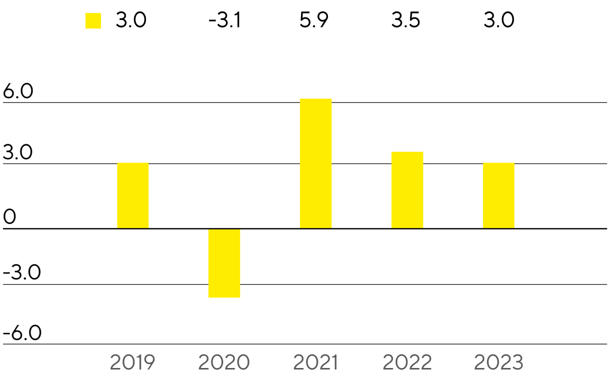
Macroeconomic Environment and Conditions in the Sectors

The Sartorius Group is active in sectors that differ in their dependence on the economy. The Bioprocess Solutions Division, for instance, operates in an environment that is largely independent of economic fluctuations. The Lab Products & Services Division, in contrast, is partly active in sectors whose development is more strongly affected by economic factors.

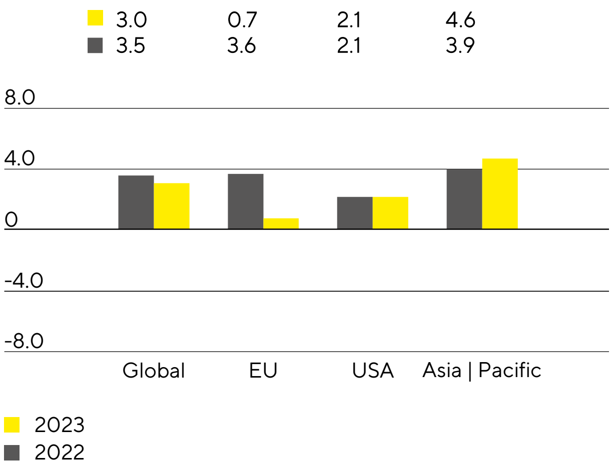
Muted Growth Momentum in the Global Economy

The growth momentum of the global economy continued to slow further in 2023, although there were regional differences in performance. The slowdown was more pronounced in industrialized countries, particularly the eurozone, than in emerging and developing countries. According to estimates by the IMF, global gross domestic product rose by 3.0% (2022: +3.5%) in the reporting period, with industrialized nations recording growth of 1.5% (2022: +2.6%), while the increase in emerging and developing countries was 4.0% (2022: +4.1%). Factors with a dampening effect included cyclical drivers, such as tighter monetary policy, a decline in investment activity, and fewer fiscal policy measures to support the economy. Structural causes, such as increasing geo-economic fragmentation, also had a negative impact on business sentiment and trading activity. Despite the deteriorating conditions, the labor markets proved generally resilient in 2023, and inflationary pressures abated in the course of the year.

Global Development GDP (2019 to 2023)
in %



Gross Domestic Product by Region
in %



Source: International Monetary Fund

According to the IMF, the European Union's economy contracted by 0.7% (2022: +3.6%). Germany recorded a decline of 0.5% (2022: +1.8%), while France's economic output was up 1.0% (2022: +2.5%), and the UK, another core European market, expanded by 0.5% (2022: +4.1%).

The United States, the world's largest economy, posted a 2.1% year-on-year increase in GDP in 2023.

In the Asia|Pacific economic region, GDP grew by 4.6% (2022: +3.9%). India again recorded the sharpest increase in this region in the reporting year, with growth of 6.3% (2022: +7.2%). China's economy added 5.0% (2022: +3.0%), although this fell short of original expectations. South Korean economic output rose by 1.4% (2022: +2.6%), and economic activity in Japan increased by 2.0% (2022: +1.0%).

Exchange Rate and Interest Rate Trends

In addition to the euro, the currencies relevant to the Sartorius Group include the U.S. dollar in particular, as well as a number of other currencies, such as the British pound, the Singapore dollar, the South Korean won, the Japanese yen, the Chinese renminbi, and the Swiss franc.

Exchange Rates against the Euro

	Year-End Exchange Rates		Average Exchange Rate	
	2023	2022	2023	2022
U.S. dollar	1.10650	1.06695	1.08152	1.05351
British pound	0.86910	0.88584	0.86989	0.85265
Singapore dollar	1.46070	1.43060	1.45250	1.45160
South Korean won	1,428.67000	1,344.77000	1,412.18659	1,357.87961
Japanese yen	156.81000	140.73000	152.01230	138.04150
Chinese renminbi	7.86730	7.36960	7.66229	7.08120
Swiss franc	0.92662	0.98370	0.97178	1.00486

The European Central Bank raised its key interest rate several times in the reporting year to 4.50% by the end of 2023. The three-month EURIBOR – i.e., the rate of interest on fixed-term deposits denominated in euros in interbank business – stood at 3.9% as of December 31, 2023 (December 31, 2022: 2.1%).

Sources: International Monetary Fund: World Economic Outlook, October 2023; Bloomberg; www.euribor-rates.eu.

Conditions in the Sectors

Sartorius' key customer groups include the biopharmaceutical and pharmaceutical industries as well as public research institutions. In addition, the company's customers include quality control laboratories in the chemical and food industries. Accordingly, the progress of the Group's business depends on developments in these industries.

Subdued Development of the Biopharmaceutical Market

After continuous – and in some cases significant – expansion in the global pharmaceutical market in prior years, growth stagnated in 2023 according to EvaluatePharma. Even revenue generated with biopharmaceuticals, which commonly increases faster than that generated by the pharmaceutical market as a whole, remained constant at around $436 billion. This was primarily due to lower sales of coronavirus vaccines and therapeutics, which fell by more than half in the reporting year from the previous level of $100 billion. Biopharma's share of the total pharmaceutical market was unchanged at around 39%.

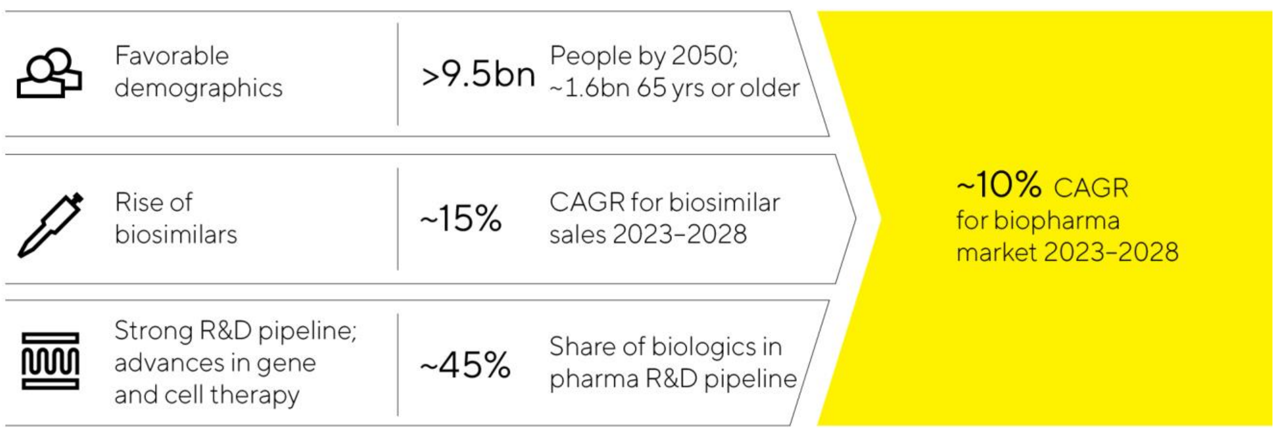
The leading manufacturers of bioprocess technology recorded declining sales in 2023 and repeatedly lowered their growth forecast communicated at the start of the year. The influencing factors were of a temporary nature and included in particular the sharp decline in Covid-19-related business and the reduction of elevated inventory levels. In addition, production levels at some biopharma companies were relatively low, and investment activity was generally subdued after several years of intensive capacity expansion. Towards the end of the third quarter, the order situation recovered for some companies, and a gradual improvement in the business situation is expected for 2024.

The growth of the biopharma market fundamentally depends more on medium- to long-term trends than on short-term economic developments. Significant impetus here is provided by the globally increasing demand for drugs and the approval and market launch of innovative biopharmaceuticals. Other growth factors are the extension of the range of indications for already approved medications and their further market penetration. The number of new biopharmaceutical approvals by the U.S. Food and Drug Administration (FDA) remained high in the year under review, at 42 (2022: 31).

The growing significance and acceptance of biologics is reflected not only in their increasing share of sales revenue within the global pharmaceutical market but also in the development activities of the pharmaceutical industry. For example, biopharmaceutical compounds account for around 45% of the R&D pipeline. A growing number of active substances manufactured using biotech production methods is being approved for the treatment of rare illnesses that have been incurable so far. In this context, the pharmaceutical industry is increasingly focusing on advanced therapies, such as cell and gene therapeutics and biotechnologically processed tissue products. In 2023, more than 1,600 clinical trials with such treatment approaches were conducted, meaning that this area offers significant growth potential over the medium to long term. The rising number of approved biopharmaceuticals and an increasing variety of therapy types and substance classes, coupled with growing demand for medications, are the main drivers for the worldwide increase in production capacities for biopharmaceuticals.

Biosimilars, the generic versions of reference biologics that have lost their patent protection, are also playing an increasingly important role in the biotechnology market. According to market studies, their sales volume in 2023 remained modest at an estimated $29 billion, but is expanding at faster rates than the biopharma market as a whole. The market is expected to continue to grow strongly during the years to come, owing to the expiration of several patents for high-selling biopharmaceuticals and an increasing number of new approvals of biosimilars and market launches. Particularly in the USA, where development has been comparatively slow due to regulatory, patent law-related, and marketing hurdles, market penetration is expected to accelerate significantly in the next few years. A compound annual growth rate of around 15% is expected globally through 2028.

Attractive Market Environment with Good Growth Prospects



Laboratory Market Continues to Grow

The global laboratory market had a total value of around $84 billion in the reporting year and, according to estimates by various market observers, is growing at an average annual rate of around 5% over the long term. Market growth is related, among other things, to the levels of research and development spending in the individual end markets, which is partly linked to economic development.

However, this applies to a lesser extent to labs in the pharmaceutical and biopharma industries, the leading customer groups for laboratory instruments and consumables: In this industry, demand is more strongly influenced by fundamental growth drivers, such as continuous research to find new active pharmaceutical ingredients. According to EvaluatePharma, sector-specific research spending increased by 7% to $262 billion in 2023. The investment focus is on the automation of process workflows and innovative analytical instruments that are equipped with enhanced or novel functionalities. Products from the field of bioanalytics, for example, have above-average growth rates within the laboratory market, and demand in the life science sector is generally growing faster than in other industries. In view of the above-average growth in previous years, this customer segment trended weaker in the reporting year, and the majority of leading suppliers of laboratory instruments and consumables recorded declines in sales revenue. In addition to the high basis for comparison, the reasons cited include restrained investment activity in the current interest rate environment, the persistently muted funding environment, especially for small and medium-sized biotech companies, and severe market weakness in China. Declining demand for Covid-19 test components also had a dampening effect.

Research and quality-assurance labs in the chemical and food industry are another customer group. This segment's demand for laboratory products depends in part on economic trends. Additional momentum can also be generated in this sector by regulatory changes, such as stricter requirements for quality control tests in the food industry. Despite a weaker macroeconomic environment, demand from industrial end markets was generally robust in 2023 according to several leading laboratory product manufacturers.

Academic and public-sector research institutions also use laboratory instruments and consumables manufactured by Sartorius. Growth in demand is related to such factors as government budgets and funding programs, all of which can vary from one country to another. In the USA, the National Institutes of Health (NIH) is the leading government agency for biomedical research and also the world's largest research funding agency. The NIH's budget has increased steadily over the past ten years, rising again by about 6.5% in the reporting year. The proposed budget for 2024 includes another slight increase. The European Union has likewise continuously scaled up its research spending in past budget cycles. Around €95.5 billion of research and innovation funding is to be provided in the period from 2021 to 2027, an increase of 19% compared with the previous program. Many manufacturers of laboratory products recorded robust demand from academic and public research institutions in the reporting year.

Competitive Position

The competitive environment of the Bioprocess Solutions Division is characterized by relatively high entry barriers arising in part from the biopharmaceutical industry's strong degree of regulation and its technological complexity. In this environment, the Bioprocess Solutions Division operates as a total solutions provider, covering the core process steps in biopharmaceutical production and preceding process development. It has leading market positions in key technologies, especially in the areas of bioreactors, filtration, and the transportation and storage of liquids. The Bioprocess Solutions Division's principal competitors are certain business units of Danaher Corporation, Merck KGaA, and Thermo Fisher Scientific Inc.

The Lab Products & Services Division is positioned as a premium provider of laboratory instruments. It serves both R&D laboratories and quality control laboratories with a focus on the biopharmaceutical industry. The division's product range includes laboratory balances, pipettes, and instruments for bioanalytics, as well as a wide range of lab consumables. The division ranks among the leading providers worldwide in most of these areas. Major competitors include certain divisions of Danaher Corporation, Merck KGaA, and Thermo Fisher Inc. Among these competitors are also Mettler-Toledo Intl. Inc. for laboratory balances in particular; Eppendorf AG for pipettes; and companies such as Agilent Technologies Inc., Becton Dickinson Co., and PerkinElmer Inc. for cell analytics.

