Macroeconomic Environment and Conditions in the Sectors

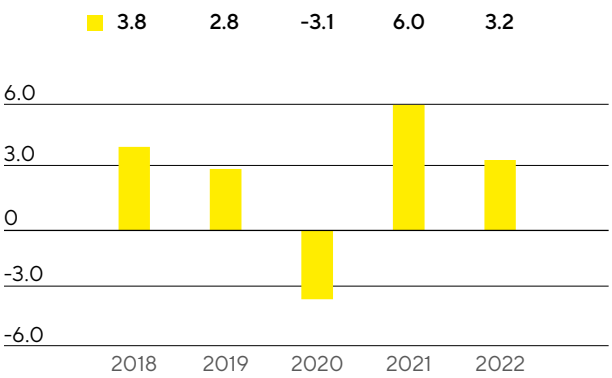
Sartorius Group is active in sectors that differ in their dependence on the economy. The Bioprocess Solutions Division, for instance, operates in an environment that is largely independent of economic fluctuations. The Lab Products & Services Division, in contrast, is partly active in sectors whose development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

Global Economy on the Road to Recovery

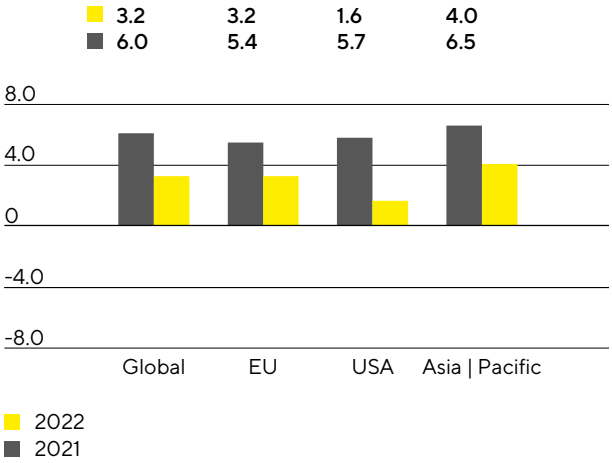
In addition to the easing yet still ongoing coronavirus pandemic, 2022 was characterized by significant political and economic uncertainties as a result of the war in Ukraine and high inflation rates. Uncertain supplies of key raw materials led to a substantial increase in prices, and the sanctions imposed on Russia and extensive lockdowns in key economic centers in China caused additional tensions in supply chains. High inflation prompted central banks around the world to intensify and accelerate the tightening of their previously expansionary monetary policy. At the same time, the reduction in government fiscal support measures and deteriorating sentiment indicators among consumers and companies had a negative impact on global economic activity, leading to multiple downward revisions of growth forecasts during the year.

Despite a significant deterioration in underlying conditions, global gross domestic product increased by 3.2% in 2022, according to IMF estimates. Economic activity in industrialized countries increased by 2.4%, and growth in emerging and developing countries stood at 3.7%.

Global Development GDP (2018 to 2022)
in %



Gross Domestic Product by Region
in %



Source: International Monetary Fund

According to the IMF, the European Union's economic output increased by 3.2% (2021: +5.4%). While the increase in Germany stood at 1.5% (2021: +2.6%), the economy in France picked up by 2.5% (2021: +6.8%). The United Kingdom, another core European market, grew by 3.6% (previous year: +7.4%).

The United States, the world's largest economy, posted a 1.6% increase in GDP in the first quarter (2021: +5.7%).

In the Asia | Pacific economic region, GDP grew by 4.0% (2021: +6.5%). India recorded the sharpest increase in this region in the reporting year, with growth of 6.8% (2021: +8.7%). Other countries important to Sartorius also posted gains, although growth in China slowed to 3.2% (2021: +8.1%). South Korean economic output rose by 2.6% (2021: +4.1%), and economic activity in Japan increased by 1.7% (2021: +1.7%).

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	
	2022	2021	**2022**	2021
U.S. dollar	1.06695	1.13245	1.05351	1.18270
British pound	0.88584	0.83902	0.85265	0.85972
Singapore dollar	1.43060	1.52820	1.45160	1.58913
South Korean won	1,344.77000	1,347.69000	1,357.87961	1,353.74171
Japanese yen	140.73000	130.36000	138.04150	129.87475
Chinese renminbi	7.36960	7.18870	7.08120	7.62740
Swiss franc	0.98370	1.03336	1.00486	1.08106

Interest rates rose on average in the reporting year, having previously remained at a very low level in the preceding years. The European Central Bank gradually raised its key interest rate to 2.50% by the end of 2022. The 3-month EURIBOR – i.e., the rate of interest on fixed-term deposits denominated in euros in interbank business – stood at 2.1% as of December 31, 2022 (December 31, 2021: -0.57%).

