

Statement of Profit or Loss and Other Comprehensive Income

€ in millions	Notes	2022 12 months	2021 12 months
Sales revenue	[9]	3,492.7	2,887.0
Cost of sales	[10]	-1,658.2	-1,334.0
Gross profit on sales		1,834.5	1,553.0
Selling and distribution costs	[10]	-446.5	-405.6
Research and development costs	[10]	-132.4	-110.5
General administrative expenses	[10]	-154.7	-126.1
Other operating income	[11]	72.1	47.4
Other operating expenses	[11]	-177.8	-92.8
Earnings before interest and taxes (EBIT)		995.2	865.4
Financial income	[12]	185.8	22.3
Financial expenses	[12]	-50.7	-241.0
Financial result		135.2	-218.7
Profit before tax		1,130.4	646.7
Income taxes	[13]	-250.5	-232.4
Net profit for the period		879.9	414.3
Attributable to:			
Equity holders of Sartorius Stedim Biotech		876.1	414.4
Non-controlling interest	[22]	3.8	-0.1
Earnings per share (€)	[15]	9.51	4.50
Diluted earnings per share (€)	[15]	9.51	4.50

Other operating income and expenses are reported separately as of fiscal 2022. Prior-year figures were restated accordingly.

Other Comprehensive Income

€ in millions	Notes	2022 12 months	2021 12 months
Net profit for the period		879.9	414.3
Cash flow hedges	[38]	-9.6	-17.5
of which effective portion of changes in fair value		-47.9	-12.6
of which reclassified to profit or loss		38.2	-4.9
Income tax on cash flow hedges	[19]	2.9	5.3
Net investment in a foreign operation		0.0	0.0
Income tax on net investment in a foreign operation	[19]	-5.0	0.0
Foreign currency translation differences		-4.8	53.8
Items that are or may be reclassified subsequently to profit or loss		-16.5	41.5
Remeasurements of the net defined benefit liabilities	[23]	13.9	2.2
Income tax on remeasurements of the net defined benefits liabilities	[19]	-3.6	-0.9
Items that will not be reclassified to profit or loss		10.3	1.3
Other comprehensive income after tax		-6.2	42.9
Total comprehensive income		873.7	457.2
Attributable to:			
Equity holders of Sartorius Stedim Biotech		869.7	455.8
Non-controlling interest		4.1	1.4

Statement of Financial Position

€ in millions	Notes	Dec. 31, 2022	Dec. 31, 2021
Non-current assets			
Goodwill	[16]	1,136.4	820.7
Other intangible assets	[16]	876.8	684.4
Property, plant and equipment	[17][18]	1,292.0	928.4
Financial assets	[35]	24.9	14.8
Other assets		2.5	0.7
Deferred tax assets	[19]	61.6	46.5
		3,394.2	2,495.5
Current assets			
Inventories	[20]	1,024.8	783.0
Trade receivables	[29]	404.6	356.0
Other financial assets	[30]	31.4	15.0
Current tax assets		14.0	14.7
Other assets		89.4	63.3
Cash and cash equivalents	[28]	107.1	223.6
		1,671.2	1,455.6
Total assets		5,065.4	3,951.1
Equity			
Equity attributable to SSB S.A. shareholders		2,449.3	1,655.9
Issued capital	[21]	18.4	18.4
Capital reserves		231.5	231.5
Retained earnings (including net profit)		2,199.4	1,405.9
Non-controlling interest	[22]	64.9	77.4
		2,514.2	1,733.2
Non-current liabilities			
Pension provisions	[23]	31.7	43.7
Other provisions	[24]	12.3	7.7
Loans and borrowings	[31]	1,020.6	521.1
Lease liabilities	[18]	91.1	64.0
Other financial liabilities	[32]	181.2	418.5
Deferred tax liabilities	[19]	178.3	125.8
		1,515.3	1,180.8
Current liabilities			
Provisions	[24]	25.7	30.9
Trade payables	[33]	485.6	471.2
Loans and borrowings	[31]	4.5	25.5
Lease liabilities	[18]	19.5	14.9
Other financial liabilities	[34]	119.7	147.3
Employee benefits	[25]	74.1	97.2
Current tax liabilities	[13]	209.6	165.0
Other liabilities		97.1	85.1
		1,035.9	1,037.1
Total equity and liabilities		5,065.4	3,951.1

Statement of Cash Flows

€ in millions	Notes	2022 12 months	2021 12 months
Profit before tax		1,130.4	646.7
Financial result	[12]	-135.2	218.7
Depreciation amortization of fixed assets	[16][17][18]	181.7	141.6
Change in provisions	[23][24]	0.4	6.7
Change in receivables and other assets	[29][30]	-65.8	-87.3
Change in inventories	[20]	-217.9	-275.4
Change in liabilities (excl. loans and borrowings)	[25][32][33][34]	-68.0	210.3
Interest received	[12]	5.6	5.9
Income taxes paid	[13]	-221.2	-166.6
Other non-cash items		2.3	1.4
Cash flow from operating activities		612.3	701.9
Capital expenditures	[16][17]	-430.6	-324.0
Other payments		-11.4	0.4
Cash flow from investing activities		-442.0	-323.6
Payments for acquisitions of consolidated subsidiaries and other business operations; net of cash acquired	[8]	-515.6	-141.7
Cash flow from investing activities and acquisitions		-957.5	-465.2
Interest paid and other financial charges	[12]	-10.3	-8.3
Dividends paid to:			
- Shareholders of Sartorius Stedim Biotech S.A.	[21]	-116.1	-62.7
- Non-controlling interest		-1.6	-1.1
Changes in non-controlling interest	[22]	-40.5	-0.1
Loans and borrowings repaid	[6][31]	-174.4	-79.7
Loans and borrowings raised	[6][31]	566.8	74.2
Purchases/sales of own shares		-3.2	0.0
Cash flow from financing activities		220.7	-77.7
Net increase decrease in cash and cash equivalents		-124.5	159.0
Cash and cash equivalents at the beginning of the period		223.6	59.8
Currency translation effects on cash and cash equivalents		8.0	4.8
Cash and cash equivalents at the end of the period		107.1	223.6

Interest received is reported under “Cash flow from operating activities” as of fiscal 2022. Prior-year figures were restated accordingly.

The Notes to the Consolidated Financial Statements are an integral part of these statements.

Statement of Changes in Equity

€ in millions	Issued capital	Capital reserves	Hedging reserves	Pension reserves	Retained earnings	Foreign currency translation reserves	Group equity	Non-controlling interest	Total equity
Balance at Jan. 1, 2021	18.4	231.5	7.6	-18.6	1,220.9	-21.7	1,438.1	22.9	1,461.0
Net profit for the period	0.0	0.0	0.0	0.0	414.4	0.0	414.4	-0.1	414.3
Cash flow hedges	0.0	0.0	-17.5	0.0	0.0	0.0	-17.5	0.0	-17.5
Remeasurements of the net defined benefit liabilities	0.0	0.0	0.0	2.2	0.0	0.0	2.2	0.0	2.2
Foreign currency translation differences	0.0	0.0	0.0	0.0	0.0	52.3	52.3	1.5	53.8
Net investment in a foreign operation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred taxes	0.0	0.0	5.3	-0.9	0.0	0.0	4.3	0.0	4.3
Other comprehensive income for the period	0.0	0.0	-12.3	1.3	0.0	52.3	41.4	1.5	42.9
Total comprehensive income	0.0	0.0	-12.3	1.3	414.4	52.3	455.8	1.4	457.2
Dividends					-62.7		-62.7	-1.1	-63.8
Purchase price liability (CellGenix/BI Israel)					-176.5		-176.5	0.0	-176.5
Changes in non-controlling interest					0.0		0.0	54.4	54.4
Other changes					1.1		1.1	-0.2	1.0
Balance at Dec. 31, 2021	18.4	231.5	-4.7	-17.3	1,397.2	30.6	1,655.9	77.4	1,733.2
Net profit for the period	0.0	0.0	0.0	0.0	876.1	0.0	876.1	3.8	879.9
Cash flow hedges	0.0	0.0	-9.6	0.0	0.0	0.0	-9.6	0.0	-9.6
Remeasurements of the net defined benefit liabilities	0.0	0.0	0.0	13.9	0.0	0.0	13.9	0.0	13.9
Foreign currency translation differences	0.0	0.0	0.0	0.0	0.0	-5.0	-5.0	0.2	-4.8
Net investment in a foreign operation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred taxes	0.0	0.0	2.9	-3.6	0.0	-5.0	-5.7	0.0	-5.7
Other comprehensive income for the period	0.0	0.0	-6.7	10.3	0.0	-10.0	-6.4	0.2	-6.2
Total comprehensive income	0.0	0.0	-6.7	10.3	876.1	-10.0	869.7	4.1	873.7
Dividends					-116.1		-116.1	-1.6	-117.7
Purchase price liability (CellGenix/BI Israel)					49.1		49.1	0.0	49.1
Reclassification of Albumedix hedge			18.1		0.0		18.1	0.0	18.1
Changes in non-controlling interest					-25.6		-25.6	-13.5	-39.1
Other changes					-1.8		-1.8	-1.4	-3.2
Balance at December 31, 2022	18.4	231.5	6.7	-7.0	2,179.0	20.7	2,449.3	64.9	2,514.2

Foreign currency effects from loans that are part of the Group's net investment in a foreign operation are reported within foreign currency translation reserves as of fiscal 2022. Prior-year figures were adjusted. An amount of €11.6 million was reclassified from retained earnings to foreign currency translation reserves in the opening balance as of January 1, 2021.

Notes to the Financial Statements

1. General Information

Sartorius Stedim Biotech is a leading international partner of the biopharmaceutical industry. As a total solutions provider, the Group helps its customers to manufacture biotech medications safely, rapidly and economically. With its own manufacturing and R&D sites in Europe, North America and Asia and an international network of sales companies, Sartorius Stedim Biotech has a global reach.

Headquartered in Aubagne, France, Sartorius Stedim Biotech S.A. is listed on the Euronext Paris (ISIN code: FR0013154002).

Sartorius Stedim Biotech S.A.'s ultimate parent company is Sartorius AG, which is headquartered in Göttingen, Germany, and is listed at several German stock exchanges (ISIN codes: DE0007165607 for ordinary shares; DE0007165631 for preference shares).

In compliance with the European Regulation 1606/2002 of July 19, 2002, which requires listed companies to use International Accounting Standards, the consolidated financial statements of the Sartorius Stedim Biotech Group for the year ended December 31, 2022, are compliant with the IFRS and IFRIC Standards and Interpretations of the IASB as adopted by the European Union, which are available at the following website:

https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting_fr

The consolidated financial statements are prepared in euros. Unless otherwise specified, all amounts are disclosed in millions of euros (abbreviated as "€ in million"). In some cases, the sums of the figures given in this report may not precisely equal the stated totals and percentages may not be exact due to rounding.

These consolidated financial statements were approved by the Board of Directors on February 8, 2023, and they will be submitted for approval by the Annual General Shareholders' Meeting on March 27, 2023.

2. Effects of New Financial Reporting Standards

The following new accounting rules were applicable for the first time to the present consolidated financial statements of the Group but did not have a material effect on these financial statements:

- Amendments to IFRS 3 – Updating a Reference to the Conceptual Framework
- Amendments to IAS 16 – Proceeds before Intended Use
- Amendments to IAS 37 – Onerous Contracts – Cost of Fulfilling a Contract
- Annual Improvements to IFRS Standards: 2018–2020 Cycle (issued in May 2020), Amendments to IFRS 1, IFRS 9, IAS 41, and IFRS 16

The following standards, interpretations and amendments were not yet applied to the consolidated financial statements of the reporting year as they had not yet been adopted by the European Union, or their application was not mandatory for 2022:

Standard Interpretation	Title	Applicable for financial years from ¹	Endorsement by the EU Commission
Amendments to IAS 8	Definition of Accounting Estimates	January 1, 2023	Yes
Amendments to IAS 1 and IFRS Practice Statement 2	Disclosure of Accounting Policies	January 1, 2023	Yes
Amendments to IAS 12	Deferred Tax Related to Assets and Liabilities Arising from a Single Transaction	January 1, 2023	Yes
IFRS 17	Insurance Contracts	January 1, 2023	Yes
Amendments to IFRS 17	Initial Application of IFRS 17 and IFRS 9 – Comparative Information	January 1, 2023	Yes
Amendments to IAS 1	Classification of Liabilities as Current or Non-Current, Classification of Liabilities as Current or Non-Current – Deferral of Effective Date, Non-current Liabilities with Covenants	January 1, 2024	No
Amendments to IFRS 16	Lease Liability in a Sale and Leaseback	January 1, 2024	No
Amendments to IFRS 10 and IAS 28	Sale or Contribution of Assets between an Investor and its Associate or Joint Venture	n/a	No

¹ These are required to be applied once they are endorsed by the EU Commission. The dates mentioned above are those required by the Standards themselves (IASB effective dates).

To date, the Group does not expect the changes to have a material impact on its consolidated financial statements.

3. Significant Accounting Policies

Significant accounting policies are described in the Notes in which the respective positions of the consolidated financial statements are further explained if they relate to specific items. Significant general accounting policies are described below.

Basis of Preparation

The consolidated financial statements of the Group are based on the principle of the historical cost of acquisition, construction, or production, with the exception of the items carried at fair value, such as derivative financial instruments.

Foreign Currency Transactions

The presentation currency of the consolidated financial statements of the Sartorius Stedim Biotech Group is the euro (financial statements presented in millions of euros). In the financial statements of each company, transactions denominated in foreign currencies have been translated into the functional currency of the subsidiary at the exchange rate applicable on the date of the transaction. Monetary assets and liabilities denominated in a foreign currency have been translated at the exchange rate on the balance sheet date. Exchange rate gains and losses have been recognized in profit or loss for the period.

Translation of Financial Statements Prepared in Foreign Currencies

The subsidiaries' financial statements prepared in foreign currencies are translated pursuant to IAS 21, The Effects of Changes in Foreign Exchange Rates, in accordance with the concept of a functional currency. Foreign subsidiaries are regarded as independent subdivisions of the Sartorius Stedim Biotech Group. The

assets (including goodwill) and liabilities of the entities that have a functional currency different from the presentation currency are translated at the exchange rate prevailing at the balance sheet date. The incomes, expenses, and cash flows of these entities are translated using the average rate for the year to the extent that this rate represents an approximate value of exchange rates used as of the date of the transaction in the absence of significant fluctuations. Resulting translation differences are recognized in other comprehensive income.

For long-term loans for which settlement is neither planned nor likely in the foreseeable future, the Group applies the principle of "net investment in a foreign operation." Exchange differences resulting from these loans are recognized in other comprehensive income in accordance with IAS 21.32.