Sources: BioPlan: 20th Annual Report and Survey of Biopharmaceutical Manufacturing Capacity and Production, April 2023; Evaluate Pharma: World Preview 2023, August 2023; Alliance for Regenerative Medicine: Sector Snapshot, August 2023; citeline: Pharma R&D Annual Review 2023, May 2023; Markets and Markets: Biosimilars Market – Forecast to 2028, 2023; SDi: Global Assessment Report 2023, June 2023; www.fda.gov

Group Business Development

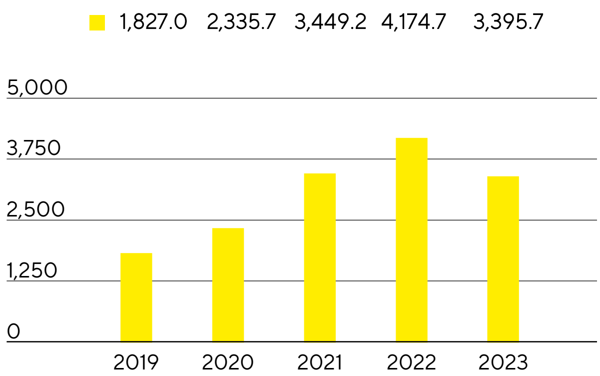
Sales Revenue and Order Intake

Following the strong additional growth momentum in the years 2020 to 2022 due to the pandemic-related extraordinary business and inventory buildup by customers, particularly in the Bioprocess Solutions division and to a lesser extent in the laboratory business, the temporary normalization of demand expected by the company management set in during the reporting year. This was more pronounced than anticipated at the beginning of the year, and the reduction in customer inventories also lasted longer than expected, which led to numerous forecast revisions across the entire life science sector. Business development was also impacted by a pronounced market weakness in China and the discontinuation of business with Russian customers. Against this backdrop, Group sales revenue fell by 16.6% in constant currencies[1] to €3,395.7 million; reported by -18.7%. This includes a growth contribution from acquisitions of around 1.5 percentage points[2]. Excluding the pandemic-related business, the decline in constant currencies was around 12%.

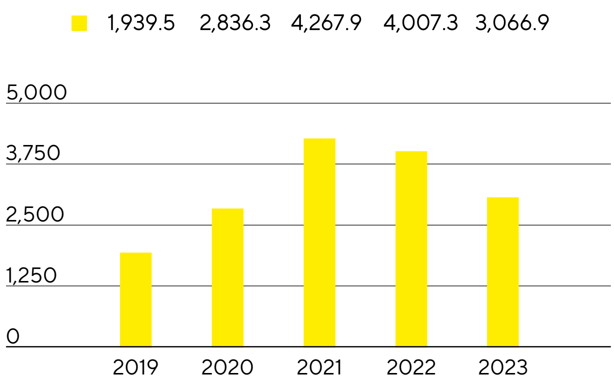
The temporarily weaker market environment was also reflected in order intake[3], which decreased by 21.5% in constant currencies to €3,066.9 million (reported: -23.5%). In line with progress made by customers in reducing their inventories, business began to recover at the end of the third quarter, resulting in order intake being slightly higher than sales revenue in both divisions and the Group in the fourth quarter.

For a full comparison of the Group's business development with its forecast, see page 68.

Sales Revenue 2019 to 2023
€ in millions



Order Intake 2019 to 2023
€ in millions



Sales Revenue and Order Intake

€ in millions	2023	2022	in % reported	in % cc[2]
Sales revenue	3,395.7	4,174.7	-18.7	-16.6
Order intake	3,066.9	4,007.3	-23.5	-21.5

1 Figures given in constant currencies eliminate the impact of changes in exchange rates by applying the same exchange rate for the current and the previous period.
2 Organic: Organic growth figures exclude the impact from changes in exchange rates and changes in the scope of consolidation.
3 Order intake: All customer orders contractually concluded and booked during the respective reporting period.

Temporarily Muted Development in Both Divisions

Both divisions recorded a decline in sales revenue in fiscal 2023 due to the temporarily weaker market environment. In the Bioprocess Solutions division, which offers a wide array of innovative technologies for the manufacture of biopharmaceuticals and vaccines, sales revenue decreased by 17.6% in constant currencies to €2,678.2 million (reported: -19.5%). This includes about 2 percentage points of non-organic growth from acquisitions. Excluding the pandemic-related business, the decline was slightly above 12% in constant currencies.

Sales revenue in the Lab Products & Services division, which specializes in life science research and pharmaceutical laboratories, stood at €717.5 million, a decline of 12.7% in constant currencies (reported: -15.4%) compared to the high level of the prior-year period. Excluding the Covid-19-related business, sales revenue would have declined by slightly below 11% in constant currencies.

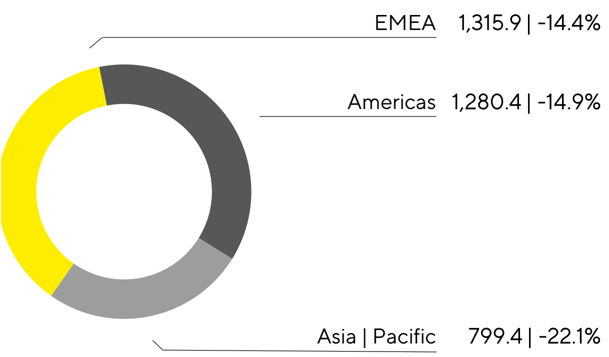
Sales by Division

€ in millions	2023	2022	in % reported	in % cc
Bioprocess Solutions	2,678.2	3,326.5	-19.5	-17.6
Lab Products & Services	717.5	848.2	-15.4	-12.7

Further information on the business development of the Group divisions is given on pages 57 et seq. for the Bioprocess Solutions Division and on pages 62 et seq. for the Lab Products & Services Division.

General Market Weakness Affects All Business Regions

Sales Revenue and Growth[1] by Region[2]
€ in millions, unless otherwise specified



1 Constant currencies: Figures given in constant currencies eliminate the impact of changes in exchange rates by applying the same exchange rate for the current and the previous period.
2 Acc. to customer location.

In terms of regional development, sales revenue declined in all regions due to the normalization of demand and the pandemic-related high prior-year base. The EMEA region recorded a decline of 14.4% to €1,315.9 million, to which the discontinuation of business with Russian customers contributed around 3 percentage points. This region accounted for 39% of total Group sales at the end of the year. From a divisional perspective, sales in the Bioprocess Solutions division fell more sharply (-16.8%) than in the Lab Products & Services division (-4.1%) due to the extraordinary situation following the pandemic described above.

In the Americas region, sales amounted to €1,280.4 million (-14.9%), which corresponds to around 38% of total Group revenue. While the bioprocess division recorded a decline of 13.3%, primarily due to the reduction in inventories and lower investment activity by customers in the USA, the business volume in the laboratory division fell by 21.1% impacted by the reluctance to invest, particularly among pharmaceutical customers in the bioanalytical instruments product area.

The reduction in inventories by customers and the reluctance to invest and purchase were even more noticeable in China and led to a significant decline in sales. This development also had a significant impact on business in the Asia | Pacific region as a whole, which amounted to €799.4 million (-22.1%) and thus accounted for a good 23% of total Group revenue. Sales in the Bioprocess Solutions division fell by 25.1% and in the Lab Products & Services division by 12.4%.

All growth rates for the regional development are in constant currencies unless otherwise stated.

Sales by Region

€ in millions	2023	2022	in % reported	in % cc[2]
EMEA	1,315.9	1,550.6	−15.1	−14.4
Americas	1,280.4	1,543.8	−17.1	−14.9
Asia | Pacific	799.4	1,080.3	−26.0	−22.1

Costs and Earnings

The cost of sales fell by 8.4% to €1,828.6 million in the reporting year. The respective cost of sales ratio was 53.8%, compared to 47.8% in the previous year. The decline was mainly due to the lower business volume and negative product mix effects.

At €634.4 million, selling and distribution costs were slightly higher than in the previous year (€632.5 million), while the ratio of these costs to sales revenue increased year on year to 18.7% (previous year: 15.1%) in connection with the decline in sales. Research and development expenses fell by 4.7% to €170.8 million in the reporting year; the corresponding R&D ratio was 5.0% (previous year: 4.3%). Administrative expenses amounted to €214.3 million (previous year: €213.6 million), and the administrative expense ratio was 6.3% in 2023 (previous year: 5.1%). Extraordinary items explicitly attributable to the functional areas are reported in the respective functional area since the 2023 reporting year. The previous year's figures were restated accordingly.

Expenses and income that could not be allocated to a functional area were recognized in the balance of other operating income and expenses which amounted to -€43.7 million in 2023 after -€88.1 million in the previous year and included net expenses of -€16.4 million (previous year: -€51.0 million) from valuation effects and the realization of currency hedges, in particular due to the development of the U.S. dollar exchange rate.

EBIT fell by 52.7% year on year to €503.9 million; the corresponding margin was 14.8% (previous year: 25.5%). This development was mainly due to the decline in gross profit, which was only partially offset by a reduction in operating costs.

The financial result amounted to -€118.0 million in 2023, compared to €116.9 million in the previous year. This includes non-cash-effective income of €71.5 million, predominantly from the reporting date valuation of the share-based earn-out liability in connection with the acquisition of BIA Separations (previous year: €148.9 million). After adjustment for this effect, the increase in remaining net financing expenses resulted, among other things, from the increased debt in connection with the most recent acquisitions.

In the reporting year, tax expenses amounted to €95.9 million (previous year: €268.6 million). In relation to the reported earnings before taxes, the tax rate was 24.8% (previous year: 22.7%).

Net profit for the period fell by 68.2% to €290.0 million (previous year: €913.1 million).

Net profit attributable to shareholders of Sartorius AG was €205.2 million (-69.7%; previous year: €678.1 million). Non-controlling interest stood at €84.9 million (previous year: €235.0 million), which essentially reflected shares in Sartorius Stedim Biotech S.A. not held by the Sartorius Group.

Statement of Profit or Loss

€ in millions	2023	2022	Δ in %
Sales revenue	3,395.7	4,174.7	−18.7
Cost of sales	−1,828.6	−1,996.6	8.4
Gross profit on sales	1,567.1	2,178.1	−28.1
Selling and distribution costs	−634.4	−632.5	−0.3
Research and development costs	−170.8	−179.2	4.7
General administrative expenses	−214.3	−213.6	−0.4
Other operating income and expenses	−43.7	−88.1	50.4
Earnings before interest and taxes (EBIT)	503.9	1,064.8	−52.7
Financial income	103.9	198.2	−47.6
Financial expenses	−221.8	−81.3	−172.8
Financial result	−118.0	116.9	−200.9
Profit before tax	385.9	1,181.7	−67.3
Income taxes	−95.9	−268.6	64.3
Net profit for the period	290.0	913.1	−68.2
Attributable to:			
Equity holders of Sartorius AG	205.2	678.1	−69.7
Non-controlling interest	84.9	235.0	−63.9

Extraordinary items are reported within functional expenses as of fiscal 2023. Prior-year figures were restated accordingly.

Underlying EBITDA

The Sartorius Group uses underlying EBITDA – earnings before interest, taxes, depreciation, and amortization and adjusted for extraordinary items – as its key profitability indicator to provide a better picture of its operating development, also in an international comparison. More information on extraordinary items is provided on page 190.

Reconciliation from EBIT to Underlying EBITDA

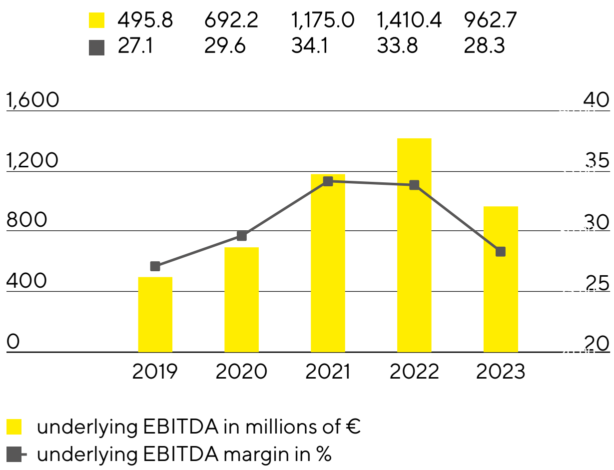
€ in millions	2023	2022
EBIT	503.9	1,064.8
Extraordinary items	116.5	60.4
Amortization | depreciation	342.3	285.3
Underlying EBITDA	962.7	1,410.4

Extraordinary Items

In millions of €	2023	2022
M&A projects | integration costs	-22.9	-16.1
Structuring measures	-80.5	-29.6
Other	-13.1	-14.7
Total	-116.5	-60.4

Mainly as a result of the lower volume development, underlying EBITDA decreased by 31.7% to €962.7 million; the resulting margin was 28.3% (previous year: 33.8%). Negative product mix effects also had a dampening effect, as the reduction in inventories on the customer side particularly affected demand for higher-margin consumables and led to a lower share of such products in total sales. Price effects on the procurement and customer sides largely offset each other.

Underlying EBITDA[1] and Margin



1 Underlying EBITDA: Earnings before interest, taxes, depreciation, and amortization and adjusted for extraordinary items.

Underlying EBITDA by Division

	Underlying EBITDA € in millions	Underlying EBITDA margin in %
Group	962.7	28.3
Bioprocess Solutions	782.3	29.2
Lab Products & Services	180.3	25.1

Underlying EBITDA of the Bioprocess Solutions division amounted to €782.3 million (-34.2%) as a result of the volume development and product mix effects, resulting in a margin of 29.2% (previous year: 35.7%).

Underlying EBITDA of the Lab Products & Services division fell by 18.8% to €180.3 million. At 25.1%, the corresponding margin was moderately below the previous year's figure of 26.2%.

