

Notes to the balance sheet

(13) PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment is measured at cost of purchase and cost of production in accordance with IAS 16 (Property, Plant and Equipment). Cost of production comprises individual costs as well as indirect costs which are directly allocatable.

If at least two years are required for manufacturing an asset in order to place it in its intended state in which it is capable of being used or sold, any directly attributable costs of debt are capitalized as costs of production of the asset. If a direct link cannot be established, the average cost of debt rate for the year under review is used. Value-added tax incurred in connection with the purchase or production of property, plant and equipment is only capitalized to the extent that authorization to deduct pre-tax is not given.

Subsequent costs are capitalized if the expenses enhance the economic benefit of the property, plant and equipment and if the costs can be reliably measured. Other repairs or maintenance, on the other hand, are generally recognized as an expense.

Components of property, plant and equipment that are significant in relation to the total cost of purchase and cost of production are recognized separately and written down over their useful life using the straight-line method.

Investment grants are deducted directly from the cost of purchase and cost of production of the subsidized assets.

Rights of use from leasing contracts

In the case of rented or leased assets, if they fall under the scope of IFRS 16, a right of use (in accordance with IFRS 16.24) and a lease liability are recognized as soon as the assets are available for use by DB Group. Depreciation is recognized using the straight-line method over the economic useful life of the asset or the shorter duration of the lease. This is not applicable for leasing contracts for minor-value assets (up to and including € 5,000) and short-term leasing contracts with a duration of 12 months or less, the costs of which are recognized on a linear basis in the statement of income. Components of lease payments that do not relate to the use of the asset are not included in the measurement of the right of use and the lease liability.

Critical estimations and assessments

With regard to defining the duration of the lease, management takes account of all facts and circumstances that have an influence on the possible exercising of a extension option or termination option. This assessment is reviewed regularly.

Leased assets

DB Group classifies every lease for which it is the lessor as either an operating lease or a finance lease. A lease is classified as a finance lease if it transfers essentially all risks and opportunities associated with the ownership. If this is not the case, the lease is classified as an operating lease.

PROPERTY, PLANT AND EQUIPMENT / € million	Land	Commercial, operating and other buildings	Permanent way structures	Track infrastructure, signaling and control equipment	Vehicles for passenger and freight transport	Technical equipment and machinery	Other operating and business equipment	Advance payments and assets under construction	Total
COST OF PURCHASE AND COST OF PRODUCTION									
As of Jan 1, 2021	4,579	12,748	15,788	17,007	36,431	2,214	5,723	5,623	100,113
Changes in the scope of consolidation	1	23	-	-	13	1	4	0	42
thereof additions in scope of consolidation	1	27	-	-	13	1	4	0	46
thereof disposals in scope of consolidation	-	-4	-	-	-	-	0	-	-4
Additions	122	1,109	806	1,435	2,219	122	524	8,811	15,148
Addition of cost of debt	-	-	-	-	-	-	-	50	50
Investment grants	0	-176	-752	-1,380	-42	-39	-70	-6,579	-9,038
Transfers	12	171	101	-214	403	48	97	-620	-2
Changes with no impact on profit and loss	-	3	-	-	-	-	-	-	3
Disposals	-59	-200	-19	-246	-852	-58	-387	-34	-1,855
Currency translation differences	20	62	4	0	128	6	31	6	257
As of Dec 31, 2021	4,675	13,740	15,928	16,602	38,300	2,294	5,922	7,257	104,718
ACCUMULATED DEPRECIATION									
As of Jan 1, 2021	-717	-5,218	-5,831	-12,913	-22,517	-1,442	-3,755	-16	-52,409
Changes in the scope of consolidation	-	2	-	-	0	0	-2	-	0
thereof additions in scope of consolidation	-	-2	-	-	0	0	-2	-	-4
thereof disposals in scope of consolidation	-	4	-	-	-	-	0	-	4
Depreciation	-45	-890	-203	-346	-1,580	-128	-496	-	-3,688
impairments	-1	-2	0	0	-7	0	-2	0	-12
Reversals	75	0	-	14	2	-	0	-	91
Transfers	-1	-20	0	0	2	16	-14	7	-10
Disposals	17	141	13	233	755	54	326	1	1,540
Currency translation differences	-5	-21	-3	0	-73	-5	-23	0	-130
As of Dec 31, 2021	-677	-6,008	-6,024	-13,012	-23,418	-1,505	-3,966	-8	-54,618
Carrying amount as of Dec 31, 2021	3,998	7,732	9,904	3,590	14,882	789	1,956	7,249	50,100
Carrying amount as of Dec 31, 2020	3,862	7,530	9,957	4,094	13,914	772	1,968	5,607	47,704

	Land	Commercial, operating and other buildings	Permanent way structures	Track infrastructure, signaling and control equipment	Vehicles for passenger and freight transport	Technical equipment and machinery	Other operating and business equipment	Advance payments and assets under construction	Total
PROPERTY, PLANT AND EQUIPMENT / € million									
COST OF PURCHASE AND COST OF PRODUCTION									
As of Jan 1, 2020	4,511	11,575	15,690	16,962	35,670	2,220	5,613	4,693	96,934
Changes in the scope of consolidation	11	11	0	-	24	1	8	-	55
thereof additions in scope of consolidation	11	11	0	-	24	1	18	1	66
thereof disposals in scope of consolidation	-	0	-	-	-	-	-10	-1	-11
Additions	106	1,314	909	1,601	1,919	135	530	7,654	14,168
Addition of cost of debt	-	-	-	-	-	-	-	44	44
Investment grants	0	-167	-886	-1,459	-78	-39	-59	-5,825	-8,513
Transfers	4	183	89	151	316	55	96	-904	-10
Changes with no impact on profit and loss	-	0	-	-	-	-	0	-	0
Disposals	-33	-102	-11	-247	-1,260	-145	-429	-34	-2,261
Currency translation differences	-20	-66	-3	-1	-160	-13	-36	-5	-304
As of Dec 31, 2020	4,579	12,748	15,788	17,007	36,431	2,214	5,723	5,623	100,113
ACCUMULATED DEPRECIATION									
As of Jan 1, 2020	-702	-4,413	-5,634	-12,797	-21,708	-1,404	-3,676	-9	-50,343
Changes in the scope of consolidation	-4	-5	0	-	-22	-1	-11	-	-43
thereof additions in scope of consolidation	-4	-5	0	-	-22	-1	-15	-	-47
thereof disposals in scope of consolidation	-	0	-	-	-	-	4	-	4
Depreciation	-42	-845	-201	-360	-1,569	-130	-472	-1	-3,620
impairments	0	-6	-4	-2	-14	-1	0	0	-27
Reversals	-	0	-	13	1	-	0	0	14
Transfers	12	-29	0	0	9	0	9	-6	-5
Disposals	13	59	6	233	707	86	371	0	1,475
Currency translation differences	6	21	2	0	79	8	24	0	140
As of Dec 31, 2020	-717	-5,218	-5,831	-12,913	-22,517	-1,442	-3,755	-16	-52,409
Carrying amount as of Dec 31, 2020	3,862	7,530	9,957	4,094	13,914	772	1,968	5,607	47,704
Carrying amount as of Dec 31, 2019	3,809	7,162	10,056	4,165	13,962	816	1,937	4,684	46,591

The additions to the cost of debt contain an average cost of debt rate of 1.44 % (previous year: 1.71 %).

The impairments of € 12 million (previous year: € 27 million) mainly related to vehicles for passenger and freight transport.

Reversals of € 91 million (previous year: € 14 million) were mainly attributable to real estate and rights equivalent to real property.

In the year under review, the carrying amount disposals for assets under construction included positive carrying amount disposals of € 7 million (previous year: € 20 million). These were attributable to the repayment of investment grants that had been received in previous years and deducted from assets.

Restrictions to rights of disposal over property, plant and equipment (as of December 31, 2021: € 34 million; as of December 31, 2020: € 35 million) existed mainly in Arriva Italia s.r.l., Milan/Italy.

Rights of use from leases (IFRS16)

DB Group leases mainly consist of real estate. Compared with a solution involving purchasing of such assets, leasing provides much greater flexibility and results in lower amounts of capital being tied up. DB Group simultaneously participates in positive market developments by way of regularly agreeing extension options. In addition, DB Group rents rolling stock particularly if the economic useful life considerably exceeds the duration of the transport contract for which the rolling stock is intended.

Property, plant and equipment contains rights-of-use from leases that are shown separately in the following overview:

€ million	Rights of use for							Total
	Land	Commercial, operating and other buildings	Permanent way structures	Track infrastructure, signaling and control equipment	Vehicles for passenger and freight transport	Technical equipment and machinery	Other operating and business equipment	
AS OF DEC 31, 2021								
Additions	51	788	0	14	199	18	20	1,090
Depreciation	-38	-655	-4	-1	-196	-33	-16	-943
Carrying amount	377	3,494	2	15	534	165	32	4,619
AS OF DEC 31, 2020								
Additions	58	988	1	0	239	14	16	1,316
Depreciation	-33	-630	-3	-1	-230	-36	-18	-951
Carrying amount	359	3,380	5	2	631	181	27	4,585

Further details of leasing-related liabilities, expenses and other financial obligations are set out in the [Notes \(6\) 200ff.](#), [\(7\) 202f.](#), [\(9\) 203.](#), [\(28\) 216ff.](#), and [\(35\) 235f.](#), as well as the [Notes to the statement of cash-flows 229f.](#)

The decrease in carrying amounts for vehicles for passenger and freight transport mainly resulted from the DB Arriva segment. In the case of commercial, operational and other buildings, higher additions as well as term extensions in connection with real estate contracts resulted in an increase in the carrying amounts.

Rented assets

The rental activities of DB Group related mainly to premises in stations as well as the leasing of excess locomotive and rail car capacities. Agreements are not normally made with regard to assuring any residual values.

Subletting activities are carried out to a minor extent mainly at DB Schenker. Where appropriate, storage facilities are rented only for the purpose of fulfilling a logistics contract with a specific customer. If these customers take on the economic opportunities and risks with regard to the leased premises, the subletting income is not recognized in the income statement; instead, this is recognized as a sub-financing lease. Revenues from subletting amounted to € 35 million (previous year: € 23 million).

The assets which in certain cases are determined on the basis of retrospective calculations and completed surveys and which are leased by way of operating leases have the following residual carrying amounts:

RENTED ASSETS CLASSIFIED AS OPERATING LEASES / € million	Real estate	Mobile assets
Cost of purchase and cost of production	1,393	6,889
Accumulated depreciation	-481	-4,580
Carrying amount as of Dec 31, 2021	912	2,309
Cost of purchase and cost of production	1,349	7,059
Accumulated depreciation	-448	-4,845
Carrying amount as of Dec 31, 2020	901	2,214

In the case of real estate which is leased on a pro rata basis, the carrying amounts are also recognized on a pro rata basis. The carrying amount of the leased mobile assets related to all assets leased in the year under review irrespective of the lease duration. The residual carrying amounts and the accumulated depreciation of the mobile assets (mainly rolling stock) increased, particularly at DB Long-Distance, due to capital expenditures in new vehicles. The process of renting the assets is expected to generate rental and leasing inflows in future years as shown in the following overview:

EXPECTED RENTAL AND LEASING INCOME (NOMINAL VALUES) / € million	Residual maturity							Total
	Up to 1 year	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	More than 5 years	Total more than 1 year	
AS OF DEC 31, 2021								
Minimum lease payments	357	211	178	161	121	518	1,189	1,546
AS OF DEC 31, 2020								
Minimum lease payments	356	184	158	143	129	594	1,208	1,564

(14) INTANGIBLE ASSETS

Purchased intangible assets are shown with their acquisition cost in accordance with IAS 38 (Intangible Assets). Intangible assets manufactured in-house are recognized with their cost of production, and consist mainly of software.

Costs of production mainly comprise costs for material and services, wage and salary costs as well as relevant indirect costs.

Intangible assets (excluding goodwill and the Arriva brand) are subsequently valued at cost of purchase and cost of production less scheduled depreciation and impairments plus any reversals of previous impairments.

INTANGIBLE ASSETS / € million	Capitalized development costs for products in use		Capitalized development costs for products under development		Purchased intangible assets ¹⁾		Goodwill		Advance payments		Total	
	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020
COST OF PURCHASE AND COST OF PRODUCTION												
As of Jan 1	766	564	369	447	2,196	2,260	3,003	3,106	1	0	6,335	6,377
Changes in the scope of consolidation	2	5	-	-	26	2	17	13	-	-	45	20
thereof additions in scope of consolidation	2	5	-	-	28	4	17	13	-	-	47	22
thereof disposals in scope of consolidation	-	-	-	-	-2	-2	-	0	-	-	-2	-2
Additions	44	54	174	162	21	17	-	-	0	1	239	234
Investment grants	-6	-2	-	-	-1	-1	-	-	-	-	-7	-3
Transfers	138	222	-100	-212	-36	0	-	-	-	0	2	10
Changes with no impact on profit and loss	-	-	-	-	0	0	-	-	-	-	0	0
Disposals	-52	-73	-17	-28	-41	-46	0	-	-	-	-110	-147
Currency translation differences	5	-4	-1	0	28	-36	124	-116	-	0	156	-156
As of Dec 31	897	766	425	369	2,193	2,196	3,144	3,003	1	1	6,660	6,335
ACCUMULATED DEPRECIATION												
As of Jan 1	-298	-178	0	-1	-1,889	-1,818	-1,858	-486	-	-	-4,045	-2,483
Changes in the scope of consolidation	-2	-	-	-	-1	-	-	-	-	-	-3	-
thereof additions in scope of consolidation	-2	-	-	-	-3	-1	-	-	-	-	-5	-1
thereof disposals in scope of consolidation	-	-	-	-	2	1	-	-	-	-	2	1
Depreciation	-81	-76	-	-	-112	-132	-	-	-	-	-193	-208
Impairments	-2	-78	-	-27	0	-15	-	-1,411	-	-	-2	-1,531
Reversals	-	-	-	-	-	0	-	-	-	-	-	0
Transfers	-26	-7	-	-	36	12	-	-	-	-	10	5
Disposals	22	40	-	28	34	36	-	-	-	-	56	104
Currency translation differences	-3	1	-	-	-26	28	-67	39	-	-	-96	68
As of Dec 31	-390	-298	0	0	-1,958	-1,889	-1,925	-1,858	-	-	-4,273	-4,045
Carrying amount as of Dec 31	507	468	425	369	235	307	1,219	1,145	1	1	2,387	2,290
Carrying amount as of Dec 31 of previous year	468	386	369	446	307	442	1,145	2,620	1	0	2,290	3,894

¹⁾ This includes intangible assets with indefinite useful lives (carrying amount: € 5 million), which were reported separately as of December 31, 2020 and derecognized in 2021.

