.	Woerden	EUR	467.8	100
New Zealand	Roche Diagnostics NZ Limited	Auckland	NZD	3.0	100
	Roche Products (New Zealand) Limited	Auckland	NZD	13.5	100
Nicaragua	Productos Roche (Nicaragua), S.A.	Managua	NIO	0.9	100
Nigeria	Roche Products Limited	Lagos	NGN	200.0	100
Norway	Roche Diagnostics Norge A/S	Oslo	NOK	5.8	100
	Roche Norge A/S	Oslo	NOK	6.2	100
Pakistan	Roche Pakistan Limited	Karachi	PKR	38.3	100
Palestine	Roche Pharmaceuticals Palestine Ltd	Ramallah and Al-Bireh	USD	1.2	100

Country	Company	City		Share capital (in millions)	Equity interest (in %)
Panama	Productos Roche (Panama), S.A.	Panama City	PAB	(–)	100
	Productos Roche Interamericana S.A. (PRISA)	Panama City	USD	0.1	100
Peru	Productos Roche Química Farmacéutica S.A.	Lima	PEN	11.1	100
	Roche Farma (Peru) S.A.	Lima	PEN	38.1	100
Philippines	Roche (Philippines) Inc.	Taguig City	PHP	300.0	100
Poland	Roche Diabetes Care Polska sp. z o.o.	Warsaw	PLN	2.0	100
	Roche Diagnostics Polska Sp. z o.o.	Warsaw	PLN	8.0	100
	Roche Polska Sp. z o.o.	Warsaw	PLN	25.0	100
Portugal	Roche Farmacêutica Química, Lda.	Amadora	EUR	1.1	100
	Roche Sistemas de Diagnósticos, Sociedade Unipessoal, Lda.	Amadora	EUR	2.6	100
Puerto Rico	Genentech P.R., Inc.	San Juan	USD	(–)	100
	Roche Products Inc.	Ponce	USD	0.5	100
	Syntex Puerto Rico, Inc.	Ponce	USD	(–)	100
Romania	Roche Romania S.R.L.	Bucharest	RON	472.2	100
Russian Federation	Limited Liability Company Roche Diabetes Care Rus	Moscow	RUB	100.0	100
	Limited Liability Company Roche Diagnostics Rus	Moscow	RUB	250.0	100
	Roche – Moscow Ltd.	Moscow	RUB	2.6	100
Saudi Arabia	Roche Products Saudi Arabia LLC	Jeddah	SAR	30.0	100
Serbia	Roche d.o.o. Beograd	Belgrade	EUR	9.6	100
Singapore	Roche Diabetes Care Asia Pacific Pte. Ltd.	Singapore	SGD	0.6	100
	Roche Diagnostics Asia Pacific Pte. Ltd.	Singapore	SGD	20.4	100
	Roche Singapore Pte. Ltd.	Singapore	SGD	4.0	100
	Roche Singapore Technical Operations, Pte. Ltd.	Singapore	USD	35.0	100
Slovakia	Roche Slovensko, S.R.O.	Bratislava	EUR	0.3	100
Slovenia	Roche farmacevtska družba, d.o.o.	Ljubljana	EUR	0.2	100
South Africa	Kapa Biosystems (Pty) Ltd.	Cape Town	ZAR	(–)	100
	Roche Diabetes Care South Africa Proprietary Limited	Midrand	ZAR	15.0	100
	Roche Products (Proprietary) Limited	Illovo	ZAR	60.0	100
South Korea	Roche Diagnostics Korea Co., Ltd.	Seoul	KRW	22,969.0	100
	Roche Korea Company Ltd.	Seoul	KRW	13,375.0	100
Spain	Emminens Healthcare Services S.L.	Madrid	EUR	1.8	100
	Roche Diabetes Care Spain, S.L.	Sant Cugat del Vallès	EUR	1.0	100
	Roche Diagnostics S.L.	Sant Cugat del Vallès	EUR	17.0	100
	Roche Farma, S.A.	Madrid	EUR	45.0	100
Sri Lanka	Roche Products Colombo (Private) Limited	Colombo	LKR	14.0	100
Sweden	Roche AB	Solna	SEK	20.0	100
	Roche Diagnostics Scandinavia AB	Solna	SEK	9.0	100
Switzerland	Biopharm AG	Basel	CHF	0.3	100
	F. Hoffmann-La Roche Ltd	Basel	CHF	150.0	100
	Hoffmann-La Roche Ltd	Basel	CHF	0.5	100
	InterMune International AG	Basel	CHF	10.0	100
	Museum Tinguely AG	Basel	CHF	0.1	100
	Phaor AG	Basel	CHF	0.2	100
	Rabbit-Air Ltd	Bachenbülach	CHF	3.0	100
	Roche Capital Market Ltd	Basel	CHF	1.0	100
	Roche Chemische Unternehmungen AG	Basel	CHF	1.3	100
	Roche Diabetes Care (Switzerland) Ltd	Rotkreuz	CHF	0.1	100
	Roche Diabetes Care Ltd.	Rotkreuz	CHF	0.9	100
	Roche Diagnostics (Switzerland) Ltd	Rotkreuz	CHF	1.0	100
	Roche Diagnostics International Ltd	Rotkreuz	CHF	20.0	100
	Roche Finance Ltd	Basel	CHF	409.2	100
	Roche Forum Buonas Ltd	Buonas	CHF	0.1	100
	Roche Glycart Ltd	Schlieren	CHF	0.3	100
	Roche Long Term Foundation	Basel	CHF	0.5	100
	Roche Pharma (Switzerland) Ltd	Reinach	CHF	2.0	100
	Syntex Pharm AG	Rotkreuz	CHF	0.5	100
	Tavero AG	Basel	CHF	0.1	100
Taiwan	Roche Diagnostics Ltd.	Taipei	TWD	299.6	100
	Roche Products Ltd.	Taipei	TWD	1,000.0	100
Thailand	Roche Diagnostics (Thailand) Limited	Bangkok	THB	103.0	100
	Roche Thailand Limited	Bangkok	THB	12.0	100
Tunisia	Roche Tunisie SA	Tunis	TND	0.8	100
Turkey	Infogenetik Moleküler Bilgi Hizmetleri Anonim Şirketi	Istanbul	TRY	1.5	100
	Roche Diagnostics Turkey Anonim Şirketi	Istanbul	TRY	80.0	100
	Roche Müstahzarlari Sanayi Anonim Şirketi	Istanbul	TRY	249.5	100
Ukraine	Roche Ukraine LLC	Kiev	UAH	124.0	100

Country	Company	City		Share capital (in millions)	Equity interest (in %)
United Arab Emirates	Roche Diabetes Care Middle East FZCO	Dubai	AED	0.5	100
	Roche Diagnostics Middle East FZCO	Dubai	AED	19.0	100
	Roche Pharmaceuticals Middle East FZCO	Dubai	AED	0.5	100
United Kingdom	InterMune Holdings Limited	Welwyn Garden City	GBP	(–)	100
	InterMune UK & I Limited	Welwyn Garden City	GBP	(–)	100
	Kapa Biosystems Ltd	London	GBP	(–)	100
	Roche Diabetes Care Limited	Burgess Hill	GBP	0.4	100
	Roche Diagnostics Ltd.	Burgess Hill	GBP	32.6	100
	Roche Holding (UK) Limited	Welwyn Garden City	GBP	100.0	100
	Roche Products Limited	Welwyn Garden City	GBP	98.3	100
	Roche Registration Limited	Welwyn Garden City	GBP	(–)	100
United States	Adheron Therapeutics Inc.	Wilmington	USD	(–)	100
	Anadys Pharmaceuticals, Inc.	South San Francisco	USD	(–)	100
	Ariosa Diagnostics, Inc.	San Jose	USD	(–)	100
	Bina Technologies, Inc.	Belmont	USD	(–)	100
	BioVeris Corporation	Indianapolis	USD	(–)	100
	ForSight VISION4, Inc.	South San Francisco	USD	(–)	100
	Genentech USA, Inc.	South San Francisco	USD	(–)	100
	Genentech, Inc.	South San Francisco	USD	(–)	100
	GeneWEAVE Biosciences Inc.	Los Gatos	USD	(–)	100
	Genia Technologies, Inc.	Santa Clara	USD	(–)	100
	HLR Consumer Health, Inc.	Little Falls	USD	(–)	100
	Hoffmann-La Roche Inc.	Little Falls	USD	3.0	100
	IGEN International, Inc.	Pleasanton	USD	(–)	100
	IGEN LS LLC	Pleasanton	USD	(–)	100
	InterMune, Inc.	South San Francisco	USD	(–)	100
	IQuum, Inc.	Marlborough	USD	(–)	100
	Kapa Biosystems, Inc.	Wilmington	USD	(–)	100
	Memory Pharmaceuticals Corp.	Little Falls	USD	(–)	100
	mySugr Inc.	Encinitas	USD	(–)	100
	Roche Diabetes Care, Inc.	Indianapolis	USD	(–)	100
	Roche Diagnostics Corporation	Indianapolis	USD	(–)	100
	Roche Diagnostics Hematology, Inc.	Westborough	USD	(–)	100
	Roche Diagnostics Operations, Inc.	Indianapolis	USD	(–)	100
	Roche Health Solutions Inc.	Indianapolis	USD	(–)	100
	Roche Holdings, Inc.	South San Francisco	USD	1.0	100
	Roche Laboratories Inc.	Little Falls	USD	(–)	100
	Roche Molecular Systems, Inc.	Pleasanton	USD	(–)	100
	Roche Palo Alto LLC	South San Francisco	USD	(–)	100
	Roche Sequencing Solutions, Inc.	Pleasanton	USD	(–)	100
	Roche TCRC, Inc.	New York	USD	(–)	100
	Seragon Pharmaceuticals Inc.	South San Francisco	USD	(–)	100
	Spring Bioscience Corp.	Pleasanton	USD	(–)	100
	Tanox, Inc.	South San Francisco	USD	(–)	100
	Tensha Therapeutics, Inc.	South San Francisco	USD	(–)	100
	Therapeutics Human Polyclonals, Inc.	South San Francisco	USD	(–)	100
	Ventana Medical Systems, Inc.	Tucson	USD	(–)	100
	Viewics, Inc.	San Jose	USD	(–)	100
Uruguay	Roche International Ltd. (Montevideo Branch)	Montevideo	UYU	(–)	100
Venezuela	Productos Roche S.A.	Caracas	VEF	156.9	100
Vietnam	Roche Vietnam Co., Ltd.	Ho Chi Minh City	USD	15.0	100

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

32. Significant accounting policies

Consolidation policy

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

Segment reporting

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

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

Foreign currency translation

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

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

Revenues

Sales represent amounts received and receivable for goods supplied to customers after deducting trade discounts, cash discounts and volume rebates, and exclude value added taxes and other taxes directly linked to sales. Revenues from the sale of products are recognised upon transfer to the customer of significant risks and rewards. Trade discounts, cash discounts and volume rebates are recorded on an accrual basis consistent with the recognition of the related sales. Estimates of expected sales returns, chargebacks and other rebates, including Medicaid in the US and similar rebates in other countries, are also deducted from sales and recorded as accrued liabilities or provisions or as a deduction from accounts receivable. Such estimates are based on analyses of existing contractual or legislatively mandated obligations, historical trends and the Group's experience. If the circumstances are such that the level of sales returns, and hence revenues, cannot be reliably measured, then sales are only recognised when the right of return expires, which is generally upon prescription of the products to patients. Other revenues are recorded as earned or as the services are performed. Single transactions are split into separately identifiable components to reflect the substance of the transaction, where necessary. Conversely, two or more transactions may be considered together for revenue recognition purposes, where the commercial effect cannot be understood without reference to the series of transactions as a whole.