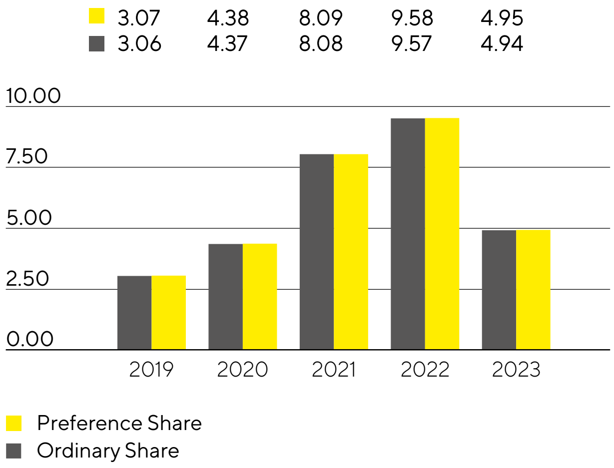
Relevant Net Profit

The relevant net profit attributable to the shareholders of Sartorius AG fell by 48.3% to €338.5 million compared to the previous year. This figure is the basis for determining the profit to be appropriated, is calculated by adjusting for extraordinary items and eliminating amortization, and is based on the normalized financial result and the normalized tax rate. Underlying earnings per ordinary share decreased by 48.4% to €4.94 (previous year: €9.57) and per preference share by 48.3% to €4.95 (previous year: €9.58).

€ in millions	2023	2022
EBIT	503.9	1,064.8
Extraordinary items	116.5	60.4
Amortization	133.5	104.5
Normalized financial result[1]	−146.3	−38.7
Normalized income tax (27%)[2]	−164.0	−321.6
Underlying earnings	443.5	869.4
Non-controlling interest	−105.0	−214.0
Underlying earnings after taxes and non-controlling interest	338.5	655.4
Underlying earnings per share		
per ordinary share (in €)	4.94	9.57
per preference share (in €)	4.95	9.58

1 Financial result adjusted for valuation effects from the subsequent measurement of contingent purchase price liabilities as well as for effects of foreign currency translation and hedging.
2 Income tax considering the average expected Group tax rate, based on the underlying profit before tax.

Underlying Earnings per Share[1]
in €



1 After non-controlling interest, adjusted for extraordinary items and amortization, as well as based on the normalized financial result and the normalized tax rate.

Further information on earnings development and extraordinary items for the Group divisions is given on pages 59 et seq. and 64 et seq.

Research and Development

Sartorius continuously expands its product portfolio by investing in both the new and further development of its products, as well as in the integration of new technologies through alliances. In 2023, the company recognized €170.8 million for research and development (R&D) as a direct expense compared to €179.2 million in the previous year (-4.7%). The R&D ratio of expenses to sales revenue was 5.0% (previous year: 4.3%).

The International Financial Reporting Standards (IFRS) require certain development costs to be capitalized on the statement of financial position and then to be amortized over subsequent years. In the reporting year, capitalized R&D increased to €100.3 million compared with €81.7 million the year before. This equates to a share of 37.0% (previous year: 31.3%) of the Group’s total R&D expenses. Scheduled amortization related to capitalized development costs totaled €30.0 million in 2023 (previous year: €23.9 million). Total research and development costs, including capitalized development costs, amounted to €271.1 million (previous year: €260.9 million). At 8.0%, the resulting gross R&D ratio[1], which includes all innovation-related expenses, was higher than the previous year's figure of 6.2%.

Sartorius pursues a strategic intellectual and industrial property rights policy across its divisions to protect its expertise. The Group systematically monitors compliance with these rights on a cost | benefit basis to determine which specific individual rights are to be maintained.

In 2023, Sartorius filed a total of 301 applications for intellectual and industrial property rights (previous year: 261). As a result of these applications, including those of prior years, 435 patents and trademarks during the reporting year (previous year: 353) were issued. As of the reporting date, the company had a total of 7,260 patents and trademarks in its portfolio (previous year: 6,421).

Further information is provided in the sections covering the individual divisions on pages 57 et seq. and 62 et seq.

1 Gross R&D ratio: Sum of research and development expenses recognized in profit or loss and development costs recognized in the balance sheet in relation to sales revenue.

Investments

In the reporting year, Sartorius continued to invest considerably in the expansion of new capacities in all regions. In addition to significantly expanding production capacities, the investment program aims to further diversify the production network and make it more flexible. In line with the company’s expansion plans, some expansion projects were completed in 2023. Further projects will be completed in the current year or in subsequent years.

At €559.7 million, capital expenditures in 2023 were slightly higher than the previous year's figure of €522.6 million, as planned. The corresponding Capex ratio[1] rose to 16.5% (previous year: 12.5%) due to the decline in Group sales revenue.

The company’s largest investment projects in the reporting year included the expansion of membrane manufacturing capacities and new laboratory space for product development in Göttingen, Germany.

At its site in Yauco, Puerto Rico, a production line for cell culture media was set up and put into operation in 2023.

Sartorius made further substantial investments in additional clean room space for the manufacture of sterile disposables at its site in Aubagne, France, in the reporting year.

In Ann Arbor, Michigan, USA, Sartorius invested in the construction of a new center of excellence in the field of bioanalytics, including research laboratories and production capacity.

In the Asia|Pacific region, the company invested considerably in Songdo, South Korea, where construction work began on a plant for cell culture media production and sterile consumables processing. In addition, Sartorius plans to build a technology center for customer consulting and product demonstrations as well as laboratory space at the new site, which is located in the middle of a biopharma park.

Production capacities were also expanded at other locations. For example, the company carried out expansion projects at other sites in Germany as well as in the USA, the UK, and Slovenia.

1 Capital expenditures in relation to sales revenue.

Employees

The following employee figures include all employees of the Sartorius Group, except for vocational trainees, interns, permanent absent employees, and employees in partial retirement. Employee figures are shown as headcount.

As of December 31, 2023, Sartorius had a total of 14,614 employees in 37 countries worldwide. This was 1,328 employees or 8.3% less than on December 31, 2022. Sartorius had increased headcount in previous years in connection with the significant growth in sales revenue. However, it adjusted the size of the workforce during the reporting period in response to the changing demand levels and reduced capacity requirement. A considerable portion of the peak headcount involved temporary employment contracts. In the reporting year, 264 employees joined the Group as a result of acquisitions.

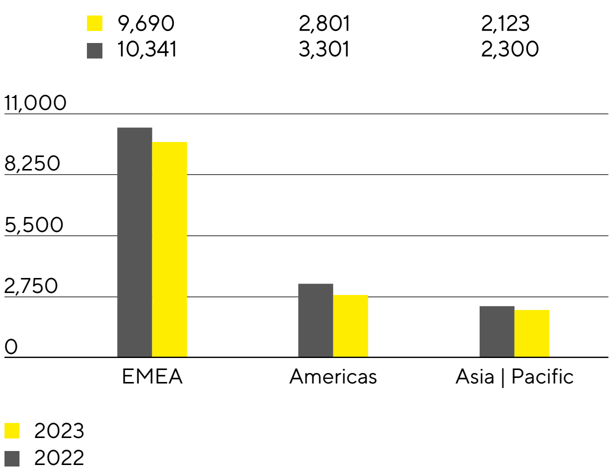
Employees

	2023	2022	Change in %
Group	14,614	15,942	-8.3
Bioprocess Solutions	11,293	12,560	-10.1
Lab Products & Services	3,321	3,382	-1.8

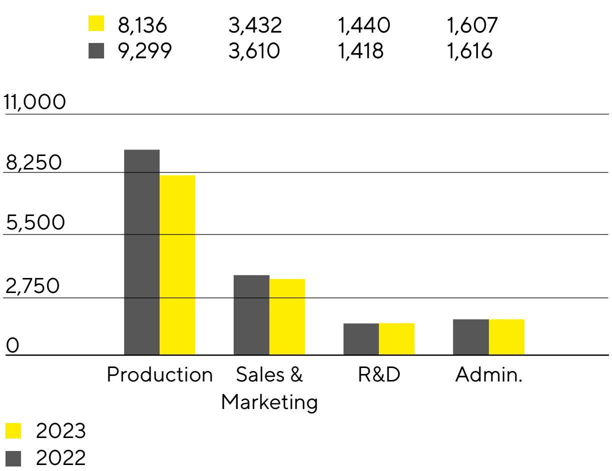
The Bioprocess Solutions division had 11,293 employees at the end of the reporting year (previous year: 12,560). The Lab Products & Services division had 3,321 employees (previous year: 3,382).

The employees of the central administrative functions were allocated to the divisions on the basis of their activities.

Employees by Region



Employees by Function



The number of employees in the EMEA region fell by around 6.3% in 2023 versus December 2022, taking the figure to 9,690. In Germany, Sartorius had 5,004 employees at the end of the reporting year, which corresponds to 34.2% of the total workforce.

In the Americas, Sartorius had 2,801 employees as of December 31, 2023, representing a drop of 15.1%. The number of employees in the Asia | Pacific region fell by 7.7% to 2,123.

At the end of 2023, approximately 56% of all Sartorius employees worked in production. At 8,136, the number of employees in this area decreased by 12.5% year over year.

At the end of the year, 3,432 people were employed in marketing and sales, representing a decrease of 4.9% and a share of around 23% of the total workforce.

Almost 10% of all employees worked in R&D. This corresponded to a year-on-year increase of 22 individuals or 1.6%, bringing the total number of employees to 1,440.

As of the reporting date, 1,607 people worked in administrative positions. This corresponds to a decrease of 0.6% compared with the same date of the previous year and to 11% of all Sartorius employees.

Further information on employees can be found in the Group's Non-Financial Statement starting on page 108.

Net Worth and Financial Position

Cash Flow

Cash flow from operating activities rose by 16.3% to €853.6 million (previous year: €734.2 million) despite the decline in earnings. The increase resulted primarily from the reduction of working capital. While Sartorius had increased inventories as planned in 2022 and previous years to secure supply ability in view of the temporary tensions in supply chains, these were significantly reduced in 2023. In addition, lower tax payments also had a positive effect.

Based on fundamentally intact growth drivers in the end markets and its medium-term growth targets, Sartorius continued its investment program to expand and diversify its production capacities, although the pace of implementation of individual measures was slowed down in view of the temporarily weaker demand. Cash outflows from investing activities decreased slightly by 1.9% to €582.4 million (previous year: -€593.8 million). Due to acquisition-related expenses of €2,240.9 million (previous year: €536.1 million), primarily in connection with the acquisition of Polyplus, a provider of innovative technologies for cell and gene therapies, cash flow from investing activities and acquisitions rose to -€2,823.3 million (previous year: -€1,129.9 million).

Primarily driven by the placement of bonds with a volume of €3 billion, cash flow from financing activities amounted to €2,165.7 million (previous year: €209.9 million). This also included dividend payments for the 2022 financial year in the amount of €134.4 million (previous year: €118.1 million).

Cash Flow Statement

€ in millions	2023	2022
Cash flow from operating activities	853.6	734.2
thereof change in net working capital	171.6	-300.1
Cash flow from investing activities and acquisitions	-2,823.3	-1,129.9
Cash flow from financing activities	2,165.7	209.9
Cash and cash equivalents	379.2	165.9
Gross debt	5,311.4	2,541.2
Net debt	4,932.1	2,375.3

Consolidated Statement of Financial Position

The balance sheet total of the Sartorius Group was €9,755.3 million as of the end of fiscal 2023 and thus €2.777.6 million higher than the prior-year level. This increase is largely due to the rise in non-current assets by €2,843.9 million to €7,798.5 million, mainly due to the increase in goodwill, other intangible assets, and property, plant, and equipment as a result of the acquisition of Polyplus and by the continuation of the investment program. At €1,956.9 million, current assets were slightly below the previous year's figure of €2,023.2 million, mainly driven by the reduction in trade receivables and a reduction in inventories, which were offset by an increase in cash and cash equivalents. Working capital amounted to €1,387.3 million as of December 31, 2023 (previous year: €1,663.5 million).

Key Figures for Working Capital

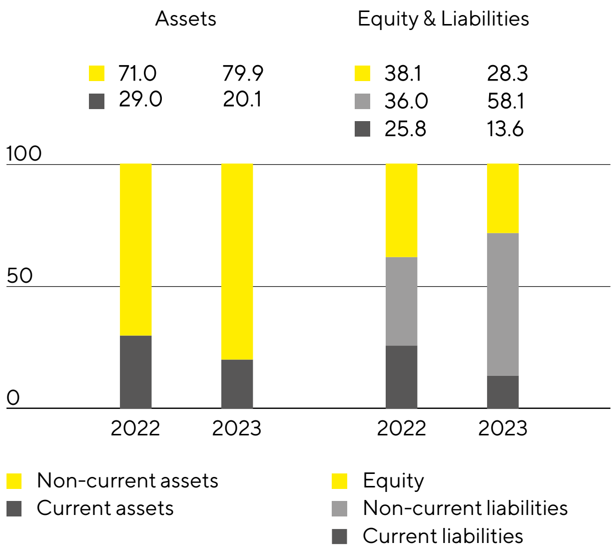
In days		2023	2022
Days inventory outstanding			
Inventories | Sales revenue[1]	x 360	109	101
Days sales outstanding			
Trade receivables | Sales revenue[1]	x 360	37	41
Days payables outstanding			
Trade payables | Sales revenue[1]	x 360	52	47
Net working capital days			
Net working capital[2] | Sales revenue[1]	x 360	93	95

1 Including pro forma sales of recent acquisitions.
2 Sum of inventories and trade receivables less the trade payables.

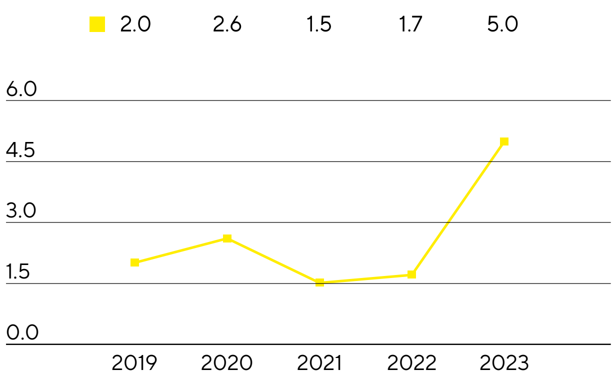
Equity grew by €98.5 million to €2,757.4 million. The equity ratio[1] was 28.3% (previous year: 38.1%).

The Group's non-current liabilities increased from €2,515.5 million to €5,667.9 million in the reporting year due to the issue of bonds with a volume of €3 billion. In addition to financing the Polyplus acquisition, a smaller portion of the funds was used to repay current financial liabilities or was held in cash. As a result, current liabilities fell by €473.3 million to €1,330.0 million. The decrease in trade payables also had a positive effect.