The purchased intangible assets mainly included software (carrying amount as of December 31, 2021: € 103 million; as of December 31, 2020: € 129 million), concessions and rights (carrying amount as of December 31, 2021: € 51 million; as of December 31, 2020: € 61 million) and acquired customer and franchise contracts (carrying amount as of December 31, 2021: € 79 million; as of December 31, 2020: € 110 million).

For the acquired Arriva brand (carrying amount as of December 31, 2021: € 32 million; as of December 31, 2020: € 31 million), there are no other legal, regulatory, contractual, competitive, economic or other factors that limit the useful life.

The impairments of € 2 million (previous year: € 1,531 million) were in the DB Schenker and Subsidiaries/Other segments.

The allocation of the reported goodwill to the segments is shown in [Segment information according to segments](#) 190f.

(15) INVESTMENTS ACCOUNTED FOR USING THE EQUITY METHOD

Shares in associated companies and joint ventures are accounted for using the equity method in accordance with IAS 28. The carrying amount, based on the Group costs of purchase at the time of the purchase, is updated according to the DB Group share of changes in equity position of the company accounted for using the equity method.

The shares in the investments accounted for using the equity method developed as follows:

€ million	2021	2020
As of Jan 1	458	501
Additions	0	1
Disposals	0	-5
Share of DB Group in profit	8	11
Capital increase	1	-
Other movements in capital	-	0
Dividends received	-9	-7
Impairments	-	-44
Currency translation differences	0	0
Other valuation	3	1
As of Dec 31	461	458

The figure shown in the balance sheet as of December 31, 2021, was mainly attributable to the shares held in the associated companies EUROFIMA European Company for the Financing of Railroad Rolling Stock (EUROFIMA), Basel/Switzerland and Trieste Trasporti S.P.A., Trieste/Italy. The shares in EUROFIMA are subject to restrictions in terms of being sold; new shareholders must be railway administration entities which also require a guarantee from their respective state guaranteeing their obligations.

(16) DEFERRED TAXES

Deferred taxes are calculated in accordance with IAS 12 (Income Taxes).

The theoretical income tax rate for corporations of 30.5% is used as the basis for calculating deferred taxes for domestic companies. The income tax rate comprises the corporation tax rate plus solidarity surcharge and an average trade tax rate. Foreign subsidiaries use their relevant local tax rates for calculating deferred taxes.

A deferred tax asset is recognized in accordance with IAS 12.24 or IAS 12.34 if, after corresponding deferred tax liabilities have been deducted, it is likely that adequate taxable income is available. This is based on the medium-term planning and a further two years, taking into account supplementary estimates for domestic companies. The international companies use medium-term planning as the basis. Deferred tax assets relating to income which can be generated after the forecast period are not recognized, on the grounds that they cannot be reliably determined.

Deferred taxes are established on the basis of the tax rates that can be expected for the period in which the deferred tax is realized on the basis of existing laws or laws that have in essence been adopted.

Critical estimations and assessments

The calculation of deferred tax assets is based on the medium- and long-term planning. If the sum of net profits planned in the medium-term planning were to decline by 10% in conjunction with otherwise unchanged tax parameters, deferred tax assets would have to be reduced by € 100 million (previous year: € 97 million).

Deferred tax assets are broken down as follows:

AS OF DEC 31 / € million	2021	2020
Deferred tax assets in respect of temporary differences	443	412
Deferred tax assets in respect of tax losses carried forward	862	752
Total	1,305	1,164

No deferred tax assets have been created in relation to the following losses carried forward and temporary differences:

AS OF DEC 31 / € million	2021	2020
Tax loss carry-forwards for which no deferred tax asset has been created	20,514	18,735
Temporary differences for which no deferred tax asset has been created	5,653	5,998
Temporary differences that are not permitted to be recognized in accordance with IAS 12.24b in conjunction with 12.33	1,868	1,981
Total	28,035	26,714

The losses carried forward are mainly attributable to the tax law treatment of Federal grants paid in the past to DB AG in accordance with section 21 (5) and section 22 (1) Deutsche Bahn Foundation Act (Deutsche Bahn Gründungsgesetz; DBGrG) as a contribution as well as the tax losses of the year under review that were incurred as a consequence of the impact of the Covid-19 pandemic.

On the basis of current law, the domestic losses carried forward are fully permissible in accordance with current legislation (in terms of the actual amount and justification).

The temporary differences which are not permitted to be recognized in accordance with IAS 12.33 relate exclusively to additional tax depreciation from previously received tax-free investment grants.

The following deferred tax assets and deferred tax liabilities shown in the balance sheet were due to statement and valuation differences for the individual balance sheet items and tax losses carried forward:

AS OF DEC 31 / € million	Deferred tax assets		Deferred tax liabilities	
	2021	2020	2021	2020
NON-CURRENT ASSETS				
Property, plant and equipment ¹⁾	108	61	153	162
Intangible assets	0	0	34	29
Investment property ¹⁾	-	-	-	-
CURRENT ASSETS				
Trade receivables	11	8	4	6
NON-CURRENT LIABILITIES				
Financial debt	2	0	0	0
Derivative financial instruments	7	9	0	0
Pension obligations	140	190	3	0
Other provisions	177	125	131	68
Deferred income	0	0	0	7
CURRENT LIABILITIES				
Trade liabilities	68	50	0	0
Other liabilities	32	75	0	18
Other provisions	67	30	12	0
Losses carried forward	862	752	0	0
Subtotal	1,474	1,300	337	290
Balancing ²⁾	-169	-136	-169	-136
Amount stated in the balance sheet	1,305	1,164	168	154

¹⁾ Previous year's figure adjusted for deferred tax liabilities.

²⁾ To the extent permitted by IAS 12 (income taxes).

Tax assets and liabilities are netted if they exist in relation to the same tax authority, if they are of identical maturity and if they relate to the same tax subject.

Of the deferred tax liabilities of € 1,474 million (as of December 31, 2020: € 1,300 million), a figure of € 177 million (as of December 31, 2020: € 163 million) will probably be realized in the course of the next 12 months. Of the deferred tax liabilities of € 337 million (as of December 31, 2020: € 290 million), a figure of € 16 million (as of December 31, 2020: € 24 million) will probably be realized in the course of the next 12 months.

Deferred tax assets of € 222 million (as of December 31, 2020: € 183 million) shown directly in equity and deferred tax liabilities of € 7 million (as of December 31, 2020: € 10 million) shown directly in equity are included in the deferred taxes shown in the balance sheet.

(17) OTHER INVESTMENTS AND SECURITIES

Other investments are shown with their fair value.

Long- or short-term securities are recognized with their fair values as of the balance sheet date – where such values exist. Changes in fair value are recognized directly in equity in the reserve from the fair value measurement of securities.

Other investments and securities developed as follows:

€ million	Other investments		Securities		Total	
	2021	2020	2021	2020	2021	2020
As of Jan 1	55	42	3	3	58	45
Currency translation differences	0	0	0	0	0	0
Additions	18	24	-	-	18	24
Disposals	-7	0	0	-	-7	0
Change in fair value	31	-11	0	0	31	-11
Other	0	0	-	-	0	0
As of Dec 31	97	55	3	3	100	58
thereof at cost / acquisition cost	-	-	1	0	1	0
thereof fair value (with no impact on profit and loss)	29	25	2	3	31	28
thereof fair value (recognized in the income statement)	68	30	-	-	68	30
Non-current portion	97	55	2	2	99	57
Current portion	-	-	1	1	1	1

As of December 31, 2021 changes in the fair value of other investments amounted to a total of € 31 million (previous year: € -11 million). At € 38 million, this increase was mainly due to the revaluation of shares in Volocopter GmbH, Bruchsal.

The additions mainly related to a € 6 million investment in Gideon Brothers, City of Dover/USA, € 4 million investment in InstaDeep Limited, London/United Kingdom, € 3 million increased investment in Volocopter GmbH, Bruchsal, and a € 2 million investment in VA450 Beteiligungs GmbH&Co. KG, Bonn/Germany.

(18) INVENTORIES

All costs which are directly related to the procurement process are capitalized as the acquisition costs of the inventories. The average method is used as the basis for establishing the acquisition cost of fungible and homogeneous raw materials and supplies. The costs of production comprise the individual costs and also the directly attributable indirect costs; borrowing costs and idle costs are not capitalized, and instead are recognized as expense in the period in which they are incurred.

As of the balance sheet date, inventories are measured with the lower of cost or net realizable value.

Inventories are broken down as follows:

AS OF DEC 31 / € million	2021	2020
Raw materials, consumables and supplies	2,062	1,849
Unfinished goods, unfinished services	128	122
Finished goods and products	413	365
Advance payments	11	41
Impairments	-459	-440
Total	2,155	1,937

The increase in raw materials, consumables and supplies was attributable, among other things, to price increases for CO₂ certificates.

The increase in finished goods and products in addition to merchandise in the DB Schenker segment mainly related to rolling stock that had only been provisionally accepted and that had not yet been transferred to the customer and contracting organizations as of the balance sheet date. Corresponding long-term trade liabilities were also reported.

(19) RECEIVABLES AND OTHER ASSETS

In general, receivables and other financial assets are measured at amortized acquisition cost. Finance lease receivables, advance payments made and plan assets in accordance with IAS 19 (Employee Benefits) are not allocated to any category of IFRS 9. With regard to the measurement categories according to IFRS 9, please refer to the section [Additional disclosures relating to the financial instruments](#) 213ff.

Receivables for which there are substantial objective indications of an impairment are adjusted appropriately. Portfolio-based impairments are recognized in relation to groups of assets also on the basis of historical default rates. In DB Group, the maturities of the receivables and default risks are monitored constantly.

Some transport contracts include a handover obligation specifying that the deployed assets owned by DB Group have to be handed over at the end of the contract. Other transport contracts include a clause specifying that the deployed assets have to be rented from the contracting organization or a capital service guarantee is to be provided by the contracting organization for leasing from independent financial service providers. In accordance with IFRIC 12 (Service Concession Arrangements), the corresponding capital expenditures are capitalized as receivables from transport concession arrangements at the end of the contract, with the guaranteed residual values being separated. The receivables are redeemed out of the concession fees, which means that not all of the concession fees result in revenues. The residual value receivables are disclosed at their present value under the financing receivables.

Critical estimations and assessments

The impairment of doubtful receivables to a considerable extent comprises assessments and appraisals of individual receivables that are based on the creditworthiness of the particular customer, current economic developments as well as an analysis of historical bad debts at the portfolio level. If the impairment is derived on the basis of historical default rates at the portfolio level, any decline in the overall volume of receivables results in a corresponding decrease in such provisions (and vice versa).

The receivables and other assets are broken down as follows:

€ million	Trade receivables	Financial receivables and earmarked bank balances	Receivables from transport concessions	Advance payments	Other assets	Total
AS OF DEC 31, 2021						
Gross value	6,681	875	682	304	1,972	10,514
Impairments	-182	-11	-	-	-46	-239
Net value	6,499	864	682	304	1,926	10,275
thereof due to related parties	38	2	-	0	310	350
AS OF DEC 31, 2020						
Gross value	5,045	867	626	270	1,608	8,416
Impairments	-164	-11	-	-	-47	-222
Net value	4,881	856	626	270	1,561	8,194
thereof due to related parties	37	2	-	-	305	344

DB Group concluded factoring agreements with a bank; according to the terms of this agreement, the bank is obliged to purchase on a revolving basis current trade receivables (denominated in euro and Swedish krona) in companies of the DB Schenker segment up to a maximum volume of € 703 million and under which the rights and obligations remain with DB Group. The agreement has been concluded for an indefinite period of time. DB Group will continue to be responsible for sales ledger accounting and the dunning system on behalf of the bank until further notice. The risks relating to the receivables that are sold and that are relevant for the risk assessment are the credit risk and the risk of late payment. The purchase price is equivalent to the nominal amount. DB Group bears credit-risk-related default and late payment risks from the various tranches up to a certain amount in each case. The other bad debts related to the credit risk are borne by the bank. Virtually none of the opportunities and risks associated with the receivables have been transferred or retained (breakdown of major risks between DB Group and bank).