The exchange rates for major currencies against the euro were considered as follows:

For €1	Year-end exchange rates		Average exchange rates	
	2022	2021	2022	2021
USD	1.06695	1.13245	1.05351	1.18270
GBP	0.88584	0.83902	0.85265	0.85972
CHF	0.98370	1.03336	1.00486	1.08106
JPY	140.73000	130.36000	138.04150	129.87475
SGD	1.43060	1.52820	1.45160	1.58913
KRW	1,344.77000	1,347.69000	1,357.87961	1,353.74171
CNY	7.36960	7.18870	7.08120	7.62740

4. Use of Judgments and Estimates

During the preparation of consolidated financial statements, management uses estimates and assumptions based on its best knowledge of the current and future situation. However, actual results may differ from these estimates. These estimates and assumptions are revised on a regular basis, and the impact of changes in estimates is recognized prospectively.

Management has observed that the general uncertainty inherent in accounting estimates and assumptions remains on a higher level than usual due to the ongoing COVID-19 pandemic crisis and, especially, due to the escalation of the conflict between Russia and Ukraine in February 2022. In fiscal 2022, the Group achieved again double-digit revenue growth. Despite the geopolitical developments, the Group did not experience severe difficulties on the supply side, and continuity of production operations has been secured. It was demonstrated once again in the reporting period that the biopharma industry is largely independent of economic fluctuations. As a total solutions provider for the biopharma industry, the Group continued to experience demand in connection with the production of coronavirus vaccines and COVID-19 therapeutics, although on a lower level in comparison with the prior-year reporting period.

In addition, Group management exercises its judgment in defining the accounting treatment of specific transactions when the existing Standards and Interpretations do not specifically treat the accounting problems concerned.

Significant judgments and estimates are especially relevant to the business combinations that are described in Note 8 and to the contingent consideration liabilities resulting from previous acquisitions, the values of which are volatile due to their measurement at fair value at each reporting date (see Note 0).

Other significant judgments and estimates are described in the Notes which provide explanations on the positions of the consolidated financial statements if they relate to specific items. The general assumptions and estimates primarily concern the following topics:

Conflict between Russia and Ukraine

Since the beginning of the war between Russia and Ukraine in February 2022, the European Union and the United States have imposed sanctions on Russia that restrict reciprocal trade. The war has also caused distortions in markets, especially markets for energy and raw materials, the prices of which have increased significantly within 2022. Furthermore, the transportation and logistics sector is affected seriously by the consequences of the conflict.

The Group currently employs some 40 employees in Russia. No employees are located in Belarus and Ukraine. Since the beginning of the war, Sartorius Stedim Biotech has suspended all business activities in Russia that are not related to humanitarian medical products. This has been done in compliance with the sanctions in force and in line with the practice of other companies in the pharmaceutical and health sector. The Group's sales revenue in Russia decreased as a result of the unexpected developments and was significantly below prior-year level in 2022. The extent of the future mid-term impact depends on further geopolitical developments and is currently not readily quantifiable. However, it needs to be emphasized that the Group's business in Russia, Belarus, and Ukraine is not of a critical size in relation to the Group, as it accounted for a good 2% of total sales in 2021. Furthermore, no critical suppliers are located in Russia, Belarus, and Ukraine. The Group is therefore primarily affected by the indirect consequences of the conflict, for example, increasing energy prices or the impact on the worldwide transportation and logistics sector. The Group is monitoring these indirect consequences and currently assumes that it will be able to maintain its profitability on the current level through appropriate countermeasures, such as price increases.

The Group does not own material non-current assets in Russia, Belarus, and Ukraine. The default risks in relation to trade receivables in Russia are limited due to the immaterial volume of trade receivables on the reporting date. Cash held in Russia of a single-digit-million euro value is currently subject to restrictions regarding its use outside Russia. In particular, distributions of cash are currently impossible.

To date, the direct and indirect consequences of the conflict between Russia and Ukraine have not led to changes in the material accounting estimates and assumptions. In particular, no indications of impairment of non-current assets were identified.

Impairment of Assets

The carrying amounts of property, plant and equipment (see Notes 17 and 18) and of intangible assets, including goodwill (see Note 16), are subject to impairment testing if there is an indication of impairment and at least once a year for intangible assets that have an indefinite useful life or are not yet available for use in accordance with IAS 36, Impairment of Assets. When an asset is tested, the recoverable amount of the asset is estimated. The recoverable amount of an asset or a cash-generating unit (CGU) is the higher of its fair value – less costs of disposal of the asset or CGU – and its value in use. If the individual asset's recoverable amount cannot be estimated, the recoverable amount of the asset's CGU is estimated.

If the estimated recoverable amount of an asset (or a CGU) goes below its carrying amount, this carrying amount is reduced to the recoverable amount (impairment loss allocated in priority to goodwill). If the causes of the asset impairment no longer apply, the carrying amount of the asset (or the CGU) is increased to the newly estimated recoverable amount (except for goodwill). However, the value increase is limited to the value that the asset (or CGU) would have had if no asset impairment loss had been recognized in previous fiscal years.

The calculation of the value in use is generally based on discounted cash flow methods using cash flow projections of up to five years. These projections take into account past experience and represent

management's best estimate about future sales revenue and cost developments. Cash flows after the planning period are extrapolated using individual growth rates. Key assumptions on which management has based its determination of the value in use include estimated growth rates, weighted average cost of capital, and tax rates. These estimates can have a material impact on the respective values and, ultimately, the amount of any impairment.

Fair Value Measurement

A number of the Group's accounting policies and disclosures may require the measurement of fair values, for both financial and non-financial assets and liabilities, including Level 3 fair values (unobservable inputs).

If third-party information, such as broker quotes or pricing services, is used to measure fair values, then management assesses the evidence obtained from the third parties to support the conclusion that these valuations meet the requirements of IFRS, including the level in the fair value hierarchy in which the valuations need to be classified.

When measuring the fair value of an asset or a liability, the Group uses observable market data as far as possible. If the inputs used to measure the fair value of an asset or a liability fall into different levels of the fair value hierarchy, then the fair value measurement is categorized in its entirety at the same level of the fair value hierarchy as the lowest level input that is significant for the entire measurement. Fair value measurement is particularly relevant to accounting for business combinations (see Note 8), financial instruments (see Note O), and share-based payments (see Note 43).

Climate-Related Matters

Sustainability is one of the core values of the Group. Accordingly, the Group has announced long-term plans to reduce the CO₂ emission intensity. The goal is predominantly to reduce actual emissions in relation to the Group's sales revenues. No compensation payments are planned to date. The future costs for the reduction measures are considered in the financial forecasts of the management and are therefore also considered in valuations made for financial reporting purposes. To date, climate-related matters do not significantly affect the assets and liabilities of the Group.

5. Operating Segments

According to IFRS 8, Operating Segments, the identification of reportable operating segments is based on the "management approach"; i.e., the segments are defined analogously to the internal financial reporting of an entity. Therefore, an area of activity is to be considered an operating segment if its business activities may result in revenues and expenses, its operating results are regularly reviewed by the entity's chief operating decision maker (= the executive members of the Board of Directors), and discrete financial information is available in its internal reporting. Internal control and reporting within Sartorius Stedim Biotech is based on the approach of operating as a "total solutions provider" for its customers. Accordingly, there is only one single segment to be identified for Sartorius Stedim Biotech, driven by the product and customer perspective: Biopharm.

The key performance indicator of the operating segment of the Sartorius Stedim Biotech Group is so-called "underlying EBITDA," as the Board monitors this performance measure at a consolidated level and believes this measure is relevant for an understanding of the Group's financial performance.

EBITDA corresponds to earnings before interest, taxes, depreciation, and amortization; "underlying EBITDA" means EBITDA adjusted for extraordinary items. Extraordinary items are expenses and income in connection with acquisitions, structural measures (e.g., restructuring activities, large Group projects), and other gains or losses that distort the sustainable profitability of the segment, for example, gains or losses from the disposal of fixed assets and investments.

Underlying EBITDA is not a defined performance measure in IFRS. The Group's definition of underlying EBITDA may not be comparable to similarly named performance measures and disclosures by other entities.

Segment assets and segment liabilities are not reported on a regular basis to the chief operating decision maker and are therefore not part of the segment report.

€ in millions	Biopharm			Group		
	2022	2021	Change	2022	2021	Change
Sales revenue	3,492.7	2,887.0	21%	3,492.7	2,887.0	21%
Underlying EBITDA	1,221.4	1,033.4	18%	1,221.4	1,033.4	18%
as a % of sales revenue	35.0%	35.8%		35.0%	35.8%	
EBIT	995.2	865.4	15%	995.2	865.4	15%
as a % of sales revenue	28.5%	30.0%		28.5%	30.0%	

Reconciliation of Segment Profit or Loss:

€ in millions	2022	2021
Underlying EBITDA of the segment	1,221.4	1,033.4
Depreciation and amortization	-179.9	-141.5
Extraordinary items	-46.3	-26.5
EBIT	995.2	865.4
Financial result	135.2	-218.7
Profit before tax	1,130.4	646.7

Extraordinary items:

€ in millions	2022	2021
M&A projects Integration costs	-13.7	-20.3
Structural measures	-22.9	-6.8
Other	-9.7	0.7
Group	-46.3	-26.5

Supplementary Information by Region

To provide additional information required by IFRS 8, the table below presents supplementary information by geographical region. The key figures for non-current assets of the geographical areas refer to the company location, whereas sales revenue is reported according to the customers' location.

The non-current assets are property, plant, and equipment as well as intangible assets (including goodwill).

As in the prior reporting period, the amount of sales revenue with a single customer does not exceed 5% of consolidated sales revenue in the reporting period 2022.

€ in millions	Sales revenue		Non-current assets	
	2022	2021	2022	2021
EMEA	1,318.8	1,199.3	2,794.9	2,053.6
of which Germany	298.7	274.4	973.8	821.5
of which France	114.1	95.7	475.0	396.2
Americas	1,277.8	946.0	417.1	319.4
of which USA	1,214.8	895.3	417.1	319.4
Asia Pacific	896.2	741.7	93.3	60.6
of which China	376.9	303.6	36.7	25.1
of which South Korea	174.7	140.0	23.9	14.5
Group	3,492.7	2,887.0	3,305.2	2,433.5

6. Statement of Cash Flows

The statement of cash flows shows the impact of cash inflows and outflows on the cash and cash equivalents of the Group. Cash flows are classified by operating, investing, and financing activities according to IAS 7 (Statement of Cash Flows).

In this context, cash equivalents are assets that can be converted into cash within a short maturity, generally less than three months. The amount considered in the statement of cash flows is equal to the amount of cash and cash equivalents in the statement of financial position (see Note 28).

The following table summarizes the development of the liabilities arising from financing activities during the reporting period:

€ in millions	Balance at Dec. 31, 2020	Cash flows	Currency effects	Other non-cash changes	Balance at Dec. 31, 2021
Loans and borrowings	528.8	8.1	0.1	9.6	546.6
Lease liabilities	58.3	-13.6	2.9	31.3	78.9
Liability for acquisition of non-controlling interests	41.5	0.0	0.0	176.5	218.0
Contingent considerations from acquisitions	0.7	0.0	0.1	3.8	4.6
Total financial liabilities from financing activities	629.3	-5.5	3.1	221.2	848.1

€ in millions	Balance at Dec. 31, 2021	Cash flows	Currency effects	Other non-cash changes	Balance at Dec. 31, 2022
Loans and borrowings	546.6	410.4	0.0	68.1	1,025.1
Lease liabilities	78.9	-18.1	0.0	49.8	110.6
Liability for acquisition of non-controlling interests	218.0	-39.1	0.0	-10.0	168.9
Contingent considerations from acquisitions	4.6	0.0	0.2	-0.6	4.1
Total financial liabilities from financing activities	848.1	353.1	0.2	107.3	1,308.7

7. Scope of Consolidation

The consolidated financial statements of the Sartorius Stedim Biotech Group include the annual financial statements of all companies, which are controlled directly or indirectly by Sartorius Stedim Biotech S.A. Under IFRS 10, Consolidated Financial Statements, the Sartorius Stedim Biotech Group controls an entity when it is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity.

Such entities are included in the consolidated financial statements from the time when Sartorius Stedim Biotech S.A. or its subsidiaries obtain such control until the date on which control ceases. Subsidiaries are included on the basis of their annual financial statements for the same reporting period as the parent company, using uniform Group recognition and measurement methods. All intragroup assets and liabilities, equity, income, expenses, and cash flows relating to transactions between members of the Group are eliminated on consolidation.

The 2022 financial statements of the following entities:

- Metreon Bioproducts GmbH, Freiburg, Germany
- CellGenix Inc., Wilmington, Delaware, United States

were not included in the scope of consolidation because their figures were of minor importance for assessing the financial position of the Group. The sales revenue and total assets of the non-consolidated companies were below 1% of the Group figures.

The following entities were included in the scope of consolidation for the first time in the reporting period (see Note 8 for details):

- Sartorius Chromatography Equipment S.A.S., Pompey, France
- Albedix Ltd., Nottingham, United Kingdom

The Group does not apply the equity method to its investments in Distribio GmbH, Germany (ownership interest of the Group: 26%), or to Sartorius Israel Ltd., Israel (51%), for materiality reasons. Sartorius Israel Ltd. is an associate of the Group because the Group neither controls nor jointly controls this entity due to contractual agreements.