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.

Further Growth in the Biopharmaceutical Market

The global pharmaceutical market grew by around 7% in 2022. Revenue generated with biopharmaceuticals increased by around 4% year over year to €365 billion, somewhat slower than the average of previous years. This was partly due to lower sales of coronavirus vaccines and antibody-based COVID-19 therapeutics. Biopharma accounted for 37% of the total pharmaceutical market, compared with 38% in 2021.

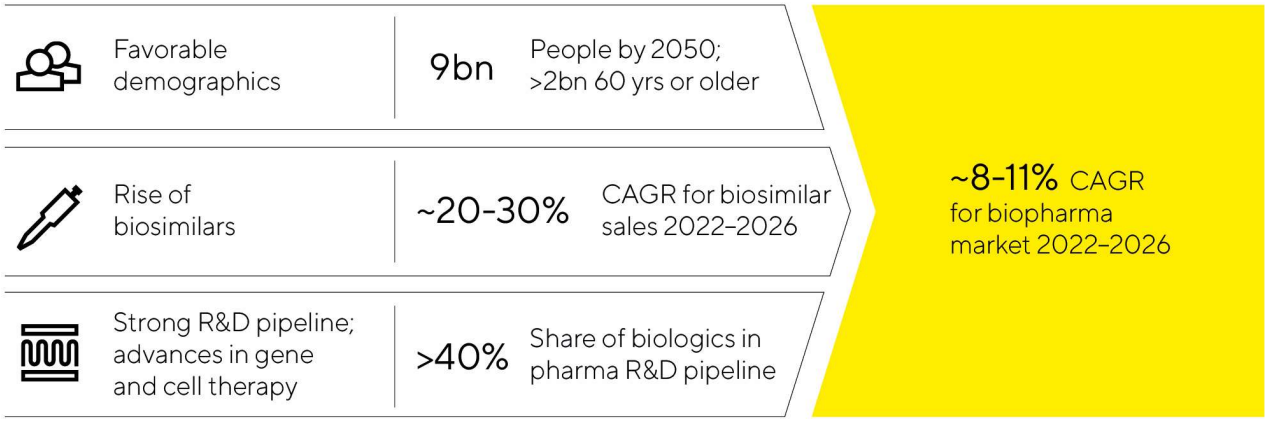
The leading manufacturers of products for the development and production of biopharmaceuticals recorded further growth in 2022, although the reported growth rates were lower, as expected, given the exceptionally high base of comparison in 2021. In particular, expected revenue from pandemic-related business was reduced significantly during the year. All leading bioprocess technology suppliers also invested heavily in capacity expansions in 2022, some of which were completed and brought on stream. This helped normalize lead times for certain product categories, some of which had increased significantly in 2021 due to strained supply chains and capacity bottlenecks.

The growth of the biopharma market fundamentally depends more on medium- to long-term trends than on short-term economic developments. In addition to the market launch of innovative biopharmaceuticals, significant impetus is provided by the globally increasing demand for drugs and the extension of the range of indications for already approved medications and their further market penetration. The approval process for new drugs requires clinical trials to be conducted, and the coronavirus pandemic meant that some of these had to be interrupted or could not be resumed. However, a resulting delay in the approval of new drugs for non-coronavirus-related indications has not been apparent to date, and the number of new biopharmaceutical approvals by the U.S. Food and Drug Administration (FDA) remained high in 2022, at 31 (2021: 30).

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 more than 40% 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 2022, more than 2,000 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 2022 remained modest at an estimated €19 billion, but the market is expected 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 20% to 30% is expected globally through 2026.

Attractive Market Environment with Good Growth Prospects



Laboratory Market Continues to Grow

The global laboratory market had a total value of around €69 billion in the reporting year and, according to estimates by various market observers, is growing at an average annual rate of around 4% to 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.

Labs in the pharmaceutical and biopharma industries are the leading customer groups for laboratory instruments and consumables. Against the backdrop of globally rising demand for medications, the industry is continuously investing in research to find new active pharmaceutical ingredients and in laboratory equipment needed to perform this drug discovery. The 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. According to EvaluatePharma, research spending in this particular sector remained at the previous year's high level of around €210 billion. In contrast, the funding environment for small and medium-sized biotech companies deteriorated after high inflows in the previous two years, but this has not yet had a negative impact on demand from leading laboratory equipment suppliers.

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. Demand from industrial end markets was generally robust in 2022 according to several leading laboratory product manufacturers, despite a gloomy economic outlook.