For some of the receivables, the right of disposal over the receivables that have been sold has been transferred to the bank as the bank has the actual ability to sell on the receivables. These receivables have been completely derecognized.

Disclosures on DB Group's continuing involvement in fully derecognized trade receivables:

€ million	2021	2020
Receivables sold as of Dec 31	260	224
Carrying amount of liabilities recorded in the balance sheet, which represent the sustained exposure ¹⁾ as of Dec 31	0	0
Maximum risk of loss from sustained exposure to credit and late payment risks as of Dec 31	63	63
EFFECTS ON THE CONSOLIDATED STATEMENT OF INCOME		
Expenses in the year under review	2	4
Expenses accumulated since the start of the contract	14	12
Expenses from the transfer within the scope of the factoring agreement	3	3

¹⁾ Essentially corresponds to the fair value.

DB Group continues to account for the remaining portion of trade receivables transferred under factoring agreements in the amount of its sustained exposure and recognizes a corresponding commitment within other liabilities.

The receivables and the associated liabilities are derecognized to the extent that DB Group's sustained exposure is reduced due to the receipt of payments from customers.

Disclosures on DB Group's sustained exposure in partially derecognized trade receivables:

AS OF DEC 31 / € million	2021	2020
Receivables sold	443	388
Remaining carrying amount of transferred receivables ¹⁾	97	96
Carrying amount of the associated liabilities ¹⁾	107	102

¹⁾ The fair values of the receivables and the associated liabilities essentially correspond to their carrying amounts.

Purchase price payments received by the bank increased the cash flow from operating activities.

The financial receivables and earmarked bank deposits include residual values of € 321 million (as of December 31, 2020: € 257 million) agreed with the awarding authorities of the public transport authorities. These residual value receivables mainly relate to rolling stock that is sold for a fixed price at the end of the transport contract to the public transport authority or to a third party designated by the public transport authority. In addition, financial receivables and earmarked bank deposits also disclosed a figure of € 323 million for finance lease receivables (as of December 31, 2020: € 231 million) as well as a figure of € 35 million for earmarked funds (as of December 31, 2020: € 38 million) which can be used only as contributions for certain retirement benefit plans. A further € 83 million (as of December 31, 2020: € 271 million) relate to cash guarantees in the form of credit support agreements.

The other assets include contract fulfillment costs of € 13 million (as of December 31, 2020: € 16 million).

The recognized impairments for the financial instruments classified in accordance with IFRS 7 have developed as follows:

€ million	Trade receivables	Financial receivables and earmarked bank deposits	Receivables from transport concessions	Other assets	Total
As of Jan 1, 2021	-164	-11	0	-47	-222
Additions	-55	-	-	-5	-60
Reversals	28	0	0	3	31
Amounts used	8	-	-	2	10
Changes in the scope of consolidation	0	-	-	-	0
Currency translation differences	1	-	-	1	2
As of Dec 31, 2021	-182	-11	-	-46	-239
As of Jan 1, 2020	-145	-9	0	-46	-200
Additions	-42	-2	-	-7	-51
Reversals	17	-	-	3	20
Amounts used	3	0	-	2	5
Changes in the scope of consolidation	1	0	-	0	1
Currency translation differences	2	0	-	1	3
As of Dec 31, 2020	-164	-11	0	-47	-222

Receivables for which there are substantial objective indications of an impairment are adjusted appropriately. Risk provisioning for anticipated credit losses is also created for equivalent receivables (portfolios of receivables) which cannot individually be identified as impaired. Any impairments that are recognized are deducted from financial assets on the assets side of the balance sheet. Previous impairments are reversed if the reasons for the original impairments are no longer applicable.

Expenses decreased to € 51 million in the year under review for the complete derecognition of receivables and other assets (previous year: € 66 million).

Income of € 5 million was reported for payments received in relation to previously derecognized receivables and other assets (previous year: € 5 million).

For trade receivables, DB Group uses the simplified approach according to IFRS 9 in order to measure the expected loan losses. Accordingly, for all trade receivables, the loan losses expected over the life of the receivables are used for this purpose. For measuring the expected loan losses, trade receivables are pooled on the basis of common credit risk features. The expected loan losses are determined on a collective basis using impairment matrices. These are determined on the basis of the individual segments within DB Group. During the Covid-19 pandemic, the credit risk markups traded on the market have been updated. The expected loan losses amounted to € 31 million as of December 31, 2021 (as of December 31, 2020: € 29 million).

AS OF DEC 31 / € million	Net carrying amount	Expected loss rate (%)	Risk provisioning	thereof risk provisioning for overdue receivables	thereof risk provisioning for receivables not overdue
Trade receivables	6,499	0.48	31	16	15

For receivables from financing as well as other financial receivables, the expected impairment requirement for major items was determined in relation to specific receivables. Risk provisioning totaling € 3 million was created for this purpose as of December 31, 2021 (as of December 31, 2020: € 6 million).

The following overview shows the maturity structure of the receivables for the financial instruments classified in accordance with IFRS 7 and the advance payments that have been made:

€ million	Residual maturity							Total
	Up to 1 year	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	More than 5 years	Total more than 1 year	
AS OF DEC 31, 2021								
Trade receivables	6,476	14	4	4	1	0	23	6,499
Financial receivables and earmarked bank deposits	341	84	37	32	27	343	523	864
Receivables from transport concessions	68	65	61	59	58	371	614	682
Advance payments	243	61	-	-	-	-	61	304
Other assets	1,706	60	32	19	2	107	220	1,926
Total	8,834	284	134	114	88	821	1,441	10,275
thereof non-financial assets	633	68	2	3	1	106	180	813
AS OF DEC 31, 2020								
Trade receivables	4,849	13	10	5	4	0	32	4,881
Financial receivables and earmarked bank deposits	426	86	56	12	8	268	430	856
Receivables from transport concessions	76	56	54	53	52	335	550	626
Advance payments	212	58	-	-	-	-	58	270
Other assets	1,491	17	21	1	2	29	70	1,561
Total	7,054	230	141	71	66	632	1,140	8,194
thereof non-financial assets	584	73	1	1	1	29	105	689

The trade receivables increased significantly compared with the previous year. This increase was mainly in the DB Schenker segment.

The current other assets also included increased customs receivables of the DB Schenker segment compared to the previous year. Other assets increased in almost all segments, though there was a decline in the DB Cargo and DB Netze Energy segments.

As a result of the large number of customers in the various operating segments, there is no evidence of concentration of credit risks with trade receivables.

The fair values of the balance sheet items receivables and other assets, trade receivables, as well as other receivables and assets essentially correspond to the carrying amounts.

The maximum default risk is essentially equivalent to the carrying amount in each case. Collateral is not regularly held.

As of the balance sheet date, there were no indications that debtors of the receivables that are neither impaired nor overdue will not meet their payment obligations.

(20) INCOME TAX RECEIVABLES

The income tax receivables relate to advance payments that have been made as well as allowable withholding taxes.

(21) DERIVATIVE FINANCIAL INSTRUMENTS

Upon conclusion of a contract, derivative financial instruments are generally classified as hedging instruments for hedging the cash flows from contractual obligations or anticipated transactions (cash flow hedge).

Cash flow hedges

Cash flow hedges are used to provide protection against fluctuations in the cash flows of financial assets or liabilities or anticipated transactions. When future cash flows are hedged, the hedging instruments are also recognized with their fair value. Changes in value are initially recognized in shareholders' equity with no impact on profit and loss, and are only recognized in the statement of income at the point at which the corresponding losses or profits from the underlying transaction have an impact on the statement of income or the transactions expire. Any ineffectiveness is recognized in the statement of income in accordance with IFRS 9.

Derivative financial instruments that do not satisfy the requirements for recognizing hedges in accordance with IFRS 9

If hedges that in economic terms are used for interest, currency or price hedging do not satisfy the requirements of IFRS 9 for being recognized as a hedge, the changes in fair value are immediately recognized in the statement of income.

Calculation of the fair value

The fair value of financial instruments that are traded in an active market is derived from the share price applicable on the balance sheet date. Common valuation methods such as option price or present value models are used for determining the fair value of financial instruments that are not traded in an active market. If valuation-relevant parameters are not directly observable on the market, forecasts are used based on comparable financial instruments that are traded in an active market; these forecasts are then adjusted by premiums or discounts on the basis of historical data. The mean value of bid and offer rates is used. DB AG operates with long-dated

financial derivatives on a hedged basis, and does not perform any credit risk adjustment for the fair value for hedged transactions. For considerations of materiality, no credit risk adjustment is used for short-term derivatives. If credit risk adjustment is used, the relevant discounts are derived from the credit default swap (CDS) figures observable on the market.

All derivatives used in DB Group are measured using common methods such as option price or present value models, because their fair values are not traded on an active market. No parameters from non-observable markets are used for assessment purposes.

The volume of hedges that have been taken out is shown in the following overview of nominal values:

AS OF DEC 31 / € million	Nominal value of hedging instrument		Residual maturity up to 1 year		Residual maturity more than 1 year	
	2021	2020	2021	2020	2021	2020
INTEREST-BASED CONTRACTS						
Interest swaps	-	74	-	74	-	0
	-	74	-	74	-	0
CURRENCY-BASED CONTRACTS						
Currency swaps	803	592	803	585	0	7
Currency forwards	2,365	1,762	2,334	1,722	31	40
Cross-currency swaps	8,181	6,290	176	230	8,005	6,060
	11,349	8,644	3,313	2,537	8,036	6,107

AS OF DEC 31 / 1,000 t	Volume		Residual maturity up to 1 year		Residual maturity more than 1 year	
	2021	2020	2021	2020	2021	2020
OTHER CONTRACTS						
Diesel	364	638	26	78	338	561
Hard coal	1,408	2,782	928	1,054	480	1,728

There were no interest rate swaps as of December 31, 2021 – the last transaction expired during the year under review, and no new transactions were entered into. The changes in holdings of currency swaps and forwards vary in line with the corresponding hedging requirements of the subsidiaries. The nominal value of the cross-currency interest rate swaps rose by € 1,891 million, mainly due to the issue of foreign currency bonds in the year under review, the cash flows of which were exchanged for euros.

The volume of diesel hedges declined by 0.2 million t to 0.4 million t, as the volume of expiring transactions exceeded that of the new transactions concluded. The volume of coal hedges decreased as of December 31, 2021, by 1.4 million t to 1.4 million t and results from a decline in expected consumption.

The implementation of the European Union's Benchmark Regulation, which provides for a new regulation on the use of benchmark interest rates, did not have a direct impact on DB AG's derivatives, as there were no transactions in the portfolio that referenced the no longer published benchmark interest rates. In the year under review, the interest rate on cash collateral for collateralized derivatives was changed from the EONIA to the euro short-term rate (€ STR).

The following table shows the average hedging prices/hedging rates for the main derivative hedging instruments of DB Group (per currency):

Currency	Hedging price per 1,000 t		Hedging rate			
	Diesel	Hard coal	Cross-currency swaps (CCS)	Interest rate swaps (IRS)	Currency swaps	Currency forwards
EUR	468.18	60.40	-	-	-	-
USD	-	-	1.18	-	1.17	1.14
GBP	390.60	-	0.87	-	0.84	0.85
CHF	-	-	1.17	-	-	1.04
JPY	-	-	119.66	-	-	128.85
NOK	-	-	9.12	-	-	10.16
SEK	-	-	10.11	-	-	10.26
DKK	3,010.00	-	7.45	-	-	7.44
CAD	-	-	-	-	-	1.44
AUD	-	-	1.54	-	-	1.58
NZD	-	-	1.65	-	-	1.67
HKD	-	-	-	-	-	8.82
MXN	-	-	-	-	-	24.42
SGD	-	-	1.56	-	1.56	1.54
PLN	1,348.61	-	4.40	-	-	4.61
CZK	10,425.42	-	26.11	-	25.71	25.50
HUF	-	-	-	-	-	365.34
RON	-	-	4.51	-	-	4.96
HRK	-	-	7.43	-	-	7.53
CNY	-	-	-	-	7.24	7.36
ILS	-	-	-	-	-	3.55
SAR	-	-	4.29	-	-	4.23
AED	-	-	4.25	-	4.38	4.14
ZAR	-	-	-	-	-	18.19
RUB	-	-	-	-	-	83.83

All derivative financial instruments are marked-to-market on the reporting date. The following overview shows the structure of the item stated in the balance sheet depending on the type of underlying hedge:

AS OF DEC 31 / € million	Assets		Liabilities	
	2021	2020	2021	2020
INTEREST-BASED CONTRACTS				
Interest swaps	-	-	-	0
Interest forwards	-	0	-	-
	-	0	-	0
CURRENCY-BASED CONTRACTS				
Currency swaps	6	0	1	13
Currency forwards	15	9	7	11
Other currency derivatives	0	0	0	0
Cross-currency swaps	313	150	209	283
thereof effects from currency hedges	375	85	128	142
	334	159	217	307
OTHER CONTRACTS				
Energy price derivatives	72	5	2	72
	72	5	2	72
Total	406	164	219	379
Non-current portion	356	151	200	319
Interest-based contracts	-	-	0	0
Currency-based contracts	314	148	198	263
Other contracts	42	3	2	56
Current portion	50	13	19	60

Cash flow hedges

In order to minimize the interest rate and exchange rate risk, foreign currency issues as well as intra-Group foreign currency loans are converted into euros as a matter of principle, and floating-rate financial liabilities are generally converted into fixed-interest financial liabilities. Energy price hedging served to reduce price fluctuations attributable to energy sourcing.