The financial statements of the following companies are included in the Group financial statements. All of these entities are fully consolidated. The ownership percentage equals the share of voting rights:

	Ownership in %
EMEA	
Sartorius Stedim Biotech S.A., Aubagne, France	Parent company
Sartorius Stedim Belgium S.A., Woluwe-Saint-Lambert, Belgium	100
Sartorius Stedim Nordic Oy, Helsinki, Finland	100
Sartorius Xell GmbH, Schloß Holte-Stukenbrock, Germany	100
Sartorius CellGenix GmbH, Freiburg, Germany	51
Sartorius Stedim Biotech GmbH, Göttingen, Germany	100
Sartorius Stedim Plastics GmbH, Göttingen, Germany	100
Sartorius Stedim North America Holding GmbH, Göttingen, Germany	100
Sartorius Stedim Systems GmbH, Guxhagen, Germany	100
Sartorius Stedim Cellca GmbH, Ulm, Germany	100
Sartorius Stedim UK Ltd., Epsom, UK	100
Sartorius Stedim BioOutsource Ltd., Glasgow, UK	100
Albumedix Ltd., Nottingham, UK	100
Sartorius Stedim Lab Ltd., Stonehouse, UK	100
Sartorius Stedim Chromatography Systems Ltd., Royston, UK	100
TAP Biosystems Group Ltd., Royston, UK	100
The Automation Partnership (Cambridge) Ltd., Royston, UK	100
Sartorius Stedim FMT S.A.S., Aubagne, France	100
Sartorius Stedim France S.A.S., Aubagne, France	100
Sartorius Stedim Chromatography Resins S.A.S., Cergy, France	100
Sartorius Stedim Aseptics S.A.S., Lourdes, France	100
Sartorius Chromatography Equipment S.A.S., Pompey, France	100
Sartorius Stedim Ireland Ltd., Dublin, Ireland	100
Biological Industries Israel Beit Haemek Ltd., Kibbutz Beit Haemek, Israel	100
Sartorius Stedim Italy S.r.l., Florence, Italy	100
Sartorius Stedim Netherlands B.V., Amersfoort, Netherlands	100
Sartorius Stedim Austria GmbH, Vienna, Austria	100
Sartorius Stedim Poland sp. z o.o., Kostrzyn, Poland	100
LLC Sartorius Stedim RUS, St. Petersburg, Russia	100
Sartorius Stedim Data Analytics AB, Umeå, Sweden	100
Sartorius Stedim Switzerland AG, Tagelswangen, Switzerland	100
Sartorius BIA Separations, separacijske tehnologije, d.o.o., Ajdovščina, Slovenia	100
Sartorius Stedim Spain S.A., Madrid, Spain	100
Sartorius Stedim Hungaria Kft., Budapest, Hungary	100
Sartorius Stedim Bioprocess S.A.R.L., M'Hamdia, Tunisia	100
Americas	
Sartorius Stedim Filters Inc., Yauco, Puerto Rico	100
Sartorius Stedim North America Inc., Dover, Delaware, USA	100
WaterSep BioSeparations LLC, Boston, Massachusetts, USA	100

Asia Pacific	
Sartorius Stedim Australia Pty. Ltd., Dandenong South, Victoria, Australia	100
Sartorius Stedim Biotech (Beijing) Co. Ltd., Beijing, China	100
Sartorius Stedim (Shanghai) Trading Co. Ltd., Shanghai, China	100
Sartorius Stedim India Pvt. Ltd., Bangalore, India	100
Sartorius Stedim Japan K.K., Tokyo, Japan	100
Sartorius Korea Biotech Co. Ltd., Seoul, South Korea	69
Sartorius Korea Operations LLC, Seoul, South Korea	100
Sartorius Stedim Malaysia Sdn. Bhd., Kuala Lumpur, Malaysia	100
Sartorius Stedim Singapore Pte. Ltd., Singapore, Singapore	100
Sartorius Stedim Taiwan Inc., New Taipei City, Taiwan	100

8. Business Combinations

Business combinations are accounted for by applying the acquisition method. The accounting for business combinations requires that the consideration transferred, as well as the assets acquired and liabilities assumed, be measured at their respective fair values on the acquisition date.

The application of the acquisition method requires estimates and assumptions to be made, especially concerning the fair values of the consideration transferred; the intangible assets acquired; property, plant, and equipment; the liabilities assumed at the acquisition date; and the useful lives of the assets. These measurements are based to a large extent on anticipated cash flows. If actual cash flows vary from those used in calculating fair values, this may materially affect the Group's future results of operations.

For significant acquisitions, the purchase price allocation is carried out with assistance from independent third-party valuation specialists. The valuations are based on the information available at the acquisition date.

Acquisition of Chromatography Business of Novasep

On February 7, 2022, the Group closed the acquisition of the Novasep chromatography division. As of the acquisition date, approximately 100 employees were taken on as part of the Group workforce. The majority of these currently work at the site in Pompey in northern France, with some in the United States, China, and India. The chromatography business acquired comprises batch and intensified chromatography systems, and it primarily focuses on applications for smaller molecules, such as oligonucleotides, peptides, and insulin. It is complementary to the Group's chromatography offering for biopharma customers.

The purchase price allocation is as follows:

€ in millions	Final purchase price allocation
Intangible assets	26.9
Property, plant and equipment	1.0
Inventories	7.5
Trade receivables	12.0
Other assets	0.8
Cash and cash equivalents	8.1
Deferred taxes - net	0.9
Provisions	-0.7
Trade payables payments received for orders	-14.2
Other liabilities	-3.6
Net assets acquired	38.6
Purchase price	53.0
Goodwill	14.4

The purchase price for the acquired chromatography business amounted to approximately €53.0 million and was paid in cash. Expenses directly attributable to the acquisition of €6.3 million were recognized in other expenses through profit or loss, mostly in prior years. The intangible assets relate mainly to technologies (€17.0 million) and customer relationships (€9.4 million) with limited useful lives. Goodwill is attributable to synergies, for example, from the integration of the acquired business into the existing chromatography business of the Group and the expansion of the product portfolio, as well as intangible assets not recognizable separately, such as the know-how of the acquired workforce. Goodwill is not deductible for tax purposes.

Acquisition of Albumedix

On September 30, 2022, the Group acquired 100% of the shares and voting rights in Albumedix Ltd. based in Nottingham, United Kingdom. The company founded in 1984 is a leader in the field of recombinant albumin-based solutions. Recombinant human albumin is an important component for the biopharmaceutical industry required for various applications, for example, as an animal-free additive to cell culture media and for the stabilization of vaccines and viral therapies. The company employed some 120 employees as of the acquisition date.

The purchase price allocation is as follows:

€ in millions	Final purchase price allocation
Intangible assets	190.4
Property, plant and equipment	30.0
Inventories	12.1
Trade receivables	4.4
Other assets	3.0
Cash and cash equivalents	7.8
Deferred taxes - net	-47.8
Employee benefits liabilities (short-term)	-18.6
Provisions	-3.2
Other liabilities	-8.1
Net assets acquired	170.1
Purchase price	460.3
Effective portion of hedge of purchase price	18.1
Goodwill	308.3

The purchase price amounting to approximately €460.3million was paid in cash. The Group hedged the foreign currency exchange rate risk in relation to the purchase price denominated in GBP almost completely with a forward transaction executed on the acquisition date and designated the spot component of this forward and the purchase price up to an amount of 400million GBP as a hedging relationship in accordance with IFRS 9. Accordingly, the value change of the spot component (approximately €-18.1million) recognized in other comprehensive income was removed from equity and included in the consideration transferred and goodwill, respectively, when accounting for this business combination. The value change of the forward component was recognized within the financial result in profit or loss (€1.1million). The directly attributable acquisition-related costs totaled €3.7million and were recognized in other expenses.

The intangible assets recognized separately are related to technologies (€148.7million), customer relationships (€36.5million), and brands (€5.1million). The resulting goodwill reflects synergies, for example, those realized by the acquiree's access to the Group's global sales and distribution network and the combination of the acquired business with the Group's existing competencies and capacities in the field of advanced therapies (esp. cell culture media), the expansion of the Group's product offering for biopharmaceutical customers, and intangible assets that are not recognized separately, such as the know-how of the acquired workforce. Goodwill is not deductible for tax purposes.

Effects of the Acquisitions on the Group's Sales Revenue and Net Result in 2022

Since their first-time consolidation, the businesses acquired in 2022 contributed sales revenue of €30.3million (Chromatography business of Novasep) and €10.3million (Albumedix Ltd.). Excluding one-time items from the purchase price allocations, the impact on the Group's net result is immaterial. If the acquisitions closed in the reporting period had both taken place as of January 1, 2022, sales revenue of the Group for the reporting period 2022 would have amounted to €3,520.2million, and the Group's net result would not have changed materially.

Notes to the Statement of Profit or Loss

9. Sales Revenue

Revenue is recognized according to IFRS 15, Revenue from Contracts with Customers. The revenues from contracts with customers are disaggregated into geographical regions (see segment report, Note 5).

The Group produces and sells instruments and consumables for customers in the biopharma segment. The Group satisfies its performance obligations depending on the goods to be transferred and the promised services. Most of the revenues from sales of products is recognized at a point in time when the customer obtains control of the goods. This is typically the case when the significant risks and rewards of ownership of the goods are transferred to the customer. Therefore, the point in time may vary depending on the agreement with the individual customer.

For complex products that require installation at the customer's site, revenue is recognized upon formal customer acceptance. To a low extent, revenue is recognized over time in the customer-specific project business. In these cases, revenue is recognized according to the project progress which is measured based on the percentage of costs to date compared to the total estimated contract costs. The amount of actual costs incurred to date reflects the progress and the transfer of control to the customer appropriately, as the Group has a right to reimbursement of cost to date plus an appropriate margin if the project is canceled by the customer without cause.

Revenue from services is generally recognized when the services are performed or have been performed. When the services are performed continuously over a period of time, the Group recognizes the related revenue over time. In this case, revenue is generally recognized pro rata in relation to the total contract period. Product sales are typically accompanied by the legally required warranty. Any material extended warranties are accounted for as separate performance obligations.

According to the general payment terms, customer payments are due in the short term, typically within 30 to 60 days. To some extent, the Group obtains advance payments, for example, to avoid credit risks. Therefore, the Group regularly has contract liabilities (payments received on account of orders). In addition, the Group recognizes contract liabilities in connection with service contracts (deferred revenues) when customers pay in advance.

There are no material effects from contracts with significant financing components. The Group uses the practical expedient regarding the existence of a significant financing component. This means that a financing component is taken into consideration only when the length of time between the transfer of goods or services and the receipt of consideration is expected to exceed one year and the effect is material.

As of December 31, 2022, the Group had refund liabilities of €25.8million arising from incentive agreements with customers (2021: €17.4million). The aggregate amount of the transaction price allocated to the performance obligations that were unsatisfied (or partially unsatisfied) at the end of the reporting period (orders on hand) amounted to €1,844million (2021: €1,915million). The Group expects that most of these unsatisfied performance obligations will be satisfied in 2023.

There were no extraordinary changes in the carrying amounts of the contract liabilities and contract assets in the reporting period. Revenue in the amount of €221.3million was recognized in the reporting period that was included in contract liabilities at the beginning of the reporting period (2021: €115.9million).

The balances of trade receivables and contract assets are presented in Note 29. For details on the impairment losses on trade receivables and contract assets recognized in the reporting period, see Note 41. The following table presents the balances of the Group's contract liabilities.

€ in millions	Line item in statement of financial position	Carrying amount as of December 31, 2022	Carrying amount as of December 31, 2021
Deferred revenue	Other liabilities	36.9	39.8
Payments received on account of orders	Trade payables	234.1	219.8
Contract liabilities (total)		270.9	259.6

10. Functional Costs

The statement of profit or loss is presented according to the "cost of sales format," i.e., expenses are allocated to the relevant functions of production; sales and marketing; research and development; and general administration. Expenses relating to cross-functional initiatives or projects are assigned to the respective functional costs based on an appropriate allocation principle.

The item "Cost of sales" includes the cost of products sold and the cost of merchandise sold. In addition to directly attributable expenses, such as raw materials and supplies, employee benefits expense, and energy expenses, cost of sales also includes overhead, which can be allocated to the manufacturing area, and the corresponding depreciation and amortization.

The selling and distribution costs pertain to, in particular, the costs of the sales and marketing functions, distribution, and market research.

Research and development costs comprise the costs of research and product and process development unless they are recognized as assets.

The item "General administrative expenses" mainly includes employee benefits expense and the cost of materials of the general administrative area.

All profit and loss items that cannot be allocated to one of the functional areas mentioned above are recognized as other income and expenses. This item essentially includes effects from translation of transactions in foreign currencies, sale of fixed assets, allowances on trade receivables and reorganization, and other non-recurring expenses.

Income from grants related to income is recognized as other income when there is reasonable assurance that the conditions associated with the grants are complied with and the grants will be received. They are recognized systematically as income over the period in which the related costs are recorded.

Operating expenses by nature are presented in the Profit or Loss Statement by Nature in Note 14.

The material expenses and personnel costs are as follows:

Raw Materials and Supplies

€ in millions	2022 12 months	2021 12 months
Purchases consumed	694.6	548.3
Cost of purchased services	191.1	153.3
Total	885.7	701.6

Personnel Costs

€ in millions	2022 12 months	2021 12 months
Wages and salaries	644.1	536.7
Social security	147.3	115.5
Expenses for retirement benefits and pensions	15.5	12.3
Total	806.9	664.5

11. Other Operating Income and Expenses

€ in millions	2022 12 months	2021 12 months
Currency translation gains	56.2	37.8
Income from the decrease in allowances for bad debts	4.1	3.9
Income from release of provisions and liabilities	1.7	1.8
Income from grants	3.6	1.4
Other income	6.6	2.6
Other operating income	72.1	47.4
Currency translation losses	-97.4	-28.9
Extraordinary expenses	-46.3	-26.5
Allowances for bad debts	-5.5	-3.8
Other expenses	-28.6	-33.7
Other operating expenses	-177.8	-92.8
Total other operating income and expenses	-105.6	-45.3

The item reported as "Income from grants" comprises grants for expenses, essentially related to research and development projects. The currency translation gains/losses in 2022 include an amount of €38.2 million (2021: €-4.9 million) for the reclassification of items from equity to profit or loss (see Note 38). For details about extraordinary items, see Note 5.

12. Financial Result

€ in millions	2022 12 months	2021 12 months
Interest and similar income	0.5	0.3
- of which from affiliated companies	0.2	0.2
Income from derivative financial instruments	4.3	5.1
Valuation earn-outs	149.6	0.0
Other financial income	31.4	16.9
Financial income	185.8	22.3
Interest and similar expenses	-18.2	-10.2
- of which from affiliated companies	-10.7	-5.6
Expenses for derivative financial instruments	-9.0	-4.8
Interest expense for pensions	-0.4	-0.2
Valuation earn-outs	-0.3	-212.3
Other financial expenses	-22.7	-13.5
Financial expenses	-50.7	-241.0
Total	135.2	-218.7

The items "Other financial income (expenses)" include mainly foreign exchange gains (losses) in connection with bank deposits and loans and liabilities denominated in foreign currencies. The item "Valuation earn-outs" refers mainly to the remeasurement of the contingent consideration in connection with the acquisition of BIA Separations that resulted in an income of €148.0million in the reporting period (2021: €-207.7million), see Note 35 for details.

The interest expenses to affiliated companies are in connection with the loan granted by the Group's ultimate parent Sartorius AG (see also Notes 31 and 44).

13. Income Taxes

€ in millions	2022 12 months	2021 12 months
Current income taxes	-264.3	-251.1
Deferred taxes	13.9	18.7
Total	-250.5	-232.4

Current income taxes are determined based on the respective local taxable income of the period and local tax rules. In addition, current income taxes include adjustments for uncertain tax payments or tax refunds for periods not yet assessed. Changes in deferred tax assets and liabilities are included in the line deferred taxes except for changes recognized in other comprehensive income or equity.

The following table explains the difference between the expected tax expense and the income tax expenses reported for the particular fiscal year. The expected tax expense is calculated by applying a weighted average rate to the Group's consolidated profit before tax.

