Bayer AG Financial Statements

2020

Science for a **better life**

The management report of Bayer AG is combined with the management report of the Bayer Group. The Combined Management Report is published in Bayer's Annual Report for 2020. The financial statements and the Combined Management Report of the Bayer Group and Bayer AG for fiscal 2020 have been submitted to the operator of the Federal Gazette and are accessible via the Company Register website.

Contents

Income Statements

€ million	Note	2019	2019	2020
			adjusted	
Net sales	[1]	14,833	15,386	13,985
Cost of goods sold		(7,882)	(8,434)	(6,761)
Gross profit		**6,951**	**6,952**	**7,224**
Selling expenses		(4,524)	(4,524)	(5,381)
Research and development expenses		(2,131)	(2,131)	(2,401)
General administration expenses		(1,409)	(1,631)	(1,714)
Other operating income	[2]	481	485	334
Other operating expenses	[3]	(123)	(53)	(252)
Operating income		**(755)**	**(902)**	**(2,190)**
Income from investments in affiliated companies – net	[4]	5,605	5,832	(206)
Interest income/expense – net	[5]	85	45	43
Other financial income/expense – net	[6]	(66)	(80)	383
Nonoperating income		**5,624**	**5,797**	**220**
Income taxes	[7]	(312)	(312)	(577)
Income after taxes/net income		**4,557**	**4,583**	**(2,547)**
Allocation to other retained earnings		**(1,806)**	**(1,806)**	**–**
Allocation from other retained earnings		–	–	4,512
Distributable profit		**2,751**	**2,777**	**1,965**

Statements of Financial Position

€ million	Note	Dec. 31, 2019	Dec. 31, 2019	Dec. 31, 2020
			adjusted	
ASSETS				
Noncurrent assets				
Intangible assets	[13]	136	257	369
Property, plant and equipment	[14]	29	66	44
Investments	[15]	70,388	70,341	66,370
		70,553	**70,664**	**66,783**
Current assets				
Inventories	[16]	2,209	2,209	2,396
Receivables and other assets				
Trade accounts receivable	[17]	1,631	1,807	1,855
Receivables from subsidiaries	[18]	6,421	5,955	4,633
Other assets	[19]	715	725	1,645
	[20]	8,767	8,487	8,133
Marketable securities	[21]	–	–	2,801
Cash and cash equivalents		2,783	2,783	2,760
		13,759	**13,479**	**16,090**
Deferred charges	**[22]**	**101**	**146**	**192**
Surplus from offsetting	**[23]**	**173**	**190**	**224**
		84,586	**84,479**	**83,289**
EQUITY AND LIABILITIES				
Equity	**[24]**			
Capital stock		2,515	2,515	2,515
Capital reserves		18,845	18,845	18,845
Other retained earnings		9,492	9,492	4,980
Distributable profit		2,751	2,777	1,965
		33,603	**33,629**	**28,305**
Provisions				
Provisions for pensions	[25]	1,018	1,483	1,696
Other provisions	[26]	2,226	2,516	3,094
		3,244	**3,999**	**4,790**
Other liabilities				
Bonds	[27]	6,300	6,300	11,300
Liabilities to banks		3,250	3,250	3,248
Down payments received on orders		3	3	12
Trade accounts payable	[28]	1,724	1,847	2,022
Payables to subsidiaries	[29]	35,954	34,924	33,098
Miscellaneous liabilities	[30]	404	423	445
	[31]	**47,635**	**46,747**	**50,125**
Deferred income	**[32]**	**104**	**104**	**69**
		84,586	**84,479**	**83,289**

Notes

Corporate Structure Changes and Information

As the final step in Bayer's reorganization, the operational business of the Pharmaceuticals and Crop Science divisions was transferred to Bayer AG effective January 1, 2017. For this purpose, business lease agreements were concluded with Bayer Pharma AG, Germany, and Bayer CropScience AG, Germany, which had previously managed the divisions' business. Under these agreements, these companies leased their entire business operations to Bayer AG and also transferred operational management to Bayer AG. The agreements were initially concluded for a term of one calendar year and are each extended by successive periods of one year unless written notice of termination effective as of the end of the preceding year is given six months in advance by either party. None of the parties terminated the agreements between 2017 and 2020.

On February 11, 2020, Bayer AG announced an agreement with Nuvisan ICB GmbH, Neu-Ulm, Germany, to transfer a large part of the Berlin-based small molecule research unit to Nuvisan. The Nuvisan group is an international service provider for clinical studies, laboratory services and contract manufacturing for the pharmaceuticals industry. The transaction closed on June 30, 2020, involving the transfer of 351 employees.

In early August 2020, Bayer completed the sale of the Animal Health business unit to Elanco Animal Health Incorporated, Greenfield, United States. The divestment resulted in approximately 4,400 Bayer Group employees transferring to Elanco. The total sale price achieved by the Bayer Group amounted to US$6,830 million, equivalent to €5,567 million. The divestment gain accruing to Bayer AG amounted to €4,132 million.

Bayer Business Services GmbH transferred its assets in their entirety, together with all rights and obligations to Bayer AG pursuant to Section 2, No. 1 of the German Transformation Act (UmwG) (merger by way of absorption), whereby the former was dissolved without being wound up. The merger took effect on January 1, 2020. Comparability with the prior-year figures is therefore very limited. In order to restore such comparability, a third column (2019 adjusted) has been added to the statements of financial position and the income statements to show the amounts that would have been reported if the two companies had already been legally combined in the previous year. The other information presented to explain the income statement and the statement of financial position is based on unadjusted prior-year figures.

Accounting Policies

The financial statements of Bayer AG, Leverkusen, Germany (which is entered in the commercial register of the Local Court of Cologne, Germany, HRB 48248), are prepared in accordance with the German Commercial Code (HGB), the Stock Corporation Act (AktG) and the German Energy Industry Act (EnWG).

Bayer AG is a generator and supplier of utilities at multiple locations and thus an energy utility as defined in Section 3, No. 18 of the EnWG. Since utility supply networks are operated by a subsidiary in addition, Bayer AG also constitutes a vertically integrated energy utility under Section 3, No. 38 of the EnWG. However, regarding its own activities, it is only subject to the separate accounting obligation and not the obligation to prepare activity reports.

Certain items in the income statement and statement of financial position are combined for the sake of clarity; they are explained in the Notes. Likewise for reasons of clarity, “of which” information required for certain items in the financial statements is presented in the Notes only. Research and development expenses are shown separately in view of their special importance in the chemical and pharmaceutical industry. Financial income and expenses whose disclosure is not covered by a legally required item are reported under other financial income or expense.

The income statement has been drawn up using the cost-of-sales method. Expense items and negative amounts after netting contained in the tables are shown in brackets.

A declaration of compliance with the German Corporate Governance Code has been issued pursuant to Section 161 of the German Stock Corporation Act (AktG) and made permanently available to stockholders online as part of the Declaration on Corporate Governance pursuant to Section 289f of the German Commercial Code (HGB). It can be downloaded from www.investor.bayer.com/en/bayer-group/corporate-governance.

As the parent company, Bayer AG prepares the consolidated financial statements for both the largest and the smallest scope of consolidation. As in the previous year, the management report of Bayer AG has been combined with the management report of the Bayer Group pursuant to Section 315, Paragraph 3 of the German Commercial Code (HGB) in conjunction with Section 298, Paragraph 2 HGB.

Recognition and Valuation Principles

Intangible assets that have been acquired are recognized at cost and amortized on a straight-line basis (pro rata temporis) over their estimated useful lives on an individual basis. Self-generated intangible assets are not capitalized.

Property, plant and equipment is carried at the cost of acquisition or construction less depreciation of assets that are subject to wear and tear in line with their individual useful lives. The straight-line method of depreciation is normally used. Movable assets that were already recognized as of December 31, 2007, are depreciated by the declining balance method at the maximum depreciation rates permitted for tax purposes, switching to the straight-line method as soon as this leads to higher annual depreciation.

Depreciation of the individual categories of property, plant and equipment, and amortization of the individual categories of intangible assets are based on the following useful lives:

Useful Life of Intangible Assets and Property, Plant and Equipment

Software	3 to 4 years
Other concessions, industrial property rights, similar rights and assets, and licenses thereunder	max. 30 years
Commercial buildings	25 to 40 years
Infrastructure facilities	12 to 20 years
Plant facilities	12 to 20 years
Plant and equipment	5 to 20 years
Laboratory and research equipment	3 to 5 years
Factory and office equipment	6 to 12 years
Communication technology	3 to 10 years
Vehicles	5 to 15 years
Computer equipment	3 to 4 years

Assets that can be utilized separately and are subject to depletion are depreciated in full in the year of acquisition if their cost of acquisition or construction does not exceed €800.

Write-downs are made for any declines in value that go beyond the depletion reflected in depreciation or amortization and are expected to be permanent. If the reasons for a write-down no longer apply, a write-back is made, provided that this does not cause the carrying amount to exceed the cost of acquisition or construction less depreciation or amortization.

The cost of construction of self-constructed property, plant and equipment comprises the direct cost of materials, direct manufacturing expenses, appropriate allocations of material and manufacturing overheads, and an appropriate share of the depreciation of assets used in construction.

Investments in subsidiaries and affiliated companies as well as securities recognized in noncurrent assets are carried at cost, less write-downs for any decline in value that is expected to be permanent. The shares of Neunte Bayer VV GmbH were received against contribution of the shares of Bayer Beteiligungsverwaltung Goslar GmbH; the accounting option was exercised to measure the shares of Neunte Bayer VV GmbH at the fair value of the contributed shares according to exchange principles. This resulted in an amount of €275 million being reflected in income from affiliated companies.

Where the reasons for write-downs made in previous years no longer apply or only partially apply, the respective items are written back accordingly, provided that the write-back does not cause the carrying amount to exceed the cost of acquisition. Interests in subsidiaries and affiliated companies that were acquired through exchange deals are measured at the carrying amount of the shares submitted. The acquisition costs of assets and liabilities acquired through mergers are measured at the carrying amounts that were recognized in the respective closing statement of financial position of the transferring entity.

Loans receivable that are interest-free or bear low rates of interest are carried at present value; other loans receivable are carried at nominal value. The loans also include jouissance right capital *(Genussrechtskapital)* provided to Bayer Pensionskasse VVaG, Leverkusen, Germany, and the latter’s drawings on a retroactive contribution to its effective initial fund made available by Bayer AG.

Inventories are valued as follows: raw materials, supplies and goods purchased for resale at the average cost of acquisition less write-downs, and finished goods at the average cost of production. This comprises the direct cost of materials, direct manufacturing expenses, and appropriate allocations of material and manufacturing overheads, including manufacturing-related depletion of noncurrent assets. Write-downs are recognized if the fair value is below the carrying amount.

Receivables and other assets are stated at nominal value, less any necessary write-downs. The amounts of such write-downs reflect the probability of default. Non-interest-bearing or low-interest receivables that are due in more than one year are recognized at their discounted value.

Cash, bank deposits and checks held in euros are recognized at their nominal value; such assets held in foreign currencies are translated at the spot rate on the closing date of the financial statements.

The deferred charges on the statement of financial position contain expenditures prior to the closing date that will give rise to expense in a defined subsequent period. Also included are the differences between the issue and settlement amount for bonds issued by Bayer AG that will be amortized over the maturity of the bonds.

The amounts required to meet credit balances on employees’ long-term worktime accounts and certain pension obligations are invested indirectly via intermediate investment vehicles through a Belgian investment company operating as a SICAV *(Société d’investissement à capital variable)*. They are invested in basically liquid international fixed-income bonds, shares, real estate and alternative investments. The assets are administered on behalf of Bayer AG by Bayer Pension Trust e. V. (BPT), Germany. All investments are protected from other creditors in the event that the employer files for insolvency. They are measured at fair value, which is derived from stock market prices and market interest rates. The trust assets held by BPT are offset against the underlying obligations. If the obligations exceed the assets, a provision is recorded. If the value of the securities exceeds the obligations, it is recorded in the statement of financial position as a surplus from offsetting; this was the case in 2020. Accordingly, in the income statements, income from the trust assets is offset against the interest portion of the corresponding obligations and changes in the discount rate.

Deferred taxes are assessed for temporary differences between the amounts of assets, liabilities, deferred charges and deferred income in the accounting statements and those in the tax statements. This assessment takes into account not only the differences reflected in Bayer AG’s own statement of financial position, but also those existing at subsidiaries with which it forms a fiscal entity for tax purposes and in which it holds an equity interest. In addition to temporary differences, tax loss carryforwards are taken into account. Deferred taxes are calculated on the basis of the combined income tax rate for the fiscal entity headed by Bayer AG, which is currently 29.57%. The combined income tax rate comprises corporate income tax, trade tax and the solidarity surcharge. In the case of partnerships, however, deferred taxes relating to temporary differences in the statement of financial position are calculated using a combined income tax rate that includes only corporate income tax and the solidarity surcharge; this combined rate is currently 15.83%. Any resulting tax liability would be recognized as a deferred tax liability in the statement of financial position. In the event of a tax receivable, the corresponding option to recognize the deferred tax asset would not be used. In 2020 there was a deferred tax asset, which therefore was not recognized in the statement of financial position.

The capital stock of Bayer AG is divided into 982,424,082 no-par registered shares, each of which has a theoretical proportionate interest of €2.56 in the total capital stock of €2,515,005,649.92.

Provisions for pensions are computed using the projected unit credit method on the basis of biometric probability using the Heubeck 2018 G reference tables. Expected future salary and pension increases are taken into account. We assume annual salary increases of 2.25% (2019: 2.50%) and annual pension increases of 1.60% (2019: 1.40%). For pension entitlements granted since January 1, 2000, an annual pension increase of 1.00% is generally accounted for as this has been promised to the employees. The discount rate used for pension provisions as at December 31, 2020, was 2.30% (December 31, 2019: 2.71%), which is the average market interest rate for the past ten years for instruments with an assumed remaining maturity of 15 years, as published by the Deutsche Bundesbank for December 2020.

Other provisions are established to cover all foreseeable risks and uncertain liabilities based on reasonable estimates of the future settlement amounts of such commitments. Future price and cost increases are taken into account where there are sufficient objective indications that such increases will most probably occur. Provisions maturing in more than one year are discounted to present value using the average market interest rate for the past seven years, based on their remaining maturities. For longer-term personnel-related provisions, such as provisions for long-service anniversaries, a discount rate of 1.60% (2019: 1.97%) is used for an assumed period of 15 years until utilization. Shorter-term personnel-related provisions, such as those for obligations under early retirement arrangements, are discounted using a rate that corresponds to their maturity, which in 2020 was three years. The discount rate was 0.54% (2019: 0.72%). These are the rates published or expected by the Deutsche Bundesbank for December 2020.

Liabilities are recognized at the settlement amount as of the closing date. Noncurrent liabilities containing an interest component are discounted using the average market interest rate in the past seven years applicable to their maturity.

Foreign currency receivables and liabilities, forward exchange contracts and other currency derivatives are recognized using the mark-to-market method. For this purpose, foreign currency receivables and payables are measured at spot rates, while the corresponding currency derivatives entered into for hedging purposes are valued at the market forward rates on the closing date. Unrealized gains and losses are then offset in each currency using the net hedge presentation method. Provisions are set up for any net unrealizable losses; net unrealizable gains are only recognized if they relate to receivables and liabilities with a remaining maturity of up to one year.