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

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

Licensing, milestone and other upfront receipts

Royalty income is recognised on an accrual basis in accordance with the substance of the respective licensing agreements. If the collectability of a royalty amount is not reasonably assured, those royalties are recognised as revenue when the cash is received. Certain Group companies receive upfront, milestone and other similar payments from third parties relating to the sale or licensing of products or technology. Revenue associated with performance milestones is recognised based on achievement of the deliverables as defined in the respective agreements. Upfront payments and licence fees for which there are subsequent deliverables are initially reported as deferred income and are recognised in income as earned over the period of the development collaboration or the manufacturing obligation.

Employee benefits

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

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

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

Pensions and other post-employment benefits

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

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

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

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

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

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

Equity compensation plans

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

Property, plant and equipment

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

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

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

Leases

Where the Group is the lessee. Finance leases exist when substantially all of the risks and rewards of ownership are transferred to the Group. Finance leases are capitalised 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, is reported within debt. Finance lease assets are 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. Operating leases exist when substantially all of the risks and rewards of ownership are not transferred to the Group. Payments made under operating leases are charged against income on a straight-line basis over the period of the lease.

Where the Group is the lessor. Certain assets, mainly Diagnostics instruments, are leased to third parties through both finance and operating lease arrangements. Finance lease assets are reported as receivables at an amount equal to the net investment in the lease. Lease income from finance leases is recognised over the term of the lease based on the effective interest rate method. Operating lease assets are reported within property, plant and equipment. Lease income from operating leases is recognised over the lease term on a straight-line basis.

Business combinations

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

Goodwill

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

Intangible assets

Purchased patents, licences, trademarks and other intangible assets are initially recorded at cost. Assets that have been acquired through a business combination are initially recorded at fair value. 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 10 years
Technology intangibles in use	up to 14 years

Impairment of property, plant and equipment 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 8.

Inventories

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

Accounts receivable

Accounts receivable are carried at the original invoice amount less allowances made for doubtful accounts, trade discounts, cash discounts, volume rebates and similar allowances. An allowance for doubtful accounts is recorded where there is objective evidence that the Group will not be able to collect all amounts due. These estimates are based on specific indicators, such as the ageing of customer balances, specific credit circumstances and the Group's historical experience, taking also into account economic conditions. Expenses for doubtful trade receivables are recognised within marketing and distribution expenses. Trade discounts, cash discounts, volume rebates and similar allowances are recorded on an accrual basis consistent with the recognition of the related sales, using estimates based on existing contractual obligations, historical trends and the Group's experience.

Cash and cash equivalents

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

Provisions and contingencies

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

Fair values

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

Financial instruments

Financial instruments are classified into the following categories which are disclosed in Note 29.

Available-for-sale. These are non-derivative financial assets that are either designated as such or are not classified in any other financial asset category. Available-for-sale assets are initially recorded and subsequently carried at fair value. Changes in fair value are recorded in other comprehensive income, except for impairments and interest and foreign exchange components. When an investment is derecognised, the cumulative gains and losses in equity are reclassified to financial income (expense). Available-for-sale assets are mainly comprised of marketable securities.

Fair value – hedging instruments. These are derivative financial instruments that are used to manage the exposures to foreign currency, interest rate, equity market and credit risks. Derivative financial 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).

Fair value – designated. These are non-derivative financial instruments that are designated as fair value through profit or loss on initial recognition. Designated fair value instruments are initially recorded and subsequently carried at fair value with changes in fair value recorded in the income statement. Designated fair value instruments are mainly comprised of contingent consideration liabilities with changes in fair value recorded in general and administration within the operating results.

Loans and receivables. These are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market. Loans and receivables are initially recorded at fair value and subsequently carried at amortised cost using the effective interest rate method, less any impairment losses. Loans and receivables are mainly comprised of accounts receivable and cash and cash equivalents.

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

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

Impairment of financial assets

Financial assets are individually assessed for possible impairment at each reporting date. An impairment charge is recorded where there is objective evidence of impairment, such as where the issuer is in bankruptcy, default or other significant financial difficulty. Available-for-sale equity securities that have a market value of more than 25% below their original cost, or have a market value below their original cost for a sustained six-month period will be considered as impaired.

For financial assets carried at amortised cost, any impairment charge is the difference between the carrying value and the recoverable amount, calculated using estimated future cash flows discounted using the original effective interest rate. For available-for-sale financial assets, any impairment charge is the amount currently carried in other comprehensive income for the difference between the original cost and the fair value.

An impairment loss is reversed if the reversal can be related objectively to an event occurring after the impairment loss was recognised. For debt securities measured at amortised cost or available-for-sale, the reversal is recognised in income. For equity securities held as available-for-sale, the reversal is recognised directly in other comprehensive income.

Hedge accounting

The Group uses derivatives to manage its exposures to foreign currency, interest rate, equity market and credit risks. The instruments used may include interest rate swaps, cross-currency swaps, forwards contracts and options. The Group generally limits the use of hedge accounting to certain significant transactions. To qualify for hedge accounting, the hedging relationship must meet several strict conditions on 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. This is a hedge of the exposure to variability in cash flows that is attributable to a particular risk associated with a recognised asset or liability or a highly probable forecast 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.

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

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.

Taxation

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

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

Deferred tax assets and liabilities are recognised on temporary differences between the tax bases of assets and liabilities and their carrying values. Deferred tax assets are recognised to the extent that it is probable that future taxable profit will be available against which the unused tax losses can be utilised.

Current and deferred tax assets and liabilities are offset when the income taxes are levied by the same taxation authority and when there is a legally enforceable right to offset them. Deferred taxes are determined based on the currently enacted tax rates applicable in each tax jurisdiction where the Group operates.

Own equity instruments

The Group's holdings in its own equity instruments are recorded as a deduction from equity. The original purchase cost, consideration received for subsequent resale of these equity instruments and other movements are reported as changes in equity. These instruments are held for the Group's potential conversion obligations that may arise from the Group's equity compensation plans.

Changes in accounting policies

In 2017 the Group has implemented various minor amendments to existing standards and interpretations, which have no material impact on the Group's overall results and financial position.

Future new and revised standards

The Group has assessed the expected impacts of the various new and revised standards and interpretations that will be mandatory from 1 January 2018 which the Group has not yet applied, as summarised below. Based on the analysis to date, the Group does not anticipate that these will have a material impact on the Group's overall results and financial position, and furthermore no restatements of the 2017 comparative results will be necessary when the new standards are applied in 2018.

The Group is also assessing other new and revised standards which are not mandatory until after 2018.

IFRS 9 'Financial Instruments'

The Group will implement the new standard effective 1 January 2018. The new standard will replace IAS 39 'Financial Instruments: Recognition and Measurement'. The standard deals with the classification, recognition and measurement (including impairment) of financial instruments and also introduces a new hedge accounting model. The new standard will result in an increased volume of disclosure information in the Annual Financial Statements.

Classification and measurement of financial instruments. Currently all marketable securities are classified as available-for-sale under IAS 39. Under the new standard equity securities will be classified as fair value through profit and loss, debt securities and money market instrument as fair value through other comprehensive income ('OCI') and time accounts over three months as amortised cost. The Group will elect to classify certain strategic equity investments at fair value through OCI. Additionally it is expected that there will be a reclassification within equity, with unrealised gains of CHF 110 million, net of tax, being transferred from fair value reserves to retained earnings on 1 January 2018.

Impairment of financial assets. On 1 January 2018 the Group will change the methodology of assessing impairment of its financial assets from the incurred loss model (used in IAS 39) to the expected credit loss model (used in IFRS 9). In accordance with the transitional provisions of IFRS 9, the Group will not restate prior periods but it will reassess the impairment allowances under the new approach as of 1 January 2018. As a result the allowance for doubtful accounts on accounts receivable is expected to increase by CHF 8 million and the loss allowance for other financial assets to increase by CHF 1 million. This will be recognised, together with the related deferred tax impact, as an adjustment of retained earnings on 1 January 2018.

Hedge accounting. The new standard introduces a new hedge accounting model which requires hedge accounting relationships to be based upon the Group's own risk management strategy and objectives and to be discontinued only when the relationships no longer qualify for hedge accounting. The Group will apply the revised hedge accounting guidance to its hedging relationships prospectively with effect from 1 January 2018. All hedge accounting relationships designated under the previous IAS 39 guidance are expected to continue to be valid hedge accounting relationships in accordance with IFRS 9.

Presentational changes. As a result of implementing IFRS 9, the Group will make a number of presentational changes to the statement of comprehensive income, statement of changes in equity, Note 3 within 'Other financial income (expense)' and Note 29 within 'Level 3 fair values' and within 'Hedge accounting'.

IFRS 15 'Revenues from Contracts with Customers'

The Group will implement the new standard effective 1 January 2018. The new standard will replace IAS 18 'Revenue' and IAS 11 'Construction Contracts'. IFRS 15 establishes a comprehensive framework for determining whether, how much and when revenue is recognised, and also contains new requirements related to presentation. The core principle in that framework is that revenue should be recognised dependent on the transfer of promised goods or services to the customer for an amount that reflects the consideration which should be received in exchange for those goods or services. The objective of the standard is to provide a five-step approach to revenue recognition that includes identifying contracts with customers, identifying performance obligations, determining transaction prices, allocating transaction prices to performance obligations, and recognising revenue when or as performance obligations are satisfied. Judgement will need to be applied, including making estimates and assumptions, for multiple-element contracts in identifying performance obligations, in constraining estimates of variable consideration and in allocating the transaction price to each performance obligation and to lease components (if any), particularly in the Diagnostics business and for out-licensing agreements. The new standard will result in an increased volume of disclosure information in the Annual Financial Statements.

Changes introduced by the standard relevant to the Roche Group. The new standard provides new requirements and additional guidance that are relevant to the Group, notably on the following areas:

- Revenue from licences of intellectual property, including sales-based royalties, on constraining estimates of variable consideration such as development milestones, and on providing a material right to receive additional goods free of charge under certain patient access programmes that may be regarded as a separate performance obligation involving variable consideration. The Group does not anticipate a material impact from these changes.
- The new standard also clarifies how to allocate sales, including the treatment of discounts, to each element in multiple-elements contracts and when to recognise sales for each of those elements. Such contracts are entered into in the Diagnostics Division and typically include obligations for instruments (including those provided under leasing arrangements), reagents and other consumables, and services. It requires the use of estimates and assumptions and some judgement to apply this guidance in practice. The Group does not anticipate a material impact from this guidance.
- Out-licensing contracts in the Pharmaceuticals Division may be entered into with no further obligation or may include commitments to research, late-stage development, regulatory approval, co-marketing or manufacturing. These may be settled by a combination of up-front payments, milestone payments, 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, is not straight-forward 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. The answers under the new standard may be different from those currently used. The new standard provides an exemption for sales-based royalties for licences of intellectual property which will continue to be recognised as revenue as underlying sales are incurred.