As of December 31, 2021, there were no interest-related transactions in the portfolio. The performance of the cross-currency interest rate swaps was predominantly due to the depreciation of the euro against the Swiss franc, the British pound and the Norwegian krone, as well as the expiry of old transactions.

The positive market value of the energy price derivatives reflected the development on the underlying raw materials markets.

The fair values of the cash flow hedges are shown as follows under assets and liabilities:

AS OF DEC 31 / € million	Assets		Liabilities	
	2021	2020	2021	2020
INTEREST-BASED CONTRACTS				
Interest swaps	-	-	-	0
	-	-	-	0
CURRENCY-BASED CONTRACTS				
Currency swaps	6	0	1	13
Cross-currency swaps	313	150	189	258
	319	150	190	271
OTHER CONTRACTS				
Energy price derivatives	72	5	2	72
Miscellaneous/other derivatives	-	-	0	0
	72	5	2	72
Total	391	155	192	343
Non-current portion	355	151	179	292
Interest-based contracts	-	-	0	0
Currency-based contracts	313	148	177	236
Other contracts	42	3	2	56
Current portion	36	4	13	51

Cash flow hedges are not classified under any category of IFRS 9.

The hedged cash flows of the underlying transactions will probably materialize, and have an impact on the income statement, in the years 2022 to 2041 (interest payments and payments of principal) or in the years 2022 to 2025 (payments for energy).

Disclosures for hedges and underlying transactions in accordance with IFRS 9

Currency	2021		As of Dec 31, 2021		2020		As of Dec 31, 2020	
	Changes in hedges and underlying transactions	thereof ineffective (with impact on income statement)	Status of the hedging reserve cash flow hedges	Changes in hedges and underlying transactions	thereof ineffective (with impact on income statement)	Status of the hedging reserve cash flow hedges		
INTEREST-BASED CONTRACTS								
Interest swaps	-	-	-	+5	-	+1		
CURRENCY-BASED CONTRACTS								
Currency swaps	+18	-	-	+2	-	-		
Cross-currency swaps	+232	-7	-153	-123	-6	-107		
OTHER CONTRACTS								
Energy price hedges	+137	-	+66	-50	-	-71		

In the case of interest and cross-currency hedges, the effectiveness of the hedge is assessed using the critical terms match method. This method is used because the major valuation parameters of the underlying transaction and hedges are identical. Ineffectiveness is measured as of every balance sheet date by means of the hypothetical derivative method. In this method, the development in value of the hedge which is actually taken out is compared with the development in value of a theoretical hedge in which all valuation-relevant parameters are identical to those of the underlying transaction. In the case of energy price derivatives, the effectiveness of the hedge is assessed using the linear regression. The ineffectiveness is calculated using the dollar-offset method. In this method, the changes in the fair values of the underlying transaction are compared with the changes in the fair value of the hedging instrument. The resultant quotient determines the ineffectiveness.

As in the previous year, in the year under review the inefficiencies of cash flow hedges of the energy price derivatives recognized in the income statement were immaterial.

Non-hedge derivatives

Currency forwards taken out to hedge operations are normally classified as non-hedge derivatives.

The fair values of the non-hedge derivatives are shown under assets and liabilities as follows:

AS OF DEC 31 / € million	Assets		Liabilities	
	2021	2020	2021	2020
INTEREST-BASED CONTRACTS				
Interest forwards	-	0	-	-
	-	0	-	-
CURRENCY-BASED CONTRACTS				
Currency forwards	15	9	7	11
Other currency derivatives	0	0	0	0
Cross-currency swaps	-	-	20	25
	15	9	27	36
OTHER CONTRACTS				
Energy price derivatives	-	0	-	-
	-	0	-	-
Total	15	9	27	36
Non-current portion	1	0	21	27
Currency-based contracts	1	0	21	27
Current portion	14	9	6	9

The cross-currency swaps are based on a redesignation of hedges as a result of the transfer of transactions between banks. The conditions including the cash flows of the derivatives were unchanged and the economic hedge is thus still in place. The decline was attributable to the reversal of the redesignated amounts in line with the remaining maturities of the swaps.

The non-hedge derivatives are classified under the “held-for-trading” category of IFRS 9.

The financial instruments recognized at fair value are classified under valuation level 2 and to a lesser extent under valuation level 1.

AS OF DEC 31 / € million	2021				2020			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
ASSETS								
Financial assets (securities at fair value)	3	-	-	3	3	-	-	3
Derivatives - non-hedging	-	15	-	15	-	9	-	9
Derivatives - hedging	-	391	-	391	-	155	-	155
Total	3	406	-	409	3	164	-	167
LIABILITIES								
Derivatives - non-hedging	-	27	-	27	-	36	-	36
Derivatives - hedging	-	192	-	192	-	343	-	343
Total	-	219	-	219	-	379	-	379

There have been no reclassifications between the valuation levels in the year under review.

For establishing the fair values of the derivative financial instruments, contractually agreed or most probable cash flows are discounted using the appropriate market interest rate, whereby due consideration is given to the credit risk by means of credit spreads. No credit risk markdowns have been recognized in the case of secured exposures. The credit risk resulting from the derivative portfolio is treated on a net basis. Credit support annexes, which are subject to daily security settlement with a threshold value of € 0, were concluded to minimize the credit risk of long-term interest and cross-currency transactions.

(22) CASH AND CASH EQUIVALENTS

This item comprises cash in hand and checks, deposits at banks that are due on sight, as well as time deposits with a maturity of up to three months.

Cash and cash equivalents are recognized with their nominal value (at amortized cost).

Cash and cash equivalents are broken down as follows:

AS OF DEC 31 / € million	2021	2020
Cash in hand and bank deposits	4,591	3,411
Cash equivalents	0	0
Total	4,591	3,411

The interest rates for short-term bank deposits were in a range of between -0.67% to 0.01% (previous year: -0.60% to 0.05%) and relate to euro-denominated cash investments. The durations of the investments are between one day and three months.

For a definition of cash and cash equivalents, please refer to section [Notes to the statement of cash flows](#) 229f.

(23) HELD-FOR-SALE ASSETS

Under IFRS 5, non-current assets are classified as held-for-sale non-current assets if their carrying amount is to be realized by way of sale and not by way of continued use. This can be an individual asset, a disposal group or part of a company. Non-current held-for-sale assets are measured at the lower of the carrying amount or the fair value, less costs incurred.

As of December 31, 2021, no held-for-sale assets were shown in the balance sheet.

(24) SUBSCRIBED CAPITAL

The share capital of DB AG is € 2,150 million. It consists of 430,000,000 no-par-value bearer shares. All shares are held by the Federal Republic of Germany.

(25) RESERVES

a) Capital reserves

Capital reserves comprise reserves that have not been part of profits. In the year under review, the Annual General Meeting of DB AG decided to make an additional payment to the capital reserve of € 2.675 billion. This included € 550 million from the damage compensation for Covid-19 damage at DB Long-Distance in the period from March to June 2020, which was approved by the EU Commission on August 10, 2021, and € 2.125 billion from the 2030 Climate Action Program for the years 2020 and 2021.

b) Reserve resulting from valuation with no impact on profit or loss

RESERVE FOR CURRENCY TRANSLATION DIFFERENCES

The currency translation differences resulting from the method of functional currency (IAS 21) are shown separately as part of consolidated shareholders' equity.

RESERVE FOR MARKET VALUATION OF SECURITIES

The reserve includes the changes in the fair value of financial instruments to be recognized directly in equity. The reserve is to be released to or derecognized from profit or loss upon disposal or disposal/maturity or reclassification of a financial instrument.

RESERVE ATTRIBUTABLE TO THE MARKET VALUATION OF CASH FLOW HEDGES

The development of the reserve is shown in the following:

€ million	2021	2020
As of Jan 1	-171	-149
Change in fair value	463	-244
RECLASSIFICATIONS		
Financial result	-295	145
Net interest income	-26	-2
Cost of materials	-51	78
Changes in deferred taxes	-7	1
As of Dec 31	-87	-171

RESERVE FOR THE REVALUATION OF PENSIONS

The effects resulting from the revaluation of defined benefit plans in accordance with IAS 19 (Employee Benefits) are recognized directly in equity.

OTHER CHANGES IN THE RESERVES

This item mainly shows amounts resulting from transactions in relation to reductions or increases in non-controlling interests between the shareholders of DB AG and the non-controlling interests.

(26) GENERATED PROFITS

The generated shareholders' equity comprises the entire net profits generated since January 1, 1994 less the goodwill offset under HGB up to December 31, 2002 as well as the dividends paid to the shareholders.

This item also shows the impact on shareholders' equity attributable to the first-time adoption of IFRS if they are not included in the reserves attributable to valuation with no impact on profit and loss.

(27) NON-CONTROLLING INTERESTS AND HYBRID CAPITAL

Non-controlling interests comprise the share of third parties in the net assets of consolidated subsidiaries. Third-party interests in the currency reserve amounted to € -13 million (as of December 31, 2020: € -12 million).

In October 2019, Deutsche Bahn Finance GmbH (DB Finance) issued two junior hybrid bonds with a total volume of € 2 billion. The hybrid bonds have undated durations with an initial termination right for the issuer after 5.5 years (coupon: 0.95%) and ten years (coupon: 1.6%) respectively; the issue proceeds amounted to € 997 million and € 995 million respectively. The two hybrid bonds do not have a repayment obligation and do not have a termination right for the creditor. In addition, any retained interest payments only have to be made when a dividend is paid. According to IAS 32 (Financial Instruments), the hybrid bonds have to be classified entirely as equity as there is no regular repayment obligation for the hybrid bonds, nor is there any termination right for the bond holders. Interest payments to be made to the bond holders (less the taxes on income) are recognized directly in equity. Interest payments of € 26 million were made in the year under review (previous year: € 21 million).

(28) FINANCIAL DEBT

Liabilities are normally recognized in accordance with IFRS 9 with their nominal amount, which corresponds to the fair value at the point at which the liability is initially recognized and the amortized acquisition costs up to the date at which the liability is settled. Financial debt and other non-current liabilities, when initially recognized, are stated with the amount which corresponds to the fair value of the received assets, where appropriate less transaction costs. Subsequently, they are stated using amortized acquisition costs using the effective interest method. The differences between the amount paid out less transaction costs and the amount repaid are recognized in the income statement over the life of the liability.

Interest-free loans that are related to infrastructure capital expenditures are recognized with the present value of the amounts to be repaid, and are adjusted to their nominal repayment amount over their life. The difference between the nominal amount of the loan and the present value is recognized as an interest benefit under accruals. The income from pro rata reversal of these accruals is shown as other operating income.

Liabilities from lease contracts for which a right of use has to be recognized in accordance with IFRS 16 are shown as liabilities at the beginning of the contract duration with the lower of fair value and the present value of the following lease payments: fixed payments less payments of the lessor that are received, variable payments based on an index, expected payments

for residual value guarantees, the purchase price for probably exercised purchase options, probable compensation payments in the event of early termination. The assessment of the lease liability also includes lease payments in relation to adequately certain utilization of extension options. The leasing installments are broken down into an interest component and a redemption component. The interest component of the leasing installment is recognized in the statement of income. The interest rate used corresponds to the implied interest rate of the lease contract or, if this is not known, the maturity-related marginal borrowing rate. Liabilities arising from leases are not classified under any category of IFRS 9.

Some transport contracts comprise the leasing particularly of rail vehicles from transport authorities or from independent financial service providers, whereby the latter receive a capital service guarantee, a redeployment guarantee or similar from the public transport authority. The present value of these payment obligations is shown under the financing liabilities from transport concessions.

The financial debt comprises all interest-bearing liabilities including the interest-free loans stated with their present values. The maturity structure of financial debt is as follows:

€ million	Residual maturity						Total more than 1 year	Total
	Up to 1 year	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	More than 5 years		
AS OF DEC 31, 2021								
Interest-free loans	154	146	141	-	-	5	292	446
Senior bonds	1,575	1,958	1,948	1,983	2,288	17,651	25,828	27,403
Bank borrowings	1,315	1	0	0	-	4	5	1,320
EUROFIMA loan	-	-	-	-	-	-	-	-
Leasing liabilities	1,031	812	595	480	376	1,765	4,028	5,059
Financing liabilities from transport concessions	19	19	19	19	18	86	161	180
Other financial liabilities	70	5	0	0	1	2	8	78
Total	4,164	2,941	2,703	2,482	2,683	19,513	30,322	34,486
thereof due to related companies	161	146	141	-	-	5	292	453
AS OF DEC 31, 2020								
Interest-free loans	153	147	139	136	-	5	427	580
Senior bonds	1,809	1,543	1,937	1,925	1,942	14,865	22,212	24,021
Bank borrowings	2,900	402	0	0	0	2	404	3,304
EUROFIMA loan	200	-	-	-	-	-	-	200
Leasing liabilities	1,078	739	611	434	356	1,713	3,853	4,931
Financing liabilities from transport concessions	27	27	27	26	25	59	164	191
Other financial liabilities	87	2	6	0	0	2	10	97
Total	6,254	2,860	2,720	2,521	2,323	16,646	27,070	33,324
thereof due to related companies	360	147	139	136	-	5	427	787

The following fair values are summarized in comparison with the carrying amounts:

AS OF DEC 31 / € million	2021		2020	
	Carrying amount	Fair value	Carrying amount	Fair value
Interest-free loans	446	476	580	633
Senior bonds	27,403	28,269	24,021	26,113
Bank borrowings	1,320	1,321	3,304	3,305
EUROFIMA loan	-	-	200	207
Leasing liabilities	5,059	5,247	4,931	5,349
Financing liabilities from transport concessions	180	196	191	208
Other financial liabilities	78	78	97	97
Total	34,486	35,587	33,324	35,912

The differences between the carrying amounts and the fair values of the financial debt are due to the mostly changed market interest rates for financial debt with a comparable risk profile. In view of the short maturities involved and also in view of the fact that interest charged is closely linked to market rates, there are no significant differences between the carrying amounts and the fair values of other financial liabilities.