The deferred income on the statement of financial position contains payments received prior to the closing date that will give rise to income in a specific future period. This includes license payments, the majority of which will be amortized over the estimated useful life of the asset, starting when marketing approval is obtained for the respective product.

Contingent liabilities arising from sureties and debt guarantees are shown at the amounts equivalent to the loans or commitments actually outstanding on the closing date.

Notes to the Income Statements

1. Sales

Sales decreased by €848 million compared with 2019. The sales split by business unit and region was as follows:

Sales by Business Unit

€ million	2019	2020
Pharmaceuticals	9,510	9,101
Crop Science	5,206	4,291
Enabling Functions	117	593
	14,833	**13,985**

Sales by Region

€ million	2019	2020
Europe/Africa/Middle East	6,306	5,585
North America	2,967	3,389
Asia/Pacific	3,747	3,519
Latin America	1,813	1,492
	14,833	**13,985**

2. Other operating income

Other operating income comprised:

Other Operating Income

€ million	2019	2020
Gains from the disposal of noncurrent assets	32	31
Reversals of unutilized provisions	117	124
Government grants for research and development services	12	13
Income from charging-on of “Monsanto” financing costs to other Group companies	276	–
Income from charging-on of costs[1]	–	79
Gain from the merger with Bayer Business Services GmbH	–	28
Miscellaneous operating income	44	59
	481	**334**

[1] In connection with the sale of the Animal Health business unit

Gains from the disposal of noncurrent assets resulted primarily from the sale of rights of use to Syngenta in connection with a research collaboration in the area of fungicides in the Crop Science business. In the previous year, gains from the disposal of noncurrent assets resulted almost exclusively from the sale of two fungicide active ingredients in the Crop Science business.

Miscellaneous operating income included €12 million (2019: €17 million) in income from collaboration agreements and €1 million in insurance compensation (2019: €7 million). In 2019 this item also included €1 million received in connection with the sale of licenses/rights.

3. Other operating expenses

Other operating expenses comprised:

Other Operating Expenses

€ million	2019	2020
Expenses relating to divestments to BASF[1]	13	–
Expenses from the reimbursement of restructuring costs	49	33
Compensation expenses under the lease model	–	17
Losses from the disposal of fixed assets	–	3
Expenses in connection with the sale of the Animal Health business unit	–	89
Write-downs of receivables	10	23
Donations	15	21
Miscellaneous operating expenses	36	66
	123	**252**

[1] Including for transitional agreements concluded with BASF

As in the previous year, the miscellaneous operating expenses included property taxes, compensation payments, bank charges and accrued expenses.

4. Income from investments in affiliated companies – net

Income from Investments in Affiliated Companies – Net

€ million	2019	2020
Dividends and similar income from subsidiaries	1,817	500
Income from profit and loss transfer agreements with subsidiaries	2,981	290
Expenses from profit and loss transfer agreements with subsidiaries	(283)	(5,431)
Write-downs of investments in affiliated companies	(64)	(12)
Write-backs of investments in affiliated companies	48	–
Losses from the sale of investments in affiliated companies	(9)	–
Gains from the sale of investments in affiliated companies	1,115	4,447
	5,605	**(206)**

Details of the income and expenses from investments in affiliated companies are given in the Combined Management Report of Bayer AG and the Bayer Group.

The write-downs of investments in affiliated companies in 2020 included €12 million (2019: €18 million) for Bayer Türk Kimya Sanayii Limited Sirketi, Turkey. The other write-downs in 2019 were €34 million for Bayer New UK M3939 LLC, United States and €12 million for Bayer Capital Corporation B.V., Netherlands.

The write-backs of investments in affiliated companies recognized for 2019 included €12 million for Siebte Bayer VV GmbH, €33 million for Bayer Bitterfeld GmbH and €3 million for Bayer Real Estate GmbH.

The losses from the sale of investments in affiliated companies recorded in the previous year pertained to the sale of shares in Monsanto Holding Ukraine Ltd., Ukraine.

The €4,447 million in gains from the sale of investments in affiliated companies included €4,132 million from the sale of Bayer Animal Health GmbH, €275 million from the placing of the shares of Bayer Beteiligungsverwaltung Goslar GmbH into Neunte Bayer VV at their fair value, and €20 million from the sale of shares in Arvinas Inc., United States. An additional €20 million (2019: €1,088 million) pertained to the prior-year sale of shares in Bayer Beteiligungsverwaltungsgesellschaft mbH & Co. OHG, which had as its main business purpose the ownership of 60% of the shares of Currenta GmbH & Co. OHG. The further gains recorded in the previous year (€27 million) were attributable to the intra-Group sale of shares in Bayer (Proprietary) Limited, South Africa.

5. Interest income/expense – net

Interest Income/Expense – Net

€ million	2019	2020
Income from other securities and loans recognized in noncurrent assets	692	617
• *of which from subsidiaries*	*692*	*606*
Other interest and similar income	167	85
• *of which from subsidiaries*	*134*	*64*
Interest and similar expenses	(804)	(460)
• *of which to subsidiaries*	*(469)*	*(189)*
Interest income/expense portion of pension and other noncurrent personnel-related provisions (net)	53	(188)
Interest expense portion of other noncurrent provision	(23)	(11)
	85	**43**

The development of the net interest position is explained in the Combined Management Report of Bayer AG and the Bayer Group.

Income relating to the interest portion of pension and other noncurrent personnel-related provisions comprised the net amount from the unwinding of discount on the present value of the defined benefit obligation after offsetting income from and changes in the value of the assets held by Bayer Pension Trust e. V. (BPT), Germany, and the impact of the change in the discount rate. The assets held by BPT serve the sole purpose of meeting pension obligations and the obligations arising from credit balances on employees' long-term worktime accounts. The Trust's assets are protected from other creditors.

The income from plan assets was netted with the interest portion of pension and other personnel-related provisions as follows:

Netting of the Interest Portion of Pension and Personnel-Related Provisions with Income from Plan Assets

€ million	2019	2020
Interest expense portion of pension and other noncurrent personnel-related provisions and expenses from changes in the discount rate (gross)	(485)	(508)
Income from assets held by Bayer Pension Trust e. V.	538	320
	53	**(188)**

6. Other financial income/expense – net

Other Financial Income/Expense – Net

€ million	2019	2020
Changes in provisions for pensions and other noncurrent personnel-related provisions (excluding interest portion)	23	(47)
Allocation to pension provisions assigned to subsidiaries	79	88
Expenses from currency translation		
– Realized exchange losses	(2,143)	(3,662)
– Unrealized expenses from valuation	(296)	(231)
Income from currency translation		
– Realized exchange gains	2,207	3,938
– Unrealized income from valuation	26	86
Guarantee fees for sureties granted	53	50
Write-downs/write-backs of securities recognized in noncurrent assets	(20)	49
Dividend income Covestro AG	30	14
Bond fees	–	(14)
Gains from the sale of shares in Covestro AG	19	45
Early repayments of hybrid bond	(28)	–
Repayment of exchangeable bond	–	52
Miscellaneous financial expenses	(39)	(61)
Miscellaneous financial income	23	76
	(66)	**383**

The interest portion of allocations to pension and other noncurrent personnel-related provisions is included in interest expense. Other financial income and expense contains further changes in pension provisions, not related to the interest portion, pertaining to former employees of Bayer AG who retired before the hive-down of the business areas and service areas (effective date: July 1, 2002) or who left the company before then and have vested pension rights. Changes of this kind occur in the event of changes in actuarial valuation parameters.

The expenses for allocations to the above provisions for employees who retired or left the company before July 1, 2002, are generally reimbursed by the subsidiaries on a prorated basis under the respective carve-out agreements.

The write-backs of securities recognized in noncurrent assets pertained entirely to shares of Covestro AG, Germany. These securities had been written down by €20 million in 2019 due to a decline in value that had been expected to be permanent.

7. Income taxes

The tax expense reflected here comprises amounts paid or owed for corporate income tax, trade tax and the solidarity surcharge, and income taxes paid outside Germany.

As permitted by the option in Section 274, Paragraph 1, Sentence 2 of the German Commercial Code (HGB), the €1,493 million excess of deferred tax assets over deferred tax liabilities at year end was not recognized.

Deferred tax assets mainly resulted from the valuation of pension obligations being higher in the accounting statements than in the tax statements. Other deferred tax assets resulted from provisions that are not tax-deductible, such as those for impending losses and pre-retirement leave, and from differences in the measurement of, for example, provisions for early retirement and service anniversaries, as well as interests in partnerships. There was also a deferred tax asset relating to an as yet unused tax loss carryforward.

Deferred tax liabilities principally arose from differences between the valuations of noncurrent assets and assets invested with Bayer Pension Trust e. V., Germany, which cover pension commitments, in the accounting statements and the valuations in the tax statements.

8. Other taxes

Where other taxes can be allocated to the cost of goods sold, selling expenses, research and development expenses or general administration expenses, they are assigned to the respective expense items. In other cases they are assigned to other operating expenses. Other taxes totaled €12 million (2019: €8 million).

9. Cost of materials

Cost of Materials

€ million	2019	2020
Expenses for raw materials, supplies and purchased goods	4,751	4,188
Expenses for purchased services	560	909
	5,311	**5,097**

10. Personnel expenses/employees

Personnel Expenses

€ million	2019	2020
Wages and salaries	2,156	2,384
Social expenses	248	287
Pension expenses	108	299
	2,512	**2,970**

The personnel expenses shown here do not contain the interest portion of personnel-related provisions, especially pension provisions, which is included in net interest expense.

The average number of employees at Bayer AG in 2020 was 18,729, subdivided as follows:

Employees

	2020	
	Female	**Male**
Senior executives and senior managers	1,288	2,946
Junior managers and nonmanagerial employees	5,393	9,102
	6,681	**12,048**

Part-time employees are included in this figure on a prorated basis.

11. Stock-based compensation

Bayer AG offers its employees long-term stock-based compensation programs as an additional compensation component. Different collective programs are offered to different groups of employees.

The Aspire 2.0 program has been in place for members of the Board of Management, other senior executives and middle managers since 2016. With a new tranche launched each year, the Aspire 2.0 program results in performance-related payments to employees. A new tranche of the successor program, Aspire 3.0, is being launched annually – for members of the Board of Management as of 2020 and for other senior executives and middle managers as of 2021. The tranches of both programs run for four years each.

In addition, all employees of Bayer AG, regardless of position and level, are offered the BayShare program, which is set annually by the Board of Management and enables them to purchase Bayer stock at a discount.

Provisions are recorded for all obligations existing under the stock-based compensation programs at the closing date. The amount of such provisions is based on the fair value of the obligations and the proportion of the total duration of the respective program that has elapsed since its introduction. Allocations to provisions are expensed.

Aspire 2.0/Aspire 3.0

Aspire 2.0 is offered to all eligible employees in a new, standardized format named Aspire 2.0. Aspire 2.0 is also based on a percentage of each employee's annual base salary, the percentage varying according to his or her position. This is now multiplied by the employee's STI payout factor from the global short-term incentive (STI) program to give the Aspire 2.0 grant value. The STI payout factor reflects the employee's individual performance and the business performance used for the STI program. The Aspire 2.0 grant value is converted into virtual Bayer shares by dividing it by the share price at the start of the program. The program's performance is based on these virtual shares. The fair value of the obligations is determined from the price of Bayer stock at year end and the dividends paid up to that time. The payment made at the end of each tranche is determined by multiplying the number of virtual shares by the relevant Bayer share price at that time and adding an amount equivalent to the dividends paid during the period of the tranche. For the members of the Board of Management there is the additional hurdle of the performance of Bayer shares against the EURO STOXX. The maximum payout for Aspire 2.0 is 250% of the target amount.

At the start of 2021, a payment of 64% was made for the tranche issued in 2017. The payment for the Board of Management amounted to 38%.

Details of the Aspire 3.0 successor program are provided in the Combined Management Report of the Bayer Group and Bayer AG.

BayShare

All management levels and nonmanagerial employees were offered a stock participation program known as BayShare, under which Bayer subsidizes their personal investment in the company's stock. On November 4, 2020, Bayer AG acquired approximately 538,000 shares at a price of €42.97 per share for this purpose in accordance with Section 71, Paragraph 1, No. 8 of the German Stock Corporation Act. These shares corresponded to €1.4 million, or 0.05%, of the capital stock. The value of these shares was €23 million at the date of acquisition. In 2019, around 334,000 shares were purchased under the BayShare program. These shares were placed in employees' share deposit accounts in November 2020, so Bayer AG did not hold any own shares as of December 31, 2020.

The discount granted under this program was 20% (2019: 20%) of the subscription amount. Employees stated a fixed amount that they wished to invest in shares. The maximum subscription amount in Germany was set at €2,500 (2019: €2,500) or €5,000 (2019: €5,000), depending on the employee's position. The shares purchased must be retained until December 31, 2021.

Expenses for Bayer AG's stock-based compensation programs totaled €16 million in 2020 (2019: €59 million). This amount is reflected in personnel expenses. Provisions for these programs amounted to €105 million as of December 31, 2020 (2019: €121 million).

12. Valuation write-downs

In 2020, write-downs of €12 million (2019: €64 million) were made on investments in subsidiaries. In 2019, further write-downs of €20 million had been made on securities recognized in noncurrent assets to reflect a decline in value that had been expected to be permanent.

Notes to the Statements of Financial Position

13. Intangible assets

Intangible Assets

€ million	Acquired concessions, industrial property rights, similar rights and assets, and licenses thereunder	Advance payments	Total
Gross carrying amounts, Dec. 31, 2019	218	–	218
Additions from merger[1]	89	32	121
Current additions	150	35	185
Retirements	–	–	–
Transfers	2	(2)	–
Gross carrying amounts, Dec. 31, 2020	**459**	**65**	**524**
Accumulated amortization and write-downs, Dec. 31, 2019	82	–	82
Amortization and write-downs	73	–	73
Retirements	–	–	–
Accumulated amortization and write-downs, Dec. 31, 2020	**155**	**–**	**155**
Net carrying amounts, Dec. 31, 2020	**304**	**65**	**369**
Net carrying amounts, Dec. 31, 2019	136	–	136

[1] The additions from a merger comprised the net carrying amounts of the assets of the former subsidiary Bayer Business Services GmbH, which was merged with Bayer AG as per the merger agreement.

14. Property, plant and equipment

Property, Plant and Equipment

€ million	Land and buildings	Plant and equipment	Furniture, fixtures and other equipment	Advance payments and assets under construction	Total
Gross carrying amounts, Dec. 31, 2019	62	24	22	4	112
Additions from merger[1]	–	3	34	–	37
Current additions	1	2	4	6	13
Retirements	–	–	24	–	24
Transfers	–	1	–	(1)	–
Gross carrying amounts, Dec. 31, 2020	**63**	**30**	**36**	**9**	**138**
Accumulated depreciation and write-downs, Dec. 31, 2019	60	12	11	–	83
Depreciation and write-downs	1	4	17	–	22
Retirements	–	–	11	–	11
Accumulated depreciation and write-downs, Dec. 31, 2020	**61**	**16**	**17**	**–**	**94**
Net carrying amounts, Dec. 31, 2020	**2**	**14**	**19**	**9**	**44**
Net carrying amounts, Dec. 31, 2019	2	12	11	4	29

[1] The additions from a merger comprised the net carrying amounts of the assets of the former subsidiary Bayer Business Services GmbH, which was merged with Bayer AG as per the merger agreement.