Transition approach and use of practical expedients. The Group will apply the full retrospective method for the transition. Certain practical expedients permitted by the standard during the transition will also be used, notably the relief to not restate contracts that began and were completed in 2017 or were completed before 1 January 2017 and to not provide in 2018 the disclosure requirement as per IFRS 15 paragraph 120 for the comparative 2017 period ('amount of the transaction price allocated to the remaining performance obligations'). Since the new standard, including the use of practical expedients, does not modify the timing or amounts of revenue recognised for 2017 no restatement will be necessary.

Presentational changes. As a result of implementing IFRS 15, the Group will make a presentational change to the income statement in 2018 to include a subtotal 'Revenue', and will create a new note for 'Revenue' to include the increased volume of required disclosure information.

IFRS 16 'Leases'

The Group will implement the new standard effective 1 January 2019 and will apply the cumulative catch-up method for the transition, meaning that the comparative 2018 results will not be restated when the new standard is applied. The new standard will result in an increased volume of disclosure information in the Annual Financial Statements.

The main impact of the new standard will be to bring operating leases on-balance sheet. The Group is assessing the potential impact, but currently anticipates that the new standard will result in the carrying value of leased assets being increased by approximately CHF 1.2 billion, with lease liabilities increased by a similar amount at the date of implementation. The application of the new standard will result in part of what are currently reported as operating lease costs being recorded as interest expenses. Given the leases involved and the current low interest rate environment, the Group does not currently expect this effect to be material.

Report of Roche Management on Internal Control over Financial Reporting

Report of Roche Management on Internal Control over Financial Reporting

The Board of Directors and management of Roche Holding Ltd are responsible for establishing and maintaining adequate control over financial reporting. The internal control system was designed to provide reasonable assurance over the reliability of financial reporting and the preparation and fair presentation of consolidated financial statements in accordance with International Financial Reporting Standards.

All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective may not prevent or detect misstatements and can provide only reasonable assurance with respect to financial statement preparation and presentation. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions or that the degree of compliance with the policies or procedures may deteriorate.

Management assessed the effectiveness of its system of internal control over financial reporting as of 31 December 2017 based on the criteria for effective internal control over financial reporting described in *Internal Control – Integrated Framework 2013* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on this assessment, management has concluded that the system of internal control over financial reporting was effective as of 31 December 2017.

The Statutory Auditor KPMG AG has audited the consolidated financial statements of Roche Holding Ltd for the year ended 31 December 2017, in accordance with Swiss Auditing Standards and with the International Standards on Auditing (ISA). They have also issued a report on the effectiveness of the Group's system of internal control over financial reporting. This report is set out on pages 136 to 137.

Christoph Franz
Chairman of the Board of Directors

Alan Hippe
Chief Financial Officer

Basel, 29 January 2018

KPMG

Statutory Auditor's Report

To the General Meeting of Roche Holding Ltd, Basel

Report on the Audit of the Consolidated Financial Statements

Opinion

We have audited the consolidated financial statements of Roche Holding Ltd and its subsidiaries (the Group), which comprise the consolidated balance sheet as at 31 December 2017 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 40 to 126) give a true and fair view of the consolidated financial position of the Group as at 31 December 2017, and its consolidated financial performance and its consolidated cash flows for the year then ended in accordance with International Financial Reporting Standards (IFRS) and comply with Swiss law.

Basis for Opinion

We conducted our audit in accordance with Swiss law, International Standards on Auditing (ISAs) and Swiss Auditing Standards. Our responsibilities under those provisions and Standards are further described in the Auditor's Responsibilities for the Audit of the Consolidated Financial Statements section of our report. We are independent of the Group in accordance with the provisions of Swiss law and the requirements of the Swiss audit profession, as well as the IESBA Code of Ethics for Professional Accountants, and we have fulfilled our other ethical responsibilities in accordance with those 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 goodwill relating to the Diagnostics Division

Carrying value of product-related intangible assets

Provisions and contingent liabilities in respect of litigations

Uncertain tax positions

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

KPMG

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 chargebacks or other rebates and to give credit for sales returns. 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, historical trends and the Group's experience.

Management has determined accrued liabilities and deductions to accounts receivable for expected chargebacks and other rebates, predominantly Medicaid, of CHF 1,108 million to be necessary at 31 December 2017. Additionally, provisions for sales returns mainly relating to products at or near loss of exclusivity of CHF 337 million were recorded at 31 December 2017.

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 or impending loss of exclusivity in the US for some of the Group's pharmaceutical products.

Our response

Our audit procedures included, amongst others, the testing of the Group's key controls relating to the deductions made to gross sales for chargebacks, other rebates and sales returns, including those controls over accrual rates used within management's calculations for accrued liabilities, provisions or deductions from accounts receivable.

On a sample basis, we obtained management's calculations for accrued liabilities, provisions and accounts receivable deductions, recalculated the amounts and validated the reasonableness of key assumptions used by reference to internal and external sources including the terms of the applicable contracts, US government pricing information, historical chargebacks and other rebates, historical sales returns levels and to current trends.

We considered the accuracy of management's estimates in previous years by comparing historical accrued liabilities, provisions and accounts receivable deductions recorded to the actual settlements. We also assessed changes in the accrual rates used within the estimates for 2017, including responding to an increase in the utilisation of the 340B Drug Discount Program in 2017, by comparing the accrual rates to current chargeback, other rebate payment and sales return trends.

We considered the adequacy 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 118 (Significant accounting policies, note 32), page 46 (General accounting principles – Key accounting judgements, estimates and assumptions, note 1) and pages 69 and 72–78 (Financial disclosures, note 11 Accounts receivable, note 18 Other current liabilities and note 19 Provisions and contingent liabilities).

KPMG

Carrying value of goodwill relating to the Diagnostics Division

Key Audit Matter

The Group has goodwill of CHF 5,207 million arising from past acquisitions of the Diagnostics Division, principally Corange/Boehringer Mannheim, Ventana and several businesses in the sequencing business area. Goodwill is assessed for impairment at each reporting date and is additionally tested annually for impairment.

Impairment testing uses projections of future cash flows based on the most recent long-term forecasts approved by management, including estimated sales volumes and pricing. The long-term forecasts are projected over five years, except for the sequencing business, which is projected over ten years reflecting the long period required for the development of the technologies and products necessary to grow this business.

Management needs to apply considerable judgement in allocating the goodwill to the appropriate businesses as well as in assessing the future performance and prospects of each cash-generating unit (CGU) and the discount rates to apply. Certain businesses face uncertainties in the technical and commercial viability of leading-edge next-generation technologies and products that are being developed.

We focused on this area in light of the amount of judgement and estimation required, the history of impairments recorded in previous years and the amounts of headroom for some CGUs.

Our response

Our audit procedures included, amongst others, testing the Group's key controls surrounding the carrying value of goodwill relating to the Diagnostics Division.

Our audit of goodwill included assessing the Group's budgeting procedures upon which the forecasts are based and the integrity of the discounted cash flow models which management used to prepare the valuations. We challenged the robustness of the key assumptions used to determine the recoverable amounts, including identification of and allocation to the CGU, forecast cash flows, growth rates and the discount rates based on our understanding of the commercial prospects of the Diagnostics businesses and the markets in which they operate.

We did this by using our own valuation specialists to assist us in evaluating the assumptions and methodologies used by management, in particular those relating to the discount rates, by comparing relevant assumptions to industry and economic forecasts. In addition, we identified and analysed changes in assumptions from prior periods, made an assessment of the consistency of assumptions, and performed a comparison of assumptions with publicly available data. We also performed a retrospective assessment of the accuracy of management's past projections by comparing historical forecasts to actual results.

Where the forecasts supporting the carrying value of the goodwill exceeded the usual period of five years, which was the case for the goodwill relating to the sequencing business, we challenged management on the reasons for this and made an assessment of management's ability to forecast cash flows over such longer periods with reasonable accuracy.

We reviewed the forecasts relating to the value in use of the sequencing business, for which an impairment of CHF 674 million was recorded in 2017. We considered the factors that contributed to that impairment and whether they related to events in the period. We also considered the continued use of the ten-year forecast period of business development.

We also assessed whether the Group's disclosures about the sensitivity of the outcome of the impairment assessment to changes in key assumptions reflect the risks inherent in the valuation of goodwill.

For further information on the carrying value of goodwill relating to the Diagnostics Division refer to the following:

Page 118 (Significant accounting policies, note 32), page 46 (General accounting principles – Key accounting judgements, estimates and assumptions, note 1) and pages 64–65 (Financial disclosures, note 8 Goodwill).

KPMG

Carrying value of product-related intangible assets

Key Audit Matter

The Group has significant product-related intangible assets (31 December 2017 – CHF 8,091 million) acquired through business combinations or in-licensing arrangements. These comprise product intangibles in use (CHF 5,419 million) being amortised and product intangibles not available for use (CHF 2,672 million) not being amortised. An impairment assessment is carried out for all product-related 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 (CHF 5,419 million) predominantly relate to acquired products that have been launched, with the key risk being the ability to successfully commercialise the products concerned. The largest single intangible asset arose on the acquisition of InterMune in 2014 and relates to Esbriet (CHF 2,878 million). We focused on this product intangible in use because assessing recoverability involves forecasting and discounting future cash flows, which are inherently highly judgemental and because the headroom is low. 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 (CHF 2,672 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, testing the Group's key controls over the carrying value of product-related intangible assets.

Our audit of product-related intangible assets in use included assessing the Group's process and key controls for identifying triggering events. In circumstances where there was evidence that an asset may be impaired we challenged 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 made our own assessments in relation to 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, for example in the case of Esbriet. Where we considered there to be a higher risk of impairment, 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.

For product-related 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. We also interviewed a number of senior research, development and commercial personnel in order to understand and challenge those assumptions.

For further information on the carrying value of product-related intangible assets refer to the following:

Page 118 (Significant accounting policies, note 32), page 46 (General accounting principles – Key accounting judgements, estimates and assumptions, note 1) and pages 66–69 (Financial disclosures, note 9 Intangible assets).

KPMG

Provisions and contingent liabilities in respect of litigations

Key Audit Matter

The pharmaceuticals industry is heavily regulated which increases the inherent litigation risk. In the normal course of business, liabilities may arise from product-specific and general legal proceedings, or from anti-trust and other government investigations. At 31 December 2017, the Group held provisions of CHF 485 million in respect of legal actions. Given the highly complex nature of regulatory and legal cases, management applies significant judgement when considering whether, and how much, to provide for the potential exposure of each matter. These estimates could change substantially over time as new facts emerge and each legal case progresses.