Balance Sheet Structure
in %



Ratio of Net Debt to Underlying EBITDA[2]



1 Equity in relation to the balance sheet total.
2 Quotient of net debt and underlying EBITDA over the past 12 months, including the pro forma amount contributed by acquisitions for this period.

Gross debt rose to €5,311.4 million at the end of the 2023 reporting year relative to €2,541.2 million in fiscal 2022 and is comprised of liabilities to banks, including bonds, promissory note loans ("Schuldscheindarlehen"), as well as lease liabilities. The increase is essentially due to the aforementioned bond placements. Net debt, defined as gross debt less cash and cash equivalents, increased from €2,375.3 million in the previous year to €4,932.1 million.

In relation to the debt financing capacity of the Sartorius Group, the ratio of net debt to underlying EBITDA is a key metric. It is defined as the quotient of net debt and underlying EBITDA over the past 12 months, including the pro forma amount contributed by acquisitions for this period. Following the completion of the Polyplus acquisition and the investments made in the reporting year, the ratio of net debt to underlying EBITDA as at December 31, 2023, was, as expected, at a higher level of 5.0 (previous year: 1.7). This figure is expected to be significantly reduced in 2024, to which a strong expected cash flow as well as the further reduction of inventories and lower investments in capacity expansions should contribute.

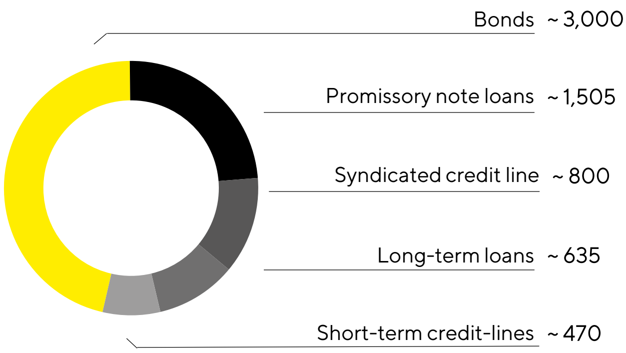
Reconciliation

€ in millions	2023	2022
Gross debt	5,311.4	2,541.2
- Cash & cash equivalents	379.2	165.9
Net debt	4,932.1	2,375.3
Underlying EBITDA (12 months)	962.7	1,410.4
+ Pro forma EBITDA from acquisitions (12 months)	14.7	11.7
Pro forma underlying EBITDA	977.4	1,422.1
Ratio of net debt to underlying EBITDA	5.0	1.7

Financing | Treasury

Sartorius covers its operational and strategic financing needs through a combination of operating cash flows and the assumption of short-, medium- and long-term financial liabilities. The major debt financing instruments are shown in the graphic below.

Main Financing Instruments
€ in millions



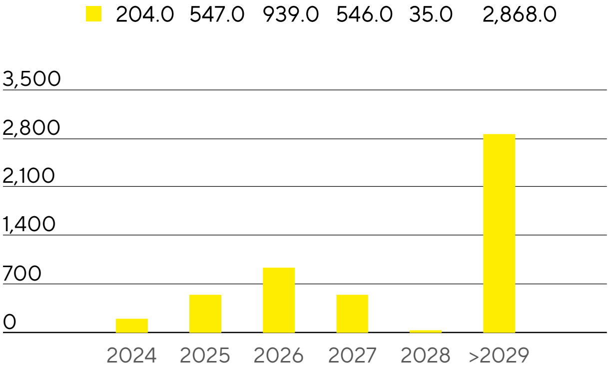
A major pillar in the financing mix is a syndicated credit line of €800 million with a remaining term until May 2028 and an extension option. In addition, Sartorius has various short-term credit lines totaling around €470 million. As of December 31, 2023, the total volume of all available and unused credit lines amounted to €1,270 million.

Corporate financing was supplemented in the reporting year by the placement of bonds with a volume of €3 billion. The issue comprised four tranches with terms of 3 to 12 years and coupons of between 4.25% and 4.875%. The net proceeds from the bond issue were used to repay the bridge financing for the acquisition of Polyplus and for general corporate purposes. In this context, Sartorius received a credit rating from a rating agency for the first time in the reporting year. The S&P Global Rating gave Sartorius an investment grade rating (BBB).

In addition, Sartorius has issued several promissory note loans ("Schuldscheindarlehen") with a total outstanding volume of €1,505 million. There are also several short- and long-term loans in place that total around €635 million and are being used in part for the expansion of production capacities.

At around 85%, the majority of the aforementioned financing instruments was concluded at fixed interest rates. The maturity profile of the Group's financing instruments is broadly diversified.

Maturity Profile of the Financing Facilities[1]
€ in millions



1 As of December 31, 2023, major financing instruments.

Due to its global business activities, Sartorius is exposed to the usual fluctuations in foreign exchange rates, which it hedges by forward contracts. At the end of 2023, foreign exchange contracts amounted to a volume of approximately €625 million, with a market value of €4.9 million.

Business Development of Bioprocess Solutions

Business performance reflects temporarily weaker market environment after the pandemic

Temporary decline in sales and earnings

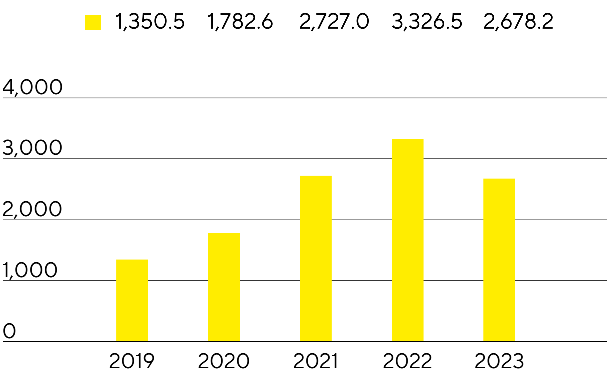
Moderate recovery in order intake since the end of the third quarter

Division sales	Order intake	Underlying EBITDA margin
€2,678.2m	€2,404.1m	29.2%
In constant FX: -17.6%	In constant FX: -21.1%	-6.5 percentage points

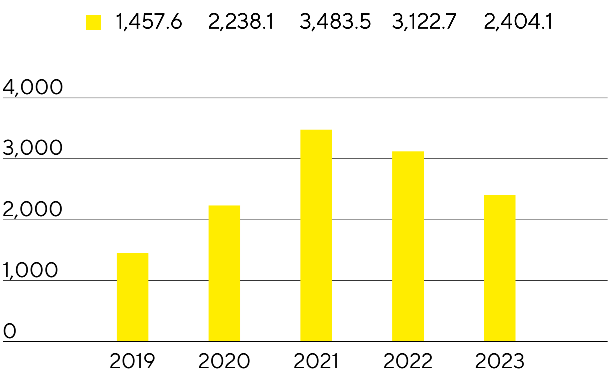
Sales Revenue and Order Intake

Following the exceptionally high growth in 2020 to 2022 due to the pandemic, the Bioprocess Solutions division recorded softer customer demand in the reporting year, as anticipated. In particular, the longer and more pronounced than originally expected reduction in customer inventories following the end of the pandemic impacted business development and led to lower demand for consumables, such as sterile single-use bags and filters. Other industry-wide factors also had a dampening effect, such as relatively low production levels, the largely discontinued business with Russian customers, and an overall muted investment activity on the part of customers, primarily in China and the USA. Sales revenue fell by 17.6% to €2,678.2 million (reported: -19.5%). This includes around 2 percentage points of non-organic growth from acquisitions. Excluding the Covid-19-related business, the decline stood slightly above 12% in constant currencies.

Sales Revenue 2019 to 2023
€ in millions



Order Intake 2019 to 2023
€ in millions



Sales Revenue and Order Intake

€ in millions	2023	2022	in % reported	in % cc[1]
Sales revenue	2,678.2	3,326.5	-19.5	-17.6
Order intake	2,404.1	3,122.7	-23.0	-21.1

1 In constant currencies.

In view of the normalization of demand and a high prior-year base due to the pandemic, sales revenue declined in all regions. In the EMEA region, which accounted for around 39% of the division's sales, revenues fell by 16.8% to €1,042.2 million compared to the previous year, which was significantly influenced by business with vaccine manufacturers. In the Americas region, sales amounted to €1,047.8 million (-13.3%) against the backdrop of low investment activity by customers in the USA. The region's share of divisional sales was 39%. The Asia-Pacific region, which accounted for 22% of the division's sales, performed significantly weaker due to a marked reluctance to invest on the part of pharmaceutical customers, mainly in China. At €588.2 million, sales were down 25.1% on the previous year. (All growth rates for the regional development are in constant currencies unless otherwise stated.)

The temporarily weaker market environment was even more clearly reflected in order intake, which decreased by 21.1% to €2,404.1 million (reported: -23.0%). In line with progress made by customers in reducing their inventories, business began to recover at the end of the third quarter, so that order intake was slightly above sales revenue in the fourth quarter.

Sales by Region

€ in millions	2023	2022	in % reported	in % cc[2]
EMEA	1,042.2	1,260.5	−17.3	−16.8
Americas	1,047.8	1,240.8	−15.6	−13.3
Asia | Pacific	588.2	825.2	−28.7	−25.1

Earnings

Mainly as a result of the lower volume development, underlying EBITDA decreased by 34.2% to €782.3 million, resulting in a margin of 29.2% (previous year: 35.7%). Negative product mix effects also had a dampening effect, as the reduction in inventories on the customer side particularly affected demand for higher-margin consumables and led to a lower share of such products in total sales. Price effects on the procurement and customer sides largely offset each other.

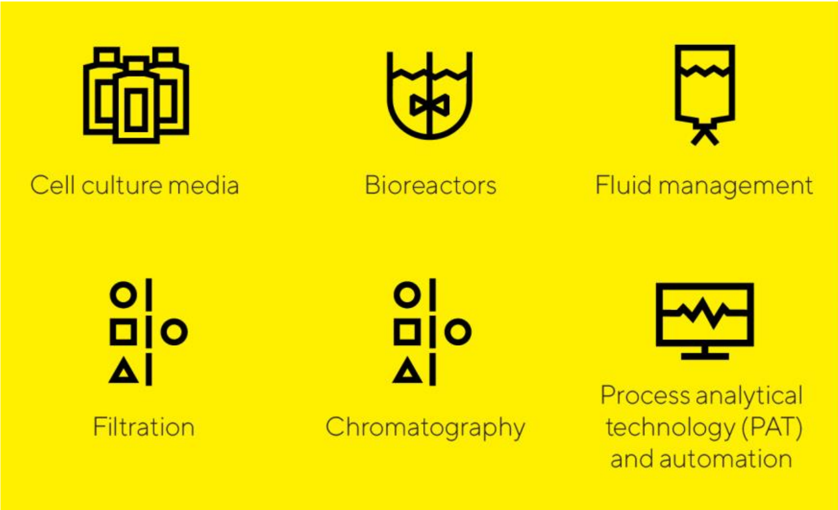
Underlying EBITDA and EBITDA Margin

	2023	2022
Underlying EBITDA in millions of €	782.3	1,188.4
Underlying EBITDA margin in %	29.2	35.7

In the year under review, the Bioprocess Solutions division recorded extraordinary items of -€103.5 million compared to -€46.5 million in the previous year. These items predominantly consisted of expenses in connection with the most recent acquisitions as well as expenses for various corporate projects and structuring measures.

Products and Sales

The Bioprocess Solutions Division markets products and services for the entire value chain in biopharmaceutical production and preceding process development. The division's portfolio includes cell lines, cell culture media, bioreactors, a wide range of products for separation, purification, and concentration, and products and systems for storage and transportation of intermediate and finished biological products.



As a result of the acquisition of the French company Polyplus, Sartorius has significantly expanded the product portfolio of its Bioprocess Solutions Division in the area of cell and gene therapies. Polyplus develops and produces high-quality, GMP-compliant transfection as well as DNA and RNA delivery reagents and plasmid DNA. These components are success-critical in the manufacture of viral vectors used in cell and gene therapies as well as other new medical therapy methods. The solutions from Polyplus are highly complementary to the portfolio created by Sartorius in recent years, which now comprises various cell culture media, other critical raw materials, and purification technologies for the development and manufacture of advanced therapies.

In the area of filtration, the Bioprocess Solutions Division introduced a new platform for the large-scale manufacture of biopharmaceuticals, which can be preconfigured with a wide range of filter types. The platform is suitable for a large number of separation steps, from cell culture media to virus depletion to subsequent sterile filtration; it is particularly user-friendly in its handling and achieves significant cuts in production times. In addition, a high-throughput tool for clarifying and purifying monoclonal antibodies was launched; it helps customers speed up the preparation of small cell culture samples for downstream analysis in cell line development. Moreover, a system was introduced that allows single-use bags to be filled evenly at the same time, for example, with cell culture media for the manufacture of cell therapies, thus accelerating the filling process significantly.

Sales Activities

The Bioprocess Solutions Division markets most of its product portfolio directly. Sales activities for key accounts are coordinated and supported by global key account management.

Communication with customers via on-site visits is now supplemented by digital channels: Many contacts with customers are made through digital communication tools. Videoconferencing and augmented reality are used for such direct interactions, for example, when demonstrating products, conducting training sessions, and bringing systems into service. Another focus aimed at strengthening the sales force is on expanding the company's international presence and on continually enhancing sales efficiency, for example, with product and application training or further specialized training for employees.

Product Development

Development activities at Sartorius essentially focus on technology areas such as membranes, which are the core component of the filter products; diverse technology platforms, such as sterile containers for fluid management in biopharmaceutical processes and sensors; and control technologies for processes such as fermentation. Additional focal areas comprise developments in materials and components that include plastics, elastomers, and intelligent polymers; expanded data analysis; cell line development; and critical media components for protein-based, viral, and so-called advanced therapies.