15. Investments

Investments

€ million	Investments in subsidiaries	Loans to subsidiaries	Investments in other affiliated companies	Securities included in investments	Other loans	Total
Gross carrying amounts, Dec. 31, 2019	49,223	19,993	52	891	793	70,952
Additions from merger[1]	12	–	–	–	–	12
Current additions	545	60	62	–	–	667
Retirements	343	4,121	12	476	1	4,953
Transfers	–	–	–	–	–	–
Gross carrying amounts, Dec. 31, 2020	**49,437**	**15,932**	**102**	**415**	**792**	**66,678**
Accumulated write-downs, Dec. 31, 2019	149	6	–	408	1	564
Write-downs	12	–	–	–	–	12
Write-backs	–	1	–	49	–	50
Retirements	–	–	–	218	–	218
Accumulated write-downs, Dec. 31, 2020	**161**	**5**	**–**	**141**	**1**	**308**
Net carrying amounts, Dec. 31, 2020	**49,276**	**15,927**	**102**	**274**	**791**	**66,370**
Net carrying amounts, Dec. 31, 2019	49,074	19,987	52	483	792	70,388

[1] The additions from a merger comprised the net carrying amounts of the assets of the former subsidiary Bayer Business Services GmbH, which was merged with Bayer AG as per the merger agreement.

The €12 million in additions to investments in subsidiaries in connection with the merger of Bayer Business Services GmbH into Bayer AG was attributable to Bayer Direct Services GmbH, Bayer Gastronomie GmbH, Bayer-Handelsgesellschaft mit beschränkter Haftung and TravelBoard GmbH.

The additions to investments in subsidiaries in 2020 included an amount of €492 million arising from the placing of the shares of Bayer Beteiligungsverwaltung Goslar GmbH into Neunte Bayer VV at their fair value. The merger of Bayer Finance & Portfolio Management S.A., Chile, with Bayer Finance Ltda., Chile, resulted in additions and retirements of €26 million. The subsequent merger of Bayer Finance Ltda., Chile, with Bayer S.A., Chile, likewise resulted in additions and retirements of €26 million.

Further retirements included €217 million pertaining to the retirement of Bayer Beteiligungsverwaltung Goslar GmbH, €59 million to that of Bayer Business Services GmbH due to its merger with Bayer AG and €14 million to the sale of Bayer Animal Health GmbH.

Of the write-downs recognized in 2020, €12 million related to Bayer Türk Kimya Sanayii Limited Sirketi, Turkey.

The additions to loans to subsidiaries primarily comprised a loan of €60 million to Bayer 04 Leverkusen Fußball GmbH. The €4,121 million in retirements of loans to subsidiaries included €4,000 million for the early repayment of a loan to Bayer CropScience AG, €56 million for Bayer Türk Kimya Sanayii Limited Sirketi, Turkey, €29 million for Bayer New Zealand Limited, New Zealand, €23 million for Bayer Israel Ltd., Israel, €10 million for Monsanto Gida Ve Tarim Ticaret Ltd Sirketi, Turkey, and €3 million for Bayer 04 Immobilien GmbH.

The additions to investments in other affiliated companies mainly resulted from the acquisition of an interest in Recursion Pharmaceuticals, Inc, United States, (€42 million), and the purchase of further shares in Dewpoint Therapeutics Inc., United States, (€20 million). The €12 million retirements of investments in other affiliated companies resulted from the sale of shares in Arvinas Inc., United States.

The amount of €476 million in retirements of securities recognized in noncurrent assets resulted from the sale of 6.23 million Covestro AG shares, on which write-downs of €218 million were also recognized. Whereas these securities had been written down in 2019 by €20 million to reflect a decline in value that had been expected to be permanent, write-backs of €49 million were recognized in 2020.

Bayer AG undertook to provide jouissance right capital *(Genussrechtskapital)* with a nominal volume of €150 million for Bayer-Pensionskasse VVaG under a jouissance rights agreement. This repayable capital has been drawn in three €50 million installments, each installment being provided for a period of at least five years. In 2008, Bayer AG established a repayable “effective initial fund” of €800 million for Bayer-Pensionskasse VVaG, Germany, which was increased to €1,600 million in 2012. Of this amount, the pension fund has so far drawn €635 million. The jouissance right capital and the capital provided for the effective initial fund are interest-bearing, but interest is only payable under certain contractually agreed conditions. Interest must be deferred if it would result in the pension fund reporting a net loss. The jouissance right capital and the amount drawn from the effective initial fund are contained in other loans.

Details of the subsidiary and affiliated companies of Bayer AG pursuant to Section 285, Numbers 11, 11a and 11b of the German Commercial Code are included in the annual financial statements that have been certified and submitted for publication in the German Federal Gazette (Bundesanzeiger). They are also available at www.bayer.com/shareownership2020.

16. Inventories

Inventories

€ million	Dec. 31, 2019	Dec. 31, 2020
Raw materials and supplies	573	618
Work in process	1,018	1,153
Finished goods	544	505
Goods purchased for resale	74	120
	2,209	**2,396**

17. Trade accounts receivable

Trade Accounts Receivable

€ million	Dec. 31, 2019	Dec. 31, 2020
Accounts receivable from subsidiaries	1,294	1,507
Accounts receivable from other customers	337	348
	1,631	**1,855**

18. Accounts receivable from subsidiaries

Accounts receivable from subsidiaries mainly comprised financial receivables, for example, in connection with loans or overnight funds, accrued interest, and receivables relating to profit transfers from subsidiaries that form a fiscal entity with Bayer AG.

19. Other assets

The other assets comprised:

Other Assets

€ million	Dec. 31, 2019	Dec. 31, 2020
Payroll receivables	14	23
Accrued interest	18	9
Claims for tax refunds	629	306
Short-term investments	–	1,200
Receivables under collaboration agreements	17	8
Receivables from call deposits and current account	22	45
Advance payments disbursed	6	21
Other	9	33
	715	**1,645**

The other assets included €9 million (2019: €10 million) for assets that did not legally come into being until after year end. With some insignificant exceptions, these consisted entirely of accrued interest.

20. Receivables and other assets maturing in more than one year

As in the previous year, all receivables and other assets were due in less than one year.

21. Securities

The securities reported here are short-term euro investments with indefinite maturities.

22. Deferred charges

The deferred charges as of December 31, 2020, included unamortized discounts totaling €25 million pertaining to bonds issued by Bayer AG. The amount of €10 million recognized at the start of the year was increased by €18 million due to additions and was diminished by €3 million due to amortization.

Likewise reported here are accrued charges of €11 million (2019: €19 million) for credit facilities that Bayer had arranged for the acquisition of Monsanto, among other things.

The remaining deferred charges comprised advance payments of charges for other credit facilities, prepaid premiums for business insurance and other accrued charges.

23. Surplus from offsetting

Obligations arising from credit balances on employees' long-term worktime accounts and from pension commitments are either fully or partially secured. The assets invested under individual contractual trust arrangements (CTAs) are offset against the underlying obligations. Any positive difference is capitalized as a surplus from offsetting, otherwise it is reflected in provisions. As of December 31, 2020, the offset resulted in a positive difference of €224 million (2019: €173 million), of which €132 million (2019: €65 million) comprised obligations from long-term worktime accounts and €92 million (2019: €108 million) comprised pension commitments.

Surplus from Offsetting for Long-Term Worktime Accounts

€ million	Dec. 31, 2019	Dec. 31, 2020
Settlement value of obligations relating to credit balances on employees' long-term worktime accounts	167	229
Fair value of assets invested with Bayer Pension Trust	232	361
Excess of assets over obligations relating to long-term worktime accounts (surplus from offsetting)	**65**	**132**
Acquisition cost of assets invested with Bayer Pension Trust	209	306

Surplus from Offsetting for Pension Commitments

€ million	Dec. 31, 2019	Dec. 31, 2020
Settlement value of pension commitments	532	601
Fair value of assets invested with Bayer Pension Trust	640	693
Excess of assets over obligations relating to pension commitments (surplus from offsetting)	**108**	**92**
Acquisition cost of assets invested with Bayer Pension Trust	526	533

The collateral assets are measured at fair value. Their fair value as of December 31, 2020, was €4,891 million. Offsetting €1,054 million of the collateral assets against underlying obligations resulted in a positive difference, which was recorded as a surplus from offsetting; offsetting of the remaining €3,837 million against obligations was reported under provisions for pensions.

24. Equity

Changes in equity in 2020 were as follows:

Equity

€ million	Dec. 31, 2019	Dividend for 2019	Net income	Allocation from other retained earnings	Dec. 31, 2020
Capital stock	2,515	–	–	–	2,515
Capital reserve	18,845	–	–	–	18,845
Other retained earnings	9,492	–	–	(4,512)	4,980
Distributable profit	2,751	(2,751)	(2,547)	4,512	1,965
	33,603	**(2,751)**	**(2,547)**	**0**	**28,305**

The capital stock of Bayer AG remained at €2,515,005,649.92. As in the previous year, it was divided into 982,424,082 no-par registered shares and was fully paid up, with each share conferring one voting right.

Information on amounts barred from distribution pursuant to Section 253, Paragraph 6 and Section 268, Paragraph 8 of the German Commercial Code (HGB)

The provisions for pensions recognized in the statement of financial position (before deduction of the corresponding assets) were calculated on the basis of the relevant average market interest rate for the past ten years. If the average for the past seven years had been used, the obligations would have been €717 million higher.

To secure pension obligations and credit balances on employees’ long-term worktime accounts, funds have been transferred to Bayer Pension Trust e. V. (BPT), Germany, under several contractual trust arrangements (CTAs). They may only be used for the specified purpose and are protected from other creditors in the event that the employer becomes insolvent. They are measured at fair value. The total fair value of the fund assets of all the CTAs was €859 million above their total acquisition cost of €4,032 million.

The sum of the difference between the pension obligations based on the average interest rates for ten and seven years and the difference between the higher fair value and the acquisition cost of the assets held by BPT was €1,576 million. Since the freely available retained earnings amount to €4,980 million, there is no restriction on the use of the distributable profit of €1,965 million.

Notifications of direct and indirect stockholdings pursuant to Section 33, Paragraph 1 of the Securities Trading Act (WpHG)

As of the closing date, we had received the following notifications of stockholdings in Bayer AG pursuant to Section 33, Paragraph 1 of the German Securities Trading Act (WpHG). In cases where stockholdings reached, exceeded or fell below the thresholds set out in this legislation on several occasions, only the most recent notification is mentioned:

- Amundi S.A., Paris, France, notified us that its voting rights amounted to 2.45% on April 6, 2020. 2.40% of the voting rights (23,554,050 voting rights) were attributable to this company pursuant to Section 34 WpHG. 0.05% of the voting rights (450,000 voting rights) were attributable to this company as an instrument within the meaning of Section 38, Paragraph 1, No. 1 WpHG (securities loan).
- The Kingdom of Norway, Oslo, Norway, represented by the Minister of Finance, notified us that its voting rights amounted to 2.98% on July 30, 2020. 2.98% of the voting rights (29,272,516 voting rights) were attributable to it pursuant to Section 34 WpHG.
- Harris Associates L.P., Wilmington, United States, notified us that its voting rights amounted to 3.02% on November 20, 2020. 3.02% of the voting rights (29,633,044 voting rights) were attributable to this company pursuant to Section 34 WpHG.
- BlackRock, Inc., Wilmington, U.S.A., notified us that its voting rights amounted to 7.44% on March 26, 2018. 7.17% of these voting rights (59,256,963 voting rights) were attributable to this company pursuant to Section 34 WpHG. 0.26% of these voting rights (2,119,910 voting rights) were attributable to this company as an instrument within the meaning of Section 38, Paragraph 1, No. 1 WpHG (securities loan). 0.02% of these voting rights (174,418 voting rights) were attributable to this company as an instrument within the meaning of Section 38, Paragraph 1, No. 2 WpHG (call option or contract for difference).
- The Republic of Singapore, represented by the Minister for Finance, notified us that its voting rights exceeded the 3% threshold on April 18, 2018, and amounted on that date to 4.17% (35,763,529 voting rights). 3.97% of these voting rights (34,078,853 voting rights) were attributable to it pursuant to Section 34 WpHG. 0.02% of these voting rights (1,684,676 voting rights) were attributable to it as an instrument within the meaning of Section 38, Paragraph 1, No. 2 WpHG (put option).

// Massachusetts Financial Services Company (MFS) notified us that its voting rights exceeded the 3% threshold on March 27, 2017. 3.18% of these voting rights (31,241,086 voting rights) were attributable to it pursuant to Section 34 WpHG.

For further details, please see the individual voting rights notifications received, which are published on our website at www.bayer.com/en/investors/voting-rights-announcements.

25. Provisions for pensions

This item includes provisions for current and future pension entitlements.

It also includes commitments to former employees of the business areas and service areas hived down into separate legal entities in 2002 and 2003 who retired before July 1, 2002, or who left the company before this date and have vested pension rights. The respective companies reimburse Bayer AG for these expenses as a matter of course.

Obligations arising from pension commitments are partially secured by assets invested with Bayer Pension Trust e. V., Leverkusen. Any positive difference from the offsetting of these assets against the underlying obligations is capitalized as a surplus from offsetting, while any negative difference is reflected in provisions.

Further information on the CTA is given in Note 23.

Provisions for Pensions

€ million	Dec. 31, 2019	Dec. 31, 2020
Settlement value of pension commitments	4,368	5,533
Fair value of assets invested with Bayer Pension Trust	3,350	3,837
Net value of pension commitments (provisions)	**(1,018)**	**(1,696)**
Acquisition cost of assets invested with Bayer Pension Trust	2,973	3,193

The deficit due to unrecognized pension obligations from indirect commitments under Section 28, Paragraph 2 of the Introductory Law to the German Commercial Code (EGHGB) amounted to €279 million.

26. Other provisions

Other Provisions

€ million	Dec. 31, 2019	Dec. 31, 2020
Provisions for taxes	361	732
Miscellaneous provisions	1,865	2,362
	2,226	**3,094**

A substantial proportion of the miscellaneous provisions related to the announced restructuring measures. In connection with these measures, a €556 million allocation was made through profit or loss in 2020 to provisions for restructuring in light of newly launched personnel adjustment programs. As of December 31, 2020, the miscellaneous provisions for restructuring-related personnel measures amounted to €1,085 million.

Miscellaneous provisions also included personnel commitments for performance-related compensation components amounts as well as for long-service awards to employees, early retirement arrangements, vacations and other uncertain liabilities. They also included provisions for impending losses on foreign exchange derivatives, outlicensing agreements and sales contracts.