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 United States, 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 nine years, rising again by about 4.9% to $45 billion in 2022. The proposed budget for 2023 also includes a further increase. The NIH is also slated to receive an additional approximately $12 billion over the next five years to prepare for future pandemics, meaning the scientific funding environment remains positive. 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. In recent years, China has sharply increased government R&D funding, a trend that has fueled dynamic growth

in the local laboratory market. 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 Merck KGaA, Thermo Fisher Scientific Inc., and Danaher Corporation.

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 at Thermo Fisher Inc., Merck KGaA, and Danaher Corporation. 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: 19th Annual Report and Survey of Biopharmaceutical Manufacturing Capacity and Production, April 2022; Evaluate Pharma: World Preview 2022, Outlook to 2028, October 2022; SDi: Global Assessment Report 2022, June 2022; www.fda.gov

Group Business Development

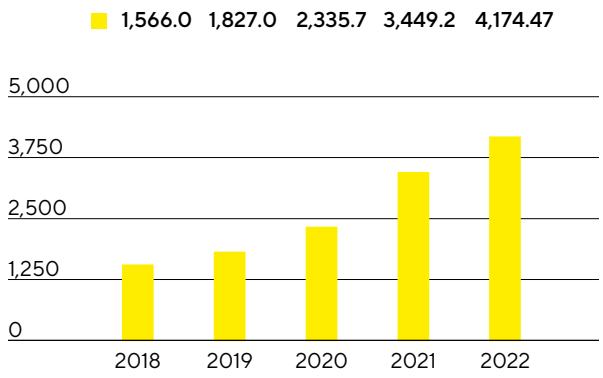
Sales Revenue and Order Intake

In the reporting year, sales revenue of the Sartorius Group rose 15.0% in constant currencies to €4,174.7 million (reported: +21.0%). Thus, the company again grew at double-digit rates in a challenging and volatile environment and following the exceptionally high growth rates in 2020 and 2021. The main driver of this very robust development was organic[1] growth in the laboratory as well as in the bioprocess division. Recent acquisitions also developed positively and contributed close to 2 percentage points to the increase in sales. Significantly lower business with coronavirus vaccine manufacturers compared to the previous year had a dampening effect. The restrictions in China caused by the pandemic as well as the strong reduction of the business in Russia also impacted growth to a relatively minor extent.

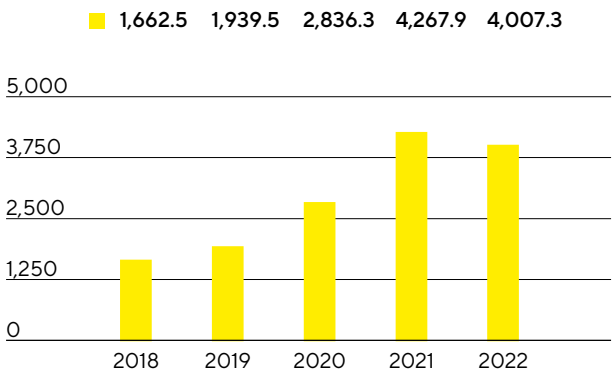
As expected, order intake declined in 2022, after Sartorius had posted exceptionally high growth rates in the previous two years, particularly in the Bioprocess Solutions Division. In addition to a very good base business, there had been significant additional demand from coronavirus vaccine manufacturers and a changed ordering pattern by some customers, who had placed orders larger in size and further in advance than usual due to pandemic-related uncertainties and strained supply chains. As expected, the situation has increasingly normalized as the pandemic has subsided and supply chains have eased from mid-2022 onwards. The temporary decline in demand is due to lower production of coronavirus vaccines and the reduction of partially increased inventories at some customers. Order intake for the full year declined by 10.1% in constant currencies to €4,007.3 million (reported: -6.1%). Excluding the dampening effect of the declining Covid-19-related business, order intake would have increased slightly.

For a full comparison of the Group's business development with its forecast, see page 64.

Sales Revenue 2018 to 2022
€ in millions



Order Intake 2018 to 2022
€ in millions



Sales Revenue and Order Intake

€ in millions	**2022**	2021	in % reported	in % cc[2]
Sales revenue	4,174.7	3,449.2	21.0	15.0
Order intake	4,007.3	4,267.9	-6.1	-10.1

1 The revenue contributed by acquired companies is not included in the calculation of organic revenue growth in the first 12 months after acquisition.
2 In constant currencies

Double-digit growth in both divisions

Both divisions and all business regions contributed to growth in fiscal 2022. The Bioprocess Solutions Division, which offers a wide array of innovative technologies for the manufacture of biopharmaceuticals and vaccines, expanded - despite the high prior-year base and a sharp decline in Covid-19-related business - by 15.9% in constant currencies to €3,326.5 million (reported: +22.0%). This includes about 2 percentage points of non-organic growth from acquisitions.