Product development is aimed at expanding the existing portfolio on a complementary basis and further enhancing the range of integrated complete solutions for the manufacture of biopharmaceuticals – from the early phase of development to commercial production.

The largest product development site is located in Göttingen, Germany, where a new product development building began its operations in the reporting year. Further important activities take place in France, India, the United States, and the UK, as well as in Sweden, Israel, Slovenia, and other locations in Germany.

Production and Supply Chain Management

The Bioprocess Solutions Division has a very well developed global production network that was expanded at several sites in the reporting year. The largest production facilities are located in Germany, France, and Puerto Rico. Beyond these locations, this division also manufactures in the UK., Switzerland, Tunisia, India, the United States, China, Israel, and Slovenia. The most recent acquisition has added sites in France, Belgium, the United States, and China.

In the reporting year, Sartorius expanded its plant in Puerto Rico by adding a production facility for cell culture media. The new facility allows the company to supply, from its plant in Yauco, high-quality cell culture media in powder form, which are used in the manufacture of therapeutic proteins and other modalities. Production in Yauco is focused on customers in the Americas region.

Moreover, construction started in Freiburg im Breisgau, Germany, on a center of excellence for the development and production of quality-critical reagents for the cell and gene therapy market. The new building will increase the existing production of cytokines and growth factors and significantly expand research and development. The building is scheduled for completion in 2025, and production is expected to start in 2026.

The supply chain situation continued to ease in 2023 compared with previous years. Delivery times for most products have normalized, and the availability of electronic components and some chemical raw materials also improved over the course of the year.

Business Development of Lab Products & Services

Development reflects temporarily weaker market environment

Profitability at a robust level despite decline in sales revenue

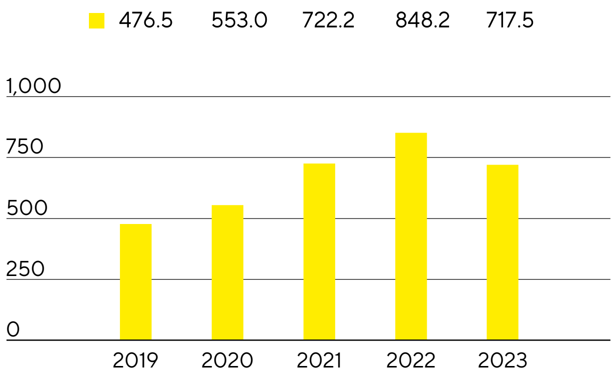
Order intake picks up again slightly over the course of the fourth quarter

Division sales	Order intake	Underlying EBITDA margin
€717.5m	€662.8m	25.1%
In constant FX: -12.7%	In constant FX: -22.7%	-1.1 percentage points

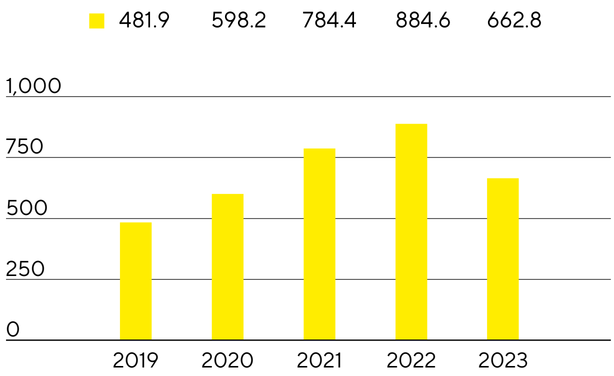
Sales Revenue and Order Intake

The Lab Products & Services division recorded sales revenue of €717.5 million, a decline of 12.7% in constant currencies (reported: -15.4%) compared to the high level of the prior year. Excluding the pandemic-related business, which in the laboratory division primarily comprised membranes for Covid-19 test kits and pipette consumables, sales revenue would have declined by slightly below 11% in constant currencies. After business with bioanalytical instruments for pharmaceutical applications in particular had expanded significantly in previous years, a marked reluctance to invest on the part of this customer group led to a drop in sales in the reporting year. This affected both larger customers and smaller biotech companies, for whom the funding environment had deteriorated significantly compared to the pandemic years.

Sales Revenue 2019 to 2023
€ in millions



Order Intake 2019 to 2023
€ in millions



Sales Revenue and Order Intake

€ in millions	2023	2022	in % reported	in % cc[1]
Sales revenue	717.5	848.2	-15.4	-12.7
Order intake	662.8	884.6	-25.1	-22.7

1 In constant currencies.

Following the strong development in the previous year, sales in the Americas region fell by 21.1% to €232.6 million, so that this region accounted for 32% of the division's sales. In particular, demand for bioanalytical instruments was weaker following the high growth rates of previous years. Sales in the EMEA region, which accounted for around 38% of the division's sales, declined moderately by 4.1% to €273.7 million. The Asia | Pacific region, which contributed 30% to the Lab Products & Services division's business, decreased by 12.4% to €211.2 million, primarily due to a significant drop in sales in China. (All growth rates for the regional development are in constant currencies unless otherwise stated.)

The dampening impact of these factors was even more pronounced on order intake, which stood at €662.8 million (in constant currencies: -22.7%; reported: -25.1%), while business picked up slightly over the course of the fourth quarter, resulting in order intake being moderately higher than sales revenue.

Sales by Region

€ in millions	2023	2022	in % reported	in % cc[2]
EMEA	273.7	290.1	–5.7	–4.1
Americas	232.6	303.0	–23.2	–21.1
Asia | Pacific	211.2	255.1	–17.2	–12.4

Earnings

The underlying EBITDA of the Lab Products & Services Division declined by 18.8% to €180.3 million. At 25.1%, the corresponding margin stood only slightly below the level of the prior-year period (26.2%). Price effects on the procurement and customer sides largely offset each other.

Underlying EBITDA and EBITDA Margin

	2023	2022
Underlying EBITDA in millions of €	180.3	222.0
Underlying EBITDA margin in %	25.1	26.2

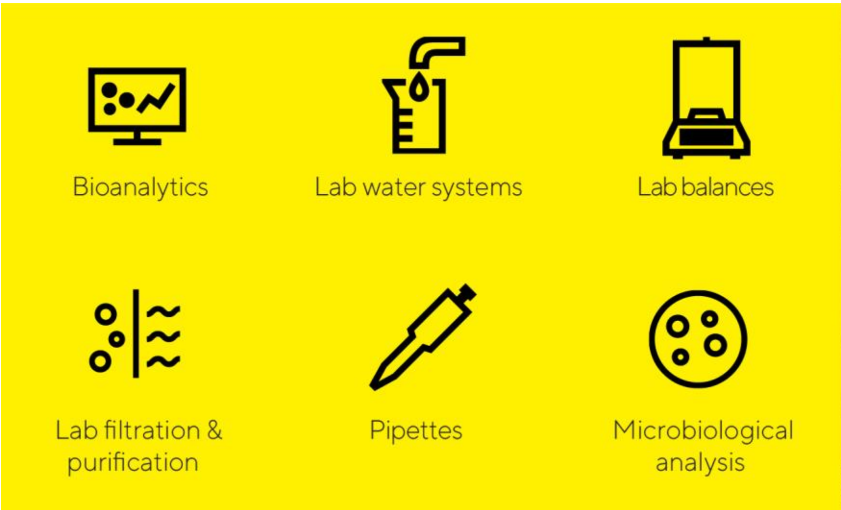
The Lab Products & Services Division recorded extraordinary items of –€13.0 million in the reporting year relative to –€13.9 million a year ago. These items resulted primarily from expenses for various corporate projects and structuring measures.

Products and Sales

The Lab Products & Services Division focuses with its products on research laboratories in the pharmaceutical and biopharmaceutical industries as well as on academic research institutes.

In the area of bioanalytics, the division offers life science customers innovative systems for cell analysis. These greatly accelerate the otherwise time-intensive discovery of medical drug candidates by automating and digitalizing core steps in analysis. Automated analysis, selection, and isolation of cells enable customers, moreover, to significantly reduce time to result as well as cost in cell line development and antibody discovery.

In addition, the product range of the Lab Products & Services Division includes a broad array of premium laboratory instruments for sample preparation, such as laboratory balances and lab water systems, as well as lab consumables, such as filters and microbiological test kits. This Sartorius portfolio is tailored to the biopharmaceutical industry and additionally focuses on research and quality control labs in areas such as the chemical and food industries.



In the area of bioanalytics, the division launched a new software module for a live cell imaging system in the reporting year, which allows customers to process data in accordance with the FDA's rules for electronic records and signatures. By cooperating with an industry partner in the area of proteins, the division in July expanded its fast-growing portfolio for stem cell and organoid research by adding animal-free growth factors and cytokines, with the aim of enabling rapid progress in the discovery of new cell models.

Another product brought to market was a new version of an electronic pipette, which allows data to be recorded in real time and enables integration with other equipment, thereby improving productivity and data quality. A new premium laboratory balance was also introduced, which offers customers improved adaptability to ambient factors, such as temperature, humidity, and atmospheric pressure; intuitive cleaning processes; and flexible hardware upgrades.

The services offered by the Lab Products & Services Division cover the entire life cycle of laboratory instruments, from device installation and commissioning to validation, calibration, verification, and regular maintenance to repair. These services are not limited to Sartorius instruments alone; they are offered to a partial extent for devices from other manufacturers as well. This extensive range enables customers to minimize the number of service providers they use and to reduce complexity and costs.

Beyond this, Sartorius application laboratories in all regions offer customers the opportunity to test Sartorius products, even using their own samples, and to take training courses.

Sales Activities

The division mostly distributes its bioanalytics offering directly, while standard instruments and consumables are also offered through laboratory distributors. The focus is on further expanding the direct channels, including online business with customers in the life science industry. In aligning its activities, the division is increasingly using digital channels.

Aside from extending sales structures, the company also concentrates on the ongoing enhancement of sales efficiency, in part through the creation of synergies between the two divisions. This gives the Lab Products & Services Division access to customers of the Bioprocess Solutions Division, which in turn can also open up new sales opportunities.

Product Development

The division has extensive technological expertise in the areas of bioanalytics, laboratory instruments, and laboratory consumables. Software and hardware advancements in the company's cell analysis products create many new evaluation opportunities for our customers. They are the foundation for the development of new tools capable of processing and visualizing vast quantities of data appropriately based on specific applications. Compliance with regulatory requirements is critical for the company's customers. Product development priorities for Sartorius therefore include data management, connectivity, and process automation.

Most of the research and development for the Lab Products & Services Division is conducted at Group headquarters in Göttingen, Germany, where a new product development building opened in the reporting year. Sartorius also carries out R&D activities at its sites in the USA, Finland, the UK, India, and China.

Production and Supply Chain Management

The Lab Products & Services Division operates plants in Germany, China, Finland, the UK, and the USA. These plants serve as centers of competence and tend to focus on one product group or a small set of product groups. In 2023, for example, laboratory balances were manufactured in Germany and China, pipettes in Finland, and bioanalytical systems in the USA and China. Microbiological test kits are produced in the UK, and most membrane-based products in Germany.

Capacity expansions at the site in Ann Arbor, Michigan, USA, progressed as scheduled in 2023. Measuring 12,000 square meters, this ultra-modern facility is intended to meet growing demand for the division's products and services and combine different functions, such as the operational area for bioanalytical devices, customer and repair service, and product development. Completion is scheduled for 2024.

The supply chain situation continued to ease in 2023 compared with previous years. The availability of electronic components continued to pose a challenge, but improved over the course of the year.

Assessment of Economic Position

After the pandemic-related extraordinary business and inventory buildup by customers led to strong additional growth momentum in the years 2020 to 2022, particularly in the Bioprocess Solutions division and to a lesser extent in the laboratory business, the temporary normalization of demand expected by the company management set in during the reporting year. This was more pronounced than anticipated at the beginning of the year, and the reduction in customer inventories also lasted longer than expected, which led to numerous forecast revisions across the entire life science sector. Business development was also impacted by a pronounced market weakness in China and the discontinuation of business with Russian customers. Against this backdrop, the company management lowered its growth and earnings forecast for both divisions and the Group in June and October 2023. In line with progress made by customers in reducing their inventories, business began to recover at the end of the third quarter, so that order intake was slightly above sales revenue in the fourth quarter. The company management therefore expects profitable growth for 2024.

Group sales revenue decreased by 16.6% in constant currencies to €3,395.7 million in 2023. The Group's earnings margin, measured on the basis of underlying EBITDA, stood at 28.3%. The forecast given in October for a decline in sales revenue of around 17% with profitability of just over 28% was therefore achieved.

In the Bioprocess Solutions division, sales revenue fell by 17.6% in constant currencies to €2,678.2 million and achieved an underlying EBITDA margin of 29.2%. The results were therefore in line with the October guidance, which forecasted a decline in sales of around 18% with an earnings margin of just over 29%.

With a decline in sales revenue of 12.7% in constant currencies to €717.5 million and an earnings margin of 25.1%, business development in the laboratory division was also in line with the latest forecast. Accordingly, a drop in sales of around 13% and an underlying EBITDA margin of just over 25% had been expected.

The ratio of net debt to underlying EBITDA rose to 5.0 in the reporting year, mainly due to the financing of the Polyplus acquisition, and corresponded to the forecast value of slightly above 5.

In line with its ambitious medium-term growth targets, Sartorius further expanded its production capacities in the reporting year, with the ratio of capital expenditures (Capex) to sales revenue reaching 16.5%; the forecast was for a figure of slightly above 17%.