We focused on this area given the number, complexity and magnitude of potential exposures across the Group, and the judgement necessary to determine whether and what amounts to provide for and/or to disclose.

Our response

We discussed the status of significant known actual and potential litigation with in-house legal counsel, management and directors who have knowledge of these matters. We challenged the decisions and rationale for provisions held or for decisions not to record provisions or make disclosures. For the most significant of the matters, we assessed relevant historical and recent judgments passed by the court authorities and considered legal opinion obtained by management from external lawyers to challenge the basis used for the provisions recorded and the disclosures made by the Group. Where relevant we also obtained formal confirmation from the Group's external lawyers.

We assessed the Group's internal audit reports and compliance logs and reports prepared by management to identify actual and potential non-compliance with laws and regulations, both those specific to the Group's business and those relating to the conduct of business generally.

For those matters where management concluded that no provisions should be recorded, we also considered the adequacy and completeness of the Group's disclosures made in relation to contingent liabilities.

For further information on provisions and contingent liabilities in respect of litigations refer to the following:

Page 118 (Significant accounting policies, note 32), page 46 (General accounting principles – Key accounting judgements, estimates and assumptions, note 1) and pages 73–78 (Financial disclosures, note 19 Provisions and contingent liabilities).

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Uncertain tax positions

Key Audit Matter

The Group operates across a wide range of different tax jurisdictions around the world and is thus subject to occasional challenges by local tax authorities including 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. Areas of particular focus include transfer pricing arrangements such as those relating to the Group's manufacturing and supply chains.

Where the amount of tax liabilities is uncertain, the Group recognises accruals that reflect 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 2017, the Group has recognised current income tax liabilities of CHF 3,408 million which includes accruals for uncertain tax positions.

We focused on this area as the estimates of the amounts of tax receivable or payable require a significant level of expertise and judgement.

Our response

For significant items we challenged management's judgement regarding the eventual resolution with national tax authorities of double taxation conflicts, pending tax audits and estimates of tax exposures with the assistance of our local country tax specialists. For the most significant uncertain tax positions, our work included the assessment of third-party opinions and the use, where available, of past experience 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 the more significant uncertain tax positions in particular for transfer prices applied for goods and services and intellectual property rights.

For further information on uncertain tax positions refer to the following:

Page 118 (Significant accounting policies, note 32), page 46 (General accounting principles – Key accounting judgements, estimates and assumptions, note 1) and pages 53–55 (Financial disclosures, note 4 Income taxes).

Other Information in the Annual Report

The Board of Directors is responsible for the other information in the annual report. The other information comprises all information included in the annual report, but does not include the consolidated financial statements, the stand-alone financial statements of the company, the remuneration report and our auditor's reports thereon.

Our opinion on the consolidated financial statements does not cover the other information in the annual report and we do not express any form of assurance conclusion thereon.

In connection with our audit of the consolidated financial statements, our responsibility is to read the other information in the annual report and, in doing so, consider whether the other information is materially inconsistent with the consolidated financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibility of the Board of Directors for the Consolidated Financial Statements

The Board of Directors is responsible for the preparation of consolidated financial statements that give a true and fair view in accordance with IFRS and the provisions of Swiss law, and for such internal control as the Board of Directors determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, the Board of Directors is responsible for assessing the Group's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Board of Directors either intends to liquidate the Group or to cease operations, or has no realistic alternative but to do so.

Auditor's Responsibilities for the Audit of the Consolidated Financial Statements

Our objectives are to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Swiss law, ISAs and Swiss Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements.

As part of an audit in accordance with Swiss law, ISAs and Swiss Auditing Standards, we exercise professional judgment and maintain professional scepticism throughout the audit. We also:

— Identify and assess the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

— Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances.

— 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.

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— Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

— Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the Group audit. We remain solely responsible for our audit opinion.

We communicate with the Board of Directors or its relevant committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide the Board of Directors or its relevant committee with a statement that we have complied with relevant ethical requirements regarding independence, and communicate to them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with the Board of Directors or its relevant committee, we determine those matters that were of most significance in the audit of the consolidated financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report, unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Report on Other Legal and Regulatory Requirements

In accordance with article 728a para. 1 item 3 CO and the Swiss Auditing Standard 890, we confirm that an internal control system exists, which has been designed for the preparation of consolidated financial statements according to the instructions of the Board of Directors.

We recommend that the consolidated financial statements submitted to you be approved.

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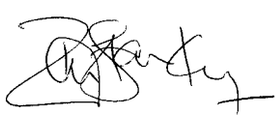

Ian Starkey
Licensed Audit Expert
Auditor in Charge

Marc Ziegler
Licensed Audit Expert

Basel, 29 January 2018

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

Independent Reasonable Assurance Report on Internal Control over Financial Reporting

To the Board of Directors of Roche Holding Ltd, Basel

We were engaged by the Board of Directors to carry out a reasonable assurance engagement on the design, implementation and operating effectiveness of the system of internal control over financial reporting of the Roche Group as it was in place at 31 December 2017. Management of Roche Holding Ltd assessed the effectiveness of its system of internal control over financial reporting as of 31 December 2017 based on the criteria for effective internal control over financial reporting described in *Internal Control – Integrated Framework 2013,* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

Responsibilities of the Board of Directors and Management

The Board of Directors and management of Roche Holding Ltd are responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting as included in the accompanying Report of Roche Management on Internal Control over Financial Reporting.

An entity's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial statements prepared in accordance with International Financial Reporting Standards (IFRS). An entity's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the entity; (2) provide reasonable assurance that transactions are recorded as necessary to permit the preparation of financial statements in accordance with the applicable financial reporting framework; and (3) provide reasonable assurance regarding the prevention or timely detection of the unauthorised acquisition, use, or disposition of the entity's assets that could have a material effect on the entity's financial statements.

Because of the inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Our Responsibilities

Our responsibility is to examine the design, implementation and effectiveness of the company's internal control over financial reporting and to report thereon in the form of an independent, reasonable assurance conclusion, based on the evidence obtained. We conducted our engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000 *Assurance Engagements Other Than Audits or Reviews of Historical Financial Information* issued by the International Auditing and Assurance Standards Board. That standard requires that we plan and perform our procedures to obtain reasonable assurance about whether effective internal control over financial reporting was maintained, in all material respects.

The procedures selected depend on our judgement, including the assessment of the risks of material misstatement of the design, implementation and effectiveness of the company's internal control over financial reporting. Our examination included obtaining an understanding of internal control over financial reporting, testing and evaluating the design, implementation and operating effectiveness of internal control based on the assessed risk, and performing such other procedures, as we considered necessary in the circumstances.

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Our Independence and Quality Control

The firm applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

We have complied with the independence and other ethical requirements of the *Code of Ethics for Professional Accountants* issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

Conclusion

Our conclusion has been formed on the basis of, and is subject to, the matters outlined in this report.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

In our opinion, the Roche Group maintained, in all material respects, effective internal control over financial reporting as of 31 December 2017 based on criteria established in *Internal Control – Integrated Framework 2013* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

We also have audited, in accordance with Swiss Auditing Standards and International Standards on Auditing, the consolidated financial statements of Roche Holding Ltd for the year ended 31 December 2017 and our report dated 29 January 2018 expressed an unqualified opinion on those consolidated financial statements.

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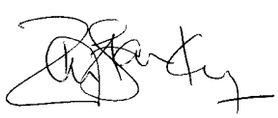
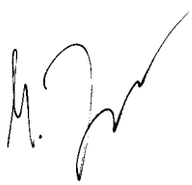


Ian Starkey
Licensed Audit Expert



Marc Ziegler
Licensed Audit Expert

Basel, 29 January 2018

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

Multi-Year Overview and Supplementary Information

Multi-Year Overview

Statistics, as reported

	2008	2009	2010
Income statement in millions of CHF			
Sales	45,617	49,051	47,473
EBITDA	16,637	18,028	18,517
Operating profit	13,924	12,277	13,486
Net income attributable to Roche shareholders	8,969	7,784	8,666
Research and development	8,845	9,874	10,026
Balance sheet in millions of CHF			
Non-current assets	37,485	36,086	33,408
Current assets	38,604	38,479	27,612
Total assets	76,089	74,565	61,020
Non-current liabilities	(10,163)	(43,084)	(34,380)
Current liabilities	(12,104)	(22,067)	(14,978)
Total liabilities	(22,267)	(65,151)	(49,358)
Net assets	53,822	9,414	11,662
Capital and reserves attributable to Roche shareholders	44,479	7,366	9,469
Equity attributable to non-controlling interests	9,343	2,048	2,193
Additions to property, plant and equipment	3,187	2,837	2,633
Personnel			
Number of employees at end of year	80,080	81,507	80,653
Key ratios			
Net income attributable to Roche shareholders as % of sales	20	16	18
Net income attributable to Roche shareholders as % of equity	20	106	92
Research and development as % of sales	19	20	21
Current ratio %	319	174	184
Equity and non-controlling interests as % of total assets	71	13	19
Human capital return on investment ratio	2.25	2.02	2.13
Data on shares and non-voting equity securities			
Number of shares	160,000,000	160,000,000	160,000,000
Number of non-voting equity securities *(Genussscheine)*	702,562,700	702,562,700	702,562,700
Total shares and non-voting equity securities	862,562,700	862,562,700	862,562,700
Total dividend in millions of CHF	4,313	5,175	5,693
Earnings per share and non-voting equity security (diluted) in CHF	10.23	9.02	10.11
Dividend per share and non-voting equity security in CHF	5.00	6.00	6.60

Information in this table is stated as reported and changes in accounting policies arising from changes in International Financial Reporting Standards are not applied retrospectively.

2011	2012	2013	2014	2015	2016	2017
42,531	45,499	46,780	47,462	48,145	50,576	53,299
16,933	19,040	19,802	19,558	19,479	20,483	21,201
13,454	14,125	16,376	14,090	13,821	14,069	13,003
9,343	9,539	11,164	9,332	8,863	9,576	8,633
8,326	9,552	9,270	9,895	9,581	11,532	11,292
33,344	33,434	33,003	44,426	47,581	48,149	45,104
28,232	31,371	29,164	31,114	28,182	28,670	31,572
61,576	64,805	62,167	75,540	75,763	76,819	76,676
(30,884)	(27,868)	(25,166)	(30,874)	(28,695)	(27,817)	(25,509)
(16,210)	(20,209)	(15,760)	(23,108)	(23,768)	(22,600)	(22,160)
(47,094)	(48,077)	(40,926)	(53,982)	(52,463)	(50,417)	(47,669)
14,482	16,728	21,241	21,558	23,300	26,402	29,007
12,095	14,494	19,294	19,586	20,979	23,911	26,441
2,387	2,234	1,947	1,972	2,321	2,491	2,566
2,006	2,130	2,458	2,905	4,077	3,790	3,477
80,129	82,089	85,080	88,509	91,747	94,052	93,734
22	21	24	20	18	19	16
77	66	58	48	42	40	33
20	21	20	21	20	23	21
174	155	185	135	119	127	142
24	26	34	29	31	34	38
2.31	2.25	2.45	2.16	2.06	2.06	1.89
160,000,000	160,000,000	160,000,000	160,000,000	160,000,000	160,000,000	160,000,000
702,562,700	702,562,700	702,562,700	702,562,700	702,562,700	702,562,700	702,562,700
862,562,700	862,562,700	862,562,700	862,562,700	862,562,700	862,562,700	862,562,700
5,865	6,340	6,728	6,901	6,987	7,073	7,159[a]
10.98	11.16	12.93	10.81	10.28	11.13	10.04
6.80	7.35	7.80	8.00	8.10	8.20	8.30[a]

a) 2017 dividend proposed by the Board of Directors.