€ in millions	2022 12 months	2021 12 months
Expected tax rate	25.6%	22.8%
Expected tax expense	-289.9	-147.3
Permanent differences	-7.9	-72.0
Tax-free income and other tax exemptions	56.7	5.0
Unrecognized tax losses and deductible temporary differences	-0.5	-0.5
Taxes for previous years	-5.5	-14.8
Withholding taxes and other income taxes with different tax base	-1.6	-2.4
Other	-1.8	-0.5
Total	-250.5	-232.4
Effective tax rate	22.2%	35.9%

The decrease in the effective tax rate is mainly driven by the valuation effects regarding the contingent consideration for the BIA Separations acquisition (see Notes 12 and 35). The income is not taxable and therefore leads to a lower tax rate in relation to the consolidated profit before tax.

14. Profit or Loss Statement by Nature

€ in millions	2022 12 months	2021 12 months
Sales revenue	3,492.7	2,887.0
Purchases consumed	-694.6	-548.3
Cost of purchased services	-191.1	-153.3
Personnel costs	-807.7	-664.5
Amortization and depreciation	-181.7	-141.6
Other operating costs	-622.3	-513.8
Subtotal	-2,497.5	-2,021.6
Operating profit (EBIT)	995.2	865.4
Financial income expenses	135.2	-218.7
Income tax	-250.5	-232.4
Non-controlling interest	-3.8	0.1
Net profit after non-controlling interest	876.1	414.4

15. Earnings per Share

According to IAS 33, basic earnings per share (basic EPS) are calculated on the basis of the weighted average number of ordinary shares during the period.

	2022	2021
Net profit after tax (€ in millions)	879.9	414.3
Group net profit after tax (€ in millions)	876.1	414.4
Earnings per share (€)	9.51	4.50
Diluted earnings per share (€)	9.51	4.50
Number of shares (statutory level)	92,180,190	92,180,190
Treasury shares	-17,091	-3,361
Weighted average number of shares used in earnings per share calculation	92,163,099	92,176,829
Weighted average number of shares used in diluted earnings per share calculation	92,163,099	92,176,829

Notes to the Individual Balance Sheet Items

16. Goodwill and Other Intangible Assets

Goodwill

€ in millions	Goodwill
Gross book values at Jan. 1, 2021	725.1
Currency translation	10.3
Business combinations	85.3
Gross book values at Dec. 31, 2021	820.7
Impairment losses at Jan. 1, 2021	0.0
Currency translation	0.0
Impairment losses	0.0
Impairment losses at Dec. 31, 2021	0.0
Net book values at Dec. 31, 2021	820.7
€ in millions	Goodwill
Gross book values at Jan. 1, 2022	820.7
Currency translation	-7.1
Business combinations	322.8
Gross book values at Dec. 31, 2022	1,136.4
Impairment losses at Jan. 1, 2022	0.0
Currency translation	0.0
Impairment losses	0.0
Impairment losses at Dec. 31, 2022	0.0
Net book values at Dec. 31, 2022	1,136.4

The item reported as "Goodwill" in the amount of €1,136.4million is the difference between the consideration transferred and the fair value of the net assets acquired in business combinations. According to IAS 36, goodwill acquired in a business combination may not be amortized, but rather, must be tested for impairment annually and whenever there is any indication of an impairment. The increase recorded in 2022 concerns the acquisitions of the chromatography business of Novasep and Alumedix Ltd. (see Note 8). The additions in the prior period resulted from the acquisitions of CellGenix GmbH and Xell AG.

For impairment testing, goodwill must be allocated to each of the acquirer's cash-generating units (CGUs) that are expected to benefit from the synergies of the combination. The CGU represents the lowest level within the entity at which goodwill is monitored for internal management purposes and may not be larger than a segment. The Sartorius Stedim Biotech Group follows the strategy of being a total solutions provider for its customers. Because of the various interdependencies within the business, the lowest level at which goodwill is monitored is that of the biopharma segment. Therefore, the goodwill acquired is allocated to this segment.

As in 2021, the impairment test conducted for 2022 measures the recoverable amount on the basis of the value in use of the particular cash-generating unit (Biopharm segment). The cash flow forecasts consider previous experience and are generally based on Group management's forecasts for a period of four years. These calculations are based on a terminal growth rate of 2.5% for the years after 2026. This rate is derived from market expectations, which forecast significant growth rates for the targeted biopharmaceutical market.

The major growth drivers for the Sartorius Stedim Biotech Group will be the aging, and increase in, population and improved access to drugs in emerging markets, as well as the ongoing paradigm shift from reusable products to single-use products utilized in biomanufacturing by the biopharmaceutical industry.

The discount rates applied correspond to the weighted average cost of capital; they were recognized as follows:

	2022		2021	
	Before tax	After tax	Before tax	After tax
Biopharma segment	10.5%	8.4%	7.8%	6.3%

In 2022, our impairment test did not result in the recognition of impairment losses. In this context, various sensitivity analyses based on realistic variations of the assumptions disclosed above did not result in an impairment either. The following variations would theoretically represent the “break-even point”:

	2022	2021
Discount rates	21.6%	29.4%
Terminal growth rate	-23.9%	-86.3%
Cash flows	-72.8%	-90.0%

Intangible Assets

€ in millions	Patents, licenses and similar rights	Brand name	Customer relationships	Capitalized developme nt costs	Payments on account	Total
Gross book values at Jan. 1, 2021	425.2	14.7	204.1	163.3	0.0	807.3
Currency translation	8.2	0.3	6.3	1.7	0.0	16.5
Business combinations	89.6	5.2	35.2	0.0	0.0	130.1
Acquisitions	2.2	0.0	0.0	37.0	0.2	39.4
Disposals	-0.1	0.0	0.0	0.0	0.0	-0.1
Transfers	0.0	-0.4	0.4	0.0	0.0	0.0
Gross book values at Dec. 31, 2021	525.2	19.8	246.1	202.0	0.2	993.2
Amortization and impairment losses at Jan. 1, 2021	-62.3	-0.6	-107.3	-65.2	0.0	-235.4
Currency translation	-2.1	0.0	-2.0	-0.6	0.0	-4.8
Amortization and impairment losses	-34.6	-0.5	-18.3	-15.2	0.0	-68.6
Disposals	0.0	0.0	0.0	0.0	0.0	0.0
Transfers	0.0	0.0	0.0	0.0	0.0	0.0
Amortization and impairment losses at Dec. 31, 2021	-99.0	-1.2	-127.5	-81.1	0.0	-308.8
Net book values at Dec. 31, 2021	426.2	18.6	118.6	120.9	0.2	684.4

€ in millions	Patents, licenses and similar rights	Brand name	Customer relationships	Capitalized development costs	Payments on account	Total
Gross book values at Jan. 1, 2022	525.2	19.8	246.1	202.0	0.2	993.2
Currency translation	-2.5	-0.3	-1.5	-2.3	0.0	-6.6
Business combinations	164.9	5.4	45.9	1.0	0.0	217.3
Acquisitions	1.2	0.0	0.3	63.1	0.3	65.0
Disposals	-2.1	0.0	0.0	-3.9	0.0	-6.0
Transfers	0.0	0.0	0.0	0.0	0.0	0.0
Gross book values at Dec. 31, 2022	686.8	24.9	290.8	259.9	0.5	1,262.9
Amortization and impairment losses at Jan. 1, 2022	-99.0	-1.2	-127.5	-81.1	0.0	-308.8
Currency translation	0.4	0.1	1.0	0.7	0.0	2.1
Amortization and impairment losses	-46.1	-1.0	-19.0	-19.4	0.0	-85.5
Disposals	2.1	0.0	0.0	4.1	0.0	6.1
Transfers	0.0	0.0	0.0	0.0	0.0	0.0
Amortization and impairment losses at Dec. 31, 2022	-142.6	-2.1	-145.6	-95.7	0.0	-386.1
Net book values at Dec. 31, 2022	544.1	22.8	145.2	164.2	0.5	876.8

Intangible assets are recorded at cost less accumulated, regular amortization that is calculated according to the straight-line method and any impairment loss. The useful life of an intangible asset is the period during which the Group expects to use the asset.

Amortization of intangible assets is generally based on the following estimated useful lives:

Software	2 to 10 years
Technologies	3 to 20 years
Capitalized R&D expenses	4 to 6 years
Customer relations	1 to 20 years
Brand name	2 years to indefinite

Costs incurred within the scope of the development of new products and methods were capitalized as internally-generated intangible assets if the criteria in IAS 38.57 were met. The capitalization of internally-generated intangible assets includes a significant level of judgment; for example, the assessment of the feasibility of a development project, the expected market prospects, and the determination of useful lives.

The capitalized development costs essentially cover the costs that were allocated to the staff involved in R&D, raw materials and supplies, external services, and directly attributable overheads. Internally generated intangible assets are amortized on a straight-line basis over their useful lives, which generally do not exceed six years. In 2022, the development costs of €63.1million were recognized as assets (€37.0million in 2021).

If an internally generated intangible asset cannot be recognized, the development costs are expensed in the period in which they are incurred. Costs for research activities are reported as expenses in the period in which they are incurred.

The Stedim brand name acquired in 2007 and integrated into the parent company's name (Sartorius Stedim Biotech S.A.) is considered to have an indefinite useful life and is therefore not amortized. There is no foreseeable limit to the period over which the brand name is expected to generate net cash inflows for the Group. The brand name is tested annually for impairment at the level of the "biopharma segment" cash-generating unit (CGU).

Amortization of intangible assets is allocated to the corresponding functions in the statement of profit or loss. For capitalized development costs, amortization is reported under "cost of sales."

Impairments amounting to €3.9 million were recognized in 2022 in relation to capitalized development costs. No material impairments on intangible assets were recognized in the prior reporting period.

17. Property, Plant and Equipment

€ in millions	Land, buildings and improvements	Technical machinery and equipment	Factory and office equipment and other equipment	Payments on account and construction in progress	Total
Gross book values at Jan. 1, 2021	351.6	249.8	135.1	125.7	862.2
Currency translation	10.8	7.8	2.0	4.9	25.5
Business combinations	13.0	5.6	1.0	0.1	19.6
Acquisitions	22.5	40.3	21.5	201.2	285.5
Disposals	-0.5	-3.9	-4.4	0.0	-8.8
Transfers	28.8	13.0	1.8	-43.6	0.0
Gross book values at Dec. 31, 2021	426.2	312.6	157.1	288.2	1,184.1
Depreciation at Jan. 1, 2021	-82.1	-118.5	-72.3	0.0	-272.9
Currency translation	-1.7	-3.0	-1.5	0.0	-6.1
Depreciation	-17.8	-25.0	-15.0	0.0	-57.8
Disposals	0.4	2.8	4.1	0.0	7.4
Transfers	0.1	0.1	-0.1	0.0	0.0
Depreciation at Dec. 31, 2021	-101.1	-143.5	-84.8	0.0	-329.4
Net book values at Dec. 31, 2021	325.1	169.1	72.4	288.2	854.7
Net book values at Dec. 31, 2021 of right-of-use assets	67.5	1.8	4.4	0.0	73.7
Total property, plant and equipment at Dec. 31, 2021	392.6	170.9	76.7	288.2	928.4

	Land, buildings and improvements	Technical machinery and equipment	Factory and office equipment and other equipment	Payments on account and construction in progress	Total
Gross book values at Jan. 1, 2022	426.2	312.6	157.1	288.2	1,184.1
Currency translation	2.1	1.1	-0.7	3.0	5.4
Business combinations	5.9	16.9	1.0	3.7	27.4
Acquisitions	27.6	37.7	29.9	284.0	379.2
Disposals	-1.7	-8.6	-13.4	0.0	-23.8
Transfers	49.1	36.4	11.4	-94.8	2.0
Gross book values at Dec. 31, 2022	509.1	396.0	185.3	484.0	1,574.4
Depreciation at Jan. 1, 2022	-101.1	-143.5	-84.8	0.0	-329.4
Currency translation	0.2	-0.2	0.3	0.0	0.3
Depreciation	-23.2	-34.4	-18.7	0.0	-76.4
Disposals	1.2	7.9	12.4	0.0	21.5
Transfers	-1.7	0.3	-0.3	0.0	-1.7
Depreciation at Dec. 31, 2022	-124.7	-169.9	-90.9	0.0	-385.6
Net book values at Dec. 31, 2022	384.4	226.1	94.3	484.0	1,188.8
Net book values at Dec. 31, 2022 of right-of-use assets	97.0	1.8	4.4	0.0	103.2
Total property, plant and equipment at Dec. 31, 2022	481.3	228.0	98.7	484.0	1,292.0

The "Property, plant and equipment" item in the statement of financial position includes right-of-use assets according to IFRS 16 (see Note 18). Property, plant and equipment are recorded at cost and depreciated over the estimated useful life using the straight-line method. Property, plant and equipment are subject to impairment tests whenever there are indicators of impairment.

Depreciation of non-current assets is based on the following periods of useful life:

Buildings	15 to 50 years
Machinery	5 to 15 years
Factory and office equipment	3 to 13 years

Depreciation is presented in the statement of profit or loss according to how the assets are used, in the cost of sales, selling and distribution costs, research and development costs, general administrative expenses, and other operating expenses.

Borrowing costs are expensed as incurred unless they are directly attributable to the acquisition, construction, or production of a qualifying asset and are therefore part of the cost of that asset.

Grants related to assets are deducted from the cost of the related asset.

As in fiscal 2021, no significant impairment losses were recognized on property, plant and equipment in 2022.

18. Leases

Lease accounting follows IFRS 16, Leases. For the financing structure of the Group, leases are not of high relevance. The main considerations in relation to leases are therefore generally of a practical nature, for example, regarding the management of IT hardware or fleet management. Accordingly, leases of IT hardware and cars represent the majority of the Group's lease contracts. The lease term of such leases is generally fixed

and extends typically over three to five years. However, those leases of the Group in which the lessor is a related party that is an entity controlled by the ultimate parent, Sartorius AG, are generally of a short-term nature, providing both contract parties with operational flexibility. Furthermore, at some sites, the Group has long-term leases of buildings. The lease contracts may contain extension options, which are included in the lease term according to IFRS 16 when the Group is reasonably certain that the option will be exercised. The Group does not act as a lessor to a material extent.

Under IFRS 16, leases are generally recognized on the lessee's statement of financial position. A lessee recognizes a right-of-use asset representing its right to use a lease asset, as well as a lease liability, which represents its obligation to make lease payments. The Group makes use of the exemptions for short-term leases and leases of low-value assets and recognizes the corresponding lease payments as an expense generally on a straight-line basis over the specific lease term. Accordingly, no right-of-use assets and no lease liabilities are recognized for these leases. Furthermore, no right-of-use assets and no liabilities are recognized for leases between Group entities. The Group does not apply the Standard to leases of intangible assets.