27. Bonds

Bonds with a total nominal value of €11,300 million existed as of December 31, 2020 (2019: €6,300 million). They comprised:

Bonds

	Nominal value	Stated rate	Effective rate	Dec. 31, 2019	Dec. 31, 2020
		%	%	€ million	€ million
DIP bond 2014/2021	EUR 750 million	1.875	2.086	750	750
Hybrid bond 2014/2074[1]	EUR 1,500 million	3.750	3.811	1,500	1,500
Hybrid bond 2015/2075[2]	EUR 1,300 million	2.375	2.517	1,300	1,300
Convertible bond 2017/2020	EUR 1,000 million	0.050	1.640	1,000	–
Hybrid bond 2019/2079[3]	EUR 1,000 million	2.375	2.5967	1,000	1,000
Hybrid bond 2019/2079[4]	EUR 750 million	3.125	3.1915	750	750
Bond 2020/2024	EUR 1,500 million	0.375	0.528	–	1,500
Bond 2020/2027	EUR 1,500 million	0.750	0.898	–	1,500
Bond 2020/2030	EUR 1,500 million	1.125	1.163	–	1,500
Bond 2020/2032	EUR 1,500 million	1.375	1.412	–	1,500
				6,300	**11,300**

[1] Redeemable at 12 months' notice from 2024, fixed interest rate until 2024, thereafter floating rate based on 5-year swap rate
[2] Redeemable at 12 months' notice from 2022; fixed interest rate until 2022, thereafter rate based on 5-year swap rate plus 200.7 basis points
[3] Redeemable at 12 months' notice from 2025; fixed interest rate until 2025, thereafter floating rate based on 5-year swap rate
[4] Redeemable at 12 months' notice from 2027; fixed interest rate until 2027, thereafter floating rate based on 5-year swap rate

28. Trade accounts payable

Trade Accounts Payable

€ million	Dec. 31, 2019	Dec. 31, 2020
Payables to subsidiaries	598	745
Payables to other suppliers	1,126	1,277
	1,724	**2,022**

29. Payables to subsidiaries

The payables to subsidiaries mainly comprised financial liabilities such as loans and overnight funds made available to Bayer AG by subsidiaries, plus the respective accrued interest.

30. Miscellaneous liabilities

The miscellaneous liabilities comprised:

Miscellaneous Liabilities

€ million	Dec. 31, 2019	Dec. 31, 2020
Accrued interest	72	105
Short-term investments with Bayer AG	61	43
Liabilities from hedges	47	49
Social insurance liabilities	1	1
Liabilities from employees' income and church taxes	85	100
Liabilities relating to income and sales taxes	32	37
Purchase price adjustment from the sale of the Animal Health business unit	–	77
Other	106	33
	404	**445**

As in the previous year, the other miscellaneous liabilities included payroll and current account liabilities.

31. Further information on liabilities

The residual maturities of liabilities were as follows:

Maturity Structure of Other Liabilities

	Dec. 31, 2019		Dec. 31, 2020	
€ million	Maturing in 2020	Maturing after 2020	Maturing in 2021	Maturing after 2021
Bonds	1,000	5,300	750	10,550
Liabilities to banks	22	3,228	3,248	–
Down payments received on orders	3	–	12	–
Trade accounts payable	1,714	10	2,019	3
Payables to subsidiaries	33,139	2,815	32,598	500
Miscellaneous liabilities	404	–	445	–
	36,282	**11,353**	**39,072**	**11,053**

Of the total other liabilities, €8,050 million (2019: €5,383 million) had residual maturities of more than five years. The 2020 amount consisted entirely of bonds, whereas the 2019 figure comprised €4,550 million in bonds as well as €833 million in payables to subsidiaries.

The total other liabilities included €105 million (2019: €72 million) in liabilities that did not legally come into being until after year end. These consisted almost entirely of accrued interest.

32. Deferred income

The deferred income comprised advance payments under licenses and settlement agreements as well as payments for services to be delivered in the future.

Other Information

33. Contingent liabilities

Liabilities arising from debt guarantees totaled €25,328 million (2019: €27,873 million). They were issued in favor of subsidiaries. Based on our knowledge of their respective economic situations, all of these companies are able to meet the underlying liabilities. The contingent liabilities are therefore not expected to materialize.

Debt Guarantees

	Dec. 31, 2019 Nominal amount	Dec. 31, 2019 € million	Dec. 31, 2020 Nominal amount	Dec. 31, 2020 € million
Guarantees for current and former Group companies				
Bayer Capital Corporation B.V., Netherlands				
– 1.250% DIP notes, maturing in 2023	EUR 500 million	500	EUR 500 million	500
– 0.009% DIP notes, maturing in 2022[1]	EUR 750 million	750	EUR 750 million	750
– 0.625% DIP notes, maturing in 2022	EUR 1,000 million	1,000	EUR 1,000 million	1,000
– 1.500% DIP notes, maturing in 2026	EUR 1,750 million	1,750	EUR 1,750 million	1,750
– 2.125% DIP notes, maturing in 2029	EUR 1,500 million	1,500	EUR 1,500 million	1,500
Bayer Corporation, U.S.A.				
– 6.650% notes, maturing in 2028	USD 350 million	311	USD 350 million	285
– Commercial paper	USD 827 million	736	USD 21 million	18
– Liabilities to banks	USD 86 million	77	USD 81 million	66
Bayer US Finance LLC, U.S.A.				
– 3.000% notes, maturing in 2021	USD 1,500 million	1,336	USD 1,500 million	1,222
– 3.375% notes, maturing in 2024	USD 1,750 million	1,558	USD 1,750 million	1,426
Bayer US Finance II LLC, USA				
– 3.500% notes, maturing in 2021	USD 1,250 million	1,113	USD 1,250 million	1,019
– 0.881% notes, maturing in 2021[2]	USD 1,250 million	1,113	USD 1,250 million	1,019
– 2.750% notes, maturing in 2021	USD 318 million	283	USD 318 million	259
– 2.200% notes, maturing in 2022	USD 189 million	168	USD 189 million	154
– 1.226% notes, maturing in 2023[3]	USD 1,250 million	1,113	USD 1,250 million	1,019
– 3.875% notes, maturing in 2023	USD 2,250 million	2,003	USD 2,250 million	1,834
– 3.375% notes, maturing in 2024	USD 609 million	543	USD 609 million	497
– 2.850% notes, maturing in 2025	USD 250 million	222	USD 250 million	204
– 5.500% notes, maturing in 2025	USD 276 million	246	USD 276 million	225
– 4.250% notes, maturing in 2025	USD 2,500 million	2,226	USD 2,500 million	2,038
– 4.375 % notes, maturing in 2028	USD 3,500 million	3,117	USD 3,500 million	2,853
– 4.200% notes, maturing in 2034	USD 427 million	380	USD 427 million	348
– 5.500% notes, maturing in 2035	USD 318 million	283	USD 318 million	259
– 5.875% notes, maturing in 2038	USD 212 million	189	USD 212 million	173
– 4.625% notes, maturing in 2038	USD 1,000 million	890	USD 1,000 million	815
– 3.600% notes, maturing in 2042	USD 241 million	214	USD 241 million	196
– 4.650% notes, maturing in 2043	USD 292 million	260	USD 292 million	238
– 4.400% notes, maturing in 2044	USD 916 million	816	USD 916 million	746
– 3.950% notes, maturing in 2045	USD 449 million	400	USD 449 million	366
– 4.875% notes, maturing in 2048	USD 2,000 million	1,781	USD 2,000 million	1,630
– 4.700% notes, maturing in 2064	USD 727 million	647	USD 727 million	592
Bayer Holding Ltd., Japan				
– 0.230% DIP bond, maturing in 2021	JPY 10 billion	82	JPY 10 billion	79
– 0.260% DIP bond, maturing in 2022	JPY 10 billion	82	JPY 10 billion	79
Monsanto Company, USA				
– Lease contracts	USD 120 million	107	USD 120 million	98
Silver Birch Trustees Ltd., U.K.[4]				
– Pension obligations	–	–	–	–
Bayer Real Estate GmbH, Germany				
– Contractual obligations to Bayer-Pensionskasse VVaG	EUR 68 million	68	EUR 64 million	64
Guarantees for other Group companies		9		7
		27,873		**25,328**

[1] 3-Months-Euribor +0.55%
[2] 3-Months-USD-Libor +0.63%
[3] 3-Months-USD-Libor +1.01%
[4] The guarantee is provided for the amount in excess of the assets.

Bayer AG issued commitments for its subsidiaries Bayer CropScience Deutschland GmbH and Monsanto Agrar Deutschland GmbH under which it assumed liability until the end of 2021 for obligations of these companies that arose in 2020. Based on our knowledge of their respective economic situations, these companies are able to meet the underlying obligations. The contingent liabilities are therefore not expected to materialize.

The company remains liable for pension obligations of €365 million (2019: €377 million) that were transferred to a subsidiary through a liability assumption agreement or via carve-outs. The company's liability in this regard is not expected to materialize. To our knowledge, the subsidiary concerned is able to meet the respective obligations.

In connection with the Contribution, Indemnification and Post-Formation Agreement between Bayer AG and Covestro AG, Germany, arrangements have been made to settle possible claims for taxes. These may result in corresponding liabilities.

In connection with the sale of the Animal Health business to Elanco Animal Health Incorporated, agreements were reached regarding the potential settlement of tax claims that may result in corresponding liabilities.

34. Other financial commitments

In addition to provisions, other liabilities and contingent liabilities, there were also other financial commitments.

A total commitment of €3,195 million (2019: €3,652 million) related to future leasing and rental payments. Of this amount, €3,040 million (2019: €3,483 million) related to lease contracts and rental agreements with subsidiaries. The total lease and rental commitments are due as follows:

Leasing and Rental Commitments

	€ million
2021	1,658
2022	200
2023	198
2024	199
2025	199
after 2025	741
	3,195

In 2008, the establishment of an "effective initial fund" totaling €800 million was agreed with Bayer-Pensionskasse in view of the increase in the present and future life expectancy of those insured with this pension fund. The effective initial fund entails the granting of repayable, interest-bearing loans to Bayer-Pensionskasse as required. In 2012, it was increased by €800 million to €1,600 million. Following payment of a total of €635 million, a loan commitment of €965 million remained.

In 2019, the establishment of an "effective initial fund" totaling €200 million was agreed with the Rheinische Pensionskasse for the first time, again in view of the increase in the present and future life expectancy of those insured with this pension fund. The effective initial fund entails the granting of repayable, interest-bearing loans to Rheinische Pensionskasse as required. Since no payments had yet been made, a loan commitment of €200 million remained.

Financial commitments resulting from orders already placed under purchase agreements related to planned or ongoing capital expenditure projects totaled €308 million (2019: €280 million). The respective payments are to be made through 2024, with €277 million due in 2021. Additional commitments to subsidiaries amounted to €2 million. All of the corresponding payments are due in 2021.

Furthermore, based on current estimates, payments of €4,956 million (2019: €4,658 million) will have to be made for license agreements and research collaborations in the coming years. The maturity spread of the total commitments comprised:

Collaboration Agreements

	€ million
2021	1,000
2022	110
2023	119
2024	122
2025	132
after 2025	3,473
	4,956

35. Derivatives/hedging relationships

In the course of their business, Bayer AG and companies in the Bayer Group are exposed to foreign exchange, interest-rate and price risks, which are hedged principally by means of derivatives. Most of these are over-the-counter (OTC) instruments. Derivative financial instruments are employed on the basis of uniform guidelines and are subject to strict internal controls. Apart from a few low-value exceptions, their use is confined to the hedging of the Bayer Group's operating business and of the related investments and financing transactions. The instruments used for currency hedging are mainly forward exchange contracts, currency options and cross-currency interest-rate swaps. Interest-rate swaps are used to hedge interest rates. Stock options are used to hedge fluctuations in the value of commitments to employees under stock-based compensation programs.

The main objective of using derivatives is to reduce fluctuations in earnings and cash flows associated with changes in foreign exchange rates, interest rates, share prices and market prices.

There is a risk that the value of derivatives could change as a result of fluctuations in underlying parameters such as exchange rates, interest rates, share prices or market prices. Where derivatives are designated as hedges, possible declines in their value are offset by corresponding increases in the value of the hedged contracts.

In the case of derivatives with a positive fair value, a credit or default risk arises if the counterparties cannot meet their obligations. To minimize this risk, contract limits are assigned to the individual banks according to their creditworthiness.

The notional amount of financial derivatives contracts concluded with external counterparties was €21.1 billion as of December 31, 2020 (2019: €19.9 billion). Back-to-back derivatives contracts in a notional amount of €6.5 billion (2019: €5.6 billion) were concluded with Group companies. Thus the total notional amount of derivatives was €27.6 billion (2019: €25.5 billion), including those forming hedging relationships. The derivatives comprised the following:

Derivatives

€ million	Notional amounts Dec. 31, 2019	Notional amounts Dec. 31, 2020	Positive fair values Dec. 31, 2019	Positive fair values Dec. 31, 2020	Negative fair values Dec. 31, 2019	Negative fair values Dec. 31, 2020
Currency contracts	23,555	23,870	111	194	(214)	(191)
Currency options	116	258	–	5	–	(6)
Cross-currency interest-rate swaps	376	306	1	43	(1)	(43)
Interest-rate swaps	200	2,300	6	3	–	(8)
Forward stock transactions	1,267	849	51	125	(61)	(163)
	25,514	**27,583**	**169**	**370**	**(276)**	**(411)**

Measurement methods

The fair values of financial derivatives are measured by the usual methods and based on the market data available at the measurement date. The following principles are applied:

// Currency contracts are measured individually at their forward rates on the closing date. The forward rates depend on spot rates, including time spreads.
// The fair values of currency options are determined using a Black-Scholes model.
// The fair values of interest-rate swaps are determined by discounting expected future cash flows. Discounting applies market interest rates for the remaining term of these instruments.
// The fair values of stock options are determined by a Monte Carlo simulation.

Hedging relationships

Due to existing and planned transactions, the company is subject to currency, interest rate and share price risks that in most cases are hedged through the use of financial derivatives that are pooled together to form hedging relationships. The table below presents the obligations that would arise without the hedging.

Hedging Relationships

€ million	Type of risk	Hedging relationship	Amount of the underlying transaction	Hedged risk Dec. 31, 2020
Hedging of currency risks through currency contracts and options				
– Assets and liabilities in foreign currencies	Currency risk	Macro-hedge	1,061	42
– Currency contracts passed on to Group companies	Currency risk	Portfolio hedge	5,929*	38
– Currency loans and deposits with Group companies	Currency risk	Portfolio-hedge	6,996	3
– Planned future sales	Currency risk	Micro-hedge	2,872	76
Hedging of currency risks through cross-currency interest-rate swaps				
– Cross-currency interest-rate swaps passed on to Group companies	Currency risk	Micro-hedge	176	43
Hedging of interest-rate risks through interest-rate swaps				
– Bonds	Interest-rate risk	Micro-hedge	200	3
Hedging of share-price risks from customized forward trade contracts				
– Customized forward trade contracts passed on to Group companies	Share price risk	Portfolio hedge	367*	0

* These figures pertain to the nominal volumes of the hedging transactions.

Currency-based portfolio hedges were also formed with the respective transactions underlying the hedges, which were concluded for Bayer AG. Provisions of €19.7 million were established for the negative ineffectiveness of micro-hedges. Currency contracts concluded to hedge Group companies' transactions are generally passed through to the respective companies by way of appropriate internal transactions. The effects of these internal and external transactions cancel each other out when the contracts are closed out. Currency-based portfolio hedges were formed. The underlying transactions mature in 2021. Cross-currency interest-rate swaps exist to hedge Group loans granted by Bayer World Investments B.V., Netherlands. As a result of back-to-back agreements with Bayer World Investments B.V., the positive and negative fair values within multiple portfolio hedges formed according to the different maturities of the cross-currency interest-rate swaps canceled each other out.