Sales by division in millions of CHF

	2013	2014	2015	2016	2017
Pharmaceuticals	36,304	36,696	37,331	39,103	41,220
Diagnostics	10,476	10,766	10,814	11,473	12,079
Total	**46,780**	**47,462**	**48,145**	**50,576**	**53,299**

Sales by geographical area in millions of CHF

	2013	2014	2015	2016	2017
Switzerland	526	526	497	577	574
Germany	2,729	2,900	2,734	3,004	3,041
Rest of Europe	11,341	11,119	10,046	10,264	10,135
Europe	**14,596**	**14,545**	**13,277**	**13,845**	**13,750**
United States	17,169	18,041	20,164	21,192	23,122
Rest of North America	1,042	962	855	851	897
North America	**18,211**	**19,003**	**21,019**	**22,043**	**24,019**
Latin America	3,363	3,285	2,832	2,681	3,024
Japan	3,936	3,755	3,648	4,211	4,214
Rest of Asia	5,129	5,327	6,006	6,461	6,824
Asia	**9,065**	**9,082**	**9,654**	**10,672**	**11,038**
Africa, Australia and Oceania	1,545	1,547	1,363	1,335	1,468
Total	**46,780**	**47,462**	**48,145**	**50,576**	**53,299**

Additions to property, plant and equipment by division in millions of CHF

	2013	2014	2015	2016	2017
Pharmaceuticals	1,294	1,674	2,706	2,154	2,030
Diagnostics	1,158	1,228	1,363	1,629	1,443
Corporate	6	3	8	7	4
Total	**2,458**	**2,905**	**4,077**	**3,790**	**3,477**

Additions to property, plant and equipment by geographical area in millions of CHF

	2013	2014	2015	2016	2017
Switzerland	487	691	964	892	846
Germany	456	527	602	759	541
Rest of Europe	317	335	349	315	322
Europe	**1,260**	**1,553**	**1,915**	**1,966**	**1,709**
United States	515	683	1,382	1,060	844
Rest of North America	51	6	4	7	7
North America	**566**	**689**	**1,386**	**1,067**	**851**
Latin America	104	113	132	133	110
Japan	137	154	230	192	331
Rest of Asia	362	371	379	387	422
Asia	**499**	**525**	**609**	**579**	**753**
Africa, Australia and Oceania	29	25	35	45	54
Total	**2,458**	**2,905**	**4,077**	**3,790**	**3,477**

Alternative Performance Measures

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

Core results

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

- Global restructuring plans (see Note 6) are excluded.
- Amortisation and impairment of intangible assets (see Note 9) and impairment of goodwill (see Note 8) are excluded.
- Acquisition accounting and other impacts from the accounting for alliance arrangements and business combinations (see Financial Review) are excluded.
- Discontinued operations (currently none) are excluded.
- Legal and environmental cases (see Financial Review) are excluded.
- Global issues outside the healthcare sector beyond the Group's control are excluded.
- Material treasury items such as major debt restructurings (currently none) are excluded.
- Pension plan settlements (see Note 25) are excluded.
- The tax benefit recorded under IFRS in respect of Equity Compensation Plans (ECPs), which varies according to the price of the underlying equity, is replaced by a normalised tax benefit, being the IFRS 2 expense multiplied by the applicable tax rate (see Note 4).

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

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

Core results reconciliation – 2017 in millions of CHF

	IFRS	Global restructuring	Intangibles amortisation	Intangibles impairment	Alliances & business combinations	Legal & environmental	Pension plan settlements	Global issues	Normalisation of ECP tax benefit	Core
Sales	53,299	–	–	–	–	–	–	–	–	53,299
Royalties and other operating income	2,447	–	–	–	–	–	–	–	–	2,447
Cost of sales	(18,179)	484	1,545	1,784	–	–	–	–	–	(14,366)
Marketing and distribution	(9,847)	326	9	–	–	–	–	–	–	(9,512)
Research and development	(11,292)	87	137	676	–	–	–	–	–	(10,392)
General and administration	(3,425)	311	–	1,058	(350)	(80)	22	–	–	(2,464)
Operating profit	**13,003**	**1,208**	**1,691**	**3,518**	**(350)**	**(80)**	**22**	**–**	**–**	**19,012**
Financing costs	(839)	2	–	–	14	4	–	–	–	(819)
Other financial income (expense)	84	–	–	–	(9)	–	–	–	–	75
Profit before taxes	**12,248**	**1,210**	**1,691**	**3,518**	**(345)**	**(76)**	**22**	**–**	**–**	**18,268**
Income taxes	(3,423)	(248)	(513)	(867)	(2)	46	(4)	116	31	(4,864)
Net income	**8,825**	**962**	**1,178**	**2,651**	**(347)**	**(30)**	**18**	**116**	**31**	**13,404**
Attributable to										
– Roche shareholders	8,633	962	1,162	2,645	(347)	(28)	18	116	31	13,192
– Non-controlling interests	192	–	16	6	–	(2)	–	–	–	212

Core results reconciliation – 2016 in millions of CHF

	IFRS	Global restructuring	Intangibles amortisation	Intangibles impairment	Alliances & business combinations	Legal & environmental	Pension plan settlements	Global issues	Normalisation of ECP tax benefit	Core
Sales	50,576	–	–	–	–	–	–	–	–	50,576
Royalties and other operating income	2,060	–	–	–	–	–	–	–	–	2,060
Cost of sales	(16,180)	837	1,637	70	167	–	–	–	–	(13,469)
Marketing and distribution	(9,140)	128	5	–	–	–	–	–	–	(9,007)
Research and development	(11,532)	133	141	1,343	–	–	–	–	–	(9,915)
General and administration	(1,715)	135	–	95	(401)	77	(16)	–	–	(1,825)
Operating profit	**14,069**	**1,233**	**1,783**	**1,508**	**(234)**	**77**	**(16)**	**–**	**–**	**18,420**
Financing costs	(1,099)	2	–	–	53	10	–	–	–	(1,034)
Other financial income (expense)	37	–	–	–	–	–	–	–	–	37
Profit before taxes	**13,007**	**1,235**	**1,783**	**1,508**	**(181)**	**87**	**(16)**	**–**	**–**	**17,423**
Income taxes	(3,274)	(270)	(871)	(362)	(41)	(30)	5	–	108	(4,735)
Net income	**9,733**	**965**	**912**	**1,146**	**(222)**	**57**	**(11)**	**–**	**108**	**12,688**
Attributable to										
– Roche shareholders	9,576	961	897	1,141	(222)	57	(11)	–	108	12,507
– Non-controlling interests	157	4	15	5	–	–	–	–	–	181

Divisional core results reconciliation – 2017 in millions of CHF

	IFRS	Global restructuring	Intangibles amortisation	Intangibles impairment	Alliances & business combinations	Legal & environmental	Pension plan settlements	Core
Pharmaceuticals								
Sales	41,220	–	–	–	–	–	–	41,220
Royalties and other operating income	2,284	–	–	–	–	–	–	2,284
Cost of sales	(11,978)	377	1,230	1,664	–	–	–	(8,707)
Marketing and distribution	(6,960)	234	6	–	–	–	–	(6,720)
Research and development	(9,704)	21	123	524	–	–	–	(9,036)
General and administration	(1,620)	245	–	384	(324)	(143)	18	(1,440)
Operating profit	**13,242**	**877**	**1,359**	**2,572**	**(324)**	**(143)**	**18**	**17,601**
Diagnostics								
Sales	12,079	–	–	–	–	–	–	12,079
Royalties and other operating income	163	–	–	–	–	–	–	163
Cost of sales	(6,201)	107	315	120	–	–	–	(5,659)
Marketing and distribution	(2,887)	92	3	–	–	–	–	(2,792)
Research and development	(1,588)	66	14	152	–	–	–	(1,356)
General and administration	(1,262)	27	–	674	(27)	58	4	(526)
Operating profit	**304**	**292**	**332**	**946**	**(27)**	**58**	**4**	**1,909**
Corporate								
General and administration	(543)	39	–	–	1	5	–	(498)
Operating profit	**(543)**	**39**	**–**	**–**	**1**	**5**	**–**	**(498)**

Divisional core results reconciliation – 2016 in millions of CHF

	IFRS	Global restructuring	Intangibles amortisation	Intangibles impairment	Alliances & business combinations	Legal & environmental	Pension plan settlements	Core
Pharmaceuticals								
Sales	39,103	–	–	–	–	–	–	39,103
Royalties and other operating income	1,944	–	–	–	–	–	–	1,944
Cost of sales	(10,393)	737	1,314	–	167	–	–	(8,175)
Marketing and distribution	(6,391)	26	3	–	–	–	–	(6,362)
Research and development	(10,156)	90	135	1,343	–	–	–	(8,588)
General and administration	(822)	82	–	95	(376)	18	(10)	(1,013)
Operating profit	**13,285**	**935**	**1,452**	**1,438**	**(209)**	**18**	**(10)**	**16,909**
Diagnostics								
Sales	11,473	–	–	–	–	–	–	11,473
Royalties and other operating income	116	–	–	–	–	–	–	116
Cost of sales	(5,787)	100	323	70	–	–	–	(5,294)
Marketing and distribution	(2,749)	102	2	–	–	–	–	(2,645)
Research and development	(1,376)	43	6	–	–	–	–	(1,327)
General and administration	(464)	66	–	–	(26)	28	(6)	(402)
Operating profit	**1,213**	**311**	**331**	**70**	**(26)**	**28**	**(6)**	**1,921**
Corporate								
General and administration	(429)	(13)	–	–	1	31	–	(410)
Operating profit	**(429)**	**(13)**	**–**	**–**	**1**	**31**	**–**	**(410)**

Core EPS (basic)

	2017	2016
Core net income attributable to Roche shareholders (CHF millions)	13,192	12,507
Weighted average number of shares and non-voting equity securities in issue (millions) [27]	853	852
Core earnings per share (basic) (CHF)	**15.47**	**14.68**

Core EPS (diluted)

	2017	2016
Core net income attributable to Roche shareholders (CHF millions)	13,192	12,507
Increase in non-controlling interests' share of core net income, assuming all outstanding Chugai stock options exercised (CHF millions)	(1)	(1)
Net income used to calculate diluted earnings per share (CHF millions)	**13,191**	**12,506**
Weighted average number of shares and non-voting equity securities in issue used to calculate diluted earnings per share (millions) [27]	**860**	**860**
Core earnings per share (diluted) (CHF)	**15.34**	**14.53**