In the statement of financial position, the Group presents the right-of-use assets according to the nature of the underlying lease assets within "Property, plant and equipment." The right-of-use assets are recognized at cost less accumulated depreciation and any impairment losses. The cost of the right-of-use assets comprises the present value of the future lease payments, any payments paid upon or before commencement of the lease, any initial direct costs, and costs for dismantling or removing the lease asset. The right-of-use assets are typically depreciated over the lease term. If the transfer of legal ownership of the lease asset is planned at the end of the lease term, the right-of-use asset is depreciated over the economic useful life of the lease asset. In the statement of profit or loss, depreciation is recognized within functional costs.

The lease liabilities are presented separately on the face of the statement of financial position. Lease liabilities are initially recognized at an amount equal to the present value of the future lease payments. The lease payments generally do not include any payments in relation to non-lease components. In general, the incremental borrowing rate of the Group is used for discounting. Subsequently, the carrying amount of the lease liabilities is increased by interest expenses and reduced by lease payments. Interest expenses are reported in the financial result and, to the extent they are paid, in the financing section of the cash flow statement.

As of December 31, 2022, lease liabilities stood at €110.6million (2021: €78.9million). The maturities of the future lease payments are presented in Note 40. The table below shows the composition of the right-of-use assets included in "Property, plant and equipment" as of the reporting date and as of the preceding reporting date and the main changes during the period.

€ in millions	Land, buildings and improvements	Technical machinery and equipment	Factory and office equipment and other equipment	Total
Gross book values at Jan. 1, 2021	70.5	2.8	7.9	81.2
Currency translation	3.6	0.0	0.3	3.9
Business combinations	3.3	1.0	0.1	4.4
Additions	24.2	0.3	2.6	27.2
Disposals	-3.9	0.0	-0.6	-4.5
Transfers	0.0	0.0	0.0	0.0
Gross book values at Dec. 31, 2021	97.8	4.2	10.3	112.2
Depreciation at Jan. 1, 2021	-21.0	-1.7	-3.6	-26.3
Currency translation	-1.2	0.0	-0.1	-1.3
Depreciation	-12.0	-0.7	-2.5	-15.2
Disposals	3.9	0.0	0.3	4.2
Transfers	0.0	0.0	0.0	0.0
Depreciation at Dec. 31, 2021	-30.3	-2.4	-5.9	-38.5
Net book values at Dec. 31, 2021	67.5	1.8	4.4	73.7

€ in millions	Land, buildings and improvements	Technical machinery and equipment	Factory and office equipment and other equipment	Total
Gross book values at Jan. 1, 2022	97.8	4.2	10.3	112.2
Currency translation	-0.2	0.0	0.0	-0.3
Business combinations	3.6	0.0	0.0	3.6
Additions	46.0	0.8	2.9	49.6
Disposals	-4.1	0.0	-0.5	-4.6
Transfers	-2.4	0.4	0.0	-2.0
Gross book values at Dec. 31, 2022	140.8	5.3	12.6	158.6
Depreciation at Jan. 1, 2022	-30.3	-2.4	-5.9	-38.5
Currency translation	0.1	0.0	0.0	0.2
Depreciation	-16.2	-1.0	-2.7	-19.8
Disposals	0.8	0.0	0.3	1.2
Transfers	1.7	-0.1	0.0	1.6
Depreciation at Dec. 31, 2022	-43.8	-3.4	-8.2	-55.4
Net book values at Dec. 31, 2022	97.0	1.8	4.4	103.2

The table below shows the interest expenses presented in the financial result, the total cash outflows for existing leases, and the expenses recognized for short-term leases and leases of low value assets in the reporting period and the comparative period. No material expenses were recognized for variable lease payments in the reporting period.

€ in millions	2022 12 months	2021 12 months
Interest expenses for leases	3.1	2.4
Expenses for leases of low value assets	2.3	1.6
Expenses for short-term leases	3.3	1.9
Repayment of lease liabilities	18.1	13.6
Total cash outflow for leases	26.8	19.5

19. Deferred Taxes

€ in millions	Deferred tax assets		Deferred tax liabilities		of which recognized in profit or loss
	Dec. 31, 2022	Dec. 31, 2021	Dec. 31, 2022	Dec. 31, 2021	
Intangible assets	1.6	0.3	168.2	127.5	6.3
Tangible assets	0.8	0.0	15.6	8.9	-3.1
Inventory	45.4	25.6	0.0	5.1	26.2
Receivables and other current assets	0.5	7.8	3.7	0.1	-3.9
Provisions	7.2	9.5	0.0	0.0	1.1
Liabilities	15.9	22.9	0.0	0.0	-15.9
Tax losses Tax credits	3.5	0.4	0.0	0.0	3.2
Undistributed earnings of subsidiaries	0.0	0.0	4.2	4.2	0.0
Gross amount	74.9	66.5	191.6	145.8	13.9
Offset	-13.3	-20.0	-13.3	-20.0	0.0
Net amount	61.6	46.5	178.3	125.8	13.9

Deferred tax assets or liabilities are determined based on temporary differences between the carrying amounts and the tax base of assets and liabilities (except in special cases provided for by IAS 12), including loss carryforwards and tax credits. Measurement is based on the tax rates expected to be effective in the period in which an asset is realized, a liability is settled, or tax losses are utilized. For this purpose, tax rates and tax rules are used that have been enacted or substantively enacted at the reporting date.

The change in deferred tax assets and liabilities is reflected in the item "Income taxes" in the statement of profit or loss, except for those elements that are recognized in other comprehensive income and for effects from business combinations.

Deferred tax assets are required to be recognized for all deductible temporary differences and unused tax losses to the extent that it is probable that future taxable profit will be available against which the deductible temporary differences and unused tax losses can be utilized. As future developments are uncertain and partly beyond management's control, assumptions are necessary to estimate future taxable profits as well as the period in which deferred tax assets will be recovered. Estimates are revised in the period in which there is sufficient evidence to revise the assumption. If there is no evidence that all or a portion of a deductible temporary difference or a tax loss can be realized, the corresponding amount is not recognized as an asset.

The Group operates in many tax jurisdictions. Therefore, the tax positions presented in the financial statements must be determined taking into account the respective local tax laws and the relevant views of tax administrations. Due to their complexity, these items may be subject to a different interpretation by taxpayers, on the one hand, and local tax authorities, on the other. The amount of uncertain tax positions is based on the best possible estimate of the expected tax payment.

In 2021, more than 130 countries agreed on the introduction of a minimum taxation (so-called Pillar Two) for multinational groups with global sales revenues exceeding €750 million. The aim of minimum taxation is that the companies concerned pay an effective corporate tax rate of 15%. As soon as the changes in the tax laws in the countries in which the Group operates come into effect, the Group may be subject to the minimum tax. At the time these consolidated financial statements are authorized for issue, tax legislation relating to the minimum tax does not apply in any of the countries

where the Group operates. As of December 31, 2022, the Group had no sufficient information to determine the potential quantitative impact.

Deferred Tax Assets

On the reporting date, the Group had unused tax losses carried forward of €10.3 million to be deducted from future taxable profits (€7.1 million in 2021). A deferred tax asset was reported on losses amounting to €4.3 million (€1.7 million in 2021). Deferred tax assets of €0.8 million (€0.3 million) are related to companies that reported losses in the year under review or in the previous reporting period.

Deferred Tax Liabilities

The deferred tax liabilities in connection with intangible assets refer to assets acquired in business combinations and, consequently, are mainly related to technologies and customer relationships.

The Group did not record deferred tax liabilities on approximately €54 million (€35 million) in cumulative undistributed earnings of subsidiaries because these earnings are intended to be reinvested.

The income taxes recognized in other comprehensive income are disclosed in the table below:

€ in millions	2022	2021
Cash flow hedges	2.9	5.3
Remeasurements of the net defined benefit obligations	-3.6	-0.9
Net investment in a foreign operation	-5.0	0.0
Currency translation	1.4	-0.5
Total	-4.3	3.8

The change in deferred tax assets and liabilities can be reconciled as follows:

€ in millions	Deferred tax assets	Deferred tax liabilities
Balance at Jan. 1, 2021	27.5	85.1
Change in the scope of consolidation	0.1	44.3
Recognized in profit or loss	12.2	-6.5
Recognized in other comprehensive income	6.8	2.9
Balance at Dec. 31, 2021	46.5	125.8

€ in millions	Deferred tax assets	Deferred tax liabilities
Balance at January 1, 2022	46.5	125.8
Change in the scope of consolidation	4.5	51.4
Recognized in profit or loss	10.7	-3.1
Recognized in other comprehensive income	-0.1	4.2
Balance at December 31, 2022	61.6	178.3

20. Inventories

€ in millions	Dec. 31, 2022	Dec. 31, 2021
Raw materials and supplies	394.6	263.8
Work in progress	213.7	191.9
Finished goods and merchandise	400.2	309.3
Payments on account	16.3	18.0
Total	1,024.8	783.0

€ in millions	Dec. 31, 2022	Dec. 31, 2021
Gross amount of inventories	1,104.6	840.2
Write-downs	-79.8	-57.3
Net amount of inventories	1,024.8	783.0

Raw materials and supplies, including merchandise, are reported under "Inventories" at average cost. In principle, finished goods and work in progress are reported at the cost of conversion. This cost includes direct costs that can be allocated to these materials and the appropriate portion of production and materials handling overheads, general administrative expenses, and non-current assets at normal depreciation and/or amortization rates, based on the normal production capacity, provided that these expenses are caused by production.

Inventories must be measured at the lower of cost and the net realizable value. The net realizable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary for marketing, sales, and distribution. Where inventory risks exist, such as the risk of reduced shelf life as a result of storage periods or limited usability, inventories are marked down accordingly.

21. Issued Capital

Sartorius Stedim Biotech S.A.'s share capital consists of 92,180,190 shares with a par value of €0.20 per share.

As of December 31, 2021, and December 31, 2022, there were no dilutive instruments. Shares registered in the name of the same owner for at least four years benefit from a double voting right.

	Dec. 31, 2022	Dec. 31, 2021
Number of shares at the beginning of the period	92,180,190	92,180,190
Number of shares at the end of the period	92,180,190	92,180,190
Nominal value per share (in €)	0.20	0.20
Issued capital amount (€ in millions)	18.4	18.4

Dividends

The Board of Directors will submit a proposal to the Annual General Shareholders' Meeting for payment of a dividend for the year ended December 31, 2022, as follows: payment of a net dividend of €1.44 per share (2021: €1.26), i.e., a total distribution of €132.7million (excluding treasury shares; 2021: €116.1million).

22. Non-Controlling Interest

The non-controlling interests of €64.9million (2021: 77.4million) recognized in the statement of financial position on the reporting date are related to the subsidiaries Sartorius Korea Biotech and Sartorius CellGenix.

In 2022, the Group purchased the remaining interest in Biological Industries (30%) that was still held by non-controlling shareholders. The company is now a wholly owned subsidiary of the Group. In exchange for the additional 30% stake in Biological Industries, the Group paid an amount of about €39.1million in cash to the non-controlling shareholders. The financial liability that had been recognized for the corresponding put option of the non-controlling interest amounting to €44.5million has been reclassified to retained earnings. The impact on the non-controlling interest and the equity attributable to the owners of the parent is presented in the statement of changes in equity.

The Group's interest in Sartorius Korea Biotech is 69%; the remaining 31% is subject to an exercisable call option. The purchase price for this non-controlling interest is variable and depends on the future performance of this entity. The Group's interest of 51% in Sartorius CellGenix was acquired in 2021. The remaining shares are subject to put and call options (see Note 35).

€ in millions	Dec. 31, 2022	Dec. 31, 2021
Sartorius Korea Biotech Co. Ltd.		
Sales revenue	169.3	134.3
Net result	8.0	7.1
Total assets	101.3	83.1
Attributed profit or loss	2.5	2.2

€ in millions	Dec. 31, 2022	Dec. 31, 2021
Sartorius CellGenix GmbH		
Sales revenue	32.0	12.5
Net result	2.8	-7.6
Total assets	145.7	144.3
Attributed profit or loss	1.3	-3.7

There are no significant restrictions on the Group's ability to access or use the assets or settle the liabilities of the above entities. For Sartorius CellGenix, prior-year data relates to the time period between date of acquisition (July 2, 2021) and December 31, 2021.

23. Pension and Employee Benefits Provisions

Defined Contribution Plans

Most of the Sartorius Stedim Biotech Group companies make payments under defined contributions plans, primarily related to government-run pension plans. In 2022, the total expense recognized for the defined contribution plans amounted to €49.4million (2021: €38.4million).

Defined Benefit Plans

Pension provisions and similar obligations are recognized in the consolidated financial statements of the Sartorius Stedim Biotech Group in accordance with actuarial principles. IAS 19, Employee Benefits stipulates the projected unit credit method as the method of measurement. In addition to known pensions and life expectancies, this expected cash value method takes into account future salary and pension increases.

The assumed discount rates reflect the interest rates payable on the reporting date for high-quality corporate bonds with matching maturities and denominated in the relevant currencies (mainly in euros). If such corporate bonds are not available with matching long-term maturities or are insufficiently available, their matching interest rates are determined by extrapolation.

Due to changing market and economic conditions, the underlying key assumptions may differ from actual developments and may lead to significant changes in pension and other post-employment benefit obligations. A sensitivity analysis is provided below.

The remeasurements of defined benefit liabilities (assets) are presented in other comprehensive income according to IAS 19. The actuarial losses, which were transferred to the pension reserves, essentially resulted from a change in the discount rate and totaled €13.9 million (€2.2 million in 2021).

An amount of €20.1 million is related in particular to pension provisions for retirement pension plans in Germany. These provisions totaled €27.8 million in 2021 and were primarily related to direct commitments under defined benefit pension plans. Under these commitments, the employees earn benefits for each year of service rendered to the company. The benefits earned depend on the salary level and the age of the respective employees. These pension benefits are generally not funded with assets.

Measurement of the post-employment benefit obligations is based on the following actuarial assumptions:

For Germany:

in %	Dec. 31, 2022	Dec. 31, 2021
Discount rate	3.16	0.90
Future salary increases	3.00	3.00
Future pension increases	2.10	2.00

With regard to the assumptions for mortality and disability, the tables "Richttafeln (RT) 2018 G" by Klaus Heubeck were applied.