Interest-rate swaps in the form of receiver swaps were used partly to hedge the interest-rate risk relating to DIP bonds issued by Bayer AG. The swaps mature in the period through 2021 in line with the maturities of the bonds. They constituted a hedging relationship with the bonds, which were recognized in the statement of financial position. The effectiveness of the hedging relationship is examined prospectively and retrospectively using regression analysis. Since the cash flows relating to the hedged contract and the receiver swaps cancel each other out, the receiver swaps were not reflected in the statement of financial position. Bayer AG has concluded customized forward trade contracts with external counterparties to hedge a portion of the obligations arising from the Aspire 2.0 stock-based compensation program. These contracts were passed through to other companies in the Bayer Group. They expire between 2021 and 2023 in line with the duration of the respective Aspire 2.0 tranches. The contracts passed through to Group companies formed micro-hedges with the contracts concluded with external counterparties. The amounts resulting from these contracts therefore canceled each other out.

Derivatives that do not form hedging relationships

Financial derivatives that do not form hedging relationships were used to hedge a portion of the obligations arising from the Aspire 2.0 stock-based compensation program of Bayer AG. The customized forward trade contracts concluded for this purpose had a negative fair value of €37.6 million, which was recognized in provisions for impending losses. Also recognized there were the interest-rate swaps concluded at year end 2020 to hedge the bonds issued in January 2021. These led to an allocation of €8 million to provisions for impending losses.

Items in the statement of financial position and carrying amounts

The carrying amounts of hedging transactions that did not form hedging relationships or that led to ineffectiveness were recognized under the following items in the statement of financial position:

€ million	Item in the statement of financial position	Carrying amount Dec. 31, 2020
Options premiums paid	Other assets	5
Provisions for impending losses from forward exchange transactions	Other provisions	9
Provisions for impending losses from forward stock transactions	Other provisions	38
Provisions for impending losses from interest rate swaps	Other provisions	8
Options premiums received	Other liabilities	(1)

36. Legal risks

As a global company with a diverse business portfolio, the Bayer Group is exposed to numerous legal risks, particularly in the areas of product liability, competition and antitrust law, anticorruption, patent disputes, tax assessments and environmental matters. The outcome of any current or future proceedings cannot normally be predicted. It is therefore possible that legal or regulatory judgments or future settlements could give rise to expenses that are not covered, or not fully covered, by insurers' compensation payments and could significantly affect our sales and earnings. Legal proceedings we currently consider to be material are outlined below. The legal proceedings referred to do not represent an exhaustive list.

The legal risks outlined in the following are presented irrespective of whether claims are asserted or threatened solely or directly against Bayer AG, or only against Group companies. Nothing in the descriptions that follow represents an acknowledgement by Bayer AG of any legal responsibility whatsoever or, in particular, of a joint or contingent liability of Bayer AG for claims filed primarily or exclusively against Group companies. The legal risks described are those to which Bayer AG is exposed either directly or through subsidiaries.

Product-related litigation

Xarelto™: In the United States, a large number of plaintiffs alleged personal injuries from the use of Xarelto™, an oral anticoagulant for the treatment and prevention of blood clots. Alleged injuries include cerebral, gastrointestinal or other bleeding and death. Plaintiffs seek compensatory and punitive damages. They claim, among other things, that Xarelto™ is defective and that Bayer knew or should have known of these risks associated with the use of Xarelto™ and failed to adequately warn its users. In 2019, after prevailing in all six cases that went to trial, Bayer and Janssen Pharmaceuticals reached a global agreement to settle virtually all pending US cases for US$775 million. In January 2020, the settlement – split equally between the two companies – was fully funded and all pending appeals have been dismissed. The claims administrator has begun the process of fund allocation and dismissals of the settled cases will follow. Any remaining cases will need to satisfy requirements or be subject to dismissal.

As of February 3, 2021, eleven Canadian lawsuits relating to Xarelto™ seeking class action certification and one individual action had been served upon Bayer. Two of the proposed class actions have been certified. Bayer believes it has meritorious defenses and intends to defend itself vigorously.

Essure™: In the United States, a large number of lawsuits by users of Essure™, a medical device offering permanent birth control with a nonsurgical procedure, had been served upon Bayer. Plaintiffs allege personal injuries from the use of Essure™, including hysterectomy, perforation, pain, bleeding, weight gain, nickel sensitivity, depression and unwanted pregnancy, and seek compensatory and punitive damages.

By February 3, 2021, Bayer had reached agreements in principle with plaintiff law firms to resolve approximately 99% of the nearly 40,000 total filed and unfiled U.S. Essure™ claims involving women who allege device-related injuries. The settlements include all of the jurisdictions with significant volumes of Essure™ cases, including the state of California Joint Council Coordinated Proceedings (JCCP) and the Federal District Court for the Eastern District of Pennsylvania (EDPA). The company will pay approximately US$1.6 billion to resolve these claims, including an allowance for outstanding claims, and is in resolution discussions with counsel for the remaining plaintiffs. At the same time, we continue to support the safety and efficacy of the Essure™ device and are prepared to vigorously defend it in litigation where no amicable resolution can be achieved.

As of February 3, 2021, two Canadian lawsuits relating to Essure™ seeking class action certification had been served upon Bayer. One of the proposed class actions was certified. Certification in the other class action has been denied; the decision is not yet final. Bayer believes it has meritorious defenses and intends to defend itself vigorously.

Class actions over neonicotinoids in Canada: Proposed class actions against Bayer were filed in Quebec and Ontario (Canada) concerning crop protection products containing the active substances imidacloprid and clothianidin (neonicotinoids). The plaintiffs are honey producers, who have filed a proposed nationwide class action in Ontario and a Quebec-only class action in Quebec. Plaintiffs claim for compensatory damages and punitive damages and allege Bayer and another crop protection company were negligent in the design, development, marketing and sale of neonicotinoid pesticides. The proposed Ontario class action is in a very early procedural phase. In Quebec, a court certified a class proposed by plaintiffs in 2018. Bayer believes it has meritorious defenses and intends to defend itself vigorously.

Roundup™ (glyphosate): As of February 3, 2021, lawsuits from approximately 61,800 plaintiffs claiming to have been exposed to glyphosate-based products manufactured by Bayer's subsidiary Monsanto had been served upon Monsanto in the United States. Glyphosate is the active ingredient contained in a number of Monsanto's herbicides, including Roundup™-branded products. Plaintiffs allege personal injuries resulting from exposure to those products, including non-Hodgkin lymphoma (NHL) and multiple myeloma, and seek compensatory and punitive damages. Plaintiffs claim, inter alia, that the glyphosate-based herbicide products are defective and that Monsanto knew, or should have known, of the risks allegedly associated with such products and failed to adequately warn its users. Additional lawsuits are anticipated. The majority of plaintiffs have brought actions in state courts in Missouri and California. Cases pending in U.S. federal courts have been consolidated in an MDL in the Northern District of California for common pre-trial management.

In June 2020, Monsanto reached an agreement in principle with plaintiffs, without admission of liability, to settle most of the current Roundup™ litigation, involving most of the total approximately 125,000 then known filed and unfiled claims, and to put in place a mechanism to resolve potential future claims. The total costs of the executed and additional inventory settlements for all outstanding claims are currently expected to be up to US$9.6 billion. Monsanto continues in its efforts to reach settlement in a substantial number of the outstanding claims in the coming months. Monsanto may withdraw from the various settlement agreements if certain eligibility and participation rates are not satisfied. Plaintiffs who opt out of a settlement have the right to pursue their claims separately against the company.

As regards potential future litigation, the company intends to make an additional payment to support a separate class agreement between Monsanto and plaintiffs' counsel. In July 2020, Judge Chhabria of the U.S. District Court for the Northern District of California issued a pre-trial order raising concerns about certain aspects of the class settlement agreement and stating that he was tentatively inclined to deny the motion. The parties subsequently withdrew their motion, worked to comprehensively address the court's questions, and on February 3, 2021 filed with the court a revised class agreement and accompanying motion for preliminary approval of that settlement. Bayer remains strongly committed to a resolution that simultaneously addresses the current litigation on reasonable terms and provides a viable solution to manage and resolve future litigation.

The three cases that have so far gone to trial – Johnson, Hardeman and Pilliod – are continuing through the appeals process and are not covered by the settlement. In July 2020, the Court of Appeal of the State of California (First Appellate District) affirmed the judgment in favor of Johnson but reduced the total judgment from US$78.5 million to approximately US$20.5 million. The court reduced the total compensatory damages award from US$39.3 million to approximately US$10.25 million and the punitive damages award to the same amount. The parties have separately petitioned for appeal to the Supreme Court of California. In October 2020, the court denied the request to review the appeal. Both parties have the option to petition for appeal to the U.S. Supreme Court. Oral argument before the Ninth Circuit Court of Appeal in the first federal case to go to trial (Hardeman) took place in October 2020. A decision by the court is expected for mid-2021. Briefing is complete in the Pilliod case appeal, and no date for oral argument has yet been scheduled. Bayer is convinced that the verdicts are not supported by the evidence at trial and the law and therefore intends to pursue the appeals vigorously.

As of February 3, 2021, a total of 22 Canadian lawsuits relating to Roundup™ and 14 seeking class action certification had been served upon Bayer.

Bayer believes it has meritorious defenses and intends to defend the safety of glyphosate and our glyphosate-based formulations vigorously.

Dicamba: As of February 3, 2021, lawsuits from approximately 250 plaintiffs had been served upon Bayer's subsidiary Monsanto and co-defendant BASF in both state and federal courts in the United States alleging that Monsanto's XtendiMax™ herbicide as well as other products containing dicamba caused crop damage from off-target movement. Plaintiffs claim, inter alia, that Monsanto and BASF knew or should have known that the application of dicamba would cause such damage and failed to prevent it. In 2018, 35 separate cases were coordinated in an MDL before a federal court in Missouri; the number of cases in the MDL as of February 3, 2021, is approximately 80. In February 2020, the first trial in the MDL proceeding (Bader Farms) resulted in a US$265 million award to the plaintiff, consisting of compensatory damages of US$15 million and punitive damages of US$250 million. We disagreed with the decision and filed post-trial motions asking the court to vacate the entire verdict, order a new trial, and/or significantly reduce the punitive damages amount. There was no competent evidence presented at trial which showed that Monsanto's products were present on the farm and were responsible for the alleged losses. In November 2020, the court denied the post-trial motions but lowered the punitive damages from US$250 million to US$60 million and left intact the US$15 million compensatory award, thereby making the total award US$75 million. Both Monsanto and BASF are jointly and severally liable for the total US$75 million award. Monsanto has appealed to the U.S. Court of Appeals for the 8th Circuit.

In June 2020, Monsanto reached a global agreement with the plaintiffs to settle the dicamba litigation. The settlement provides for the payment of substantiated claims by soybean growers in crop years 2015–2020 who can demonstrate a yield loss due to the application of dicamba products over an Xtend crop. That portion of the settlement is capped at US$300 million. The settlement also provides additional funds of up to US$100 million to pay for claims of dicamba damage by growers of other, non-soybean crops, as well as attorneys' fees, litigation costs, and settlement administration. The settlement assumes a minimum participation rate of 97% of the existing dicamba cases and claims, failing which Monsanto has an option to cancel the settlement agreement. The Bader Farms case is not included in the settlement. In July 2020, a group of approximately 50 Texas vineyard growers approached Monsanto and asserted claims relating to alleged dicamba damage to their vineyards. Those claimants have not yet filed suit, and Monsanto has entered into a tolling and standstill agreement in order to evaluate their claims.

Insurance against statutory product liability claims

In connection with the above-mentioned product-related litigations, Bayer is insured against statutory product liability claims to the extent customary in the respective industries and has, based on the information currently available, taken corresponding accounting measures. The accounting measures relating to, in particular, Essure™, dicamba and Roundup™ (glyphosate) claims exceed the available insurance coverage.

Patent disputes

Adempas™: In 2018, Bayer filed patent infringement lawsuits in a U.S. federal court against Alembic Pharmaceuticals Limited, Alembic Global Holding SA, Alembic Pharmaceuticals, Inc. and INC Research, LLC (together "Alembic"), against MSN Laboratories Private Limited and MSN Pharmaceuticals Inc. (together "MSN") and against Teva Pharmaceuticals USA, Inc. and Teva Pharmaceutical Industries Ltd. (together "Teva"). In 2017, Bayer had received notices of an Abbreviated New Drug Application with a paragraph IV certification ("ANDA IV") pursuant to which Alembic, MSN and Teva each seek approval of a generic version of Bayer's pulmonary hypertension drug Adempas™ in the United States. In 2018, the court decided, upon a joint request by Bayer and Teva, that Bayer's patent is valid and infringed by Teva. This terminated the patent dispute with Teva. In 2019, the lawsuit against Alembic was dismissed after the expiry of the only patent at issue in the dispute with Alembic. The patent upheld in the proceeding against Teva continued to be at issue in the dispute with MSN. In December 2020, the parties entered into a settlement agreement pursuant to which MSN was granted a license under the relevant patents to market a generic version of Adempas™ tablets beginning on a date shortly before the expiration of Bayer's patent for the active ingredient in 2026 (or earlier under certain circumstances). This terminates the patent disputes regarding Adempas™.

Betaferon™/Betaseron™: In 2010, Bayer filed a complaint against Biogen Idec MA Inc. in a U.S. federal court seeking a declaration by the court that a patent issued to Biogen in 2009 is invalid and not infringed by Bayer’s production and distribution of Betaseron™, Bayer’s drug product for the treatment of multiple sclerosis. Biogen is alleging patent infringement by Bayer through Bayer’s production and distribution of Betaseron™ and Extavia™ and has sued Bayer accordingly. Bayer manufactures Betaseron™ and distributes the product in the United States. Extavia™ is also a drug product for the treatment of multiple sclerosis; it is manufactured by Bayer, but distributed in the United States by Novartis Pharmaceuticals Corporation, another defendant in the lawsuit. In 2016, the U.S. federal court decided a disputed issue regarding the scope of the patent in Biogen’s favor. Bayer disagrees with the decision, which may be appealed at the conclusion of the proceedings in the U.S. federal court. In 2018, a jury decided that Biogen’s patent is invalid at the end of a trial regarding Biogen’s claims against EMD Serono, Inc. (“Serono”) and Pfizer Inc. (“Pfizer”) for infringement of the same patent. In the same year, the court overturned the jury decision and granted judgment in favor of Biogen. Serono and Pfizer appealed. In September 2020, the U.S. Court of Appeals for the Federal Circuit decided that Biogen’s patent is invalid. Biogen may seek a review of the decision.