Interest-free loans were also attributable almost exclusively to financing provided by the Federal Government for capital expenditures in expanding and replacing track infrastructure. This is based on the responsibility for the transport needs of the public which is anchored in section 87e (4) of the German Basic Constitutional Law (Grundgesetz; GG) and specified in the Federal Rail Infrastructure Extension Act (Bundesschienenwegeausbaugesetz; BSWAG).

The repayment of the loans is regulated in individual and collective financing agreements. In general, the loans are repaid in equal annual installments, which are based on the corresponding annual depreciation applicable for the financed assets.

Interest-free loans have developed as follows:

€ million	2021	2020
As of Jan 1	580	707
Addition	0	8
Redemption	-157	-163
Compounding	23	28
As of Dec 31	446	580

The issued senior bonds consist of the following transactions:

SENIOR BONDS AS OF DEC 31 / € million	Issue volume	Issue currency	Residual maturity (years)	Effective interest rate (%)	2021		2020	
					Carrying amount	Fair value	Carrying amount	Fair value
UNLISTED SENIOR BONDS								
DB Finance	1,185	AUD, JPY, EUR	2.4-10.8		1,192	1,262	1,178	1,318
Total					1,192	1,262	1,178	1,318
LISTED SENIOR BONDS OF DB FINANCE								
Bond 2009-2021	600	EUR	0.0	4.445	-	-	600	621
Bond 2010-2025	500	EUR	3.5	3.870	498	567	498	589
Bond 2010-2022	500	EUR	0.8	3.464	500	515	499	533
Bond 2011-2021	700	EUR	0.0	3.797	-	-	700	712
Bond 2012-2022	496	GBP	0.5	2.821	476	481	444	462
Bond 2012-2023	400	EUR	1.1	2.116	399	411	399	419
Bond 2012-2024	83	CHF	2.1	1.586	97	101	92	98
Bond 2012-2024	500	EUR	2.2	3.119	498	536	498	550
Bond 2012-2024	75	GBP	50.9	4.524	71	129	66	130
Bond 2013-2028	50	EUR	6.1	2.707	50	57	50	59
Bond 2013-2025	202	NOK	3.2	4.017	150	158	143	156
Bond 2013-2023	386	CHF	1.6	1.425	460	473	439	462
Bond 2013-2026	497	GBP	4.6	3.351	501	547	467	543
Bond 2013-2023	500	EUR	1.7	2.578	499	523	499	537
Bond 2014-2024	59	AUD	2.1	5.395	58	61	57	63
Bond 2014-2021	142	SEK	0.0	2.940	-	-	125	125
Bond 2014-2021	40	SEK	0.0	FRN	-	-	35	35
Bond 2014-2024	246	CHF	2.7	1.522	290	304	278	298
Bond 2014-2029	500	EUR	7.2	2.886	495	591	495	620
Bond 2014-2022	300	EUR	0.7	FRN	300	301	300	302
Bond 2014-2022	300	EUR	0.1	FRN	300	300	300	301
Bond 2015-2023	600	EUR	1.8	FRN	600	604	599	605
Bond 2015-2025	600	EUR	3.8	1.391	596	628	596	642
Bond 2015-2030	366	NOK	8.8	2.760	340	347	324	341
Bond 2015-2025	115	AUD	3.8	3.864	115	122	113	127
Bond 2015-2030	650	EUR	8.8	1.707	646	719	645	760
Bond 2015-2025	161	CHF	3.9	0.143	169	171	162	166
Bond 2016-2026	500	EUR	4.2	0.880	497	514	497	525
Bond 2016-2031	750	EUR	9.5	0.964	744	775	743	817
Bond 2016-2021	350	EUR	0.0	0.039	-	-	350	351
Bond 2016-2028	500	EUR	6.7	0.765	495	516	495	533
Bond 2016-2024	41	HKD	2.2	2.100	40	40	37	38
Bond 2017-2032	79	NOK	10.1	2.514	70	69	67	68
Bond 2017-2032	500	EUR	10.9	1.541	498	548	498	583
Bond 2017-2025	341	GBP	3.5	1.437	356	359	333	349
Bond 2017-2032	55	SEK	10.6	2.226	52	54	53	57
Bond 2017-2030	261	CHF	8.9	0.463	290	298	278	293
Bond 2017-2024	300	EUR	2.9	FRN	301	303	302	303
Bond 2018-2027	1,000	EUR	6.0	1.086	995	1,049	994	1,084
Bond 2018-2033	750	EUR	11.6	1.680	746	831	745	879
Bond 2018-2028	346	CHF	6.5	0.470	388	399	371	390
Bond 2018-2031	500	EUR	9.2	1.508	494	538	494	566
Bond 2018-2043	125	EUR	21.9	1.866	125	138	125	162
Bond 2019-2028	1,000	EUR	7.0	1.235	993	1,062	992	1,101
Bond 2019-2026	340	GBP	4.1	1.944	356	366	333	358
Bond 2019-2034	103	NOK	12.1	2.732	100	100	95	98
Bond 2019-2029	310	CHF	7.5	0.135	338	338	323	331
Bond 2019-2034	133	CHF	12.5	0.516	145	148	139	145
Bond 2019-2039	47	SEK	17.4	2.025	49	49	50	55
Bond 2020-2035	500	EUR	13.5	0.819	496	495	495	538
Bond 2020-2024	300	EUR	2.1	-0.062	300	301	300	302
Bond 2020-2032	150	EUR	10.2	0.257	150	143	150	152
Bond 2020-2027	900	EUR	5.3	0.639	894	917	892	942
Bond 2020-2040	750	EUR	18.3	1.433	743	789	743	884
Bond 2020-2029	850	EUR	7.5	0.411	848	857	847	881
Bond 2020-2039	650	EUR	17.5	0.977	639	631	638	703
Bond 2020-2035	48	SEK	13.5	1.544	49	47	50	50
Bond 2020-2050	1,000	EUR	28.9	0.656	991	861	991	1,001
Bond 2021-2036	370	CHF	14.1	0.100	388	372	-	-
Bond 2021-2026	339	GBP	4.9	0.523	354	341	-	-
Bond 2021-2026	494	SEK	4.1	0.524	487	479	-	-
Bond 2021-2036	1,000	EUR	14.3	0.759	982	959	-	-
Bond 2021-2033	296	CHF	11.4	0.211	315	311	-	-
Bond 2021-2041	168	AUD	19.4	3.124	166	168	-	-
Bond 2021-2051	1,000	EUR	29.4	1.159	991	980	-	-
Bond 2021-2036	196	NOK	14.5	2.241	200	187	-	-
Bond 2021-2031	750	EUR	9.7	0.393	747	739	-	-
Bond 2021-2031	279	CHF	9.8	0.241	291	290	-	-
Total					26,211	27,007	22,843	24,795
Senior bonds, total amount					27,403	28,269	24,021	26,113

During the year under review, three fixed-interest listed senior bonds issued by DB Finance for € 600 million, € 700 million, and SEK 1,250 million (€ 142 million), a floating-rate listed senior bond for SEK 350 million (€ 40 million) and a listed zero-coupon senior bond for € 350 million were redeemed as scheduled, for a total of € 1,832 million.

In the year under review, DB Finance issued ten fixed-interest, listed senior bonds with a total value of € 4,892 million. These involve issues of CHF 400 million (€ 370 million), GBP 300 million (€ 339 million), SEK 5,000

(€ 494 million), € 1,000 million, CHF 325 million (€ 296 million), AUD 260 million (€ 168 million), € 1,000 million, NOK 2,000 million (€ 196 million), € 750 million and CHF 300 million (€ 279 million).

Bank borrowings are detailed in the following table:

BANK BORROWINGS AS OF DEC 31 / € million	Currency	Residual maturity (years)	Nominal interest rate (%)	2021		2020	
				Carrying amount	Fair value	Carrying amount	Fair value
				Bank loan 2002-2022	EUR	0.7	FRN
Bank loan 2003-2022	EUR	0.7	FRN	200	200	200	200
Bank loan 2020-2021	EUR	0.0	FRN	-	-	1,000	1,000
Bank loan 2020-2021	EUR	0.0	FRN	-	-	1,000	1,000
Bank loan 2020-2021	EUR	0.0	FRN	-	-	500	500
Bank loan 2020-2021	EUR	0.0	FRN	-	-	350	350
Bank loan 2021-2022	EUR	0.2	FRN	500	500	-	-
Other				420	421	54	55
Total				1,320	1,321	3,304	3,305

The decrease in bank borrowing as of December 31, 2021 essentially resulted from the complete repayment of four short-term credit facilities for a total of € 3,000 million (as of December 31, 2020: € 3,000 million), which were designed to bridge liquidity until the measures planned by the Federal Government to strengthen the shareholders' equity of DB AG were implemented. These measures were mainly implemented in the year under review (see Note (25) 216).

The increase in other bank borrowings was mainly attributable to an increase in short-term collateral (as of December 31, 2021: € 272 million; as of December 31, 2020: € 18 million) resulting from collateral agreements within the framework of derivative transactions.

Liabilities are not secured in DB Group as a ground rule.

As of December 31, 2021, further guaranteed credit facilities with a total volume of € 4,577 million were available to DB Group (as of December 31, 2020: € 4,676 million). Of this figure, € 2,080 million was attributable to back-up lines for the € 3.0 billion commercial paper program of DB AG (as of December 31, 2020: € 2,080 million). None of these back-up lines had been drawn down as of December 31, 2021. Global credit facilities totaling € 2,497 million (as of December 31, 2020: € 2,596 million) are used for working capital and surety for payment financing of subsidiaries with operations worldwide, primarily in the DB Schenker and DB Arriva segments.

The liabilities due to EUROFIMA are detailed in the following:

LIABILITIES DUE TO EUROFIMA AS OF DEC 31 / € million	Currency	Residual maturity (years)	Nominal interest rate (%)	2021		2020	
				Carrying amount	Fair value	Carrying amount	Fair value
				Loan 2010-2021	EUR	0.0	4.050
Total				-	-	200	207

There were no EUROFIMA loans as of December 31, 2021. In the year under review, the last outstanding EUROFIMA loan amounting to € 200 million was repaid on schedule.

Liabilities attributable to leasing (Note (13) 205 ff.) are secured by rights of the lessors in relation to the leased assets.

As of December 31, 2021, the leased assets have a carrying amount of € 4,619 million (as of December 31, 2020: € 4,585 million).

The nominal values of the leasing liabilities are broken down as follows:

LEASING LIABILITIES / € million	Residual maturity							Total
	Up to 1 year	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	More than 5 years	Total more than 1 year	
AS OF DEC 31, 2021								
Nominal values of lease payments	1,058	884	653	528	416	2,085	4,566	5,624
AS OF DEC 31, 2020								
Nominal values of lease payments	1,093	807	665	477	390	1,975	4,314	5,407

The financing liabilities from transport concessions in accordance with IFRIC 12 are detailed in the following:

AS OF DEC 31 / € million	Currency	Residual maturity (years)	2021		2020	
			Carrying amount	Fair value	Carrying amount	Fair value
Network West locomotives (2016)	EUR	4.0	-	-	26	27
Network West rail cars (2016)	EUR	4.0	-	-	6	7
Network West passenger cars (2019)	EUR	4.0	-	-	31	33
Diesel network Allgäu diesel traction units (2020)	EUR	8.0	40	43	44	49
S-Bahn (metro) Nuremberg electric traction units (2020)	EUR	9.0	66	73	74	81
S-Bahn (metro) Rhine-Neckar electric traction units (2020)	EUR	13.0	9	10	10	11
S-Bahn (metro) Rhine-Neckar electric traction units (2021)	EUR	13.0	65	70	-	-
Total			180	196	191	208

In order to fulfill the regional rail passenger transport services in the Schleswig-Holstein network, various locomotives, rail cars and (since 2019) also passenger cars were leased from the responsible contracting organization until the end of the service contract in 2025.

In the year under review, the second operational stage for the Rhine-Neckar S-Bahn (metro) was added with a term until 2034. Financial liabilities from transport concessions are opposed by receivables from transport concessions (Note (19) 210ff.).

The fair values of the long-term financial debt are allocated to the following valuation categories:

AS OF DEC 31 / € million	2021				2020			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
NON-CURRENT FINANCIAL DEBT								
Interest-free loans	-	322	-	322	-	480	-	480
Senior bonds	5,332	21,342	-	26,674	4,949	19,322	-	24,271
Bank borrowings	-	6	-	6	-	405	-	405
EUROFIMA loan	-	-	-	-	-	207	-	207
Leasing liabilities	-	4,216	-	4,216	-	4,271	-	4,271
Financing liabilities from transport concessions	-	177	-	177	-	181	-	181
Other financial liabilities	-	8	-	8	-	10	-	10
Total	5,332	26,071	-	31,403	4,949	24,876	-	29,825

The interest-free loans shown at amortized acquisition cost are calculated by discounting the nominal values of the interest-free loans, which are broken down into maturity buckets using the DB interest curve (market interest curve plus current DB spread; source: Thomson Reuters or Bloomberg).