For France:

in %	Dec. 31, 2022	Dec. 31, 2021
Discount rate	3.60	0.90
Future salary increases	2.25	2.00

The amounts reported in the statement of profit or loss and other comprehensive income consist of the following:

€ in millions	2022	2021
Current service cost	-3.1	-2.9
Past service cost	0.9	1.2
Net interest expenses	-0.3	-0.2
Components of defined benefit costs recognized in profit or loss	-2.6	-1.9
Return on plan assets (excl. interest)	0.2	0.0
Remeasurements	13.7	2.2
Components of defined benefit costs recognized in other comprehensive income	13.9	2.2
Total	11.3	0.3

In the statement of profit or loss, the current service cost is disclosed according to the assignment of employees to the respective functions.

The amount included in the consolidated statement of financial position arising from the Group's obligation with respect to defined benefit plans is as follows:

€ in millions	Dec. 31, 2022	Dec. 31, 2021
Present value of the obligations	52.5	64.9
Fair value of plan assets	-20.8	-21.2
Net liability	31.7	43.7

The present value of the defined benefit obligation developed as follows:

€ in millions	2022	2021
Present value of the obligations as of Jan. 1	64.9	63.8
Current service cost	3.1	2.9
Past service cost	-0.9	-1.2
Interest cost	0.6	0.3
Remeasurements	-13.8	-2.3
Foreign currency translation differences	0.9	0.8
Retirement benefits paid in the reporting year	-7.0	-1.3
Employee contributions	0.8	0.5
Contributions by plan participants	3.1	2.5
Other changes	0.7	-1.3
Present value of the obligations as of Dec. 31	52.5	64.9

The remeasurements of the defined benefit liabilities (assets) can be allocated as follows:

€ in millions	2022	2021
Experience adjustments	2.8	1.9
Changes in demographic assumptions	-0.6	-1.0
Changes in financial assumptions	-15.9	-3.1
Total	-13.8	-2.3

Plan Assets

€ in millions	2022	2021
Plan assets as of Jan. 1	21.2	16.4
Interest income	0.3	0.2
Return on plan assets (excl. interest)	0.2	0.0
Remeasurements	-0.1	-0.1
Group contribution & payments	-6.9	-1.1
Foreign currency translation differences	0.7	0.6
Employee contributions	0.8	0.5
Employer contributions	3.2	2.1
Contributions by plan participants	3.2	2.5
Other changes	-1.7	0.0
Plan assets as of Dec. 31	20.8	21.2

Composition of Plan Assets

The plan assets primarily refer to insurance contracts in Switzerland; no major equity or debt investments are included. Sartorius Korea Biotech deposited €5.3 million (€6.9 million in 2021) as cash and cash equivalents in local banks.

Sensitivity Analysis

An increase/decrease of the actuarial assumptions would have the following impacts on the defined benefit obligations (a positive sign [+] means an increase in the obligation):

2021:

€ in millions

Demographic assumptions		
Life expectancy	+1 year	-1 year
Effect	2.7	-2.7
Financial assumptions		
Discount rate	+100 bps	-100 bps
Effect	-7.6	8.5
Future salary increases	+50 bps	-50 bps
Effect	2.5	-2.4
Future pension increases	+25 bps	-25 bps
Effect	2.5	-2.4

2022:

€ in millions

Demographic assumptions		
Life expectancy	+1 year	-1 year
Effect	2.1	-2.0
Financial assumptions		
Discount rate	+100 bps	-100 bps
Effect	-5.0	6.2
Future salary increases	+50 bps	-50 bps
Effect	2.2	-2.0
Future pension increases	+25 bps	-25 bps
Effect	2.0	-1.9

The sensitivity analysis presented above may not be representative of the actual change in the defined benefit obligation as it is unlikely that changes in assumptions occur in isolation of one another. Furthermore, the present value of the defined benefit obligation was calculated using the same method that was applied in calculating the defined benefit obligation liability recognized in the statement of financial position (projected unit credit method).

Maturity Analysis

The undiscounted cash flows from defined benefit obligations can be allocated to maturities as follows:

€ in millions	Dec. 31, 2022	Dec. 31, 2021
< 1 year	2.7	2.5
1 – 5 years	12.3	11.1
6 – 10 years	20.8	19.4
> 10 years	115.8	110.0
Total	151.6	142.9

The weighted average duration of the defined benefit obligations is 14.6 years (2021: 16.0 years).

24. Other Provisions

A provision is recognized when a present legal or constructive obligation to third parties arising from past events has been incurred, an outflow of resources is probable, and the amount of the obligation can be reasonably estimated. The amount recognized as a provision represents the best estimate of the obligation as of the reporting date.

To determine the amount of obligations, certain estimates and assumptions need to be applied, including the determination of the probability and of the amount of future outflows of resources. Typically, significant estimates are involved in the determination of provisions related to onerous contracts, warranty costs, asset retirement obligations, and legal proceedings.

Other Non-Current Provisions

€ in millions	Payments to employees on early retirement plan	Other	Total
Balance at Jan. 1, 2021	2.2	4.3	6.5
Change in the scope of consolidation	0.0	0.0	0.0
Currency translation	0.0	0.0	0.0
Consumption	-1.0	-0.2	-1.2
Reversals	0.0	0.0	0.0
Additions	1.9	0.6	2.5
Balance at Dec. 31, 2021	3.1	4.7	7.7

€ in millions	Payments to employees on early retirement plan	Other	Total
Balance at Jan. 1, 2022	3.1	4.7	7.7
Change in the scope of consolidation	0.0	3.2	3.2
Currency translation	0.0	-0.1	-0.1
Consumption	-1.3	-0.2	-1.5
Reversals	0.0	0.0	0.0
Additions	2.1	1.2	3.3
Reclassification	0.0	-0.3	-0.3
Balance at Dec. 31, 2022	3.9	8.5	12.3

The non-current provisions mainly comprise provisions for partial retirement and employee anniversary bonuses (included in the item "Other"). These obligations arise predominantly at German Group companies.

The partial retirement plans allow employees to work part-time for three to five years before their actual retirement.

Under IAS 19, these obligations are treated as severance payments to be earned in future periods and are therefore recognized in profit or loss over the respective period of service. Actuarial gains and losses, as well as past service costs, on these obligations are recognized as income or expense.

Non-current provisions are reported at their present value on the reporting date. For 2022, the discount rate for employees on the early retirement plan is 2.9% (2021: -0.2%).

Since 2022, the long-term obligations in connection with the newly introduced, so-called Long-Term Incentive Program ("LTI Program", see Note 43) are also reported under "Other non-current provisions".

Current Provisions

During fiscal 2021 and 2022, current provisions changed as follows:

€ in millions	Warranties	Other	Total
Balance at Jan. 1, 2021	8.7	12.1	20.7
Change in the scope of consolidation	0.1	0.4	0.5
Currency translation	0.2	0.0	0.2
Consumption	-1.0	-1.1	-2.1
Release	-3.9	-3.4	-7.2
Additions	10.1	8.7	18.8
Balance at Dec. 31, 2021	14.2	16.8	30.9

€ in millions	Warranties	Other	Total
Balance at Jan. 1, 2022	14.2	16.8	30.9
Change in the scope of consolidation	0.0	0.1	0.1
Currency translation	-0.1	0.0	-0.1
Consumption	-0.3	-1.2	-1.6
Release	-7.9	-4.0	-11.9
Additions	5.9	2.6	8.4
Other changes	2.1	-2.3	-0.2
Balance at Dec. 31, 2022	13.8	12.0	25.7

Warranty provisions include expenses for replacement deliveries and repairs. Provisions for specific risks are recognized when occurrence is more likely than not. General warranty risks are considered on the basis of past experience. The other provisions contain onerous contracts, uncertain liabilities to employees, and provisions for interest in connection with tax risks.

25. Employee Benefits

The liabilities for employee benefits reflect the following accruals:

€ in millions	Dec. 31, 2022	Dec. 31, 2021
Bonuses and incentives	41.4	62.4
Vacation and overtime	17.5	11.1
Other	15.2	23.7
Employee benefits	74.1	97.2

26. Other Financial Obligations | Contingent Assets and Liabilities

As was the case in previous years, there are no significant contingent liabilities or contingent assets to be reported.

27. Financial Instruments: Significant Accounting Policies

A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity. The following Notes give an overview of the impact of financial instruments on the financial statements of the Sartorius Stedim Biotech Group and provide additional information on items in the statement of financial position that contain financial instruments.

Financial assets of the Group mainly include cash and cash equivalents, trade and loan receivables, and derivative financial instruments with a positive fair value.

Financial liabilities of the Group mostly comprise loans borrowed from Sartorius AG, contingent consideration according to IFRS 3, trade payables, lease liabilities, and derivative financial instruments with a negative fair value. Financial liabilities other than derivative financial instruments and those arising from contingent consideration agreements are measured at amortized cost.

Accounting for financial instruments follows IFRS 9, Financial Instruments. Under IFRS 9, the classification and measurement approach for financial assets reflects both the entity's business model (held-to-collect, held-to-collect-and-sell, other) within the scope of which assets are held and the contractual cash flow characteristics ("SPPI" criterion: solely payments of principal and interest). There were no reclassifications of financial instruments during the reporting period.

With regard to the impairment of financial assets, IFRS 9 includes a so-called expected-loss model. Financial assets are generally regarded as credit-impaired when there are objective indications that cast doubt on the full collection of the cash flows of the respective financial assets. With regard to the financial assets of the Group, the simplified approach which is applied to trade receivables is of particular relevance.

Besides trade receivables, cash and cash equivalents are the most material financial assets on the Group's statement of financial position as of the reporting date, December 31, 2022. No impairment is recognized for these financial assets due to materiality considerations.

As on the last reporting date, no impairment was recognized as of December 31, 2022, for the remaining financial assets measured at amortized cost in terms of the 12-month expected credit losses, given the Group's immaterial historical losses.

Derivatives are measured at fair value determined according to the mark-to-market method in which recognized mathematical methods are used. The fair values are based on the market data available at the time the value of these derivatives is calculated and reflect the estimates of the market conditions at the end of the

year. Those instruments that are not designated as hedging instruments and to which no hedge accounting is applied are classified as held for trading. Changes in the fair values of derivative financial instruments are either recognized in profit or loss or, in the case of hedging relationships, in other comprehensive income.

The Group applies the hedge accounting rules of IFRS 9. Sartorius Stedim Biotech uses forward transactions to hedge cash flow risks that result from changes in foreign exchange rates in relation to sales of products and the production activities, and it designates only the spot element of the hedging instrument.

28. Cash and Cash Equivalents

The Group considers all highly liquid investments with less than three months' maturity from the date of acquisition to be cash equivalents. This mainly includes deposits in banks. Cash and cash equivalents are measured at cost. For purposes of the consolidated cash flow statement, cash and cash equivalents are defined as above. As of December 31, 2022, cash and cash equivalents amounted to €107.1million (2021: €223.6million).

29. Current Trade Receivables | Other Receivables

€ in millions	Dec. 31, 2022	Dec. 31, 2021
Trade receivables from third parties	364.3	334.9
Contract assets (IFRS 15)	13.6	4.0
Receivables from subsidiaries of the Sartorius AG Group	26.7	17.1
Trade receivables	404.6	356.0

The book values of trade receivables and other receivables are representative of their fair value considering the maturity date and the credit risks. The contract assets are recognized in connection with customer-specific construction contracts that meet the requirements for revenue recognition over time according to IFRS 15 (see Note 9). The amount of trade receivables disclosed as of December 31, 2022, was reduced by €211.5million (2021: €140.2million) as result of a sale of trade receivables because substantially all risks and rewards in relation to the financial assets sold were transferred to the buyer and the respective receivables were fully derecognized. In particular, credit risks as well as any risks arising from foreign exchange rates were completely transferred to the buyer under the current factoring program. The program is organized by the Treasury Department of the Sartorius AG Group. All participating Sartorius AG Group companies can sell receivables with a combined volume of €160 million and US\$ 140 million under this program.

The item "Receivables from subsidiaries of the Sartorius AG Group" refers to other companies of the Sartorius Group (please refer to Note 44). Impairment losses on trade and other receivables are recognized using separate allowance accounts. For details on the determination of the impairment allowances, see Note 41.

30. Other Financial Assets

€ in millions	Dec. 31, 2022	Dec. 31, 2021
Derivative financial instruments	5.5	1.3
Other financial assets	25.9	13.7
Current financial assets	31.4	15.0

The amount shown as derivative financial instruments represents the fair value of foreign currency hedging instruments, mainly forward contracts (for details refer to Note 38).

Other financial assets are measured at amortized cost using the effective interest method less any impairment losses. The item "Other financial assets" includes loan receivables from other entities of the Sartorius AG Group in the amount of €1.1million (2021: €1.0million).

31. Loans and Borrowings

€ in millions	Balance at Dec. 31, 2022	of which current Dec. 31, 2022	Balance at Dec. 31, 2021	of which current Dec. 31, 2021
Liabilities to banks	6.6	1.4	22.5	16.8
Loans from Sartorius AG	1,018.5	3.0	524.1	8.7
Total loans and borrowings	1,025.1	4.5	546.6	25.5

The Sartorius Stedim Biotech Group has signed loan agreements with its parent company Sartorius AG mainly to finance acquisitions. The interest rates are fixed with a credit margin based on arms'-length principles. In addition, the financing of the Sartorius Stedim Biotech Group is secured by a credit line from its parent Sartorius AG (see Note 40).

The non-current loans and borrowings do not include liabilities to the sellers in connection with acquisitions which are presented in the item "Other non-current liabilities."

32. Other Non-current Liabilities

€ in millions	Dec. 31, 2022	Dec. 31, 2021
Contingent considerations from acquisitions	76.2	194.9
Liability for acquisition of non-controlling interests	102.8	211.7
Other liabilities	2.2	11.8
Total	181.2	418.5

The contingent consideration agreements result from the acquisitions of BIA Separations, WaterSep BioSeparations LLC, and Xell AG. The liabilities for the acquisition of non-controlling interests relate to the potential acquisition of the remaining shares in Sartorius CellGenix (see Note 0 for all liabilities mentioned). The non-controlling interests in Biological Industries were acquired in fiscal 2022, and the liability for the obligation to purchase these interests was reclassified to equity (see Note 22).

33. Trade Payables

€ in millions	Dec. 31, 2022	Dec. 31, 2021
Payments received on account of orders ¹	234.1	219.8
Trade payables to third parties	232.6	234.3
Payables to participations	1.5	1.1
Payables to subsidiaries of the Sartorius AG Group	17.6	15.9
Total	485.6	471.2

¹ Contract liabilities according to IFRS 15.

34. Other Current Financial Liabilities

€ in millions	Dec. 31, 2022	Dec. 31, 2021
Derivative financial instruments	8.0	8.4
Other liabilities	111.6	138.8
Total	119.7	147.3

Derivative financial instruments refer to the fair values of foreign currency hedging transactions such as forward contracts (mainly related to the US\$, see Note 38).