Jivi™ (BAY94-9027): In 2018, Nektar Therapeutics (“Nektar”), Baxalta Incorporated and Baxalta U.S., Inc. (together “Baxalta”) filed another complaint in a U.S. federal court against Bayer alleging that BAY94-9027, approved as Jivi™ in the United States for the treatment of hemophilia, infringes five patents by Nektar. The five patents are part of a patent family registered in the name of Nektar and further comprising a European patent application with the title “Branched polymers and their conjugates.” This patent family is different from the one at issue in the earlier patent disputes still pending in the United States and Germany. In 2018, Bayer filed a lawsuit in the administrative court of Munich, Germany, claiming rights to the European patent application based on a past collaboration between Bayer and Nektar in the field of hemophilia. In 2017, Baxalta and Nektar had already filed a complaint in the same U.S. federal court against Bayer alleging that BAY94-9027 infringes seven other patents by Nektar. The seven patents are part of a patent family registered in the name of Nektar and further comprising European patent applications with the title “Polymer-factor VIII moiety conjugates” which are at issue in a lawsuit Bayer had filed against Nektar in 2013 in the district court of Munich, Germany. In this proceeding, Bayer claims rights to the European patent applications based on a past collaboration between Bayer and Nektar in the field of hemophilia. However, Bayer believes that the patent families do not include any valid patent claim relevant for Jivi™. In parallel proceedings before the same U.S. district court over infringement of a Bayer patent by Baxalta’s hemophilia treatment Adynovate™, the court ordered Baxalta in 2019 to pay US$181 million to Bayer following a jury trial; the order is subject to an appeal filed by Baxalta.

Bollgard II RR Flex™/Intacta™: In 2019, the Cotton Producers Association of the State of Mato Grosso (AMPA) in Brazil filed a patent invalidity action in federal court seeking to invalidate four of Bayer's patents covering Bollgard II RR Flex™, a cotton technology owned by Bayer. In January 2020, the Brazilian patent office, in the court proceedings, acknowledged the validity of all four challenged patents. Two of the patents are also being challenged in administrative nullity proceedings before the Brazilian patent office. One of the patents, the promoter patent, is also at issue in a patent invalidation action filed in Brazilian federal court by the Soybean Growers Association from the State of Mato Grosso (Aprosoja/MT) in 2017 regarding the Intacta™ soybean technology. In addition to the patent invalidity claims, both lawsuits seek a refund of twice the amount of the paid royalties. Both lawsuits were filed as collective actions and are proceeding before the same federal judge. Bayer's Intacta™ soybean technology is further protected by two other patents, one of which has been challenged in administrative nullity proceedings before the Brazilian patent office by the Soybean Growers Association from the State of Rio Grande do Sul (Aprosoja/RS).

Bayer believes it has meritorious defenses in the above ongoing patent disputes and intends to defend itself vigorously.

Further legal proceedings

Trasylol™/Avelox™: A qui tam complaint relating to marketing practices for Trasylol™ (aprotinin) and Avelox™ (moxifloxacin) filed by a former Bayer employee is pending in the U.S. District Court in New Jersey. The case is proceeding with discovery. The U.S. government has declined to intervene at the present time.

Baycol™: A qui tam complaint (filed by the same relator as in the Trasylol™/Avelox™ complaint) asserting Bayer fraudulently induced a contract with the Department of Defense is pending in the U.S. District Court in Minnesota. The case is proceeding with discovery.

BASF arbitration: In 2019, Bayer was served with a request for arbitration by BASF SE. BASF alleges to have indemnification claims under the asset purchase agreements signed in 2017 and 2018 related to the divestment of certain Crop Science businesses to BASF. BASF alleges that particular cost items, including certain personnel costs, had not been appropriately disclosed and allocated to some of the divested businesses. Bayer believes it has meritorious defenses and intends to defend itself vigorously.

Newark Bay environmental matters: In the United States, Bayer is one of numerous parties involved in a series of claims brought by federal and state environmental protection agencies. The claims arise from operations by entities which historically were conducted near Newark Bay or surrounding bodies of water, or which allegedly discharged hazardous waste into these waterways or onto nearby land. Bayer and the other potentially responsible parties are being asked to remediate and contribute to the payment of past and future remediation or restoration costs and damages. In 2016, Bayer learned that two major potentially responsible parties had filed for protection under Chapter 11 of the U.S. Bankruptcy Code. While Bayer remains unable to determine the extent of its liability for these matters, this development is likely to adversely affect the share of costs potentially allocated to Bayer.

In the Lower Passaic River matter, a group of more than 60 companies including Bayer is investigating contaminated sediments in the riverbed under the supervision of the United States Environmental Protection Agency (EPA) and other governmental authorities. Future remediation will involve some form of dredging, the nature and scope of which are not yet defined, and potentially other tasks. Occidental Chemical Company ("OCC"), one of the parties potentially liable for cleanup costs in the Lower Passaic River, is performing the remedial design under a consent order with the EPA. Bayer will ultimately be asked to share in the cost of the investigation and the remediation work, which may be substantial if the final remedy involves extensive dredging and disposal of impacted sediments. Bayer, along with a number of other parties, is participating in an EPA-sponsored but non-binding allocation process before an independent allocator. In December 2020, the allocator issued its final report, which the company is evaluating. In 2018, OCC filed a lawsuit in New Jersey federal court seeking contribution and cost recovery from dozens of other potentially responsible parties, including a Bayer subsidiary, for past and future response costs. Discovery is proceeding and Bayer is currently unable to determine the extent of its liability in this matter. In the Newark Bay matter, OCC is currently conducting an investigation of sediments in Newark Bay under EPA supervision. The investigation is in a preliminary stage. Bayer has contributed to certain investigation costs in the past and may incur costs for future response activities in Newark Bay.

Bayer has also been notified by governmental authorities acting as natural resource trustees that it may have liability for natural resource damages arising from the contamination of the Lower Passaic River, Newark Bay and surrounding water bodies. Bayer is currently unable to determine the extent of its liability.

Asbestos: In many cases, plaintiffs allege that Bayer and co-defendants employed third parties on their sites in past decades without providing them with sufficient warnings or protection against the known dangers of asbestos. Additionally, a Bayer affiliate in the United States is the legal successor to companies that sold asbestos products until 1976. Union Carbide has agreed to indemnify Bayer for this liability. Similarly, Bayer's subsidiary Monsanto faces numerous claims based on exposure to asbestos at Monsanto premises without adequate warnings or protection and based on the manufacture and sale of asbestos-containing products. Bayer believes it has meritorious defenses and intends to defend itself vigorously.

PCBs: Bayer's subsidiary Monsanto has been named in lawsuits brought by various governmental entities in the United States claiming that Monsanto, Pharmacia and Solutia, collectively as a manufacturer of PCBs, should be responsible for a variety of damages due to PCBs in the environment, including bodies of water, regardless of how PCBs came to be located there. PCBs are chemicals that were widely used for various purposes until the manufacture of PCBs was prohibited by the EPA in the United States in 1979.

In June 2020, Bayer reached an agreement for a nation-wide class settlement to settle claims of approximately 2,500 municipal government entities across the United States for a total payment, including class benefits and attorney fees, of approximately US$650 million. This settlement assumes a minimum participation rate of 98% of all qualified municipal entities, failing which Monsanto will have the option to cancel the settlement agreement. In November 2020, the court denied, without prejudice, the motion for preliminary approval and identified certain discreet areas of concern. In December 2020, the parties filed a revised class agreement. This agreement will require court approval before it becomes effective.

Additionally, in June 2020, Bayer reached agreements to settle individual suits brought by the Attorneys General of the States of New Mexico and Washington, as well as the District of Columbia for a total amount of approximately US$170 million. Individual suits by Attorneys General of the States of Ohio, Pennsylvania, New Hampshire and Oregon remain pending. Bayer will continue its vigorous defense of any case that remains pending.

Monsanto also faces numerous lawsuits claiming personal injury and / or property damage due to use of and exposure to PCB products. Recently, we have seen an increasing number of claims and lawsuits alleging health damage due to exposure at the claimant's former or current workplace in buildings contaminated with PCB. We believe that we also have meritorious defenses in these matters and intend to defend ourselves vigorously.

Tax proceedings

Stamp taxes in Greece: In 2014, 2016 and 2017, a Greek administrative court of first instance dismissed Bayer's lawsuits against the assessment of stamp taxes and contingent penalties in a total amount of approximately €130 million on certain intra-Group loans to a Greek subsidiary. In November 2020, the Greek Supreme Court decided in favor of Bayer in all cases.

37. Related parties

Related parties are legal entities or natural persons that are able to exert influence on Bayer AG or over which Bayer AG exercises control or has a significant influence.

Transactions with related parties mainly comprise rental, service and financing transactions with subsidiaries, joint ventures and other affiliated companies, and with pension plans. Such transactions are conducted on market terms (arm's length principle).

Bayer AG has undertaken to provide jouissance right capital *(Genussrechtskapital)* totaling €150 million for Bayer-Pensionskasse. The entire amount remained drawn in both 2019 and 2020. Further, in 2008 the establishment of a repayable "effective initial fund" was agreed with Bayer-Pensionskasse. This was increased by €800 million to €1,600 million in 2012. The amount drawn as of December 31, 2020, was €635 million, and was thus unchanged from a year earlier. The establishment of a repayable "effective initial fund" has also been agreed with Rheinische Pensionskasse. The amount drawn as of December 31, 2020, was €3 million.

38. Disclosures pursuant to Section 6b Paragraph 2 of the German Energy Act

There were no unusual transactions in connection with energy supply that were of material significance for the net assets and results of operations of Bayer AG and required disclosure under Section 6b, Paragraph 2 of the German Energy Act (EnWG).

39. Audit fees

Information on audit fees for 2020 is provided in the Notes to the Consolidated Financial Statements of the Bayer Group. The exemption under Section 285, No. 17 of the German Commercial Code (HGB) is applied in this respect.

The fees for the financial statements audit services of Deloitte GmbH Wirtschaftsprüfungsgesellschaft primarily comprised those for the audits of the consolidated financial statements of the Bayer Group and of the financial statements of Bayer AG and its subsidiaries. The audit-related services and other audit work performed by Deloitte GmbH Wirtschaftsprüfungsgesellschaft in 2020 mainly concerned the sale of Animal Health and largely consisted of voluntary financial statements audits and audit reviews. In addition, other Deloitte companies performed financial statements audit services for subsidiaries of Bayer AG, compliance-related tax consultancy services that do not materially or directly impact the consolidated financial statements of the Bayer Group or the financial statements of Bayer AG.

40. Events of particular significance after the end of the fiscal year

On January 7, 2021, Bayer AG placed bonds with a total volume of €4 billion. The four tranches with volumes between €0.8 billion and €1.2 billion have maturities of four years, eight years, 10.5 years and 15 years and bear coupons of 0.050%, 0.375%, 0.625% and 1.000%, respectively.

The outstanding amount of US$3.8 billion from the syndicated credit facility drawn in June 2018 as bridge financing for the acquisition of Monsanto was repaid in full in January 2021.

The remaining shares in Covestro AG (5.4 million shares) were sold in January 2021.

41. Total compensation of the Board of Management and the Supervisory Board and loans

The total compensation of the members of the Board of Management serving in 2020 comprised:

Total Compensation of the Board of Management

€ thousand	2019	2020
Fixed compensation	6,615	5,070
Fringe benefits	1,612	1,651
Short-term variable cash compensation	7,049	2,963
Long-term stock-based cash compensation (Aspire)[1]	10,864	7,605
Aggregate compensation	**26,140**	**17,289**
Pension service cost[2]	2,753	2,285

[1] Fair value at the grant date
[2] Including company contribution to Bayer-Pensionskasse VVaG or Rheinische Pensionskasse VVaG

The total compensation of the Board of Management included €557 thousand (2019: €551 thousand) in fixed compensation, €435 thousand (2019: €374 thousand) in fringe benefits, €525 thousand (2019: €643 thousand) in short-term variable cash compensation, and €836 thousand (2019: €827 thousand) in long-term stock-based cash compensation that members of the Board of Management received from our subsidiary Bayer Consumer Care AG, Switzerland. Of the pension service cost, €182 thousand (2019: €256 thousand) pertained to commitments at subsidiaries outside of Germany.

Members of the Board of Management participate in stock-based compensation programs (Aspire). These are four-year programs under which entitlements are earned in stages. The fair value of these programs at the time they are granted forms part of the overall compensation package and is shown in the above overview as “long-term stock-based cash compensation (Aspire).” The entitlements earned in 2020 under the stock-based compensation programs granted in 2020 and under those from previous years are shown separately in the table below. In addition, the changes in the value of entitlements from stock-based compensation programs earned prior to 2020 are shown separately. The Aspire 3.0 successor program is described in Note 11.

The expense for the respective year contained the following components relating to long-term variable cash compensation based on virtual Bayer shares and long-term stock-based cash compensation (Aspire) that differ from the amounts included in aggregate compensation:

Multi-Year Variable Compensation of the Board of Management

€ thousand	2019	2020
Long-term stock-based cash compensation (Aspire)		
– Entitlements earned in the fiscal year	7,889	7,605
– Change in the value of entitlements earned in previous years	(157)	(2,530)
	7,732	**5,075**
Expense	**7,732**	**5,075**

Within the long-term stock-based cash compensation (Aspire), €569 thousand (2019: €359 thousand) of the entitlements earned in 2020 and minus €186 thousand (2019: €2 thousand) of the changes in the value of entitlements earned in previous years pertained to entitlements against our subsidiary Bayer Consumer Care AG, Switzerland.

At Bayer AG, expenses for pension entitlements granted to the members of the Board of Management serving in 2020 amounted to €2,103 thousand (2019: €2,496 thousand). These comprised the service cost for pension commitments and company contributions to Bayer-Pensionskasse and Rheinische Pensionskasse. The interest portion of entitlements earned in prior years and actuarial gains and losses also had an impact. Including these components, the financial expense was €6,002 thousand (2019: €5,694 thousand). Provisions for pension obligations on the closing date were €25,322 thousand (2019: €28,827 thousand).

Pension payments to former members of the Board of Management and their surviving dependents in 2020 amounted to €12,151 thousand (2019: €11,911 thousand). Provisions for pensions and similar commitments to former members of the Board of Management and their surviving dependents amounting to €171,388 thousand (2019: €160,082 thousand) were reflected in the statement of financial position of Bayer AG.

The total compensation of the Supervisory Board in 2020 was €3,866 thousand (2019: €3,939 thousand). This included attendance fees of €27 thousand (2019: €132 thousand).

There were no loans to members of the Board of Management or the Supervisory Board as of December 31, 2020, nor were any loans repaid during the year.

Details of the compensation of the Board of Management and Supervisory Board are set out in the compensation report, which forms part of the Combined Management Report of the Bayer Group and Bayer AG.

42. Proposal for the use of the distributable profit

The Board of Management and Supervisory Board propose that the distributable profit of €1,965 million reported in the financial statements of Bayer AG be used to pay a dividend of €2.00 per share carrying dividend rights (982,424,082 shares) on the capital stock of €2,515 million entitled to the dividend for 2020 and thus that a payout of €1,964,858,164 be made.

Responsibility Statement

To the best of our knowledge, and in accordance with the applicable reporting principles, the financial statements give a true and fair representation of the assets, liabilities, financial position and profit or loss of the company, and the Combined Management Report includes a fair review of the development and performance of the business and the position of the Bayer Group and Bayer AG, together with a description of the principal opportunities and risks associated with the expected development of Bayer Group and Bayer AG.