Market prices from an active market, multiplied by the foreign currency rates applicable on the balance sheet date, are used for senior bonds of DB Finance that are classified as level 1. Various sources are used for these prices, including Thomson Reuters and Bloomberg. The senior bonds for which the market activity does not meet the requirements of an active market have been allocated to level 2. For establishing the market prices of these senior bonds, binding offers were used from various sources, including Thomson Reuters and Bloomberg; these have been verified on the basis of the valuation models using the parameters that are observable on the market, such as interest rate curves and exchange rates.

The fair value of the leases and also of the financing liabilities from transport concessions is determined by discounting the outstanding lease payments with the corresponding DB interest rate curves (market interest curve plus current spread; source: Thomson Reuters or Bloomberg).

(29) OTHER LIABILITIES

Liabilities are normally recognized in accordance with IFRS 9 with their nominal amount, which corresponds to the fair value at the point at which the liability is initially recognized and the amortized acquisition cost up to the date at which the liability is settled, where applicable less transaction costs. Subsequently, non-current liabilities are stated using amortized acquisition cost using the effective interest method. The differences between the disbursement amount less transaction costs and the repayment amount are recognized in profit or loss over the term.

The fair values of the balance sheet items miscellaneous liabilities, trade liabilities and other liabilities essentially correspond to the carrying amounts.

Severance package obligations for agreements made as of the balance sheet date are recognized as other liabilities and – if they are not yet included in individual agreements and if they are part of a restructuring obligation in accordance with IAS 37 – are stated as other provisions.

Movements in other liabilities are shown in the following:

€ million	Residual maturity							Total
	Up to 1 year	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	More than 5 years	Total more than 1 year	
AS OF DEC 31, 2021								
Trade liabilities including prepayments received	8,097	98	7	6	4	11	126	8,223
Miscellaneous and other liabilities	3,883	15	8	6	16	170	215	4,098
Total	11,980	113	15	12	20	181	341	12,321
thereof non-financial liabilities	2,613	11	3	2	2	6	24	2,637
thereof prepayments received	280	2	2	1	1	6	12	292
thereof due to related parties	152	0	-	-	-	-	0	152
AS OF DEC 31, 2020								
Trade liabilities including prepayments received	6,312	478	71	6	4	12	571	6,883
Miscellaneous and other liabilities	3,308	6	6	6	6	139	163	3,471
Total	9,620	484	77	12	10	151	734	10,354
thereof non-financial liabilities	2,287	4	3	3	2	8	20	2,307
thereof advance payments received ¹⁾	364	2	2	1	1	8	14	378
thereof due to related parties	245	-	-	-	-	-	-	245

¹⁾ Value of all non-current liabilities and "Total" adjusted.

€ 1,092 million of the increase in trade liabilities (+ € 1,340 million) was attributable to the DB Schenker segment. Please also refer to [Segment information according to segments](#) 190f.

Non-financial liabilities and advance payments received are not classified under any category of IFRS 9.

The miscellaneous and other liabilities were broken down as follows:

AS OF DEC 31 / € million	2021	2020
PERSONNEL-RELATED LIABILITIES		
Unused holiday entitlements	314	292
Outstanding overtime	284	258
Social security	137	124
Severance payments	25	29
Christmas bonuses	14	11
Holiday pay	28	25
Other personnel obligations	1,129	799
OTHER TAXES		
Value-added tax	91	71
Payroll and church taxes, solidarity surcharge	207	176
Miscellaneous other taxes	117	143
Interest payable	160	164
Revenue discounts	60	46
Deferred investment grants	243	262
Liabilities in accordance with the Railroad Crossings Act	0	3
Miscellaneous other liabilities	1,289	1,068
Total	4,098	3,471

The increase in personnel-related liabilities resulted in particular from an increase in other personnel obligations in connection with the payment of pension obligations in Sweden and due to the increase in performance-related bonuses in the DB Schenker segment.

Other liabilities as of December 31, 2021, were unchanged at € 0 million.

The miscellaneous other liabilities included existing risks for factoring agreements.

(30) INCOME TAX LIABILITIES

Income tax liabilities as of December 31, 2021, related in particular to obligations to the tax authorities in China, the United Kingdom and India.

(31) PENSION OBLIGATIONS

DB Group grants post-employment benefits to its employees in numerous countries. The form of the pension commitments depends on the legal, economic and tax conditions applicable in the particular country.

In DB Group, there are defined benefit as well as defined contribution retirement pension systems. The defined benefit commitments are assessed and accounted for in accordance with IAS 19. Significant pension obligations only exist in Germany and in the United Kingdom. For this reason, only these pension obligations are described in greater detail in the following.

Germany

DB Group's pension obligations in Germany apply to both civil servants and employees.

After they retire, civil servants assigned to DB Group companies receive retirement benefits from the Federal Railroad Fund under the Civil Servants Benefits Act (*Beamtenversorgungsgesetz*).

Only while the assigned civil servants are actively working for DB Group are payments made to the Federal Railroad Fund as part of a pro forma settlement in the same way as for newly recruited employees (section 21 (1) *DBGrG*). This also includes theoretical amounts for contributions to statutory pension insurance schemes as well as theoretical costs in accordance with the collective bargaining agreements regarding the additional company pension scheme for employees of DB AG (*Tarifvertrag über die betriebliche Zusatzversorgung; ZVersTV*) and the company pension plan (*Tarifvertrag über die betriebliche Altersvorsorge; bAV-TV*) of the employees of DB AG. The payments made to the Federal Railroad Fund for retirement pensions of civil servants are defined contribution retirement schemes.

The pension obligations with regard to employees mainly relate to the following:

a) Employees who were employed by Deutsche Bundesbahn before DB AG was established (January 1, 1994) enjoy supplementary benefits in view of their former membership of the public sector. The employees are entitled to benefits from this additional pension insurance from Deutsche Rentenversicherung Knappschaft-Bahn-See (KBS). As an official authority, KBS has not only assumed responsibility for managing and paying the statutory pension for DB Group employees; it also continues the additional pension insurance for the transferred employees who are beneficiaries.

During the active phase of the employment agreement, a pro forma reimbursement of costs is also provided to the Federal Railroad Fund for these employees. When the employee retires, this payment is no longer made to the Federal Railroad Fund.

The Federal Railroad Fund bears the costs of these additional benefits, less the contribution made by the employees themselves (section 14 (2) DBGrG). Accordingly, DB AG does not set aside any provisions for these public sector benefits.

b) Employees of the former Deutsche Reichsbahn and the employees who have been recruited after January 1, 1994, receive an additional company pension from DB AG within the framework of the ZVersTV. This supplementary company pension is a defined benefit scheme, which is linked to salary and length of service. The current pension benefits are adjusted every year in line with the regulations of the Company Pensions Act (Betriebsrentengesetz). Retirement benefits, invalidity benefits and benefits to surviving dependents are provided in the form of a lifetime pension. No plan assets are created for this scheme.

In addition, the employees in most Group companies receive a monthly contribution to the company retirement benefit scheme in the amount of 3.3% of the employee's monthly standard salary as well as of most of the salary elements paid in the month. The monthly contribution is paid into a pension plan (DEVK-Pensionsfonds). It is not necessary for provisions to be created for this purpose.

c) Various defined benefit pension obligations exist with regard to senior executives in DB Group who were granted a senior executive commitment before January 1, 2007. The extent of the benefits depends on the length of service and the salary of the beneficiary. In general, retirement benefits, invalidity benefits and benefits to surviving dependents are provided in the form of a lifetime pension. With the exception of a small number of reinsurance policies, there are no plan assets.

d) Senior executives of DB Group who were granted a senior executive commitment after December 31, 2006, are provided with a retirement benefit scheme in the form of a defined contribution commitment. For this purpose, a benefit module is calculated in each year of service, depending on the salary and age of the beneficiaries. These benefits are financed by way of a contractual trust arrangement (CTA), namely Deutsche Bahn Pension Trust e.V. The extent of the benefits depends on the yield of the CTA, whereby a minimum return is guaranteed (guarantees up to and including 2014: 2.25% p. a.; guarantees from 2015 onwards: only maintenance of contribution). To avoid longevity risks, the benefits are granted in the form of a five-year installment. The assets of the CTA are classified as plan assets. The pension obligation is covered by the plan assets on the assumption that the CTA produces a corresponding performance, thus minimizing investment risks. There are no legal or regulatory obligations requiring

Deutsche Bahn Pension Trust e.V. to make minimum payments into the scheme. The contributions are invested in line with the fundamental assumption that the benefit commitment is guaranteed by a corresponding guarantee element. For each payment relating to an individual beneficiary, an age-related amount is invested in prime zero bonds. The investment amount remaining after the payment has been made into the guarantee element is mainly invested in passively managed European equity and bond funds (or equivalent products) with the aim of optimizing returns.

e) Senior executives are able to participate in a deferred compensation program. This employee-financed form of company pension plan constitutes a defined benefit pension obligation.

United Kingdom

a) The company pension plan of DB Cargo (UK) Holdings Limited is essentially a defined benefit pension plan (linked to salary and length of service) within the British Railway Pension Scheme. The plan assets are managed by an independent trustee. The process of collating the data of members in the plan for the purpose of compliance with legal requirements in relation to the members of the plan is generally carried out every three years. As of the intermediate valuation dates, the commitments in the plan are measured on the basis of the correspondingly updated data. The pension plan is based on final salary, and lifetime pensions are provided as benefits. The pension obligations are essentially covered by plan assets. Capital is invested by the trustee of the plan assets following liaison with DB Group.

b) At DB Arriva, there are mainly defined benefit retirement benefit commitments. Important defined benefit plans (related to salary and length of service) relate to employees of DB Arriva within the Railway Pension Scheme in the United Kingdom. These are sections other than the DB Cargo UK plan within the Railway Pension Scheme. The costs of the pension plans are shared between the employer and the employee in the ratio 60:40 and accordingly recognized in the balance sheet. The pension plans are based on final salary, and lifetime pensions are provided as benefits. The pension obligations are essentially covered by plan assets. Capital is invested by the trustee of the plan assets following liaison with DB Group.

Some companies pay contributions within the framework of a franchise agreement to the British Railway Pension Scheme for employees employed for the duration of the agreement (franchise period). The obligations to these employees as well as the plan assets are completely disclosed after deduction of the element financed by the employees (40%). Within the framework of recognizing the effect of franchise agreements, the present value of the contributions payable for the duration of the franchise agreements for reducing a scheme deficit remains as a net liability recognized in the balance sheet. The current contributions to the benefit scheme are shown as personnel expenses.

In addition, individual companies of DB Arriva also issued defined contribution retirement benefit commitments to their employees. Under such arrangements, the employer does not enter into any commitments apart from paying contributions to an external benefit scheme. The extent of the future pension benefits depends exclusively on the amount of contributions paid to the external benefit scheme, including the income generated by investing these contributions.

In addition, some contributions have also been paid to social pension funds within the context of statutory regulations (government schemes).

Critical estimations and assessments

In the case of the defined benefit pension obligations in Germany and abroad, the actuarial risks are borne by DB Group. Actuarial methods have been used for measuring defined benefit pension commitments as well as benefit commitments which are similar to pensions and the resultant expenses and income. The valuations are based on actuarial assumptions. There are the following actuarial risks which are considered to be typical for companies with defined benefit schemes:

- **Interest risk:** The discount factors which are used reflect the interest rates (giving due consideration to the duration of the underlying obligation) which are achieved on the balance sheet date for high-quality fixed-interest senior bonds with a corresponding duration. A change in the discount rate results in a change in the present value of the total obligation (DBO).
- **Inflation risk:** Part of the pension obligations, particularly as a result of adjustments to current pensions, is linked to the development of inflation.

- **Longevity risk:** A longevity risk may occur in the form of extended periods in which pensions are paid out as a result of an increase in life expectancy in future.
- **Investment risk:** In the case of externally financed pension plans, the values of the corresponding plan assets or the refund claims are based on the fair values as of the balance sheet date. The capital investment is exposed to numerous risks, which may have an impact on the present value recognized for the plan assets. In the case of pension plans with an obligation to pay into the scheme, the amount of future contributions may be affected by the investment risk.

Key assumptions for expenses and income attributable to pension commitments and benefit commitments similar to pensions are to some extent based on current market conditions. Expenses and income relating to pension commitments and benefit commitments similar to pensions may change as a result of changes to these underlying key assumptions.