Free cash flow

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

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

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

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

Operating free cash flow reconciliation in millions of CHF

	2017	2016
Cash flows from operating activities (IFRS basis in accordance with IAS 7)	**18,024**	**15,001**
Add back		
– Income taxes paid	3,909	3,738
Deduct		
– Investments in property, plant and equipment	(3,509)	(4,144)
– Investments in intangible assets	(704)	(1,001)
– Disposal of property, plant and equipment	100	151
– Disposal of intangible assets	–	–
Pensions and other post-employment benefits		
– Add back total payments for defined benefit plans	538	880
– Deduct allocation of payments to operating free cash flow	(532)	(539)
Other operating items	1	–
Operating free cash flow	**17,827**	**14,086**

Free cash flow reconciliation in millions of CHF

	2017	2016
Cash flows from operating activities (IFRS basis in accordance with IAS 7)	**18,024**	**15,001**
Deduct		
– Investments in property, plant and equipment	(3,509)	(4,144)
– Investments in intangible assets	(704)	(1,001)
– Disposal of property, plant and equipment	100	151
– Disposal of intangible assets	–	–
– Interest paid	(648)	(849)
Other operating items	1	–
Other treasury items	156	(28)
Free cash flow	**13,420**	**9,130**

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

Divisional operating free cash flow information in millions of CHF

	Pharmaceuticals		Diagnostics		Corporate		Group	
	2017	2016	2017	2016	2017	2016	2017	2016
Depreciation, amortisation and impairment								
Depreciation of property, plant and equipment	1,165	1,212	1,024	938	7	8	2,196	2,158
Amortisation of intangible assets	1,359	1,452	332	331	–	–	1,691	1,783
Impairment of property, plant and equipment	184	256	37	35	12	–	233	291
Impairment of goodwill	384	95	674	–	–	–	1,058	95
Impairment of intangible assets	2,188	1,343	272	70	–	–	2,460	1,413
Total	**5,280**	**4,358**	**2,339**	**1,374**	**19**	**8**	**7,638**	**5,740**
Other adjustments								
Add back								
– Expenses for equity-settled equity compensation plans	388	371	73	69	34	33	495	473
– Net (income) expense for provisions	102	(85)	152	145	16	60	270	120
– Net (gain) loss from disposals	(308)	(155)	9	5	–	(60)	(299)	(210)
– Non-cash working capital and other items	473	485	145	47	(1)	(38)	617	494
Deduct								
– Utilisation of provisions	(405)	(504)	(140)	(107)	(76)	(151)	(621)	(762)
– Proceeds from disposals	460	189	50	43	–	98	510	330
Total	**710**	**301**	**289**	**202**	**(27)**	**(58)**	**972**	**445**
Operating profit cash adjustments	**5,990**	**4,659**	**2,628**	**1,576**	**(8)**	**(50)**	**8,610**	**6,185**

EBITDA

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

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

EBITDA (using core results) in millions of CHF

	Pharmaceuticals		Diagnostics		Corporate		Group	
	2017	2016	2017	2016	2017	2016	2017	2016
EBITDA								
Core operating profit	17,601	16,909	1,909	1,921	(498)	(410)	19,012	18,420
Depreciation and impairment of property, plant and equipment – Core basis	1,145	1,112	1,025	943	19	8	2,189	2,063
EBITDA	**18,746**	**18,021**	**2,934**	**2,864**	**(479)**	**(402)**	**21,201**	**20,483**
– margin, % of sales	45.5	46.1	24.3	25.0	–	–	39.8	40.5

Net operating assets

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

The calculation of the net operating assets disclosed in Note 2 of the Annual Financial Statements is shown in the tables below.

Net operating assets reconciliation – 2017 in millions of CHF

	Pharmaceuticals	Diagnostics	Corporate	Taxation and Treasury	Group
Property, plant and equipment	14,358	6,431	123	–	20,912
Goodwill	4,870	5,207	–	–	10,077
Intangible assets	6,326	2,042	–	–	8,368
Inventories	5,126	2,280	1	–	7,407
Provisions	(2,449)	(842)	(299)	–	(3,590)
Current income tax net liabilities	–	–	–	(3,060)	(3,060)
Deferred tax net assets	–	–	–	3,081	3,081
Defined benefit plan net liabilities	–	–	–	(6,620)	(6,620)
Marketable securities	–	–	–	7,278	7,278
Cash and cash equivalents	–	–	–	4,719	4,719
Debt	–	–	–	(18,960)	(18,960)
Other net assets (liabilities)					
– Net working capital	(1,706)	314	(120)	–	(1,512)
– Long-term net operating assets	434	11	(2)	–	443
– Other	–	–	–	464	464
Total net operating assets	**26,959**	**15,443**	**(297)**	**(13,098)**	**29,007**

Net operating assets reconciliation – 2016 in millions of CHF

	Pharmaceuticals	Diagnostics	Corporate	Taxation and Treasury	Group
Property, plant and equipment	13,944	5,873	140	–	19,957
Goodwill	5,439	5,843	–	–	11,282
Intangible assets	9,430	2,616	–	–	12,046
Inventories	5,634	2,294	–	–	7,928
Provisions	(2,751)	(950)	(347)	–	(4,048)
Current income tax net liabilities	–	–	–	(2,378)	(2,378)
Deferred tax net assets	–	–	–	1,988	1,988
Defined benefit plan net liabilities	–	–	–	(6,940)	(6,940)
Marketable securities	–	–	–	4,944	4,944
Cash and cash equivalents	–	–	–	4,163	4,163
Debt	–	–	–	(22,355)	(22,355)
Other net assets (liabilities)					
– Net working capital	(1,052)	502	(104)	–	(654)
– Long-term net operating assets	112	10	(6)	–	116
– Other	–	–	–	353	353
Total net operating assets	**30,756**	**16,188**	**(317)**	**(20,225)**	**26,402**

Net debt

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

Net debt calculations, including details of movements during the current year, are shown in the table on page 32 in the Financial Review.

Net working capital

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

Net working capital and net trade working capital calculations are shown in the tables on page 19 (Pharmaceuticals Division), page 25 (Diagnostics Division) and page 27 (Corporate) in the Financial Review.

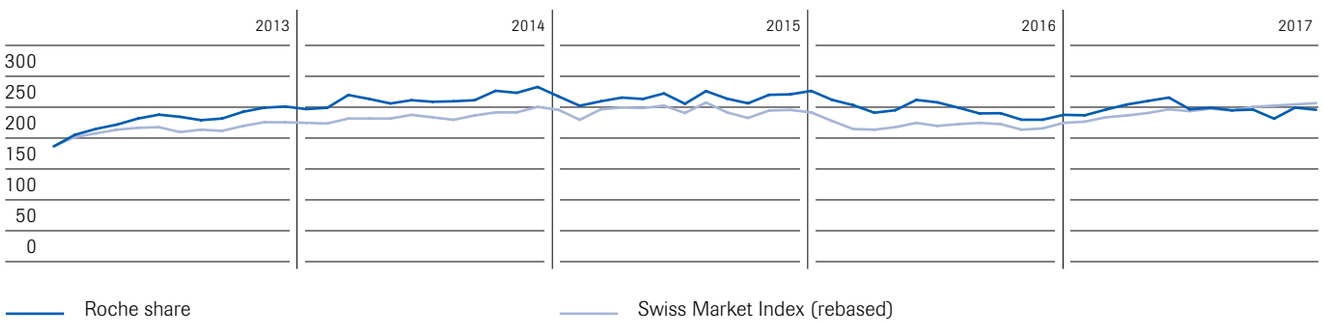
Constant exchange rates

Certain percentage changes in the Financial Review have been calculated using constant exchange rates (CER) which allow for an assessment of the Group's financial performance with the effects of exchange rate fluctuations eliminated. The percentage changes at constant exchange rates are calculated using simulations by reconsolidating both the current reported period and the prior period numbers at constant currency exchange rates, equalling the average exchange rates for the prior year. For example, a CER change between a 2017 line item and its 2016 equivalent is calculated using the average exchange rate for the year ended 31 December 2016 for both the 2017 line item and the 2016 line item and subsequently calculating the change in percent with respect to the two recalculated numbers.

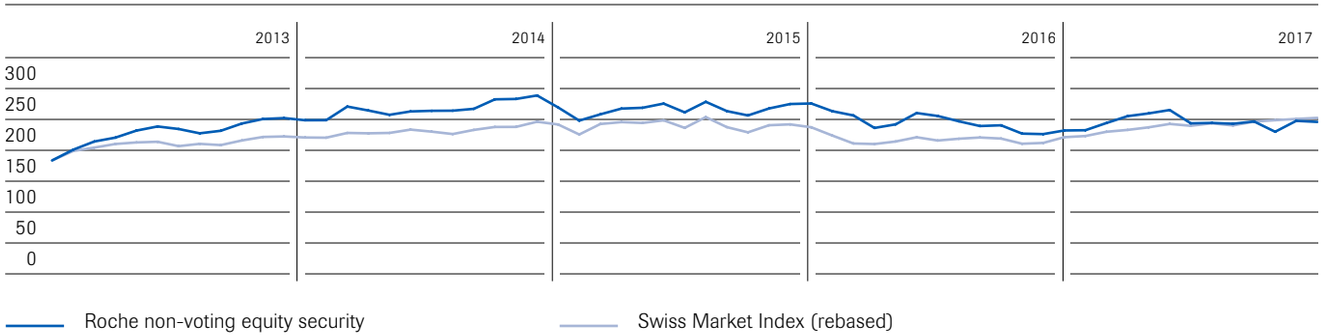
Foreign exchange gains and losses are excluded from the calculation of CER growth rates in the earnings per share calculations. In countries where there is a significant devaluation in the local currency in the current year, the simulations use the average exchange rate of the current year instead of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

Roche Securities

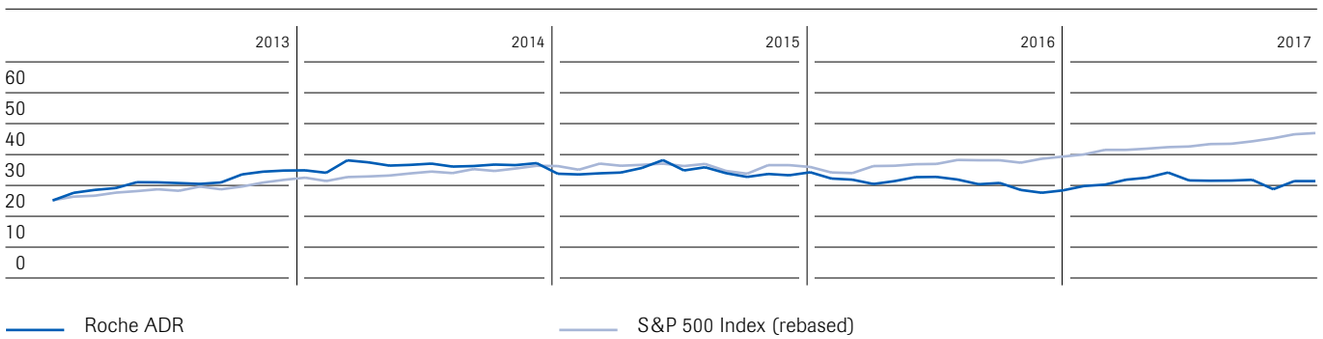
Price development of share in CHF



Price development of non-voting equity security *(Genussschein)* in CHF



Price development of American Depositary Receipt (ADR) in USD



Eight Roche American Depositary Receipts (ADRs) are equivalent to one non-voting equity security *(Genussschein)*. ADRs have been traded in the US over-the-counter market since July 1992.
Information in these tables is restated for the change in the ratio for the ADRs from 1:1 to 2:1 effective 24 January 2005, the change in the ratio for the ADRs from 2:1 to 4:1 effective 9 January 2009 and the change in the ratio for the ADRs from 4:1 to 8:1 effective 27 February 2014.