Leverkusen, February 16, 2021
Bayer Aktiengesellschaft

The Board of Management

Werner Baumann   Liam Condon   Sarena Lin

Wolfgang Nickl   Stefan Oelrich   Heiko Schipper

Governance Bodies

Supervisory Board

Members of the Supervisory Board held offices as members of the supervisory board or a comparable supervising body of the corporations listed (as at December 31, 2020, or the date on which they ceased to be members of the Supervisory Board of Bayer AG) and as shown attended the meetings of the Supervisory Board and committees to which he or she belonged.

Prof. Dr. Norbert Winkeljohann
Osnabrück, Germany
(born November 5, 1957)

Chairman of the Supervisory Board effective April 2020

Member of the Supervisory Board effective May 2018

Independent management consultant

Memberships on other supervisory boards:

- Bohnenkamp AG (Chairman) (effective April 2020)
- Deutsche Bank AG
- Georgsmarienhütte Holding GmbH
- heristo aktiengesellschaft (Chairman) (until January 2021)
- Sievert AG (Chairman)

Attendance at Supervisory Board and committee meetings: 19 of 19

Werner Wenning
Leverkusen, Germany
(born October 21, 1946)

Chairman of the Supervisory Board until April 2020

Chairman of the Supervisory Board of Bayer AG

Memberships on other supervisory boards:

- Henkel Management AG
- Siemens AG (Vice Chairman)

Memberships in comparable supervising bodies of German or foreign corporations:

- Henkel AG & Co. KGaA (Shareholders' Committee)

Attendance at Supervisory Board and committee meetings: 8 of 8

Oliver Zühlke
Solingen, Germany
(born December 11, 1968)

Vice Chairman of the Supervisory Board effective July 2015

Member of the Supervisory Board effective April 2007

Chairman of the Bayer Central Works Council

Attendance at Supervisory Board and committee meetings: 15 of 19

Dr. Paul Achleitner
Munich, Germany
(born September 28, 1956)

Member of the Supervisory Board effective April 2002

Chairman of the Supervisory Board of Deutsche Bank AG

Memberships on other supervisory boards:

- Daimler AG (until July 2020)
- Deutsche Bank AG (Chairman)

Memberships in comparable supervising bodies of German or foreign corporations:

- Henkel AG & Co. KGaA (Shareholders' Committee)

Attendance at Supervisory Board and committee meetings: 15 of 16

Dr. rer. nat. Simone Bagel-Trah
Düsseldorf, Germany
(born January 10, 1969)

Member of the Supervisory Board effective April 2014

Chairwoman of the Supervisory Board of Henkel AG & Co. KGaA and Henkel Management AG and of the Shareholders' Committee of Henkel AG & Co. KGaA

Memberships on other supervisory boards:

- Henkel AG & Co. KGaA (Chairwoman)
- Henkel Management AG (Chairwoman)
- Heraeus Holding GmbH

Memberships in comparable supervising bodies of German or foreign corporations:

- Henkel AG & Co. KGaA (Shareholders' Committee, Chairwoman)

Attendance at Supervisory Board and committee meetings: 10 of 10

Horst Baier*
Hannover, Germany
(born October 20, 1956)

Member of the Supervisory Board effective April 2020

Independent consultant

Memberships in comparable supervising bodies of German or foreign corporations:

- DIAKOVERE gGmbH
- Ecclesia Holding GmbH
- Whitbread PLC (Board of Directors)

Attendance at Supervisory Board and committee meetings: 12 of 12

Dr. Norbert W. Bischofberger
Hillsborough, U.S.A.
(born January 10, 1956)

Member of the Supervisory Board effective April 2017

President and Chief Executive Officer of Kronos Bio, Inc.

Memberships in comparable supervising bodies of German or foreign corporations:

- InCarda Therapeutics, Inc. (Board of Directors) (until February 2020)
- Kronos Bio, Inc. (Board of Directors)
- Morphic Therapeutic, Inc. (Board of Directors)

Attendance at Supervisory Board and committee meetings: 13 of 13

André van Broich
Dormagen, Germany
(born June 19, 1970)

Member of the Supervisory Board effective April 2012

Chairman of the Bayer Group Works Council

Chairman of the Works Council of the Dormagen site

Attendance at Supervisory Board and committee meetings: 18 of 18

Ertharin Cousin
Chicago, U.S.A.
(born May 12, 1957)

Member of the Supervisory Board effective October 2019

Independent consultant

Memberships in comparable supervising bodies of German or foreign corporations:

- Camelot North America (Board of Directors)

Attendance at Supervisory Board meetings: 10 of 10

Dr. Thomas Elsner
Düsseldorf, Germany
(born April 24, 1958)

Member of the Supervisory Board effective April 2017

Chairman of the Bayer Group Managerial Employees' Committee

Chairman of the Managerial Employees' Committee of Bayer AG Leverkusen

Attendance at Supervisory Board and committee meetings: 16 of 16

Johanna W. (Hanneke) Faber
Amstelveen, Netherlands
(born April 19, 1969)

Member of the Supervisory Board effective April 2016

President Foods & Refreshments at Unilever N.V./plc

Attendance at Supervisory Board meetings: 9 of 10

Colleen A. Goggins
Princeton, U.S.A.
(born September 9, 1954)

Member of the Supervisory Board effective April 2017

Independent consultant

Memberships in comparable supervising bodies of German or foreign corporations:

- The Toronto-Dominion Bank (Board of Directors)
- IQVIA Holdings Inc. (Board of Directors)
- SIG Combibloc Services AG (Board of Directors)

Attendance at Supervisory Board and committee meetings: 11 of 12

Robert Gundlach
Velten, Germany
(born November 23, 1957)

Member of the Supervisory Board effective December 2019

Chairman of the Works Council of the Berlin site

Attendance at Supervisory Board and committee meetings: 10 of 10

Heike Hausfeld
Leverkusen, Germany
(born September 19, 1965)

Member of the Supervisory Board effective April 2017

Chairwoman of the Works Council of the Leverkusen site

Memberships on other supervisory boards:

- Bayer Business Services GmbH (Vice Chairwoman) (until July 2020)

Attendance at Supervisory Board and committee meetings: 12 of 13

Reiner Hoffmann
Wuppertal, Germany
(born May 30, 1955)

Member of the Supervisory Board effective October 2006

Chairman of the German Trade Union Confederation

Attendance at Supervisory Board meetings: 10 of 10

Frank Löllgen
Cologne, Germany
(born June 14, 1961)

Member of the Supervisory Board effective November 2015

North Rhine District Secretary of the German Mining, Chemical and Energy Industrial Union

Memberships on other supervisory boards:

- Evonik Industries AG
- IRR-Innovationsregion Rheinisches Revier GmbH

Attendance at Supervisory Board and committee meetings: 6 of 14

Prof. Dr. Wolfgang Plischke
Aschau im Chiemgau, Germany
(born September 15, 1951)

Member of the Supervisory Board effective April 2016

Independent consultant

Memberships on other supervisory boards:

- Evotec SE (Chairman)

Attendance at Supervisory Board and committee meetings: 17 of 17

Petra Reinbold-Knape
Gladbeck, Germany
(born April 16, 1959)

Member of the Supervisory Board effective April 2012

Member of the Executive Committee of the German Mining, Chemical and Energy Industrial Union

Memberships on other supervisory boards:

- Covestro AG (effective January 2020)
- Covestro Deutschland AG (effective January 2020
- Lausitz Energie Bergbau AG (Vice Chairwoman) (until July 2020)
- Lausitz Energie Kraftwerk AG (Vice Chairwoman) (until July 2020)

Attendance at Supervisory Board and committee meetings: 15 of 15

Andrea Sacher
Berlin, Germany
(born May 8, 1981)

Member of the Supervisory Board effective September 2020

Vice Chairwoman of the Works Council of the Berlin site

Vice Chairwoman of the Bayer Central Works Council (effective December 2020)

Attendance at Supervisory Board meetings: 6 of 6

Sabine Schaab
Mettmann, Germany
(born June 25, 1966, died August 4, 2020)

Member of the Supervisory Board until August 2020

Vice Chairwoman of the Works Council of the Elberfeld site

Attendance at Supervisory Board and committee meetings: 4 of 5

Michael Schmidt-Kießling
Schwelm, Germany
(born March 24, 1959)

Member of the Supervisory Board effective April 2012

Chairman of the Works Council of the Elberfeld site

Attendance at Supervisory Board meetings: 10 of 10

Prof. Dr. med. Dr. h.c. mult. Otmar D. Wiestler
Berlin, Germany
(born November 6, 1956)

Member of the Supervisory Board effective October 2014

President of the Hermann von Helmholtz Association of German Research Centres e.V.

Attendance at Supervisory Board and committee meetings: 13 of 13

* Expert member pursuant to Section 100, Paragraph 5 of the German Stock Corporation Act (AktG)

Standing committees of the Supervisory Board of Bayer AG (as at December 31, 2020)

Presidial Committee/ Mediation Committee
Winkeljohann (Chairman), Achleitner, Reinbold-Knape, Zühlke

Audit Committee
Baier* (Chairman), Elsner, Löllgen, Plischke, Winkeljohann, Zühlke

Human Resources Committee
Winkeljohann (Chairman), Achleitner, van Broich, Hausfeld

Nomination Committee
Winkeljohann (Chairman), Achleitner, Bagel-Trah, Goggins

Innovation Committee
Plischke (Chairman), Bischofberger, van Broich, Gundlach, Reinbold-Knape, Winkeljohann Wiestler, Zühlke

Glyphosate Litigation Committee
Winkeljohann (Chairman), Achleitner, Baier*, van Broich, Elsner, Goggins, Reinbold-Knape, Zühlke

Board of Management

Members of the Board of Management held offices as members of the supervisory board or a comparable supervising body of the corporations listed (as at February 25, 2021, inclusion of newly appointed Board of Management member due to appointment prior to the date the financial statements were prepared):

Werner Baumann
(born October 6, 1962)

Member of the Board of Management effective January 1, 2010, appointed until April 30, 2024

Chairman

Labor Director until January 31, 2021

Liam Condon
(born February 27, 1968)

Member of the Board of Management effective January 1, 2016, appointed until December 31, 2023

Crop Science

Sarena Lin
(born January 9, 1971)

Member of the Board of Management effective February 1, 2021, appointed until January 31, 2024

Transformation and Talent

Labor Director effective February 1, 2021

Wolfgang Nickl
(born May 9, 1969)

Member of the Board of Management effective April 26, 2018, appointed until April 25, 2025

Finance

- Bayer Business Services GmbH (Chairman) (until July 2020)

Stefan Oelrich
(born June 1, 1968)

Member of the Board of Management effective November 1, 2018, appointed until October 31, 2021

Pharmaceuticals

- InforMed Data Systems Inc. (Board of Directors)

Heiko Schipper
(born August 21, 1969)

Member of the Board of Management effective March 1, 2018, appointed until February 28, 2025

Consumer Health

- Royal FrieslandCampina N.V.

Independent Auditor's Report

To Bayer Aktiengesellschaft, Leverkusen/Germany

REPORT ON THE AUDIT OF THE ANNUAL FINANCIAL STATEMENTS AND THE COMBINED MANAGEMENT REPORT

Audit opinions

We have audited the annual financial statements of Bayer Aktiengesellschaft, Leverkusen/Germany, which comprise the statement of financial position as at December 31, 2020, and the statement of profit and loss for the financial year from January 1 to December 31, 2020, and the notes to the financial statements, including the presentation of the recognition and measurement policies. In addition, we have audited the combined management report of Bayer Aktiengesellschaft, Leverkusen/Germany, for the financial year from January 1 to December 31, 2020. In accordance with the German legal requirements, we have not audited the content of those parts of the combined management report set out in the appendix to the auditor's report.

In our opinion, on the basis of the knowledge obtained in the audit,

// the accompanying annual financial statements comply, in all material respects, with the requirements of German commercial law applicable to business corporations and give a true and fair view of the assets, liabilities and financial position of the Company as at December 31, 2020 and of its financial performance for the financial year from January 1 to December 31, 2020 in compliance with German Legally Required Accounting Principles, and

// the accompanying combined management report as a whole provides an appropriate view of the Company's position. In all material respects, this combined management report is consistent with the annual financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. Our audit opinion on the combined management report does not cover the content of those parts of the combined management report set out in the appendix to the auditor's report.

Pursuant to Section 322 (3) sentence 1 German Commercial Code (HGB), we declare that our audit has not led to any reservations relating to the legal compliance of the annual financial statements and of the combined management report.

Basis for the audit opinions

We conducted our audit of the annual financial statements and of the combined management report in accordance with Section 317 HGB and the EU Audit Regulation (No 537/2014; referred to subsequently as "EU Audit Regulation") and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW). We performed the audit of the annual financial statements in supplementary compliance with the International Standards on Auditing (ISA). Our responsibilities under those requirements, principles and standards are further described in the "Auditor's Responsibilities for the Audit of the Annual Financial Statements and of the Combined Management Report" section of our auditor's report. We are independent of the Company in accordance with the requirements of European law and German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. In addition, in accordance with Article 10 (2) letter (f) of the EU Audit Regulation, we declare that we have not provided non-audit services prohibited under Article 5 (1) of the EU Audit Regulation. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions on the annual financial statements and on the combined management report.

Key Audit Matters in the Audit of the Annual Financial Statements

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the annual financial statements for the financial year from January 1 to December 31, 2020. These matters were addressed in the context of our audit of the annual financial statements as a whole and in forming our audit opinion thereon; we do not provide a separate audit opinion on these matters.

In the following, we present the key audit matters we have determined in the course of our audit:

1. depiction of restructuring matters, and
2. impairment of investments in subsidiaries companies.

Our presentation of these key audit matters has been structured as follows:

a) description (including reference to corresponding information in the annual financial statements), and
b) auditor's response.

1. Depiction of restructuring matters

a) At the end of 2018, the executive directors of Bayer Aktiengesellschaft announced a comprehensive restructuring program for the entire Group. The program essentially involves the cutback of up to 12,000 jobs in the next three financial years. A not inconsiderable part of the job cuts is attributable to Germany, where redundancies for operational reasons are excluded until 2025 owing to works agreements. Following initial discussions with the employee committees and with the employees of the divisions concerned in the prior years, almost all employees of the divisions concerned were finally identified and informed in the reporting period, and appropriate termination agreements have already been signed with them. In addition, Bayer Aktiengesellschaft announced another restructuring program in late September 2020 that is to generate group-wide savings of up to bEUR 1.5 by 2024. As a consequence, further redundancies in Germany are likely. As of December 31, 2020, Bayer Aktiengesellschaft reported a provision in the total amount of mEUR 1,085 for the severance payment obligations specified by the end of the financial year. In our view, this matter was of particular importance for our audit, as the recognition and measurement of the provision are to a large extent based on discretionary estimates and assumptions made by the executive directors.