The figures stated for pension provisions in the balance sheet are detailed in the following table:

	Germany		Europe (excluding Germany)		Rest of world		Total	
	2021	2020	2021	2020	2021	2020	2021	2020
AS OF DEC 31 / € million								
Commitments for funded benefits	424	427	6,586	6,511	62	66	7,072	7,004
Commitments for unfunded benefits	4,371	5,103	73	398	14	13	4,458	5,514
Total obligations	4,795	5,530	6,659	6,909	76	79	11,530	12,518
Fair value of plan assets	-328	-314	-5,207	-4,503	-40	-37	-5,575	-4,854
Effects due to cost sharing	-	-	-420	-477	-	-	-420	-477
Effects due to franchise agreements	-	-	-604	-690	-	-	-604	-690
Amount not recognized as an asset as a result of the restriction of IAS 19.58	-	-	0	0	-	-	0	0
Assets recognized in the balance sheet as pension assets	-	-	100	20	-	-	100	20
Net obligations recognized in the balance sheet	4,467	5,216	528	1,259	36	42	5,031	6,517

The total pension commitment has developed as follows:

	Germany		Europe (excluding Germany)		Rest of world		Total	
	2021	2020	2021	2020	2021	2020	2021	2020
€ million								
Commitments as of Jan 1	5,530	4,671	6,909	7,997	79	81	12,518	12,749
Service cost, excluding employee contributions	228	178	72	68	4	4	304	250
Employee contributions	3	2	31	33	0	0	34	35
Interest expense	16	51	67	84	0	1	83	136
Payments	-85	-87	-458	-173	-3	-5	-546	-265
thereof pension payments	-85	-87	-170	-173	-3	-5	-258	-265
thereof payments for settlements	0	0	-288	-	0	0	-288	0
Past service costs and profit or losses from settlements	3	7	-60	0	-1	0	-58	7
Transfers ¹⁾	2	2	0	-2,009	-	2	2	-2,005
Changes in scope of consolidation	3	-	-	-	-	-	3	-
thereof additions in scope of consolidation	3	1	-	-	-	-	3	1
thereof disposals in scope of consolidation	-	-1	-	-	-	-	-	-1
Actuarial gains (-)/losses (+)	-905	706	-338	1,289	-8	1	-1,251	1,996
Revaluations based on experience	-31	5	128	14	1	-8	98	11
Due to change in demographic assumptions	-3	-4	-22	-18	0	0	-25	-22
Due to change in financial assumptions	-871	705	-444	1,293	-9	9	-1,324	2,007
Exchange rate effects	-	-	436	-380	5	-5	441	-385
Scope of commitments as of Dec 31	4,795	5,530	6,659	6,909	76	79	11,530	12,518

¹⁾ The values in the previous year are largely related to the cessation of the Rail North franchise in the previous year.

The payments for settlements take account of the payment of pension obligations at Arriva plc, Sunderland/United Kingdom, totaling € 83 million. Moreover, during the financial year, the assumption of pension obligations

in Sweden was agreed in return for a payment of € 205 million. Pending the completion of this payment in 2022, this commitment will be recognized under liabilities as of December 31, 2021.

The development of the plan assets is detailed in the following overview:

€ million	Germany		Europe (excluding Germany)		Rest of world		Total	
	2021	2020	2021	2020	2021	2020	2021	2020
Fair value of plan assets as of Jan 1	314	273	4,503	5,722	37	39	4,854	6,034
Employer contributions	31	30	85	84	1	4	117	118
Employee contributions	1	1	31	33	0	0	32	34
Expected return from plan assets	1	3	56	72	0	1	57	76
Payments	-5	-10	-241	-161	-2	-4	-248	-175
thereof pension payments	-5	-10	-158	-161	-2	-4	-165	-175
thereof payments for settlements	-	-	-83	-	-	-	-83	-
Transfers ¹⁾	-	0	-	-1,210	-	-	-	-1,210
Changes in scope of consolidation	1	0	-	-	-	-	1	0
Revaluation	-15	17	463	263	2	1	450	281
Administrative costs: costs of pension assurance	-	-	-10	-9	-1	-1	-11	-10
Exchange rate effects	-	-	320	-291	3	-3	323	-294
Fair value of plan assets as of Dec 31	328	314	5,207	4,503	40	37	5,575	4,854

¹⁾ The values in the previous year are largely related to the cessation of the Rail North franchise in the previous year.

The reported plan assets are broken down as follows:

AS OF DEC 31 / € million	Germany		Europe (excluding Germany)		Rest of world		Total	
	2021	2020	2021	2020	2021	2020	2021	2020
Stocks and other securities	12	10	2,288	2,334	12	14	2,312	2,358
thereof with market price listing	12	10	2,288	2,334	12	14	2,312	2,358
Interest-bearing securities	213	202	2,115	1,482	24	19	2,352	1,703
thereof with market price listing	213	202	2,115	1,482	24	19	2,352	1,703
Reinsurance	69	70	121	192	-	-	190	262
thereof with market price listing	69	70	103	174	-	-	172	244
thereof without market price listing	-	-	18	18	-	-	18	18
Private equity	-	-	220	173	-	-	220	173
thereof without market price listing	-	-	220	173	-	-	220	173
Investments in infrastructure	-	-	210	178	-	-	210	178
thereof with market price listing	-	-	210	178	-	-	210	178
Cash and other assets	34	32	253	144	4	4	291	180
thereof with market price listing	34	32	77	62	2	2	113	96
thereof without market price listing	-	-	176	82	2	2	178	84
	328	314	5,207	4,503	40	37	5,575	4,854
thereof assets classified as pension assets	-	-	-100	-20	-	-	-100	-20
	328	314	5,107	4,483	40	37	5,475	4,834

Changes in the net pension provisions are detailed in the following:

€ million	Germany		Europe (excluding Germany)		Rest of world		Total	
	2021	2020	2021	2020	2021	2020	2021	2020
Provisions as of Jan 1	5,216	4,398	1,259	914	42	42	6,517	5,354
Pension expenses	248	234	33	89	4	5	285	328
thereof service cost	230	179	72	68	4	4	306	251
thereof interest income and interest expenses	15	48	11	12	0	0	26	60
thereof administrative expenses	-	-	10	9	1	1	11	10
thereof past service costs and profits or losses from settlements	3	7	-60	0	-1	0	-58	7
Employer contributions	-31	-30	-85	-84	-1	-4	-117	-118
Payments	-80	-77	-217	-12	-1	-1	-298	-90
thereof pension payments	-80	-77	-12	-12	-1	-1	-93	-90
thereof payments for settlements	0	0	-205	-	0	0	-205	0
Transfers ¹⁾	2	2	0	-4	-	2	2	-
Changes in scope of consolidation	2	-	-	-	-	-	2	-
thereof additions in scope of consolidation	2	1	-	-	-	-	2	1
thereof disposals in scope of consolidation	-	-1	-	-	-	-	-	-1
Revaluation	-890	689	-582	378	-10	0	-1,482	1,067
Revaluations based on experience	-31	5	83	-42	1	-8	53	-45
Due to change in demographic assumptions	-3	-4	-20	-13	0	0	-23	-17
Due to change in financial assumptions	-871	705	-270	682	-9	9	-1,150	1,396
Difference between actual income and theoretical income from plan assets	15	-17	-375	-249	-2	-1	-362	-267
Exchange rate effects	-	-	42	-18	2	-2	44	-20
Change in recognized assets	-	-	78	-4	-	-	78	-4
Provisions as of Dec 31	4,467	5,216	528	1,259	36	42	5,031	6,517

¹⁾ The values in the previous year are largely related to the cessation of the Rail North franchise in the previous year.

The effects of cost splitting and franchise agreements decreased by € 219 million as of December 31, 2021, as a result of revaluations (as of December 31, 2020: increase of € 648 million). The interest expense and expected income from the plan assets were recorded under interest income.

All other items were recognized under personnel expenses.

The actuarial parameters used for assessing the value of most of the pension provision are set out in the following:

%	2021	2020
INTEREST RATE		
Germany and abroad (excluding United Kingdom)	1.10	0.30
United Kingdom	1.90	1.30
EXPECTED RATE OF SALARY INCREASES		
Germany and abroad (excluding United Kingdom)	3.10	3.10
United Kingdom	3.50	3.10
EXPECTED RATE OF PENSION INCREASE (DEPENDENT ON GROUP OF PERSONNEL)		
Germany and abroad (excluding United Kingdom)	1.75	1.75
United Kingdom	2.50	2.10

The 2018 G mortality tables of Professor Dr. Klaus Heubeck have been used without changes for valuing the pension obligations for the German Group companies. Country- or benefit-scheme-specific mortality tables have been used for valuing the pension obligations of the other Group companies.

Sensitivities and additional information:

AS OF DEC 31 / € million	2021	2020
Total obligation for an interest rate increased by 1 percentage point	9,528	10,252
Total obligation for an interest rate reduced by 1 percentage point	14,186	15,563
Total obligation with salary growth increased by 0.5 %	11,673	12,678
Total obligation for pensions increased by 0.5 %	12,288	13,393
Total obligation for life expectancy increased by 1 year	11,876	12,935
Total obligations	11,530	12,519
thereof active beneficiaries	5,308	6,322
thereof former employees	2,252	2,052
thereof pensioners	3,970	4,145
Payments into plan assets expected for next year	107	109
Direct pension payments for next year	116	89
Duration of benefit obligation (years)	20.2	20.5

The sensitivity figures have been established using the method which was used for calculating the extent of the commitment. One assumption was modified while the other assumptions were retained, which means that interdependencies between the individual assumptions were disregarded.

(32) OTHER PROVISIONS

Other provisions are recognized if a legal or constructive commitment exists as a result of a past event, the probability of its utilization is greater than 50% and it will lead to an outflow of resources, and if a reliable estimate of the extent of the commitment can be made (IAS 37 (Provisions, Contingent Liabilities and Contingent Assets)).

Non-current provisions are discounted using market interest rates. Environmental protection provisions for the remediation of existing ecological damage are discounted on the basis of real interest rates that are adjusted to reflect the risk and the period until fulfillment. A difference between the nominal value of the expected outflows and the present value recognized for the environmental protection provisions of DB AG for transferred commitments for the elimination of legacy issues from the time previous to the foundation of DB AG would be stated under deferred items, and would thus represent the interest benefit resulting from the longer-term liquidation of the provision. The compounding expense attributable to other provisions is recognized in net interest income. Provisions for impending losses are measured as the lower of the amount of the expected costs for fulfilling the agreement and the expected costs for terminating the agreement.

Critical estimations and assessments

The process of determining all types of provisions is associated with estimates regarding the extent and/or timing of obligations.

The provisions for environmental protection relate primarily to the commitment of DB AG to remedy the ecological burdens which arose before January 1, 1994, on the land of the former Deutsche Bundesbahn and the former Deutsche Reichsbahn. Ecological burdens are defined as contamination of soil and groundwater that requires rehabilitation and that pose risks, considerable disadvantages or considerable problems for private individuals or society at large. The legal basis for deriving remediation obligations are summarized in the soil and water laws of the Federal Government and the Federal states. The process of dealing with ecological burdens also comprises necessary remediation measures for

existing sewers, in order to avoid soil and groundwater contamination caused by leaks from the sewer system, as well as measures for shutting down old landfill sites.

The provision has been calculated on the basis of a discounting method using the present value, where remediation measures are probable, the remediation costs can be reliably estimated and no future benefit is expected to be derived from these measures.

The estimation of future remediation costs is subject to various factors. Major drivers in this respect can be the application of innovative remediation measures, changes in legal conditions and also the development in market prices for disposing of legacy issues. In order to make a realistic assessment of the remediation costs in individual cases, the working programs have included adjustments to cost estimates as a result of greater knowledge and official agreements in the successive processing stages.

For the valuation of provisions as of the balance sheet date, the investigation and rehabilitation obligations which are currently known have been used as the basis for estimating the expected costs in relation to the current price level. The provision is discounted on the basis of expected cash outflows, using a risk-adjusted rate of 0.00% as in the previous year.

Provisions for impending losses from pending transactions are created if a loss is probable and can be reliably estimated. In view of the uncertainty associated with this assessment, the actual losses may differ from the original estimations and may thus also differ from the amount of the provision. In DB Group, such uncertainty results particularly from the estimation of future income from transport contracts, the associated material- and personnel-related expenses as well as any penalty payments. Changes in the estimations of these impending losses from pending transactions may have a considerable impact on the future results of operations.

The provisions for decommissioning are measured mainly on the basis of estimations that, for decommissioning and disposal costs, are derived mainly from sector-specific appraisals. The provisions are shown with their discounted settlement amount at the point at which they originate.

Movements in other provisions are shown in the following:

€ million	Personnel-related provisions		Revenue reductions		Provisions for impending losses		Decommissioning commitments		Environmental protection		Other provisions		Total	
	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020	2021	2020
As of Jan 1	942	941	1,785	1,356	604	405	409	368	985	971	1,316	1,057	6,041	5,098
Currency translation differences	1	-1	0	0	5	-11	-	-	0	0	9	-10	15	-22
Changes in scope of consolidation	1	0	1	-	-	1	-	-	-	-	1	2	3	3
thereof additions in scope of consolidation	1	-	1	-	-	1	-	-	-	-	1	2	3	3
thereof disposals in scope of consolidation	-	0	-	-	-	-	-	-	-	-	-	0	-	0
Amounts used	-295	-281	-371	-321	-204	-234	-18	-37	-51	-48	-193	-180	-1,132	-1,101
Reversals	-52	-39	-138	-58	-35	-12	-10	-	0	0	-167	-70	-402	-179
Reclassifications	-6	14	5	1	-2	0	-	-	-	0	-1	6	-4	21
Additions	319	304	972	807	222	453	19	5	509	1	903	502	2,944	2,072
Compounding and discounting	0	4	-	-	0	2	33	73	-	61	-2	9	31	149
As of Dec 31	910	942	2,254	1,785	590	604	433	409	1,443	985	1,866	1,316	7,496	6,041

The following table breaks down the other provisions into current and non-current amounts, and also details their estimated residual maturity:

€ million	Residual maturity							Total
	Up to 1 year	1 to 2 years	2 to 3 years	3 to 4 years	4 to 5 years	More than 5 years	Total more than 1 year	
AS OF DEC 31, 2021								
Personnel-related provisions	356	143	101	65	49	196	554	910
Revenue discounts	2,254	-	-	-	-	-	-	2,254
Provisions for anticipated losses	255	97	100	72	31	35	335	590
Decommissioning commitments	37	45	44	44	44	219	396	433
Environmental protection	58	63	68	71	80	1,103	1,385	1,443
Other provisions	1,373	94	88	51	62	198	493	1,866
Total	4,333	442	401	303	266	1,751	3,163	7,496
AS OF DEC 31, 2020								
Personnel-related provisions	369	143	101	65	50	214	573	942
Revenue discounts	1,785	-	-	-	-	-	-	1,785
Provisions for anticipated losses	296	84	63	65	51	45	308	604
Decommissioning commitments	30	35	37	37	37	233	379	409
Environmental protection	58	58	58	57	57	697	927	985
Other provisions	927	38	30	29	39	253	389	1,316
Total	3,465	358	289	253	234	1,442	2,576	6,041

Personnel-related provisions

Benefits arising on the occasion of the termination of employment agreements (severance packages) become payable if employees are released from their duties under the terms of an early retirement or semi-retirement scheme before the regular retirement age (which would not involve any reduction of retirement benefits) or if employees voluntarily terminate their employment contract in return for a severance package. Severance payments are recognized if there is a demonstrable commitment either to terminate the employment agreements of current employees in accordance with a detailed formal plan that cannot be reversed or to make severance payments if the employment contract is voluntarily terminated by employees within the framework of employment contract termination agreements.