Number of shares and non-voting equity securities[a]

	2013	2014	2015	2016	2017
Number of shares (nominal value: CHF 1.00)	160,000,000	160,000,000	160,000,000	160,000,000	160,000,000
Number of non-voting equity securities *(Genussscheine)* (no nominal value)	702,562,700	702,562,700	702,562,700	702,562,700	702,562,700
Total	**862,562,700**	**862,562,700**	**862,562,700**	**862,562,700**	**862,562,700**
Number of own shares and non-voting equity securities *(Genussscheine)* held	(13,537,704)	(12,819,364)	(10,542,434)	(10,635,070)	(8,712,977)
Total in issue	**849,024,996**	**849,743,336**	**852,020,266**	**851,927,630**	**853,849,723**

Data per share and non-voting equity security in CHF

		2013	2014	2015	2016	2017
Earnings (basic)		13.16	10.99	10.42	11.24	10.12
Earnings (diluted)		12.93	10.81	10.28	11.13	10.04
Core earnings (basic)		14.52	14.53	13.66	14.68	15.47
Core earnings (diluted)		14.27	14.29	13.49	14.53	15.34
Equity attributable to Roche shareholders		22.73	23.05	24.62	28.07	30.97
Dividend		7.80	8.00	8.10	8.20	8.30[c]
Stock price of share[b]	Opening	186.90	247.40	267.75	276.75	238.00
	High	258.50	289.00	284.50	276.75	271.75
	Low	186.90	239.40	244.40	223.50	230.40
	Year-end	247.40	267.75	276.75	238.00	246.20
Stock price of non-voting equity security *(Genussschein)*[b]	Opening	184.00	249.20	269.90	276.40	232.60
	High	258.50	294.60	286.20	276.40	272.60
	Low	184.00	239.00	241.70	220.10	227.70
	Year-end	249.20	269.90	276.40	232.60	246.50

Market capitalisation in millions of CHF

		2013	2014	2015	2016	2017
	Year-end	211,291	229,003	235,554	199,022	210,426

Key ratios (year-end)

	2013	2014	2015	2016	2017
Dividend yield of shares in %	3.2	3.0	2.9	3.4	3.4
Dividend yield of non-voting equity securities *(Genussscheine)* in %	3.1	3.0	2.9	3.5	3.4
Price/earnings of shares	19	25	27	21	25
Price/earnings of non-voting equity securities *(Genussscheine)*	19	25	27	21	25

a) Each non-voting equity security *(Genussschein)* confers the same rights as any of the shares to participate in the available earnings and any remaining proceeds from liquidation following repayment of the nominal value of the shares and the participation certificate capital (if any). Shares and non-voting equity securities are listed on the SIX Swiss Exchange. Roche Holding Ltd has no restrictions as to ownership of its shares or non-voting equity securities.
b) All stock price data reflect daily closing prices.
c) 2017 dividend proposed by the Board of Directors.

Ticker symbols

	Share	Non-voting equity security	American Depositary Receipt (ADR)
SIX Swiss Exchange	RO	ROG	–
Bloomberg	RO SW	ROG VX	RHHBY US
Reuters	RO.S	ROG.VX	RHHBY.PK

Roche Holding Ltd, Basel

Financial Statements

Balance sheet in millions of CHF

	31 December 2017	31 December 2016
Current assets		
Cash and cash equivalents	843	1,294
Marketable securities	1,440	823
Accounts receivable from Group companies	5,104	2,510
Short-term loans to Group companies	1,200	2,500
Other current receivables	–	1
Total current assets	**8,587**	**7,128**
Non-current assets		
Long-term loans to Group companies	612	652
Investments	8,852	8,852
Total non-current assets	**9,464**	**9,504**
Total assets	**18,051**	**16,632**
Short-term liabilities		
Accounts payable to Group companies	10	14
Interest-bearing liabilities to Group companies	1,301	–
Other short-term liabilities	15	20
Total short-term liabilities	**1,326**	**34**
Long-term liabilities		
Provisions	35	35
Total long-term liabilities	**35**	**35**
Total liabilities	**1,361**	**69**
Shareholders' equity		
Share capital	160	160
Non-voting equity securities *(Genussscheine)*	p.m.	p.m.
Legal retained earnings:		
– General legal retained earnings	300	300
Voluntary reserves and retained earnings:		
– Free reserve	6,000	6,000
– Special reserve	2,152	2,152
– Available earnings		
– Balance brought forward from previous year	878	884
– Net income for the year	7,200	7,067
Total shareholders' equity	**16,690**	**16,563**
Total shareholders' equity and liabilities	**18,051**	**16,632**

p.m. = pro memoria. Non-voting equity securities have no nominal value.

Income statement in millions of CHF

	Year ended 31 December	
	2017	2016
Income		
Income from investments (dividend income)	7,189	6,967
Other financial income		
– Interest income from loans to Group companies	31	34
– Income from marketable securities and other	2	35
Guarantee fee income from Group companies	87	102
Other income	38	36
Total income	**7,347**	**7,174**
Expenses		
Administration expenses	(39)	(38)
Other expenses	(48)	(46)
Financial expenses	(52)	(8)
Direct taxes	(8)	(15)
Total expenses	**(147)**	**(107)**
Net income	**7,200**	**7,067**

Notes to the Financial Statements

1. Summary of significant accounting policies

Basis of preparation

The financial statements of Roche Holding Ltd, Basel (the 'Company') have been prepared in accordance with the provisions of Swiss Law on Accounting and Financial Reporting (32nd title of the Swiss Code of Obligations, 'CO'). Where not prescribed by law, the significant accounting principles applied are described below.

The Company has prepared its consolidated financial statements in accordance with a recognised accounting standard (International Financial Reporting Standards). In accordance with the CO, the Company decided to forgo presenting additional information on audit fees in the notes as well as a cash flow statement.

Valuation methods and translation of foreign currencies

Marketable securities are reported at the lower of cost or market value. All other financial assets, including investments, are reported at cost less appropriate write-downs. Own equity instruments are recognised at cost and deducted from equity at the time of purchase. If the own equity instruments are sold, the gain or loss is recognised through the income statement. Assets and liabilities denominated in foreign currencies are translated into Swiss francs using year-end rates of exchange, except investments which are translated at historical rates. Transactions during the year which are denominated in foreign currencies are translated at the exchange rates effective at the relevant transaction dates. Resulting exchange gains and losses are recognised in the income statement with the exception of unrealised gains which are deferred.

Investments

The direct and indirect investments of the Company are listed in Note 31 to the Roche Group Annual Financial Statements. This listing excludes the subsidiaries of Chugai and FMI as well as not material companies, notably companies that are inactive, dormant or in liquidation. Ownership interests equal voting rights.

Taxes

Direct taxes include corporate income and capital taxes.

2. Shareholders' equity

Share capital

As in the previous year, share capital amounts to CHF 160 million. The share capital consists of 160,000,000 bearer shares with a nominal value of CHF 1 each. Included in equity are 702,562,700 non-voting equity securities *(Genussscheine)*. They are not part of the share capital and confer no voting rights. However, each non-voting equity security confers the same rights as any of the shares to participate in the available earnings and in any remaining proceeds from liquidation following repayment of the nominal value of the share capital and, if any, participation certificates.

Own equity instruments

At 31 December 2017 the Company did not hold any Roche shares (2016: none). During 2017 and 2016 the Company did not purchase any Roche shares. During 2017 the Company did not sell any Roche shares. In 2016 68,111 Roche shares were sold with an average sales price of CHF 250.00 per share and with a net gain of CHF 2 million. In 2017 no dividend income was received (2016: CHF 1 million).

Company's subsidiaries that meet the definitions and requirements of Article 659b CO do not hold equity instruments. Within the Roche Group Annual Financial Statements some entities (mainly foundations) are included in the consolidation which do not qualify as subsidiaries under Article 659b CO.

Movement in recognised amounts in millions of CHF

			Voluntary reserves and retained earnings				
	Share capital	Legal retained earnings	Free reserve	Special reserve	Available earnings	Own equity instruments	Total equity
As at 1 January 2015	160	300	6,000	2,152	7,766	(88)	16,290
Net income	–	–	–	–	7,004	–	7,004
Dividends	–	–	–	–	(6,900)	–	(6,900)
Transactions in own equity instruments	–	–	–	–	–	73	73
As at 31 December 2015	**160**	**300**	**6,000**	**2,152**	**7,870**	**(15)**	**16,467**
Net income	–	–	–	–	7,067	–	7,067
Dividends	–	–	–	–	(6,986)	–	(6,986)
Transactions in own equity instruments	–	–	–	–	–	15	15
As at 31 December 2016	**160**	**300**	**6,000**	**2,152**	**7,951**	**–**	**16,563**
Net income	–	–	–	–	7,200	–	7,200
Dividends	–	–	–	–	(7,073)	–	(7,073)
Transactions in own equity instruments	–	–	–	–	–	–	–
As at 31 December 2017	**160**	**300**	**6,000**	**2,152**	**8,078**	**–**	**16,690**

3. Contingent liabilities

Guarantees

The Company has issued guarantees for certain bonds and notes, commercial paper and credit facilities of Group companies. The nominal amount outstanding at 31 December 2017 was CHF 18.6 billion (2016: CHF 21.5 billion). These are described in Note 20 to the Roche Group Annual Financial Statements.

4. Significant shareholders

All shares in the Company are bearer shares, and for this reason the Company does not keep a register of shareholders. The following figures are based on information from shareholders, the shareholder validation check at the Annual General Meeting of 14 March 2017 and on other information available to the Company.

Controlling shareholders

At 31 December 2017 and 2016, based on information supplied to the Group, a shareholder group with pooled voting rights owned 72,018,000 shares, which represented 45.01% of the issued shares. This group consisted of Ms Vera Michalski-Hoffmann, Ms Maja Hoffmann, Mr André Hoffmann, Dr Andreas Oeri, Ms Sabine Duschmalé-Oeri, Ms Catherine Oeri, Dr Jörg Duschmalé, Mr Lukas Duschmalé and the charitable foundation Wolf. The shareholder pooling agreement has existed since 1948. The figures above do not include any shares without pooled voting rights that are held outside this group by individual members of the group. Ms Maja Oeri, formerly a member of the pool, now holds 8,091,900 shares representing 5.057% of the voting rights independently of the pool.