Projected | Actual Comparison for the Year 2023

	Actual 2022	Guidance January 2023	Guidance June 2023	Guidance October 2023	Actual 2023
Sartorius Group					
Sales growth[1]	15.0%	Low single-digit percentage range	Decline in the low to mid-teens percentage range	~-17%	- 16.6%
Underlying EBITDA margin in %	33.8%	Around prior-year level	~30%	Slightly above 28%	28.3%
Net debt to underlying EBITDA	1.7	~1.5[2]	Slightly above 4[2]	Slightly above 5[2]	5.0
Capex ratio	12.5%	~12.5%	~15%	Slightly above 17%	16.5%
Sartorius Divisions					
Bioprocess Solutions					
Sales growth[1]	15.9%	Low single-digit percentage range	Decline in the low to mid-teens percentage range	~-18%	- 17.6%
Underlying EBITDA margin in %	35.7%	Around prior-year level	~31%	Slightly above 29%	29.2%
Lab Products & Services					
Sales growth[1]	11.5%	Mid single-digit percentage range	Decline in the low single-digit percentage range to stable	~-13%	- 12.7%
Underlying EBITDA margin in %	26.2%	Around prior-year level	~26%	Slightly above 25%	25.1%

1 In constant currencies.
2 Possible acquisitions are not considered.

Annual Financial Statements of Sartorius AG

Whereas the Sartorius Group financial statements are drawn up according to the International Financial Reporting Standards (IFRS), the annual financial statements for Sartorius AG are prepared by applying the rules and regulations of the German Commercial Code (HGB). In this context, the reported retained profit is used to determine the dividend payment to our shareholders.

The Management Report of Sartorius AG and the Group Management Report for fiscal 2023 are combined. The annual financial statements of Sartorius AG prepared according to the HGB and the combined management report are published simultaneously in the German Federal Gazette (Bundesanzeiger).

Business Operations, Corporate Strategy, Corporate Management and Oversight, Overview of Business Development

Since the beginning of fiscal 2011, Sartorius AG has exercised only the functions of the strategic, group-leading management holding entity for the Sartorius Group, and we refer in this connection to the explanatory reports concerning business operations, corporate strategy, corporate management and oversight, as well as the overview of business development, presented on pages 24 et seq. of the combined management report of Sartorius AG and the Group.

Earnings Situation

Sales revenue of Sartorius AG essentially consists of cost transfers to affiliated companies within the Group for management services rendered as well as of the rental of buildings on the Sartorius Campus and in the Sartorius Quarter.

Other operating income in the previous year included book profits from asset disposals totaling €67.3 million. These resulted from the transfer of shares in Sartorius Stedim Biotech S.A. to the sellers of BIA Separations as part of the transaction structure agreed upon in 2020.

Income from investments of €97.7 million relative to €85.5 million in the previous year concerns dividends paid out for the French subsidiary Sartorius Stedim Biotech S.A.

Due to profit and loss transfer agreements, Sartorius AG received a profit of €15.8 million from Sartorius Corporate Administration GmbH (previous year: €11.9 million). In addition, Sartorius Lab Holding GmbH transferred a profit of €45.0 million (previous year: €7.6 million).

The increase in interest expenses of Sartorius AG in comparison with the previous year is partly explained by a note loan ("Schuldscheindarlehen") in the amount of €650 million taken out in November 2022. Since parts of this note loan were not disbursed until 2023, it was only fully reflected in interest expenses for 2023. Interest expenses were also driven by the bridge financing taken out during 2023 to fund the Polyplus acquisition in the amount of €2.45 billion, which has been replaced by the bonds issued by Sartorius Finance B.V.

Given that some loans are taken out at variable interest rates, a year-on-year increase in interest rate levels also led to an increase in interest expenses at Sartorius AG.

Net Worth and Financial Position

The balance sheet total of Sartorius AG fell by €235.2 million in the reporting year to €2,638.9 million.

The balance sheet structure of Sartorius AG reflects its function as the management holding entity for the Sartorius Group. Fixed assets consist primarily of financial assets and, in the reporting year, stood at €2,234.2 million (previous year: €2,748.4 million). Accordingly, fixed assets accounted for 84.7% of the balance sheet total (previous year: 95.6%). The equity ratio stood at 16.0%, compared with 14.1% in the previous year.

Sartorius AG uses internal Group loans to ensure the financing of the majority of Group companies. Long-term loans are reported under financial assets as loans to affiliated companies, which totaled €1,653.5 million in the fiscal year (previous year: €2,158.9 million).

Statement of Profit and Loss of Sartorius AG
Based on the total cost accounting method according to Section 275, Subsection 2, of HGB [1]

In millions of €	2023	2022
1. Sales revenue	17.5	20.0
2. Other operating income	7.3	67.7
3. Employee benefits expense	-6.7	-7.2
4. Depreciation and amortization	-10.4	-9.9
5. Other operating expenses	-27.8	-18.9
6. Income from investments	97.7	85.5
7. Income from long-term loans	47.1	21.7
8. Profit received under a profit and loss transfer agreement	60.8	19.5
9. Interest and similar income	31.8	2.7
10. Write downs on financial assets and short term investments	-20.0	0.0
11. Interest and similar expenses	-80.3	-26.4
12. Income tax expense	-2.0	-0.1
13. Profit after tax	115.0	154.6
14. Other taxes	-0.9	-0.1
15. Net profit for the period	114.1	154.5
16. Profit brought forward	168.9	112.6
17. Retained profits incl. net profit for the period	283.0	267.1

1 HGB = German Commercial Code

Balance Sheet of Sartorius AG
According to HGB [1], in millions of €

Assets	Dec. 31, 2023	Dec. 31, 2022
A. Fixed Assets		
I. Intangible assets	7.4	12.9
II. Property, plant, and equipment	129.0	133.0
III. Financial assets	2,097.8	2,602.5
	2,234.2	2,748.4
B. Current Assets		
I. Trade and other receivables	179.4	117.8
II. Cash on hand, deposits in banks	222.5	4.4
	401.9	122.2
C. Prepaid Expenses	2.8	3.5
	2,638.9	2,874.1

Equity and Liabilities	Dec. 31, 2023	Dec. 31, 2022
A. Equity		
I. Subscribed capital	74.9	74.9
Nominal value of treasury shares	-6.5	-6.5
Issued capital	68.4	68.4
II. Capital reserves	59.6	59.0
III. Earnings reserves	10.9	10.9
IV. Retained profits incl. net profit for the period	283.0	267.1
	421.9	405.4
B. Provisions	34.2	37.0
C. Liabilities	2,182.8	2,431.7
	2,638.9	2,874.1

1 HGB = German Commercial Code.

Proposal for Appropriation of Profit

The Executive Board and the Supervisory Board propose to the Annual General Meeting that the retained earnings of Sartorius AG reported as of December 31, 2023, in the amount of €283.012.753,53 be appropriated as follows:

in €	
Payment of a dividend of €0.73 per ordinary share	24,987,482.44
Payment of a dividend of €0.74 per preference share	25,756,485.14
Unappropriated profit carried forward	232,268,785.95
	283,012,753.53

Research and Development

Detailed information on the research and development activities of the Sartorius Group and its divisions is provided on pages 35, 61 and 66.

Employees

As a holding company, Sartorius AG does not employ any staff to be disclosed pursuant to Section 285, No. 7, HGB.

Risks and Opportunities

The opportunities and risks affecting the business development of Sartorius AG as the management holding entity are essentially equivalent to those of the Sartorius Group. Sartorius AG shares in the risks to which its investments and subsidiaries are exposed in proportion to the extent of its investment. For all identifiable risks to Sartorius AG that could have a negative impact on its net assets, financial position, and results of operations, countermeasures were taken and/or balance sheet provisions formed in the reporting year, insofar as this was reasonable and possible.

A detailed Opportunity and Risk Report for the Sartorius Group is provided on pages 73 to 85 and a description of the internal control and risk management system on page 91.

Forecast Report

Earnings trends for Sartorius AG depend substantially on the performance of its subsidiaries and, as such, on the Sartorius Group.

With respect to the individual financial statements of Sartorius AG, the significantly lower dividends expected from Sartorius Stedim Biotech S.A. are reflected in a significantly lower expected annual profit.

The Sartorius Group's business performance is discussed in the Forecast Report on pages 86 to 89.

Material Events after the Reporting Date

On February 7, 2024, Sartorius AG completed the placement of 613,497 preference shares held by the company excluding the subscription rights of existing shareholders. The preference shares were placed at a price of €326.00 per share. Gross proceeds amount to approximately €200 million. The placement preference shares were issued exclusively to institutional investors in the course of a private placement through an accelerated bookbuilding process and will be fully entitled to dividends from January 1, 2023.

The net proceeds from the placement of treasury shares will accelerate the deleveraging of Sartorius Group beyond a strong operating cash flow as well as strengthen the strategic flexibility of the company as a whole.

Independent of the above, Sartorius' French listed subgroup Sartorius Stedim Biotech S.A. also carried out a capital increase on February 7, 2024, where 5,150,215 new shares with a volume of approximately €1.2 billion were placed in the course of an accelerated bookbuilding process. The Sartorius AG has participated in this capital increase by acquiring 1,716,739 new SSB shares with a total volume of approximately €400 million at a placement price of €233.00. After completion of the capital increase Sartorius AG's stake in Sartorius Stedim Biotech S.A. will amount to approximately 71.5 % of the share capital.

Taking these measures into account, the Group anticipates a reduction of net debt by around €1 billion.

No other material events occurred up to the end of the preparation of these consolidated financial statements.

Opportunity and Risk Report

Principles

Every business activity entails opportunities and risks that have to be managed.

The skill with which this is done is a decisive success factor in determining the future development of a company's shareholder value.

The point of risk management is not to always eliminate every risk possible; rather, Sartorius' approach is to intentionally take a certain measure of risk in its business activities in order to be successful in unlocking opportunities. In this endeavor, it is important to keep risks contained within acceptable limits and to control them carefully. Through appropriate guidelines, the company ensures that risk assessments are taken into account in the decision-making processes from the very beginning.

At Sartorius, identification and management of opportunities and risks is a cross-functional component of Group management. To this extent, the risk management organization reflects a global functional organization in the two divisions of Bioprocess Solutions; and Lab Products & Services, and in the supporting functions as well. Individuals heading a functional area of the Group companies are each responsible for their own management of opportunities and risks. In addition, the Finance department assumes responsibility for central risk management and is responsible for regular reporting and the further development of the risk management system as a whole.

Managing Opportunities

Opportunity management centers on the analysis of target markets and sector environments, as well as the assessment of trends, both of which give strong indications as to future business opportunities. One of the key roles of the relevant managers is to identify potential for development, which initially takes place at the local rather than the central level. Particularly the market-facing functions, such as strategic marketing and product management in each of the two divisions, play a leading role in this respect. These areas are supported by the central Business Development unit, which is responsible for market monitoring, data analysis, and the implementation of strategic projects.

As a partner to the biopharmaceutical and laboratory industries, Sartorius operates in future-oriented and high-growth sectors. The significant opportunities generated by the various market and technology trends are described in detail in the sections entitled "Conditions in the Sectors" and "Outlook for the Sectors" on pages 35 and 87, respectively.

The company's own assessments rank Sartorius as one of the global market leaders in many subsegments and product areas. Based on its quality products, high degree of brand awareness, and established customer relationships, the company has excellent opportunities to stabilize and further expand its leading market position. The corresponding divisional strategies, as well as growth opportunities and initiatives based on these strategies, are outlined in the sections "Strategy of the Bioprocess Solutions Division" on page 29 and "Strategy of the Lab Products & Services Division" on page 30.

Risk Management

Organization

Overall responsibility for an effective risk management system lies with the Executive Board. Coordinating and developing this system and combined risk reporting are the responsibilities of the Finance department, while the particular functional areas are responsible for identifying and reporting individual risks, as well as for assessing their potential impact and for taking the appropriate countermeasures.

The Supervisory Board of Sartorius AG monitors the effectiveness of the risk management system, with the preparatory work being performed by the Audit Committee of this board. While carrying out their statutory audit mandate for the annual financial statements and consolidated financial statements, the independent auditors assess whether the early warning system in place is capable of prompt identification of risks that could jeopardize the future of the company. Finally, the Internal Audit department regularly reviews the effectiveness of the risk management system. The key results of these audits are discussed by the Executive Board, Supervisory Board, and Audit Committee. Any adjustments to the risk management system are then implemented by the central risk management team.

Insurance

To the extent possible and financially reasonable, Sartorius has taken out insurance policies to cover a large number of risks. Among other risks, these insurance policies include coverage against risks relating to product liability, property damage, business interruption, cybersecurity, transport, and material and pecuniary damages, and provide comprehensive coverage for legal costs. An independent department working in conjunction with an external insurance broker regularly reviews the nature and extent of the insurance protection and makes any adjustments as necessary.

When choosing insurers, the company particularly considers the credit rating of these entities as potential contractual partners and aims to achieve a high degree of diversity in order to mitigate the related risks.

Risk Management System and Risk Reporting

The risk management system of the Sartorius Group is documented in a Risk Management Handbook that applies throughout the entire Group and includes definitions of the framework, the structural organization, processes, risk reporting and monitoring, and controls of the effectiveness of the risk management system. This Handbook is based on the ISO 31000 "Risk management – Guidelines" standard and the COSO standard (COSO = Committee of Sponsoring Organizations of the Treadway Commission). There are also a number of other sources that contain stipulations for handling risks, including the Articles of Association and rules of procedure of the Group companies and other guidelines. The Group’s dynamic performance over the past few years as well as increasing regulatory and customer requirements necessitate the ongoing refinement of these guidelines and specifications.

The reporting process in the risk categories described below establishes the rules for the ongoing review and reporting of information regarding risk situations. If any specific risks are discernible, these are documented with respect to their assessment, probability of occurrence, and measures to be taken to eliminate such risks or to mitigate their impact. In addition, as soon as these risks reach defined size criteria, they are reported to the central risk management system. As a matter of policy, assessment of risks is governed by the remaining net risk, i.e., taking any risk-mitigating measures into account. The central risk management system aggregates the risk reports and provides regular reports to the Executive Board and the Supervisory Board on the risk situation of the Group. This reporting also includes a comparison of the risk portfolio with the Group's risk-bearing capacity as determined on the basis of rolling liquidity planning. An urgent reporting procedure is in place to ensure that the Executive Board of Sartorius AG receives all of the necessary details without delay when a new or emerging significant risk to the Group's net worth, financial position, and/or profitability is identified.