Severance package commitments for agreements made as of the balance sheet date are recognized as other liabilities and – if they are not yet included in individual agreements and if they are part of a restructuring commitment in accordance with IAS 37 – are stated as other provisions.

Semi-retirement agreements are based on the so-called block model. The top-up amounts paid in addition to salary by DB Group during the semi-retirement period as well as additional contributions to the statutory pension insurance scheme are collected in installments up to the end of the active phase of the semi-retirement period and are recognized as provisions in accordance with IAS 19. The compensation backlog (plus the employer's contributions to social security insurance) for the additional work performed during the employment phase is also shown with the present pro rata present value as another non-current employee benefit.

If certain conditions are satisfied, DB Group offers its employees the opportunity to reduce their working hours to a level below their regular working hours (special semi-retirement arrangement). In these cases, the number of working hours is reduced to 81% of the reference or regular working hours, whereby the employees' remuneration is topped up to 90%. Payments into the company retirement benefit scheme are granted on the basis of 100% of the reference or regular working hours.

The personnel-related provisions were structured as follows:

AS OF DEC 31 / € million	2021	2020
Personnel contractual commitments	431	442
Early retirement and semi-retirement obligations	187	202
Service anniversary provisions	114	123
Other	178	175
Total	910	942

The personnel-related provisions include commitments arising from employment agreements that result from the entitlement of many employees under labor law and the willingness of DB AG not to terminate employment contracts for operational reasons. In such cases, DB Group will incur losses in the form of personnel expenses which will have to be borne until the employment contract is terminated or the employee is placed with another company; no reciprocal benefit will be provided in return for these costs (commitment surpluses relating to employment agreements). The personnel contractual commitments also include restructuring provisions.

A figure of about € 395 million was allocated to the provision for commitment surpluses from employment arrangements as of December 31, 2021 (as of December 31, 2020: € 374 million); this item accounted for a considerable percentage of the personnel-related provisions in DB Group. This provision recognizes the personnel-related commitments of DB AG for the employment guarantee included in the collective bargaining agreement designed to address demographic change (Demografietarifvertrag; DemografieTV).

In the DB Schenker segment, there were personnel-related restructuring provisions of € 7 million as of December 31, 2021 (as of December 31, 2020: € 36 million), mainly for the global restructuring program Boost designed to enhance profitability.

The provisions for semi-retirement and early retirement commitments take into account the commitments arising from collective bargaining agreements, and have mostly been calculated on the basis of actuarial reports. In the regulations of the DemografieTV, this includes an amount of € 82 million (as of December 31, 2020: € 87 million) for the entitlement of employees with many years of service and also many years of shift working to enjoy special semi-retirement benefits.

Revenue discounts

The considerable increase in the revenue discounts was mainly attributable to reductions at DB Regional in connection with concession fees due to the impact of the Covid-19 pandemic as well as repayment risks from the sector support for local public transport which is intended to alleviate the impact of the Covid-19-related consequences for the sector.

Provisions for impending losses

The provisions for impending losses mainly relate to transport contracts in which commitment surpluses build up over the duration of the contracts. The additions related mainly to DB Regional and DB Arriva.

As of December 31, 2021, amounts of € 183 million (DB Regional) and € 17 million (DB Arriva) were allocated to these provisions. This was due to various factors, including assumptions regarding reduced revenues from fares in future as well as higher maintenance expenses and higher energy prices. In particular, the estimates regarding the development of future revenues from fares are subject to particular uncertainty due to the Covid-19 crisis.

Decommissioning provisions

The provisions for decommissioning commitments referred to the company's pro rata decommissioning commitment in relation to a joint power generation plant. Similarly to the situation in the previous year, the provision was valued on the basis of a cost increase rate of 2.50%, as is standard for this sector, and a nominal interest rate of 2.50%.

Provisions for environmental protection

Of the figure stated for provisions for environmental protection, as of December 31, 2021, € 1,434 million (as of December 31, 2020: € 976 million) relate to remedial action commitments of DB AG. A new valuation of the provision requirement was carried out in the year under review. This showed, among other things, a need to adjust the assumptions that had previously been applied regarding the financing of own contributions with revenues, the development of construction costs, capacity requirements and the level of in-house production. As a result, there was an additional provision requirement of € 508 million and an associated term extension by five years until 2047. The addition to provisions and the term extension were implemented accordingly as of December 31, 2021. In order to take account of the remedial action commitments recognized in the provisions for environmental protection, DB AG has set up various programs, including the following:

- the 4-phase program for soil remediation
- the 3-stage sewerage network program
- the 2-stage landfill shut-down program

The structured processing ensures that the procedure for recognizing, assessing the risk and taking appropriate remedial action is consistent with all legal requirements and optimized in terms of costs.

In the 4-stage soil decontamination program, existing soil and/or groundwater contamination is localized via the stages "historic exploration," "orienting investigation" and "detail investigation," and is assessed on the basis of the relevant statutory testing criteria. If any negative change in soil conditions or ecological burdens is identified, implementation of the necessary remedial action is planned by the steps feasibility study, model planning and approval planning. The process of carrying out the remedial action is supported by a binding remedial action plan or a public-sector agreement with defined remedial action objectives.

The 3-stage sewerage network program aims to remedy any contamination of soil and/or groundwater resulting from leaks. The program also involves a plan to optimize the existing sewerage network to ensure that it is capable of meeting future requirements and to ensure that the need to take remedial action can be limited to this future network. The network that is not necessary for operation will be decommissioned. The sewerage program will be carried out via the stage 1 "recording," stage 2 "inspection" and stage 3 "remedial action/decommissioning." Legal requirements are set out in the Water Resources Accounting Act (Wasserhaushaltsgesetz; WHG), the Water Acts of the Federal states and the in-house control regulations.

The 2-stage program "shut-down of landfill sites" systematically records all legacy landfill sites operated by DB Group (stage 1). The requirements resulting from the Recycling Accounting Act (Kreislaufwirtschaftsgesetz; KrWG) and the Landfill Site Regulation (Deponieverordnung; DepV) are used as the basis for planning and implementing the processes of decommissioning and recultivating the areas (stage 2a) and the subsequent maintenance (stage 2b).

Other provisions

As of December 31, 2021, € 276 million (DB Netze Track) was allocated to the restoration of a railway tunnel on the new construction line Karlsruhe—Basel near to Rastatt. Because the expenditures necessary in order to fulfill the provision commitment are expected to be reimbursed in part by another party, a reimbursement claim for the amount of € 149 million has been activated to offset this.

The other provisions comprise additional provisions for claims for compensation for damage, litigation risks, decommissioning and demolition obligations, real estate risks, guarantee and warranty commitments, liability pensions, project risks and insurance, third-party commitments for maintenance and other tax risks, as well as numerous other issues that individually are of minor significance.

(33) DEFERRED ITEMS

DB Group receives various public-sector grants, which are provided in relation to specific assets or on the basis of a specific performance. The grants are recognized in the balance sheet as soon as it is certain that they will be provided and as soon as the conditions necessary for receiving the grants have been satisfied. The grants related to assets, and in particular investment grants, are deducted directly from the assets for which the grants have been received. The interest benefit (spread between nominal value and present value) of interest-free loans is deferred on the basis of the contractual grant conditions. The income from pro rata reversal of these accruals is shown as other operating income.

The deferred items contained the following:

AS OF DEC 31 / € million	2021	2020
Deferred public-sector grants	145	271
Deferred revenues	724	648
Other	380	286
Total	1,249	1,205
Non-current share	406	316
Current share	843	889

The change in the deferred revenues is attributable to various factors, including the lower net deferrals for special offerings for specific periods (mainly BahnCards, flexible tickets as well as discount tickets) in the DB Long-Distance segment despite higher opposite deferrals for vouchers.

The deferred public-sector grants included the interest benefit (difference between the nominal value and present value) attributable to the interest-free loans; this has developed as follows during the year under review:

€ million	2021	2020
As of Jan 1	67	211
Reversals	-67	-144
As of Dec 31	-	67

Of the figure shown for reversals in the year under review, € 30 million (previous year: € 59 million) was attributable to the annual reversal of deferred items. The remainder was attributable to the reversal of amortized deferrals relating to premature one-off repayments at the present value in 1999, 2004 and 2011.

Deferred revenues constituted that part of compensation that is attributable to the period after the balance sheet date.

Notes to the statement of cash flows

The statement of cash flows shows the changes in cash and cash equivalents in the year under review, and was prepared in accordance with IAS 7 (Cash Flow Statements). The indirect method has been used for showing cash flow from operating activities.

Interest income and interest payments, dividend income as well as tax payments are stated under operating activities.

Cash and cash equivalents include the cash and cash equivalents stated in the balance sheet with a residual maturity of up to three months (cash in hand, cash at banks as well as security investments). As of December 31, 2021, of the total figure stated for cash and cash equivalents, € 1,162 million (as of December 31, 2020: € 981 million) was subject to restrictions mainly as a result of provisions of the rail franchises in the United Kingdom as well as country-specific and contractual restrictions particularly in the international logistics business.

Current receivables due from banks (as of December 31, 2021: € 83 million; as of December 31, 2020: € 271 million), resulting from collateral agreements in connection with financial futures, are shown under current other receivables and assets. Because it is becoming increasingly difficult to predict the development in the value of the financial futures, it can only be assumed to a limited extent that such hedges represent current liquidity. See [Comparability with the previous year](#) 193 ff.

CASH FLOW FROM OPERATING ACTIVITIES

The cash flow from operating activities is calculated by adjusting the net profit/loss for the period before taxes by items that are not cash-effective (in particular additions to and reversals of other provisions) and by adding other changes in current assets, in liabilities (excluding financial debt) and provisions. The cash flow from operating activities is then established after due consideration is given to interest and tax payments.

In accordance with IFRS 16, outflows related to leases are recognized in cash flow from financing activities if they are redemption payments, and are recognized in cash flow from operating activities if they are payments of interest.

The cash flow from operating activities has increased considerably in the year under review. This was primarily due to a significantly lower net loss for the year, adjusted for a reduction in depreciation recognized in relation to property, plant and equipment and intangible assets (discontinuation of the full amortization of goodwill previously recognized by DB Arriva in the previous year of € 1,411 million), higher trade receivables and higher non-cash-effective expenses.

Non-cash-effective expenses and income increased in the year under review, particularly as a result of a significantly higher balance of expenses from additions to and reversals of other provisions (€ +553 million).

CASH FLOW FROM INVESTING ACTIVITIES

The cash flow from investing activities is calculated as the cash flow provided by the disposal of property, plant and equipment and intangible assets as well as by investment grants, and the cash outflow for capital expenditures in property, plant and equipment and intangible assets as well as cash flow from the addition and disposal of non-current financial assets.

Payments received from investment grants are shown under investing activities due to the close connection between investment grants received and the payments made for capital expenditures in property, plant and equipment assets.

The slight increase in outflows of cash from investing activities was mainly attributable to higher outflows for capital expenditures in property, plant and equipment (€ +898 million; +6.8%). On the other hand, net inflows of cash from investment grants increased (€ +534 million; +6.3%). The outflows for the acquisition of shares in consolidated companies (year under review: € 45 million; previous year: € 40 million) have only increased slightly compared with the previous year and were attributable to the acquisitions and also to subsequent purchase price payments for ESE Engineering und Software-Entwicklung GmbH, Brunswick. On balance, inflows and outflows for investments in financial assets included outflows of € 107 million to pay for investments from the acquisition of transport concessions (IFRIC 12).

When changes take place in the scope of consolidation as a result of the acquisition or sale of companies, the acquisition price paid (excluding any liabilities that are transferred) less the acquired or sold financial resources are stated as cash flow from investing activities.

CASH FLOW FROM FINANCING ACTIVITIES

The cash flow from financing activities is due to additions to capital, the net inflows and outflows attributable to senior bonds issued, changes in bank borrowings and loans as well as outflows for the redemption of finance leasing liabilities and interest-free loans.

The cash inflow from financing activities decreased by € 397 million. This was primarily made up of a net outflow from the raising and repayment of funds (previous year: net inflow), primarily from the repayment of bank borrowings, reduced net inflows from the issue and redemption of senior bonds and increased redemption payments for leases, combined with higher inflows from additions to capital and the absence of the dividend payment to the Federal Government (previous year: € 650 million).