At 31 December 2017, based on information supplied to the Group, 53,332,863 shares (2016: 53,332,863 shares) are owned by Novartis Holding AG, Basel (participation below 33⅓%).

5. Full-time equivalent employees

The annual average number of full-time equivalent employees for 2017 and 2016 did not exceed ten people.

6. Board and Executive shareholdings

Board of Directors

Directors Mr André Hoffmann and Dr Andreas Oeri and certain other members of the founder's families who are closely associated with them belong to a shareholder group with pooled voting rights. At the end of 2017 and 2016 this group held 72,018,000 shares (45.01% of issued shares). Detailed information about this group is given in Note 4. In addition, at the end of the year the members of the Board of Directors and persons closely associated with them held shares and non-voting equity securities *(Genussscheine)* as shown in the table below.

Shareholdings of members of the Board of Directors

	Shares		Non-voting equity securities *(Genussscheine)*		
	2017	2016	2017	2016	Other
Ch. Franz	11,522	7,639	4,810	4,810	
A. Hoffmann	–[a]	–[a]	200	200	
P. Baschera	n/a	1	n/a	4,600	
J. Bell	1,115	300	1,647	1,647	
J. Brown	729	–	–	–	
P. Bulcke	–	–	4,000	2,500	
A. Hauser	–	n/a	150	n/a	[d]
R.P. Lifton	–	–	–	–	[e]
A. Oeri	–[a]	–[a]	187,793	187,793	
B. Poussot	500	–	500	–	
S. Schwan	–	–	–	–	[b]
C. Suessmuth Dyckerhoff	–	–	621[c]	621[c]	
P.R. Voser	–	–	5,000	5,000	
Total	**13,866**	**7,940**	**204,721**	**207,171**	

a) Does not include shares held in the shareholder group with pooled voting rights.
b) As a member of the Corporate Executive Committee, Dr Schwan's shareholdings are disclosed in the tables below.
c) Jointly held with close relative.
d) Close relatives of A. Hauser held 20 non-voting equity securities *(Genussscheine)* (2016: n/a).
e) R.P. Lifton held 300 Roche American Depositary Receipts (ADRs) (2016: none). Eight ADRs are equivalent to one non-voting equity security *(Genussschein)*. ADRs have been traded in the US over-the-counter market since July 1992.

Corporate Executive Committee

Members of the Corporate Executive Committee and persons closely associated with them held shares and non-voting equity securities as shown in the table below.

Shareholdings of members of the Corporate Executive Committee

	Shares		Non-voting equity securities *(Genussscheine)*		
	2017	2016	2017	2016	Other
S. Schwan	153,428	138,011	27,040	29,836	a)
R. Diggelmann	–	–	8,058	5,776	a)
A. Hippe	6,970	6,970	16,585	13,305	a)
G.A. Keller	19,191	19,191	18,445	18,277	a), b)
D. O'Day	3,065	3,065	16,091	12,896	a)
C.A. Wilbur	–	–	3,141	1,714	a)
Total	**182,654**	**167,237**	**89,360**	**81,804**	

a) Equity compensation awards: S-SARs, RSUs and Roche Performance Share Plan.
b) Close relatives of Dr Keller held 1,100 Roche shares (2016: 1,100 Roche shares).

At 31 December 2017 members of the Corporate Executive Committee held Stock-settled Stock Appreciation Rights (S-SARs) as shown in the table below. The terms and vesting conditions of these awards are disclosed in Note 26 to the Roche Group Annual Financial Statements and additional supplementary information is in the Remuneration Report included in the Annual Report on pages 120 to 146.

S-SARs awards held at 31 December 2017

Year of issue	2017	2016	2015	2014	2013	2012	2011	Total
S. Schwan	85,476	89,517	59,997	54,453	30,000	–	–	319,443
R. Diggelmann	27,786	29,100	18,006	16,338	17,874	15,000	12,732	136,836
A. Hippe	34,191	35,811	24,003	21,783	–	–	–	115,788
G.A. Keller	32,052	33,570	22,503	20,424	–	–	–	108,549
D. O'Day	53,424	55,950	30,000	27,231	–	–	–	166,605
C.A. Wilbur	16,032	15,339	4,164	5,754	4,594	2,122	–	48,005
Total CEC	**248,961**	**259,287**	**158,673**	**145,983**	**52,468**	**17,122**	**12,732**	**895,226**
Strike price (CHF)	251.90	251.50	256.10	263.20	214.00	157.50	140.10	
Expiry date	Mar. 2024	Mar. 2023	Mar. 2022	Mar. 2021	Mar. 2020	Mar. 2019	Feb. 2018	

At 31 December 2017 members of the Corporate Executive Committee held Restricted Stock Units (RSUs) as shown in the table below. The terms and vesting conditions of these awards are disclosed in Note 26 to the Roche Group Annual Financial Statements and additional supplementary information is in the Remuneration Report included in the Annual Report on pages 120 to 146. In 2016, RSUs as remuneration component for the Corporate Executive Committee were replaced by awarding of corresponding Performance Share Plan (PSP) awards. RSU awards will be vested to the recipient after three years only. Thereafter, the non-voting equity securities may remain blocked for up to ten years.

RSU awards held at 31 December 2017

Year of issue	2017	2016	2015	Total
S. Schwan	n/a	n/a	5,466	5,466
R. Diggelmann	n/a	n/a	1,639	1,639
A. Hippe	n/a	n/a	2,186	2,186
G.A. Keller	n/a	n/a	2,049	2,049
D. O'Day	n/a	n/a	2,733	2,733
C.A. Wilbur	n/a	n/a	379	379
Total CEC	**n/a**	**n/a**	**14,452**	**14,452**

At 31 December 2017 members of the Corporate Executive Committee as shown in the table below held PSP awards from the PSP performance cycles 2016–2018 and 2017–2019. The terms and vesting conditions of these awards are disclosed in Note 26 to the Roche Group Annual Financial Statements and additional supplementary information is in the Remuneration Report included in the Annual Report on pages 120 to 146. Each award will result in between zero and two non-voting equity securities or shares (before value adjustment), depending upon the achievement of the performance targets and the discretion of the Board of Directors. After vesting, the non-voting equity securities or shares may remain blocked for up to ten years. At the end of the 2015–2017 cycle the performance targets were not achieved and accordingly the participants received none of the originally targeted shares. The total target number of awards for the other outstanding performance cycles at 31 December 2017 are shown in the table below.

Roche Performance Share Plan awards held at 31 December 2017

	PSP 2017–2019	PSP 2016–2018
S. Schwan	11,565	9,968
R. Diggelmann	3,758	3,239
A. Hippe	4,626	3,987
G.A. Keller	4,337	3,738
D. O'Day	7,228	6,230
C.A. Wilbur	2,168	1,706
Total CEC	**33,682**	**28,868**
Allocation date	Feb. 2020	Feb. 2019

Information relating to the number and value of rights, options and awards granted to employees of the Roche Group and members of the Board of Directors and Corporate Executive Committee of the Company are disclosed in Note 26 and Note 30 to the Roche Group Annual Financial Statements.

Appropriation of Available Earnings

Proposals to the Annual General Meeting in CHF

	2017	2016
Available earnings		
Balance brought forward from previous year	877,981,254	883,553,951
Net profit for the year	7,200,102,551	7,067,441,443
Total available earnings	**8,078,083,805**	**7,950,995,394**
Appropriation of available earnings		
Distribution of an ordinary dividend of CHF 8.30 gross per share and non-voting equity security *(Genussschein)* as against CHF 8.20 last year	(7,159,270,410)	(7,073,014,140)
Total appropriation of available earnings	**(7,159,270,410)**	**(7,073,014,140)**
To be carried forward on this account	**918,813,395**	**877,981,254**

Statutory Auditor's Report

To the General Meeting of Roche Holding Ltd, Basel

Report on the Audit of the Financial Statements

Opinion

We have audited the financial statements of Roche Holding Ltd, which comprise the balance sheet as at 31 December 2017, the income statement for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion the financial statements (pages 151 to 159) for the year ended 31 December 2017 comply with Swiss law and the company's articles of incorporation.

Basis for Opinion

We conducted our audit in accordance with Swiss law and Swiss Auditing Standards. Our responsibilities under those provisions and Standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are independent of the entity in accordance with the provisions of Swiss law and the requirements of the Swiss audit profession and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Report on Key Audit Matters based on the circular 1/2015 of the Federal Audit Oversight Authority

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the financial statements of the current period. We have determined that there are no key audit matters to communicate in our report.

Responsibility of the Board of Directors for the Financial Statements

The Board of Directors is responsible for the preparation of the financial statements in accordance with the provisions of Swiss law and the company's articles of incorporation, and for such internal control as the Board of Directors determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board of Directors is responsible for assessing the entity's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Board of Directors either intends to liquidate the entity or to cease operations, or has no realistic alternative but to do so.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Swiss law and Swiss Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

KPMG

As part of an audit in accordance with Swiss law and Swiss Auditing Standards, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

— Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

— Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of internal control.

— Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made.

— Conclude on the appropriateness of the Board of Directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the entity's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the entity to cease to continue as a going concern.

We communicate with the Board of Directors or its relevant committee regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide the Board of Directors or its relevant committee with a statement that we have complied with relevant ethical requirements regarding independence, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

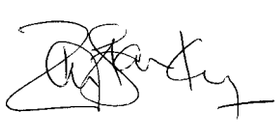
From the matters communicated with the Board of Directors or its relevant committee, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report, unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

Report on Other Legal and Regulatory Requirements

In accordance with article 728a para. 1 item 3 CO and the Swiss Auditing Standard 890, we confirm that an internal control system exists, which has been designed for the preparation of financial statements according to the instructions of the Board of Directors.

We further confirm that the proposed appropriation of available earnings complies with Swiss law and the company's articles of incorporation. We recommend that the financial statements submitted to you be approved.

KPMG AG



Ian Starkey
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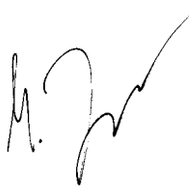
Auditor in Charge



Marc Ziegler
Licensed Audit Expert

Basel, 29 January 2018

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Published by
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Group Communications
4070 Basel, Switzerland
Tel.: +41 (0)61 688 11 11
www.roche.com

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Next Annual General Meeting:
13 March 2018

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

The statement regarding earnings per share growth is not a profit forecast and should not be interpreted to mean that Roche's earnings or earnings per share for 2018 or any subsequent period will necessarily match or exceed the historical published earnings or earnings per share of Roche.

Links to third-party pages are provided for convenience only. We do not express any opinion on the content of any third-party pages and expressly disclaim any liability for all third-party information and the use of it.

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

Our reporting consists of the actual Annual Report and of the Finance Report and contains the annual financial statements and the consolidated financial statements. With regards to content, the Management Report as per the Articles of Incorporation consists of both aforementioned reports with the exception of the Remuneration Report.

Printed on non-chlorine bleached, FSC-certified paper.

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