In order to provide a logical structure for the individual risks, Sartorius has defined four main risk categories: external risks, operating risks, financial risks, and compliance risks. Each main category is divided into several subcategories that are described in the following sections.

Sartorius has created a risk matrix that categorizes the probability of occurrence and potential impact on net profit into specific classes as follows:

Probability of Occurrence	
Remote	< 10%
Possible	10% - 50%
Probable	50% – 75%
Very likely	> 75%

Significance

In millions of €	Impact on Earnings
Insignificant	< 10
Moderate	10 – 50
Significant	50 – 100
Critical	> 100

These two elements are combined to form the following matrix that indicates the importance of the individual risks for the Group:

> 75%	Low	Medium	High	High
50% – 75%	Low	Medium	Medium	High
10% – 50%	Low	Medium	Medium	Medium
< 10%	Low	Low	Medium	Medium
Probability of occurrence | impact	< €10 million	€10 – €50 million	€50 – €100 million	> €100 million

External Risks

The effects of the coronavirus pandemic temporarily had a significant impact on Sartorius' business performance. As one of the leading bioprocess technology providers, the Group was able to help manage the pandemic by supplying products used in the manufacture of coronavirus vaccines and test components and achieved significant growth in sales revenue in 2021 and 2022. In 2023, the running down of stocks by many customers combined with the significant reduction in coronavirus-related business led to a double-digit decline in orders and sales revenue.

Since the beginning of Russia's attack on Ukraine, Sartorius has suspended all business activities in Russia that are not related to humanitarian medical products. Sales generated in Russia have subsequently fallen significantly with moderate impacts on the Group. The Group has taken a wide range of measures to tackle the war's indirect effects, such as inflation, disrupted supply chains, and potential gas and energy shortages. Price increases were agreed on the customer side to compensate for the rise in procurement costs. The Group's German sites have largely succeeded in making themselves independent of Russian gas supplies, for instance by creating the technical conditions necessary in order to switch to oil. Safety stocks from suppliers with energy-intensive production processes were increased.

Overall, the direct and indirect effects of the war in Ukraine on the Group's future business performance are not considered material. As the war is ongoing and it is impossible to reliably assess the further development of the conflict as well as its indirect effects, this situation remains subject to a high degree of uncertainty.

Sartorius operates a production facility for cell culture media in Beit Haemek in northern Israel. While most of the hostilities since the attack by Hamas have been concentrated on the Gaza Strip, southern Israel, and the Tel Aviv area, the situation in the northern border region also remains tense. Production at the site, transport, and logistics have so far been maintained. A further escalation of the conflict in Israel or the wider region could lead to temporary production stoppages. To strengthen resilience and safeguard the reliability of deliveries, the Group is working to build backup capacity for products that are currently only manufactured at this location. The overall business volume of products manufactured in Israel is noncritical for the Group (<1% of the Group's total sales revenue).

Alongside the conflicts mentioned above, other events such as natural disasters may impact the Group's business activities. The largest sites in Germany and France do not face any major risks in this regard, while the production plants in Puerto Rico and in Fremont, California, are exposed to the risks of severe hurricanes or earthquakes and could be impacted accordingly. A wide range of products for the U.S. market are produced particularly at the Puerto Rico production plant, meaning that large-scale damage here could have considerable impact on consolidated earnings. To mitigate the associated risks, Sartorius applies the highest possible safety standards when constructing buildings and explicitly takes potential risk scenarios into account when defining strategies with regard to warehousing and the international production network.

Since the Group companies operate globally and have international interdependencies, punitive tariffs and trade conflicts can have negative effects on the Group's business activities. To reduce any possible impacts, various measures are currently being reviewed, such as an extension of our supplier network. The political developments in some countries, such as China, could in future lead to decoupling tendencies or restrictions on the business activities of foreign enterprises.

Owing to the concentration of its business activities in the life science sector, the effect of general economic developments on Sartorius is lower than average. The Lab Products & Services Division is susceptible to business cycles in certain areas that can pose a risk to its growth. This division's increasing focus on the biopharma sector, however, significantly reduces these risks.

Overall, the relevance of geopolitical risks to the Group's business activities has increased significantly in recent years and resulted in greater volatility of the Group's business results. The Group monitors developments in this regard and, where possible, initiates risk mitigation measures at an early stage.

Operating Risks and Opportunities

At Sartorius, value creation extends from procurement through production to distribution. Problems within this workflow can have consequential effects, including canceled or delayed deliveries. The Group's supply chain management system ensures that all of the processes along the entire value chain are analyzed and managed in order to largely minimize the risks in this context. On the other hand, the Group's high level of internationalization, for example, unlocks a number of opportunities. The individual risks and opportunities within the value chain are presented in detail below.

Procurement Risks and Opportunities

Sartorius purchases a wide range of raw materials, components, parts, and services from suppliers and is consequently exposed to the risks of unexpected delivery bottlenecks and/or price increases. The global economic environment resulted in price increases in virtually every area in 2022 and 2023. Price effects on the procurement and customer sides largely offset each other, meaning that inflation had no material negative impact on profitability.

In the field of supplier management, powerful tools and robust processes have been implemented in recent years to manage risks and ensure supply continuity. Important measures to reduce potential supply bottlenecks include maintaining safety stock levels and identifying alternative materials or suppliers. From the Group perspective, there is no material dependency on individual suppliers. In addition, the Group regularly conducts supplier audits and carefully monitors the delivery status and inventory levels of critical raw materials.

Sartorius actively manages procurement risks due to a possible shortage of raw materials or components on the market. By concluding binding purchase agreements with suppliers and/or seeking alternatives within the supplier network, Sartorius can reduce their impact and largely secure continuous supply. In 2023, the Group saw a normalization of global supply chains in many areas following the supply shortages for raw materials and components that had resulted from the coronavirus pandemic and the war in Ukraine.

In addition, Sartorius evaluates its supplier base in accordance with legal requirements – for example under Germany's Supply Chain Due Diligence Act – and with regard to compliance with internal and external sustainability standards. In the event of deviations, the process provides for a variety of measures that are coordinated with the suppliers in question.

Production Risks and Opportunities

Sartorius manufactures a significant share of its products in-house with a high degree of vertical integration, for example filters and laboratory balances. For other products, such as bioreactors, the Group works with suppliers, which means that some of the production risks can be shifted to external third parties. Where Sartorius manufactures products itself, the Group also bears the associated risks of capacity bottlenecks or overcapacity, production downtimes, excessive reject rates, and high levels of tied-up working capital, as well as dependency on individual manufacturing sites.

Careful planning of production capacities using versatile machines and semi-automated individual workstations, in conjunction with flextime work schedules and continuous monitoring of production processes, can limit these risks. Moreover, Sartorius' global manufacturing network enables the Group to compensate for any capacity bottlenecks by shifting production to other regional plants as well as to limit the Group's dependency on individual local manufacturing sites. High volatility in demand, such as that seen since the beginning of the coronavirus pandemic, may nevertheless lead to over- or underuse of production capacity with corresponding positive or negative impacts on productivity.

Highly flammable or explosive substances are used in some production areas. The improper handling of such materials can result in significant damage to property and business interruptions. The Group has taken all necessary organizational and structural measures at the affected locations to mitigate this risk as much as possible.

Sartorius considers it an opportunity that investments in global infrastructure and production resources have afforded the Group a high degree of flexibility in manufacturing operations and that the Group is capable of meeting customer requirements and regulatory standards with respect to business continuity concepts. In addition, this approach ensures that international production sites can concentrate on specific manufacturing technologies, leveraging regional cost advantages as a result. Continuous improvements in manufacturing, such as the simplification of processes, as well as increased automation and digitalization, also help to further increase efficiency.

Sales and Distribution Risks and Opportunities

The Group uses a variety of channels to sell and distribute products around the world. Possible risks include unexpected changes in the demand structure, for example, due to consolidations in the markets served by Sartorius, increasing price pressure, or failure to comply with supply agreements entered into with customers. The funding environment for small biotech companies has deteriorated since the end of the pandemic, resulting in lower demand from this customer group in both divisions. Should this trend continue, it could affect the Group's growth forecasts. The fall in demand with the decline in Covid-19-related additional business and the reductions in inventory levels previously raised by customers are likely to affect the industry's performance only temporarily. The Group regards the fundamental growth drivers as intact and expects profitable growth again in the coming years (see the sections entitled "Conditions in the Sectors" and "Outlook for the Sectors" on pages 37 and 87 and the Forecast Report in the next section, p. 86).

Sartorius uses targeted market analyses to try to identify trends in demand in individual submarkets at an early stage so that it can react accordingly. Technical innovations and the fact that a large number of our products are used in validated production processes in the biopharmaceutical industry reduce the Group's exposure to the risk of growing price pressure. Distribution logistics have been optimized in recent years through the establishment and use of central warehouses, thus limiting the corresponding risks.

Geopolitical crises often lead to trade restrictions or sanctions for certain products in individual countries or regions. A tightening of sanctions in the current conflicts or the adoption of further restrictions, for example due to new crises, may therefore more extensively limit the Group's sales opportunities.

Opportunities arise in the area of sales and distribution when the increasing breadth of the product range – in both the bioprocess and lab segments – puts the Group in a position to sell new products to existing customers. Furthermore, opportunities arise for Sartorius from its generally long-term business relationships and its global presence. Finally, the product range is being continuously expanded through acquisitions, which has recently resulted in an increased portfolio for customers particularly in the cell and gene therapeutics segment, which is seeing above-average growth. The market for new modalities such as cell and gene therapeutics, which is being addressed by many of the recently acquired technologies (cell culture media, growth factors, albumin, transfection reagents), is expected to see growth rates well into double digits in percentage terms, offering opportunities for the future development of the Group.

Sartorius sources its key customers from the pharmaceutical, chemical, and food industries and from research and educational institutions in the public sector. These customers are usually relatively large organizations that have been in existence for some time and have strong credit ratings and correspondingly low credit risks. Most of the Group's business areas have a highly diversified customer base, so the Group as a whole is not dependent on individual key accounts to any significant degree.

Competitive Risks and Opportunities

Sartorius has a leading competitive position in its core technologies and competes with mainly larger rivals sharing its status as a globally operating company. As the Group serves a large number of customers from highly regulated sectors, such as the pharmaceutical and food industries, and the technology barriers to market entry are fairly high, Sartorius regards the probability of new competitors emerging in the short term as relatively low.

The fact that many of the Group's products are used in validated processes, especially those in the biopharmaceutical industry, reduces the risk of losing significant market share within a short time frame. Conversely, the hurdles faced by Sartorius in winning clients from competitors in this industry are also higher.

Further risks could arise from a change in the competitive environment, such as further consolidation in the markets or new competitors, for example in China. Sartorius has been continuously making acquisitions in recent years, thus further strengthening its market position and opening up new potential synergies.

Quality Risks and Opportunities

Customers use Sartorius products in a wide range of critical production processes, including the manufacture of vaccines, medications, foods, and chemicals, and in research and development laboratories. Risks in this context primarily involve the failure to meet defined quality criteria, affecting the performance of the supplied products and leading to losses on the part of customers, for which Sartorius may be held liable in the form of damages. Particularly where the manufacture of vaccines or medications is concerned, the resulting damage on the customer side can be significant even where the loss of production volumes is small.

Through extensive quality controls and the use of modern manufacturing techniques, including in classified clean room environments where required, Sartorius ensures that all of its products meet the highest standards of quality and the stringent regulatory requirements. These manufacturing methods and processes are subject to constant review as part of improvement processes and are constantly optimized as requirements evolve. Quality controls are carried out both within the manufacturing processes and as part of test procedures on the end products. This ensures that critical or essential product specifications are continuously achieved. A rigorous product release process also ensures that only products that meet agreed upon specifications are actually shipped.

The effectiveness of the existing quality systems has been confirmed by the successful completion of regular customer audits, as well as by certifications to ISO 9001 and, where applicable, to ISO 13485. Irrespective thereof, product liability risks are insured to a significant extent.

Sartorius is continuously expanding its product portfolio with new technologies and applications, not only through its own developments but also through alliances with partners. To ensure that the partners meet the high quality standards, a strict qualification process has been put in place. Where necessary, the Group also helps its partners improve their quality systems.

In addition, Sartorius has established a traceability system that enables the Group to efficiently identify and, if required, recall an entire production batch immediately. This minimizes the consequences if a defect or nonconforming component is discovered in a product. A complaint management system is used to process and systematically document customer feedback in a timely manner, ensuring that Sartorius efficiently analyzes reported cases and initiates the necessary measures.

In the sectors in which the Group is active, quality requirements are growing more and more stringent all the time, not least as a result of increasing requirements regarding protection of medical patients and on product safety by regulatory authorities. There is a risk that new regulations may be overlooked or be difficult to implement. For Sartorius, this also unlocks opportunities by putting up further barriers to entry for potential market players. The reason is that challenging quality demands represent a considerable barrier to entry for potential new competitors and provide stimulus for further technical innovation. Moreover, through the Group's work on professional committees and membership in industry associations and standards committees, Sartorius actively takes part in drafting new standards and guidelines and is able to identify these emerging requirements at an early stage and prepare accordingly.

Research and Development Risks and Opportunities

Sartorius devotes a considerable share of its resources to research and development. Potential risks in this area may arise from development results that diverge from market needs or application requirements and from exceeding planned development deadlines and budgets. The Group mitigates these risks by continuously monitoring trends and extensive proof-of-concept activities on the one hand, and through project management, intensive development controlling, and the early involvement of customers in the development process on the other. In particular, Sartorius ensures that proofs-of-concept and product designs are always reviewed promptly with regard to how well they meet customers' needs so products can be adapted accordingly as required. Continuously tracking technology trends and competitive activities, as well as filing patents at an early stage, ensures that the Group has an appropriate technology and marketing position.