   The information provided by the legal executives on the restructuring provision is contained in section 26 of the notes.

b) We examined whether a provision for uncertain liabilities has correctly been recognized for the matters in accordance with Sec. 249 (1) sentence 1 HGB, and whether the amount of the provision is justified. For this purpose, we examined whether an external obligation exists that was legally or economically caused in the financial year and which is expected to be claimed. During our audit, we assessed whether these recognition criteria were met and whether the restructuring provisions were measured appropriately. For this purpose, we verified the corresponding evidence and calculation documents of the executive directors. We critically assessed and verified the plausibility of the executive directors' estimates and assumptions on which the evidence and calculation principles are based as to the extent to which the recognition and the measurement of the provisions are appropriate. In particular in respect of the new restructuring program announced in September 2020, we evaluated evidence (resolutions, minutes, presentations) on the implementation status and the negotiations with employees and employee representatives for the purpose of assessing the recognition criteria under German commercial law, mainly as to whether the employees were sufficiently informed thereby in concrete terms about the restructuring program and individual components of the planned restructuring measures. For the termination agreements already concluded with employees in relation to the first restructuring program implemented in 2018, we examined whether the provisions formed for this purpose result from the underlying contractual agreements. Where individual termination agreements have not yet been concluded, in order to check the plausibility of the amount of the provisions, we have, among other things, analyzed the restructuring programs developed in the personnel departments for job cuts with respect to the assumptions made regarding the scope and amount of the severance offers to employees and the expected acceptance rates – also on the basis of experience to date or contracts actually concluded – and discussed them with the per-sons responsible in the personnel departments.

2. Impairment of investments in subsidiaries

a) As of December 31, 2020, the annual financial statements of Bayer Aktiengesellschaft show investments in subsidiaries amounting to bEUR 49.3 (59.2% of total assets). Bayer Aktiengesellschaft carried out impairment testing on the carrying amounts of the investments in affiliated companies as of the closing date by performing internal company valuations. For material investments in subsidiaries, Bayer Aktiengesellschaft principally calculates a total enterprise value, which is adjusted by the Company's net financial position. The equity value determined in this way is compared with the respective carrying amount of the investments and written down to the lower fair value where any decline in value is permanent. The total enterprise values are generally calculated as the present value of the future cash flows expected by the executive directors, using discounted cash flow models. The total enterprise values depend in particular on the executive directors' estimate of the future cash flows, the discount rates and growth rates used in each case, and the calculation of the net financial position. The valuations are therefore fraught with uncertainties. Even minor changes in the assumptions used can have material effects. Against this background and in view of the material significance for the assets, liabilities and the financial performance of Bayer Aktiengesellschaft, this matter was of particular importance in the context of our audit.

   Information on the investments and their recoverability given by the executive directors is contained in chapter 4 and in chapter 15 of the notes to the financial statements.

b) During our audit, we obtained an understanding of the Company's process underlying the impairment testing for investments held in subsidiaries. Among other things, we assessed whether the respective valuation models used to determine the overall enterprise value appropriately reflect the conceptual requirements of the relevant valuation standards, and whether the calculations in the models are performed correctly. Further, we satisfied ourselves that the fair values were properly determined in accordance with the relevant valuation standards. For this purpose, we examined, among other things, whether the future cash flows used and the cost of capital recognized represent an appropriate basis overall. Our assessment was based, among other things, on a comparison with general and industry-specific market expectations and extensive explanations by the executive directors of the key value drivers and planning premises. We also checked the parameters used to determine the discount rate by comparing them with market data and reproduced the calculation scheme logically and arithmetically.

Other information

The executive directors and the supervisory board are responsible for the other information. The other information comprises:

// the unaudited content of those parts of the combined management report specified in the appendix to the auditor's report, and
// the executive directors' confirmation pursuant to Section 264 (2) sentence 3 and Section 289 (1) sentence 5 HGB, respectively, regarding the annual financial statements and the combined management report.

Our audit opinions on the annual financial statements and on the combined management report do not cover the other information, and consequently we do not express an audit opinion or any other form of assurance conclusion thereon.

The executive directors and the supervisory board as well are responsible for the declaration according to Section 161 German Stock Corporation Act (AktG), which is part of the corporate governance statement included in section "Corporate Governance Report" of the combined management report. Apart from that the executive directors are responsible for the other information.

In connection with our audit, our responsibility is to read the other information set out above and, in so doing, to consider whether the other information

- // is materially inconsistent with the annual financial statements, the audited content of the combined management report 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.

Responsibilities of the Executive Directors and the Supervisory Board for the Annual Financial Statements and the Combined Management Report

The executive directors are responsible for the preparation of the annual financial statements that comply, in all material respects, with the requirements of German commercial law applicable to business corporations, and that the annual financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Company in compliance with German Legally Required Accounting Principles. In addition, the executive directors are responsible for such internal control as they, in accordance with German Legally Required Accounting Principles, have determined necessary to enable the preparation of annual financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the annual financial statements, the executive directors are responsible for assessing the Company's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting, provided no actual or legal circumstances conflict therewith.

Furthermore, the executive directors are responsible for the preparation of the combined management report that as a whole provides an appropriate view of the Company's position and is, in all material respects, consistent with the annual financial statements, complies with German legal requirements, and appropriately presents the opportunities and risks of future development. In addition, the executive directors are responsible for such arrangements and measures (systems) as they have considered necessary to enable the preparation of a combined management report that is in accordance with the applicable German legal requirements, and to be able to provide sufficient appropriate evidence for the assertions in the combined management report.

The supervisory board is responsible for overseeing the Company's financial reporting process for the preparation of the annual financial statements and of the combined management report.

Auditor's Responsibilities for the Audit of the Annual Financial Statements and of the Combined Management Report

Our objectives are to obtain reasonable assurance about whether the annual financial statements as a whole are free from material misstatement, whether due to fraud or error, and whether the combined management report as a whole provides an appropriate view of the Company's position and, in all material respects, is consistent with the annual financial statements and the knowledge obtained in the audit, complies with the German legal requirements and appropriately presents the opportunities and risks of future development, as well as to issue an auditor's report that includes our audit opinions on the annual financial statements and on the combined management report.

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Section 317 HGB and the EU Audit Regulation and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) and in supplementary compliance with the ISA will always detect a material misstatement. 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 annual financial statements and this combined management report.

We exercise professional judgment and maintain professional skepticism throughout the audit. We also

// identify and assess the risks of material misstatement of the annual financial statements and of the combined management report, 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 audit opinions. 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 controls.
// obtain an understanding of internal control relevant to the audit of the annual financial statements and of arrangements and measures relevant to the audit of the combined management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an audit opinion on the effectiveness of these systems of the Company.
// evaluate the appropriateness of accounting policies used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.
// conclude on the appropriateness of the executive 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 Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the annual financial statements and in the combined management report or, if such disclosures are inadequate, to modify our respective audit 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 Company to cease to be able to continue as a going concern.
// evaluate the overall presentation, structure and content of the annual financial statements, including the disclosures, and whether the annual financial statements present the underlying transactions and events in a manner that the annual financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Company in compliance with German Legally Required Accounting Principles.
// evaluate the consistency of the combined management report with the annual financial statements, its conformity with German law, and the view of the Company's position it provides.
// perform audit procedures on the prospective information presented by the executive directors in the combined management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate audit opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance 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 those charged with governance with a statement that we have complied with the relevant independence requirements, and communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, the related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the annual 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.

OTHER LEGAL AND REGULATORY REQUIREMENTS

Report on the Audit of the Electronic Files of the Annual Financial Statements and of the Combined Management Report prepared for Publication pursuant to Section 317 (3b) HGB

Audit Opinion

In accordance with Section 317 (3b) HGB, we have assessed with reasonable assurance whether the electronic files of the annual financial statements and of the combined management report (hereafter referred to as "ESEF files") prepared for publication, contained in the accompanying file, which has the SHA-256 value D1F4DDE46CFB70F3E887A5D11267237A06F93278BE57C70C33B6C8BCB401776F, meet in all material respects, the requirements concerning the electronic reporting format ("ESEF format") pursuant to Section 328 (1) HGB. In accordance with the German legal requirements, this audit only covers the transfer of the annual financial statements' and the combined management report's information into the ESEF format, and therefore covers neither the information contained in these files nor any other information contained in the file stated above.

In our opinion, the electronic files of the annual financial statements and of the combined management report prepared for publication contained in the accompanying file stated above meet, in all material respects, the requirements concerning the electronic reporting format pursuant to Section 328 (1) HGB. Beyond this audit opinion and our audit opinions on the accompanying annual financial statements and on the accompanying combined management report for the financial year from January 1 to December 31, 2020 contained in the above "Report on the Audit of the Annual Financial Statements and of the Combined Management Report", we do not express any audit opinion on the information contained in these electronic files and on any other information contained in the file stated above.

Basis for the Audit Opinion

We conducted our audit of the electronic files of the annual financial statements and of the combined management report contained in the accompanying file stated above in accordance with Section 317 (3b) HGB and on the basis of the IDW Draft Auditing Standard: Audit of the Electronic Files of the Annual Financial Statements and of the Management Report prepared for Publication pursuant to Section 317 (3b) HGB (IDW Draft AuS 410). Our responsibilities in this context are further described in the section "Auditor's Responsibilities for the Audit of the ESEF Files". Our audit firm has applied the Quality Assurance Standard: Quality Assurance Requirements in Audit Practices (IDW QS 1) promulgated by the Institut der Wirtschaftsprüfer (IDW).

Responsibilities of the Executive Directors and the Supervisory Board for the ESEF Files

The executive directors of the Company are responsible for the preparation of the ESEF files based on the electronic files of the annual financial statements and of the combined management report according to Section 328 (1) sentence 4 no. 1 HGB.

In addition, the executive directors of the Company are responsible for such internal control as they have determined necessary to enable the preparation of ESEF files that are free from material violations against the requirements concerning the electronic reporting format pursuant to Section 328 (1) HGB, whether due to fraud or error.

The executive directors of the Company are also responsible for the submission of the ESEF files together with the auditor's report and the accompanying audited annual financial statements and the audited combined management report as well as other documents to be filed with the publisher of the Federal Gazette.

The supervisory board is responsible for overseeing the preparation of the ESEF files as part of the financial reporting process.

Auditor's Responsibilities for the Audit of the ESEF Files

Our objectives are to obtain reasonable assurance about whether the ESEF files are free from material violations, whether due to fraud or error, against the requirements pursuant to Section 328 (1) HGB. We exercise professional judgment and maintain professional skepticism throughout the audit. We also

- // identify and assess the risks of material violations against the requirements pursuant to Section 328 (1) HGB, 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 audit opinion.
- // obtain an understanding of internal control relevant to the audit of the ESEF files in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an audit opinion on the effectiveness of these controls.
- // assess the technical validity of the ESEF files, i.e. whether the file containing the ESEF files meets the requirements of the Delegated Regulation (EU) 2019/815 in the version applicable as of the balance sheet date as to the technical specification of this file.
- // evaluate whether the ESEF files enable a XHTML copy of the audited annual financial statements and of the audited combined management report whose content is identical with these documents.

Report on the Audit of Compliance with the Accounting Obligations under Sec. 6b (3) Energy Industry Act (EnWG)

We audited whether the Company complied with its obligations under Section 6b (3) sentences 1 to 5 to maintain separate accounts for the financial year from January 1 to December 31, 2020.

In our opinion, the Company complied, in all material respects, with the obligations under Section 6b (3) sentences 1 to 5 to maintain separate accounts.

We conducted our audit of compliance with the obligations to maintain separate accounts in accordance with the Auditing Standard: Audit pursuant to Section 6b (5) EnWG (IDW AuS 610 Rev.) promulgated by the Institut der Wirtschaftsprüfer (IDW). Our responsibilities under those requirements and principles are further described below. We are independent of the Company in accordance with the requirements of German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. Our audit firm applies the Quality Assurance Standard: Quality Assurance Requirements in Audit Practices (IDW QS 1) promulgated by the Institut der Wirtschaftsprüfer (IDW). We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion on compliance with the accounting obligations pursuant to Section 6b (3) EnWG.

The executive directors are responsible for the compliance with the obligations under Section 6b (3) sentences 1 to 5 EnWG to maintain separate accounts.

In addition, the executive directors are responsible for such internal control as they have determined necessary to comply with the obligations to maintain separate accounts.

The supervisory board is responsible for overseeing the Company's compliance with the accounting obligations under Section6b (3) EnWG.

Our objective is to obtain reasonable assurance about whether the executive directors have complied, in all material respects, with their obligations under Section 6b (3) sentences 1 to 5 EnWG to maintain separate accounts, as well as to include a report in the auditor's report that includes our audit opinion on whether the accounting obligations under Section 6b (3) EnWG have been observed. The audit of compliance with the obligations under Section 6b (3) sentences 1 to 5 EnWG to maintain separate accounts includes assessing whether the classification of accounts in relation to the activities pursuant to Section 6b (3) sentences 1 to 4 EnWG was appropriate and reasonable, and whether the principle of consistency had been adhered to.

Further Information Pursuant to Article 10 of the EU Audit Regulation

We were elected as auditor by the annual stockholder's meeting on April 28, 2020. We were engaged by the supervisory board on June 3, 2020. We have been the auditor of Bayer Aktiengesellschaft, Leverkusen/Germany, without interruption since the financial year 2017.

We declare that the audit opinions expressed in this auditor's report are consistent with the additional report to the audit committee pursuant to Article 11 of the EU Audit Regulation (longform audit report).

GERMAN PUBLIC AUDITOR RESPONSIBLE FOR THE ENGAGEMENT

The German Public Auditor responsible for the engagement is Prof. Dr. Frank Beine.

Munich/Germany, February 18, 2021

Deloitte GmbH
Wirtschaftsprüfungsgesellschaft

Prof. Dr. Frank Beine Wirtschaftsprüfer (German Public Auditor)	Michael Mehren Wirtschaftsprüfer (German Public Auditor)

Appendix to the Auditor's Report: Parts of the Combined Management Report Whose Contents are Unaudited

We have not audited the content of the following parts of the combined management report:

// the statement on corporate governance pursuant to Section 289f and Section 315d HGB included in section 4.1 of the combined management report,
// table A 1.2.1/2 "Non-financial Group targets through 2030" and the indents regarding the non-financial targets of the Group below, and
// the information given on scope-3-emissions in table A 1.7/1.

Financial Calendar

Annual Stockholders' Meeting 2021	April 27, 2021
Planned dividend payment day	April 30, 2021
Q1 2021 Quarterly Statement	May 12, 2021
2021 Half-Year Report	August 5, 2021
Q3 2021 Quarterly Statement	November 9, 2021
2022 Annual Report	March 1, 2022
Annual Stockholders' Meeting 2022	April 29, 2022
Q1 2022 Quarterly Statement	May 10, 2022

Masthead

Published by
Bayer AG, 51368 Leverkusen, Germany

Editor
Jörg Schäfer, phone +49 214 30 39136
Email: joerg.schaefer@bayer.com

Investor Relations
Peter Dahlhoff, phone +49 214 30 33022
Email: peter.dahlhoff@bayer.com

Date of publication
Thursday, February 25, 2021

Public Affairs & Sustainability
Ute Menke, phone +49 214 30 36520
Email: ute.menke@bayer.com

English edition
Employee Support Services,
SCGermany

ISSN 0343/1975

Forward-Looking Statements
These financial statements may contain forward-looking statements based on current assumptions and forecasts made by Bayer management. Various known and unknown risks, uncertainties and other factors could lead to material differences between the actual future results, financial situation, development or performance of the company and the estimates given here. These factors include those discussed in Bayer's public reports which are available on the Bayer website at www.bayer.com. The company assumes no liability whatsoever to update these forward-looking statements or to conform them to future events or developments.