“Other liabilities” as of December 31, 2022, include the current portion of the liability for the potential acquisition of the remaining shares in Sartorius CellGenix (€66.1million; see Note 0).

On the preceding reporting date, the position included the current portion of the contingent consideration in connection with the acquisition of BIA Separations (2021: €97.9million) and the current portion of the liabilities in connection with the possible acquisition of the non-controlling interests in Biological Industries (2021: €6.3million). The non-controlling interests in Biological Industries were acquired in fiscal 2022, and the liability for the obligation to purchase these interests was reclassified to equity (see Note 22). For the settlement of the first tranche of the contingent consideration in connection with the acquisition of BIA Separations in fiscal 2022, see Note 0.

35. Carrying Amounts and Fair Values of Financial Instruments According to Categories

The following table shows the carrying amounts and fair values of financial assets and liabilities by category of financial instrument according to IFRS 9 as of December 31, 2022, and as of December 31, 2021:

€ in millions	Category acc. to IFRS 9	Carrying amount Dec. 31, 2022	Fair value Dec. 31, 2022	Carrying amount Dec. 31, 2021	Fair value Dec. 31, 2021
Investments in non-consolidated subsidiaries and associates	n/a	18.8	18.8	7.9	7.9
Financial assets	Equity instruments at fair value through profit or loss	0.0	0.0	0.0	0.0
Financial assets	Debt instruments at fair value through profit or loss	1.1	1.1	1.0	1.0
Financial assets	Measured at amortized cost	5.0	5.0	5.8	5.8
Financial assets (non-current)		24.9	24.9	14.8	14.8
Amounts due from customers for contract work	n/a	13.6	13.6	4.0	4.0
Trade receivables	Measured at fair value through other comprehensive income	166.3	166.3	147.3	147.3
Trade receivables	Measured at amortized cost	224.7	224.7	204.7	204.7
Trade receivables		404.6	404.6	356.0	356.0
Receivables and other assets	Measured at amortized cost	25.9	25.9	13.7	13.7
Derivative financial instruments designated as hedging instruments ¹	n/a	5.5	5.5	1.3	1.3
Other financial assets (current)		31.4	31.4	15.0	15.0
Cash and cash equivalents	Measured at amortized cost	107.1	107.1	223.6	223.6
Loans and borrowings	Financial liabilities at cost	1,025.1	1,004.9	546.6	554.3
Trade payables	Financial liabilities at cost	251.6	251.6	251.4	251.4
Trade payables payments received for orders	n/a	234.1	234.1	219.8	219.8
Trade payables		485.6	485.6	471.2	471.2
Derivative financial instruments designated as hedging instruments ¹	n/a	8.0	8.0	8.4	8.4
Other financial liabilities	Financial liabilities at fair value through profit or loss	76.2	76.2	292.8	292.8
Other financial liabilities	Financial liabilities at cost	216.6	205.3	264.5	264.1
Other financial liabilities		300.9	289.5	565.7	565.3

¹ The amounts include the non-designated part of the contracts.

The fair values of the financial instruments were determined on the basis of the market information available on the reporting date and are to be allocated to one of the three levels of the fair value hierarchy in accordance with IFRS 13.

Level 1 financial instruments are measured on the basis of prices quoted on active markets for identical assets and liabilities. In Level 2, financial instruments are measured on the basis of input factors that can be derived from observable market data or on the basis of market prices for similar instruments. Level 3 financial instruments are measured on the basis of input factors that cannot be derived from observable market data.

The financial instruments recognized at fair value as of December 31, 2022, relate especially to contingent considerations in connection with the acquisitions of BIA Separations, WaterSep BioSeparations, and Xell,

which are all classified as financial liabilities. Since the valuations depend, among other factors, on the predicted sales performance of the acquired businesses, the valuations are regarded as Level 3 inputs. The valuations are performed applying updated valuation parameters on the reporting date.

In connection with the acquisition of BIA Separations, the Group and the former owners of BIA Separations agreed on three tranches of earn-out payments based on the sales performance of BIA Separations over the five fiscal years subsequent to the acquisition. Depending on this sales performance, the sellers are entitled to receive additional shares in Sartorius Stedim Biotech S.A. The valuation of this liability considers the expected future sales performance and the assumed number of shares to be transferred, as well as the present value of the expected future share prices at the expected settlement dates. As of the reporting date on December 31, 2022, the fair value of the remaining contingent consideration liability was measured at €72.1million. The change since December 31, 2021 (value: €288.2million; thereof current: €97.9million) mainly reflects the decline of the share price of Sartorius Stedim Biotech S.A., as well as the settlement of the first tranche that was reported as a current liability in the 2021 consolidated financial statements (value upon settlement in first half of 2022: €68.1million). Furthermore, the discount rates applied to calculate the present value of the future obligation were adjusted to reflect the market rates on the reporting date. The difference between the valuation as of December 31, 2021, and the reporting date that is not related to the settlement amount described above amounts to €148.0 million and was recognized in the financial result.

The key input parameters for the valuation of the financial liability are the sales revenue expectations for the next few years as well as the share price of Sartorius Stedim Biotech S.A. at the respective valuation date. The valuation results are less sensitive to realistic changes in other valuation parameters, for example, the discount rates applied. Assuming 20% higher (lower) sales revenues in each of the remaining relevant years of the plan period would result in an increase in the liability to be reported at the reporting date by approximately €29.5million (decrease by approximately €26.9million). If the share price of Sartorius Stedim Biotech S.A. had been 20% higher (lower) at the reporting date, the liability would have been €14.4million higher (€14.4million lower). The actual future outcomes may differ from these sensitivities, which are determined by changing only the respective key input parameter in isolation. The lower end of the bandwidth of possible outcomes of the remaining tranches of this contingent consideration is zero, while the upper limit cannot be quantified due to settlement in shares.

In connection with the acquisition of WaterSep BioSeparations, the parties agreed on an earn-out component, which depends on the future sales revenue in the years of 2021 to 2023 and is due in 2024. The lower (upper) end of the bandwidth of possible outcomes of this contingent consideration remains zero (US\$9million). This contingent consideration was measured at a fair value of €3.0million on the reporting date December 31, 2022. The change since December 31, 2021 (value: €2.6million) amounting to €0.4million was recognized within the financial result.

In connection with the acquisition of Xell, the sellers were granted two additional earn-out components, which are due in 2024 and 2026 and depend on future sales revenues with Xell products in the years 2022 to 2025. On the reporting date of December 31, 2022, the fair value of the financial liability amounts to €1.1million. The change since December 31, 2021 (value: €2.0million) amounting to €0.9million was recognized within the financial result. Assuming 10% higher (lower) sales revenues in each of the remaining years of the plan period would result in an increase in the liability to be reported at the reporting date of approximately €0.9million (decrease of approximately €0.6million). The lower (upper) end of the bandwidth of possible outcomes of this contingent considerations remains zero (€25.6million).

Besides the liabilities arising from contingent consideration agreements, the financial instruments to be recognized at fair value on the reporting date are mainly derivatives in the form of forward contracts. They were measured on the basis of their quoted exchange rates and market yield curves (Level 2). Furthermore, the trade receivables of companies participating in the factoring program, which are part of the portfolio of receivables that are "held-to-collect-and-sell", are measured at fair value. Due to the short maturities and low

credit risks (see Note 41), the valuation follows the same approach as for trade receivables measured at amortized cost.

The fair values to be disclosed for financial liabilities recognized at amortized cost, especially liabilities to Sartorius AG and banks, were measured on the basis of the market interest rate, taking the current indicative credit spreads into account (Level 2). The liability for the acquisition of the remaining non-controlling interests in Sartorius CellGenix GmbH is measured using the effective interest rate method, with any changes recognized directly in equity. At the reporting date, this liability was measured at €168.9million (thereof current: 66.1). The non-current portion is variable and depends on the future sales with CellGenix products in the next three years. Assuming 10% higher (lower) sales revenues in each of the remaining relevant years of the plan period would result in an increase in the liability to be reported at the reporting date of approximately €6.2million (decrease of approximately €6.7million).

The fair values of the remaining financial assets and liabilities to be disclosed approximate the carrying amounts due to their predominantly short-term maturity. The maximum credit loss risk is reflected by the carrying amounts of the financial assets recognized in the statement of financial position.

The Group recognizes transfers between the levels of the fair value hierarchies at the end of the reporting period during which a change has occurred. In the current reporting period, there were no transfers between the levels.

36. Net Gains and Losses from Financial Instruments

The net gains and losses of the various categories of financial instruments are presented in the following table:

Categories according to IFRS 9 € in millions	2022 12 months	2021 12 months
Financial assets measured at amortized cost	10.4	13.3
Financial assets and liabilities measured at fair value through profit or loss	148.6	-207.1
Financial assets measured at fair value through other comprehensive income	-1.8	2.0
Financial liabilities measured at amortized cost	-8.0	-6.4

The net result from financial assets measured at amortized cost as well as from financial assets measured at fair value through other comprehensive income mainly includes the effects of currency translation and changes in allowances.

The net result from financial assets and liabilities measured at fair value through profit or loss predominantly comprises changes in the fair value of derivative financial instruments that are not designated as hedging instruments, as well as interest income and interest expenses for these financial instruments and the changes of the financial liabilities arising from contingent consideration agreements (see also Note 0).

The net result from financial assets measured at fair value through other comprehensive income is related to those receivables that are not solely held to collect contractual cash flows, but that may be sold as part of the factoring program.

The net result from liabilities measured at amortized cost mainly comprises the effects of foreign currency translation.

Total interest income and expenses for financial assets and liabilities that are not measured at fair value through profit or loss were as follows:

€ in millions	2022 12 months	2021 12 months
Interest income	1.6	1.0
Interest expenses	-12.0	-9.3

37. Capital and Financial Risk Management

Capital Risk Management

In the Sartorius Stedim Biotech Group, capital is managed in order to maximize earnings of those participating in the company by optimizing the ratio of equity to liabilities. Furthermore, Group management ensures that all companies operate under the premise of the going-concern principle.

The financial liabilities detailed above are regarded as managed capital as well as cash and cash equivalents and equity capital.

Goals of Financial Risk Management

The Treasury Department of the Sartorius Stedim Biotech Group is centrally located at Sartorius Corporate Administration GmbH, a subsidiary of Sartorius AG. This centralized Treasury Department performs services for all companies of the Sartorius Group, including the Sartorius Stedim Biotech Group, and coordinates access to national and international financial markets. In addition, the Treasury Department monitors and controls financial risks by internal risk reporting, which analyzes risks according to their degree and scope. Essentially, these risks entail currency, interest rate, and liquidity risks as well as credit risks.

The Sartorius Stedim Biotech Group strives to minimize the impact of currency and interest rate risks using appropriate primary or derivative financial instruments. Hedging transactions and their control are carried out by different staff members. Moreover, the Group's Internal Auditing Department regularly monitors the use of such financial instruments. Derivative financial instruments are traded for hedging purposes only.

38. Management of Exchange Rate Risks and Hedge Accounting

The Group is exposed to currency risks because approximately 40% of sales revenue is generated in US dollars and, to a lesser extent, in other foreign currencies. At the same time, the Group is able to compensate a major part of the revenues denominated in foreign currencies with costs incurred in the same currencies due to its global production network. The share of revenues generated in foreign currencies that exceeds such costs, so-called net exposure, is hedged according to a cash flow at risk (CfaR) model within the limits of a risk budget with derivative financial instruments. The resulting hedge ratios usually range between 0% and 80% for the relevant currencies, respectively. The Group generally follows a rolling hedging strategy of up to 12 months in advance. Also, the hedging measures are reviewed at regular intervals in order to adapt them to currency fluctuations.

For currency hedging, forward contracts are used. Forward contracts secure the right, and simultaneously create the obligation, to sell an established foreign currency amount on the exercise date at a specific exchange rate against the euro, independently of the exchange rate on that date. The profit or loss resulting from the difference between the current and the previously established exchange rate is generally recognized as income or expense in the statement of profit or loss.

At the reporting date, (net) forward contracts had been carried out in an amount of \$302.3million (2021: \$324.1million) to hedge against the risk of fluctuation in the EUR/USD exchange rate. This amount covers roughly 60% of the expected net exposure for the US dollar within the period of 12 months. Furthermore, other foreign currencies were hedged in smaller volumes.

The following table shows the forward transactions as of the reporting date:

Dec. 31, 2021	Currency	Volume in millions	Maturity	Fair value € in millions
Forward contract	USD	324.1	2022	-7.3
	USD	324.1		-7.3
Forward contract	JPY	1,990.0	2022	0.1
	JPY	1,990.0		0.1
Forward contract	CHF	5.0	2022	-0.0
	CHF	5.0		-0.0
Forward contract	GBP	81.5	2022	0.2
	GBP	81.5		0.2
Forward contract	SEK	120.0	2022	-0.1
	SEK	120.0		-0.1

Dec. 31, 2022	Currency	Volume in millions	Maturity	Fair value € in millions
Forward contract	USD	302.3	2023	-2.6
	USD	302.3		-2.6
Forward contract	JPY	1,890	2023	0.7
	JPY	1,890		0.7
Forward contract	CHF	6.0	2023	0.0
	CHF	6.0		0.0
Forward contract	GBP	3.5	2023	-0.1
	GBP	3.5		-0.1
Forward contract	SEK	87.0	2023	-0.5
	SEK	87.0		-0.5

The Group uses a cash flow at risk (CfaR) model to measure foreign currency risk. The basis for the analysis of foreign currency risks are the expected cash inflows and outflows in foreign currencies (so-called net exposures). The total foreign currency risk to which all absolute values of the net exposures are aggregated is as follows at the reporting date for the following 12 months:

€ in millions	Dec. 31, 2022	Dec. 31, 2021
Foreign currency exposure	1,008.8	792.0
thereof short positions	187.0	42.5

The risk position of the Group is reflected by the CfaR that remains after considering all hedging activities of the Group. The CfaR approach takes into account the impact of possible currency fluctuations on the cash flows in foreign currencies (against the euro) on the basis of probability distributions. In this context, the covariances of the foreign currencies weighted with the net exposures serve as input factors for the estimation of the portfolio volatility, which is decisive for determining the CfaR. Correlations between the currencies are taken into account in this method as risk is reduced in the risk aggregation.

The possible negative impact on EBITDA is determined for each currency based on actual exchange rates and net exposures with a confidence level of 95% for the next 12 months. The following table presents the possible negative impact for the Group as determined by the CfaR approach for the following 12 months:

€ in millions	Dec. 31, 2022	Dec. 31, 2021
Cash flow at risk	30.9	27.6

Hedge Accounting

Derivative financial instruments are measured at the time of acquisition at cost and at fair value on subsequent balance sheet dates. The changes in value of the derivative financial instruments are generally recognized in the statement of profit or loss on the reporting date.