Intensive collaboration with partners who are among the global market and opinion leaders in their fields enables Sartorius to develop particularly innovative products. In areas such as membrane technology and plastics technology, sensors and biopharmaceutical process engineering, and analytic technologies for laboratory applications, the expertise of Sartorius specialists puts the Group at the very forefront of global research and development worldwide, presenting Sartorius with an opportunity to turn this technical knowledge into potential sales and an even stronger market position. The combination of different innovative activities in a separate Corporate Research Department enables the Group to identify promising developments at universities, startups and at customers' plants and ensure that all relevant IP positions are secured in advance.

Acquisition Risks and Opportunities

By nature, acquisitions provide many opportunities, such as sales growth, extension of the product portfolio, and development of new markets. At the same time, the purchase and sale of companies or parts of companies entail a number of typical risks, such as incorrect valuation assumptions, insufficient usage of anticipated synergy effects, or unsuccessful integration.

The Group takes a number of measures to mitigate these risks. These include performing a thorough due diligence review of important areas and carrying out comprehensive analysis of the market concerned. Furthermore, external consultants and experts are integrated into the purchase or sales processes as required. Sartorius especially focuses on drafting transaction contracts so that they adequately counter such risks, especially by incorporating clauses assuring specific characteristics or by including contractual warranty or guarantee provisions as well as agreements regarding mechanisms for adjustment of the purchase price or liability clauses. Appropriate insurance policies are taken out when necessary.

Immediately after an acquisition has taken place, an integration phase is initiated in which any potential risks can likewise be detected as early as possible and prevented or minimized by taking the appropriate counteractions. A Post Merger Integration (PMI) Office was established as an independent function in the

Business Process Management Department to ensure the efficiency of the integration process and minimization of the associated risks.

Sartorius has made major acquisitions in recent years, particularly in cell and gene therapy. In 2023, the Group acquired Polyplus, a leading developer and producer of high-quality transfection and other DNA/RNA vector reagents and plasmid DNA. The purchase price of this transaction was around €2.4 billion (including liabilities assumed). This, combined with further acquisitions of companies working on crucial components for the development and production of advanced therapies (e.g., Biological Industries Israel, CellGenix, Xell, Albumedix) and downstream solutions for the manufacture of gene therapeutics (BIA Separations), means that the Group sees itself as well positioned in the dynamically growing field of cell and gene therapies.

At the same time, net debt and interest expenses have risen significantly. If the business areas addressed by the acquisitions (e.g., cell and gene therapeutics) do not develop as expected or the acquisitions cannot be adequately integrated, this may significantly affect the Group's credit rating and therefore its development.

Personnel Risks and Opportunities

As an innovative technology group, Sartorius employs a large percentage of highly qualified people. This entails the risk that Sartorius may not be able to hire appropriate employees in the future or may lose high performers currently working for the company. The increasing volatility of the business in recent years poses big challenges for the integration and familiarization of new employees (growth scenario). It also demands major flexibility and the ability to efficiently and effectively implement organizational changes.

Sartorius strives to retain employees in key positions and talented individuals over the long term by offering performance-based compensation models, targeted training opportunities, attractive fringe benefits, and by highlighting interesting development prospects. In this context, the Group particularly continued to enhance staff development initiatives and management programs. The success of these measures is reflected in the low attrition rates seen in recent years. In certain cases, employment contracts contain a clause prohibiting any move to a direct competitor.

Sartorius is countering demographic change primarily by training junior employees and promoting continuous learning for every employee, accompanied by appropriate performance development processes. This, in turn, creates opportunities for the Group, as training its own employees ensures that Sartorius can meet its own demand for qualified personnel.

In order to smoothly onboard new employees and ensure an appropriate transfer of knowledge, the Group has developed and implemented specific onboarding processes for employees and managers. In addition, Sartorius uses a digital HR platform that supports secure and stable processes and enables decisions to be made on the basis of high-quality data.

IT Risks and Opportunities

The Sartorius Group's business processes are supported by a wide array of specific IT systems and software applications. The technical IT infrastructure and global integration of Sartorius sites play a decisive role in the operation and optimization of business processes.

However, the growing dependency on these systems also entails risks. Among other threats, cyberattacks pose a major hazard that can lead to considerable disruption and interruption to business processes. In the worst case, such attacks could result in uncontrolled loss of data, data manipulation, and downtime or failure of applications, systems, and equipment.

To minimize these risks, the Group invests continuously in new and reliable technologies and ensures the secure operation of applications, systems, and equipment. In the past fiscal year, certification to ISO 27001 and the associated creation of a management system for information security marked another important step in ensuring the secure operation of the global IT infrastructure and application landscape.

Sartorius works with certified IT security partners to develop strategic solutions for IT security and efficiency and regularly tests the security of systems and equipment.

In response to dynamic risks and threats, additions and amendments to the security strategy are constantly integrated and implemented in the system and application landscape. These measures offer reliable protection and enable us to identify potential threats at an early stage and respond quickly and appropriately.

Sartorius involves employees in the security strategy both by offering basic training and by regularly providing easy-to-implement but effective strategies for staying safe when using information technology. Employees are encouraged to report suspicious activities directly to the IT Department for further investigation.

Financial Risks and Opportunities

The global nature of the Sartorius Group's operations entails that its business activities are inevitably exposed to financial risks. The most significant of these are exchange rate risks, interest rate risks, liquidity risks, and tax risks. Conversely, financial risks, most notably exchange rate risks and interest rate risks, are balanced by opportunities of approximately equal magnitude.

Exchange Rate Risks and Opportunities

As a consequence of its global business activities, Sartorius is exposed to risks arising from fluctuations in foreign exchange rates. Since around two-thirds of the Group's consolidated sales revenue is generated in foreign currencies and, in turn, approximately two-thirds of this total revenue in foreign currencies is in U.S. dollars or in currencies pegged to the U.S. dollar, Sartorius is positively or negatively impacted by currency effects when converting the currencies of balance sheet items and profit or loss items, respectively. Other currencies relevant to the Sartorius Group are the British pound, the Singapore dollar, the South Korean won, the Japanese yen, the Chinese renminbi, and the Swiss franc.

The Group's global production network enables Sartorius to offset the majority of sales revenues generated in foreign currencies within the Group against costs likewise incurred in foreign currency. For example, Sartorius manufactures many products for the North American market locally, and is not disadvantaged on the cost side in competing with U.S. rivals, insofar as this risk is concerned.

Sartorius continuously calculates its risk exposure with a cash flow at-risk model in order to evaluate and steer the remaining risk based on the expected net exposure for the next 12 months and to take into consideration hedging transactions already executed. This is the basis used to decide whether to employ additional derivative financial instruments, especially spot, forward, and swap transactions, to adjust for maximum loss. Further details on currency hedging can be found in the notes to the consolidated financial statements in section 37.

Interest Rate Risks and Opportunities

Sartorius has concluded fixed interest agreements for almost 85% of its loans outstanding so that any changes in the interest rate will have only a limited effect on consolidated earnings. The remaining portion of the financing instruments outstanding as of the reporting date is subject to variable interest rates on the basis of a short-term money market rate. Sartorius constantly monitors interest rate trends and the Group's interest rate exposure and arranges for hedging transactions where it is considered necessary and financially advisable to do so for individual loans. The Group did not hold any interest rate derivatives as of December 31, 2023 (see also section 38 in the notes to the consolidated financial statements).

Liquidity Risks and Opportunities

Sartorius operates an active central liquidity management system in order to minimize the liquidity risks in the individual Group companies on the one hand and to optimize the Group's net interest income on the other. A variety of long-term and short-term financing instruments are used for this purpose. With regard to the maturities of loans, Sartorius generally adopts a risk-averse approach.

In September 2023, the Sartorius Group issued long-term, unsecured fixed-interest bonds with a total volume of €3 billion. The bonds had maturities of between three and 12 years and interest rates ranging from 4.375% to 4.875%. The proceeds were used particularly to repay the bridge financing for the Polyplus acquisition and additionally for general corporate purposes.

A syndicated credit line of €800 million, which can be drawn down and repaid at short notice, and several smaller bilateral credit lines at individual Group companies are used to secure short-term liquidity. Furthermore, cash pooling agreements between selected Group companies are primarily used to manage liquidity across the Group, ensuring that available liquidity is used efficiently.

There are currently no financing agreements that require the Group to comply with financial key ratios, so-called financial covenants.

Tax risks

Sartorius and its subsidiaries do business across the globe and are therefore subject to the tax laws and regimes of various countries. Changes in tax laws, rulings by the courts, and interpretation of the law by the fiscal authorities or courts in these countries can result in additional tax expenses and payments and thus also affect the corresponding tax items in the statements of financial position and profit or loss.

The central Group Tax Department, which is supported by external consultants in the respective countries, continuously monitors and analyzes the tax environment in order to manage the resulting risks.

In 2021, the OECD published detailed rules on implementing the reform of the international tax system, which is designed to ensure that multinationals are subject to a minimum tax rate of 15%. The minimum tax rate will apply to multinational enterprises with revenues of over €750 million and will therefore have implications for the Group. Based on the information currently available about the implementation of these rules in the principal countries where the Group operates, the impacts are expected to be small. . According to current analyses, the Group companies in Ireland (nominal tax rate 12.5%) could be affected.

Compliance Risks

Regulatory Risks

As a partner to the biopharmaceutical and healthcare industries, Sartorius is also affected by regulatory changes in these sectors. The primary risk in this context is the possibility of regulatory authorities, such as the U.S. Food & Drug Administration (FDA), the European Medicines Agency (EMA), or other national or international bodies, taking a more restrictive approach to the approval of new drugs or medical devices of our customers. Given the breadth of the Group's product portfolio, there are a growing number of relevant regulations to comply with. These include official requirements, such as from the Environmental Protection Agency or Department of Agriculture in the USA or the equivalents of these authorities in other countries. Global initiatives to reduce or even ban the use of certain chemicals (e.g., PFAS) can have considerable impacts on numerous of the Group's products, their applications, and the availability of crucial raw materials.

Failure on the part of Sartorius' customers to adequately comply with the regulations in force at any given time could delay approval processes or even reduce the number of newly approved drugs and thus also worsen the Group's future prospects in the medium term. With regard to its own products, the Group is also subject to extensive approval, registration, and reporting obligations in numerous countries. Failure to comply with the often complex requirements could result in sales or import bans as well as penalties. The functions responsible for regulatory affairs at Sartorius monitor the affected markets and assess whether the Group needs to make any changes to its processes.

In recent years, regulations on environmental, social, and governance aspects have been stepped up. These areas play an important role in companies' reputation. As the manufacturer of numerous plastic products with production sites around the globe, Sartorius faces a variety of challenges. Environmental and sustainability aspects are therefore playing an increasingly important role in many business processes at Sartorius. For more information on these topics, please see the non-financial Group statement.

Environmental Risks from the Production Process

Sartorius uses a wide range of raw materials and supplies in its manufacturing process, including chemicals, plastics, metals, electronic components, and packaging. Some production processes create solvent waste, which must be recycled and disposed of in line with certain rules and regulations. In this context, there is a risk of the Group not complying with the legal requirements in this area. Environmental damage may harm Sartorius' reputation and have legal or financial repercussions. To further increase the Group's agility in fulfilling the legal regulations and industry expectations, platforms for managing environmental, health, and safety data need continuous improvement.

Responsibility for compliance with all applicable regulations lies with the sites and business units. The Environment, Health, and Safety Department offers them support and conducts audits. In order to manage environmental issues and mitigate risks, Sartorius has established environmental management systems (according to ISO 14001:2015) for both divisions. Most of the Group's large production sites, including several in Germany, France, India, Puerto Rico, and China, are certified to ISO 14001:2015. These locations have suitable measures in place to ensure compliance with legal and internal requirements and to implement sustainable technical innovations so as to improve environmental aspects in production processes.

Risks from Legal Disputes

Litigation risks for Sartorius can arise from pending or forthcoming legal disputes or from administrative proceedings. All judicial or extrajudicial disputes are attended to by the company's own attorneys and legal experts, who engage external lawyers as needed.

At present, there are no pending or discernible legal disputes or proceedings whose occurrence is deemed at least possible that lack any cost coverage allowances in the statement of financial position and that could have a substantial negative impact on the Group.

Assessment of the Overall Risk Situation and Risk Outlook

Where feasible, the Group adopted countermeasures and/or made risk provisions in the balance sheet during the reporting year to cover all discernible risks within the Sartorius Group, specifically those risks that had a defined probability of occurrence and the potential to materially affect the Group's net assets, financial position, and/or results of operations.

For the purposes of this report, Sartorius has assessed the probability of occurrence of risks as shown below and, in the adjacent columns, classified their particular significance for the entire Group.

Risk Category	Probability of Occurrence	Significance	Total Impact	Total Impact (Previous Year)
External risks	Probable	Significant	Medium	Medium
Operating risks				
Procurement risks	Possible	Significant	Medium	Medium
Production risks	Possible	Significant	Medium	Medium
Sales and distribution risks	Possible	Significant	Medium	Medium
Competitive risks	Possible	Moderate	Medium	Medium
Quality risks	Remote	Significant	Medium	Medium
Research and development risks	Possible	Significant	Medium	Medium
Acquisition risks	Possible	Significant	Medium	Medium
Personnel risks	Possible	Significant	Medium	Medium
IT risks	Possible	Significant	Medium	Medium
Financial risks				
Exchange rate risks	Probable	Moderate	Medium	Medium
Interest rate risks	Probable	Moderate	Medium	Medium
Liquidity risks	Remote	Moderate	Low	Low
Tax risks	Possible	Moderate	Medium	Medium
Compliance risks				
Regulatory risks	Possible	Significant	Medium	Medium
Environmental risks from the production process	Remote	Moderate	Low	Low
Litigation risks	Possible	Moderate	Medium	Medium

Following a detailed analysis of the overall risk situation, there are no risks discernible or foreseeable in the future from today's perspective that could jeopardize the Group's continued existence as a going concern. The overall risk situation remained largely stable in the past fiscal year. However, the direct and indirect risks from ongoing or potentially newly emerging geopolitical crises have increased further.