If the derivative financial instruments serve to hedge against cash flow risk arising from exchange rate risks and a qualified hedging relationship exists based on the criteria of IFRS 9, the valuation adjustments of the effective portion of the instrument are recognized in other comprehensive income (cumulative amount in 2022: €-16.3million; 2021: €-6.7million). Only the spot element of the forward contracts used to hedge the cash flow risks is designated as the hedging instrument. The amounts recognized in equity are reclassified to profit or loss in the period in which the hedged transactions affect profit or loss. The changes of the hedging reserves are shown in the statement of changes in equity. The non-designated or ineffective portion of the hedging instruments is recognized in the financial result in profit or loss.

The economic relationship between hedging instrument and hedged item and the effectiveness of the hedge relationship is determined based on consistency of the significant contractual features of the transactions ("critical terms match"). In this regard, the Group performs a qualitative assessment. Hedge ineffectiveness may possibly arise when the timing of future transactions deviates from the original assumptions or the credit risk of the counterparties of the hedging instrument changes.

The following table presents the effects of the hedging instruments related to exchange rate risks on the financial position and performance of the Group:

Currency	Carrying amount (asset) as of Dec. 31, 2021	Carrying amount (liability) as of Dec. 31, 2021	Hedge ratio	Change in value of hedging instruments	Change in value of hedged item	Nominal amount	Maturity: 1-6 months	Maturity: 7-12 months	Average exercise price
	€ in millions	€ in millions		€ in millions	€ in millions	in millions of respective currency	in millions of respective currency	in millions of respective currency	
USD	0.2	-6.9	100%	-6.7	-6.7	324.1	195.7	128.4	1.17
CHF	0.0	0.0	100%	0.0	0.0	5.0	5.0	0.0	1.04
JPY	0.1	0.0	100%	0.1	0.1	1,990.0	740.0	1,250.0	130.23
GBP	0.8	-0.7	100%	0.1	0.1	81.5	76.5	5.0	0.86
SEK	0.0	-0.1	100%	-0.1	-0.1	120.0	49.0	71.0	10.22

Currency	Carrying amount (asset) as of Dec. 31, 2022	Carrying amount (liability) as of Dec. 31, 2022	Hedge ratio	Change in value of hedging instruments	Change in value of hedged item	Nominal amount	Maturity: 1-6 months	Maturity: 7-12 months	Average exercise price
	€ in millions	€ in millions		€ in millions	€ in millions	in millions of respective currency	in millions of respective currency	in millions of respective currency	
USD	7.1	-5.4	100%	1.7	1.7	302.3	187.3	115.0	1.09
CHF	0.0	0.0	100%	0.0	0.0	6.0	6.0	0.0	0.99
JPY	0.8	0.0	100%	0.7	0.7	1,890.0	1,890.0	0.0	133.03
GBP	0.0	-0.1	100%	-0.1	-0.1	0.1	0.1	0.0	0.50
SEK	0.0	0.0	100%	-0.5	-0.5	87.0	87.0	0.0	10.52

Hedging instruments that have a positive fair value are shown in the line item "Financial assets (non-current)" or "Other financial assets (current)" in the statement of financial position. Hedging instruments that have a negative fair value are shown in the line item "Other financial liabilities (non-current)" or "Other financial liabilities (current)" in the statement of financial position.

The amounts that are recognized in the reporting period in connection with the cash flow hedges in other comprehensive income as well as those amounts that were reclassified from other comprehensive income to profit or loss ("Other income and other expense") are presented in the statement of other comprehensive income and the statement of changes in equity.

39. Interest Risk Management

Sartorius Stedim Biotech is mainly financed through its parent company Sartorius AG. The major loans are taken out at fixed interest rates (see Note 31); therefore, the Group is currently not significantly exposed to interest rate risks. To control the interest risk, an appropriate ratio between fixed and variable loans is generally maintained. However, as of December 31, 2022, and the preceding reporting date, there are no loans with variable interest rates. Accordingly, as of December 31, 2022, the Group has no open interest rate derivative contracts to hedge the risk of increasing interest rates.

40. Liquidity Risk Management

The maturity of the financial liabilities excluding derivative financial instruments shows the following pattern:

€ in millions	Carrying amount Dec. 31, 2021	Cash flow Dec. 31, 2021	< 1 year	1 - 5 years	> 5 years
Loans and borrowings	546.6	547.8	26.4	519.0	2.4
Lease liabilities	78.9	96.2	17.4	45.8	33.0
Trade payables	251.4	251.4	251.4	0.0	0.0
Other liabilities (excluding derivatives)	557.3	563.1	148.9	303.8	110.4
Financial liabilities	1,434.2	1,458.4	444.1	868.6	145.7

€ in millions	Carrying amount Dec. 31, 2022	Cash flow Dec. 31, 2022	< 1 year	1 – 5 years	> 5 years
Loans and borrowings	1,025.1	1,090.9	536.1	552.9	1.8
Lease liabilities	110.6	137.1	24.0	58.7	54.4
Trade payables	251.6	251.6	251.6	0.0	0.0
Other liabilities (excluding derivatives)	292.8	301.4	111.6	189.7	0.0
Financial liabilities	1,680.1	1,780.9	923.3	801.4	56.2

The cash flows shown in the above tables include the undiscounted expected payments in connection with the respective financial liabilities, including the associated interest payments based on the interest rates as of the reporting date.

The loans and borrowings include the loan raised from the parent company Sartorius AG. The other liabilities include the liabilities from the contingent considerations agreements as well as the liabilities in connection with the possible acquisition of the non-controlling interests in Sartorius CellGenix GmbH (see Note O).

The following tables illustrate the liquidity analysis for derivative financial instruments based on undiscounted cash flows:

€ in millions	Carrying amount Dec. 31, 2021	Cash flow Dec. 31, 2021	< 1 year	1 – 5 years	> 5 years
Gross fulfilment					
Forward contracts	8.4	8.4	8.4	0.0	0.0
Payment obligation		299.1	299.1	0.0	0.0
Payment claim		-290.7	-290.7	0.0	0.0
Derivatives	8.4	8.4	8.4	0.0	0.0

€ in millions	Carrying amount Dec. 31, 2022	Cash flow Dec. 31, 2022	< 1 year	1 – 5 years	> 5 years
Gross fulfilment					
Forward contracts	8.0	8.0	8.0	0.0	0.0
Payment obligation		205.2	205.2		
Payment claim		-197.2	-197.2		
Derivatives	8.0	8.0	8.0	0.0	0.0

The Group controls liquidity risks by maintaining credit lines and additional facilities with banks, by continuously tracking the forecasted and actual cash flows, and by managing the maturity profiles of financial assets and liabilities. It is not expected that cash outflows will occur at significantly different times or in significantly different amounts.

The credit line provided by Sartorius AG with a total amount of up to €260 million at variable interest rates had been utilized to the extent of €3 million as of December 31, 2022 (2021: €9 million). In addition, the Group had further short-term bilateral credit lines at variable interest rates at the reporting date; these amounted to €77 million (2021: €50 million) and were not used to a material extent (2021: €16 million).

Local cash funds in certain countries (e.g., China and India) are only available to the Group for cross-border transactions subject to exchange controls. For the restrictions on funds held by the Group's Russian entities, see Note 4.

41. Credit Risk Management

Credit risk is the risk of financial loss to the Group if a counterparty to a financial instrument fails to meet its contractual obligations. Credit risk arises principally from cash and cash equivalents and trade receivables. In addition to that, the Group is exposed to credit risks arising from derivative financial instruments with positive fair values and, to a low extent, from contractual cash flows from debt securities.

Credit risk is controlled centrally for the Group by the Treasury Management unit. For counterparties such as banks and financial institutions, the creditworthiness is continuously monitored to recognize increases in credit risks at an early stage. If no new information is obtained, the Group assumes that the related financial assets still have a low credit risk.

Customers are assigned risk limits that principally depend on business volume, past experience, and the financial position of the customer. Compliance with the limits is regularly reviewed by the management responsible. In some cases, the Group receives advance payments to avoid credit risks. There are no significant concentrations of credit risks from individual customers or regions.

For some trade receivables, the Group may have collateral, such as guarantees that can be used within the contractual agreements in case the counterparty does not meet its contractual payment obligations.

Impairment of Trade Receivables and Contract Assets

The impairment model of IFRS 9, which requires recognition of expected credit losses, is of particular relevance for the Group's trade receivables and contract assets according to IFRS 15. The Group applies the simplified approach according to IFRS 9 to trade receivables and contract assets. Accordingly, lifetime expected credit losses are recognized for these assets. The starting point of the impairment model is an analysis of the actual historical credit loss rates. These are adjusted, taking into consideration forward-looking information and the effects of current changes in the macroeconomic environment, if significant. In view of the immaterial level of historical credit losses, the Group currently determines the expected credit losses for the Group's portfolio of trade receivables as a whole. However, historical loss rates are analyzed regularly in more detail to apply different loss rates to different portfolios, where appropriate. In 2022, no significant change regarding the credit risk of the Group's portfolio of biopharma customers was observed in line with the notion that the industry was not much affected by the current crises. Due to the Group's focus on the biopharma industry that is generally stable and largely independent from macroeconomic developments, the Group does not currently see a material impact of forward-looking information on the expected credit losses.

The contract assets are related to projects for typical customers of the Group. Therefore, it is assumed that the loss rates applied to trade receivables are appropriate approximations for the loss rates of the contract assets. Accordingly, there is no further differentiation between trade receivables and contract assets.

On this basis, the allowances for trade receivables and contract assets were determined as follows as of December 31, 2022, and as of December 31, 2021:

December 31, 2022 € in millions	Not due	1 – 30 days overdue	31 – 60 days overdue	61–90 days overdue	More than 90 days overdue	Total
Gross carrying amount of trade receivables	315.7	1.8	15.6	14.3	54.0	401.4
Gross carrying amount of contract assets	13.6	0.0	0.0	0.0	0.0	13.6
Impairment loss allowance	0.2	0.0	0.0	0.3	10.0	10.5

December 31, 2021 € in millions	Not due	1 – 30 days overdue	31 – 60 days overdue	61–90 days overdue	More than 90 days overdue	Total
Gross carrying amount of trade receivables	284.4	20.5	18.5	11.9	26.6	362.0
Gross carrying amount of contract assets	4.0	0.0	0.0	0.0	0.0	4.0
Impairment loss allowance	0.7	0.0	0.6	0.1	8.5	9.9

The expected credit losses are determined based on a loss rate of 0.05%. In addition, impairments are determined on the basis of individual assessments. Days overdue are one essential criterion in this context. A default is generally presumed when there is no reasonable expectation of recovering a financial asset. In such a case, the respective receivables are derecognized.

The movements in the allowance for impairment with respect to trade receivables and contract assets are presented below:

€ in millions	2022	2021
Valuation allowance at the beginning of the year	-9.9	-10.2
Increase during the year	-5.5	-3.8
Derecognition and consumption	0.9	0.3
Recoveries of amounts previously impaired	4.1	3.9
Foreign currency translation differences	0.1	-0.2
Business combinations	0.0	-0.1
Valuation allowance at the end of the year	-10.5	-9.9

Impairment of Other Financial Assets

Besides trade receivables, cash and cash equivalents are the most material financial assets on the Group's statement of financial position as of the reporting date, December 31, 2022. The expected credit losses are monitored at regular intervals. Due to the high creditworthiness of the counterparties and the short maturities, the impairment that would have to be recognized for these financial assets is immaterial. Therefore, no impairment is recognized for cash and cash equivalents.

For the other financial assets measured at amortized cost, no impairment is recognized as of December 31, 2022, for the twelve months' expected credit losses due to immaterial historical credit losses. In the event of a significant increase in credit risk, which is generally presumed when a payment is more than 30 days past due, the lifetime expected credit losses are recognized for the respective financial asset. A default is generally presumed when there is no reasonable expectation of recovering a financial asset. This is generally presumed when payments are more than 90 days past due. As of the reporting date, there are no indications of increases in credit risk to a material extent. The carrying amounts of the financial assets reflect the maximum credit loss for these assets at the end of the reporting period.

42. Other Risks Associated with Financial Instruments

As of the reporting date, the Sartorius Stedim Biotech Group was not exposed to the risk of volatility in share prices. The only exception is related to the financial liability as a result of the contingent consideration agreement in connection with the acquisition of BIA Separations, which depends on the share price development of Sartorius Stedim Biotech S.A. as a valuation parameter (see Note O).

43. Share-Based Payments

On the level of Sartorius Stedim Biotech's majority shareholder Sartorius AG, share-based payments exist in the form of so-called phantom stock units. Under this plan, the respective board member is granted a certain number of phantom stocks each year that represent an agreed amount of money. The exercise of these stocks is not possible before four years and depends on certain requirements regarding the performance of the Sartorius AG shares.

When the stocks are paid out, the amount is based on the share price at the exercise date. The payment is capped at an amount of 2.5 times the share price at the time these virtual options were granted.

The fair value of the phantom stock units granted to Sartorius AG board members who are also members of the Board of Directors of Sartorius Stedim Biotech S.A. is disclosed as follows:

	Number of phantom stock units	Subscription price in €	Fair value when granted on Jan. 1 of the particular year € in millions	Fair value at year-end on Dec. 31, 2022 € in millions	Paid out € in millions	Exercisable
Tranche of phantom stock units for 2018	2,685	80.32	0.2	0.0	0.5	
Tranche of phantom stock units for 2019	2,884	113.78	0.3	0.8	0.0	yes
Tranche of phantom stock units for 2020	1,818	190.30	0.3	0.7	0.0	no
Tranche of phantom stock units for 2021	1,229	354.13	0.4	0.4	0.0	no
Tranche of phantom stock units for 2022	931	574.61	0.5	0.3	0.0	no
Total	9,547			2.2	0.5	

In addition, the Sartorius Stedim Biotech Group participates in a so-called Long-Term Incentive Program (LTI Program), introduced in fiscal 2022 for the whole Sartorius AG Group. The LTI Program is a long-term remuneration component for selected employees on the higher management levels of the Group. At the beginning of a calendar year, each participant is granted virtual preference shares of Sartorius AG that will be paid out in cash after four years. Accordingly, the payment for the tranche of virtual shares granted in 2022 is planned for the first quarter 2026. The number of virtual shares varies with the performance achieved over the four years preceding the payout period. Goals are defined for the dimensions organic sales growth, underlying EBITDA margin, and CO₂ emission intensity, which are equally weighted. The measurement of the share-based payment obligations is based on the performance achieved to date, assumptions about future performance in the remaining years until payment, and the current share price. The personnel expenses related to the LTI Program, including effects from fair value measurement, and the fair value of the obligation on the reporting date December 31, 2022, amounted to €0.3million. This obligation is reported under "Other non-current provisions" (see Note 24).