The Lab Products & Services Division, which specializes in life science research and pharmaceutical laboratories, recorded a very dynamic development, increasing by 11.5% in constant currencies to €848.2 million (reported: +17.4%). Around 1 percentage point came from non-organic growth. The bioanalytical instruments business showed a particularly strong expansion, whereas the decline in Covid-19-related business had a somewhat dampening effect on the increase in sales of the laboratory division.

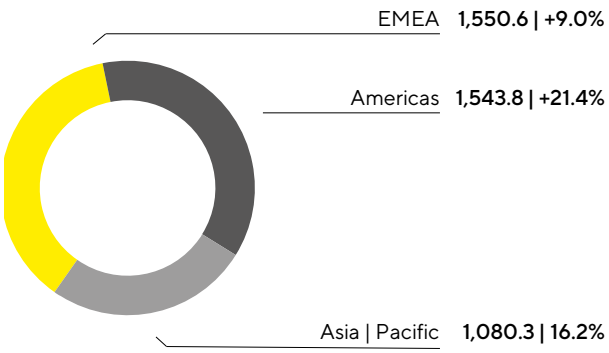
Sales by Division

€ in millions	**2022**	2021	in % reported	in % cc
Bioprocess Solutions	3,326.5	2,727.0	22.0	15.9
Lab Products & Services	848.2	722.2	17.4	11.5

Further information on the business development of the Group divisions is given on pages 54 et seq. for the Bioprocess Solutions Division and on pages 59 et seq. for the Lab Products & Services Division.

Gains in All Regions

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



1 In constant currencies
2 Acc. to customers' location

Sartorius increased its sales revenue in all three business regions.

Sales in the EMEA region recorded an increase of 9.0% to €1,550.6 million, representing a share of 37% of total Group revenue. The considerable business limitations in Russia dampened growth by close to 2 percentage points in the reporting year. While the Bioprocess Solutions Division grew by 10.6% compared to a high prior-year base, the Lab Products & Services Division increased moderately by 2.5%.

Sales in the Americas region saw very dynamic development, so that for the first time the share of total Group sales was on a par with the EMEA region at 37%. Growth amounted to 21.4% to €1,543.8 million and was based on a strong development of both the bioprocess division (+22.0%) and the laboratory division (+19.0%).

Business in the Asia | Pacific region, which accounted for around 26% of total Group revenue in 2022, achieved growth of 16.2% to €1,080.3 million in the reporting year, with pandemic-related restrictions in China having a slightly dampening effect, particularly in the first half of the year. The Bioprocess Solutions Division expanded by 16.5% and the Lab Products & Services Division by 15.5%.

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

Sales by Region

€ in millions	**2022**	2021	in % reported	in % cc
EMEA	1,550.6	1,411.0	9.9	9.0
Americas	1,543.8	1,141.2	35.3	21.4
Asia	Pacific	1,080.3	897.0	20.4	16.2

Costs and Earnings

In 2022, cost of sales rose by 22.9% to €1,978.3 million in connection with the growth in sales revenue. The respective cost of sales ratio was 47.4% compared to 46.7% in the previous year.

Selling and distribution costs rose at an underproportionate rate with respect to sales revenue due to economies of scale by 8.2% to €628.5 million, so the ratio of these costs to sales revenue fell year over year to 15.1% (previous year: 16.8%). Research and development expenses rose by 27.1% to €177.8 million. The corresponding ratio of R&D expenses to sales revenue was 4.3% (previous year: 4.1%). General administrative expenses increased by 21.5% to €200.5 million, and the administrative expense ratio in 2022 was unchanged at 4.8%.

The balance of other operating income and expenses in 2022 was -€124.8 million (previous year: -€50.2 million), and essentially covered extraordinary items of -€60.4 million (previous year: -€40.7 million). These extraordinary items consisted primarily of expenses in connection with the most recent acquisitions as well as of expenses for various corporate projects and structuring measures. The realized currency hedges and valuation effects included in the balance of other operating income and expenses resulted in an expense of €51.0 million, particularly due to the development of the dollar exchange rate in 2022, following income of €10.5 million in the previous year.

EBIT increased by 17.9% to €1,064.8 million; the respective EBIT margin was 25.5% (previous year: 26.2%).

The financial result was €116.9 million in 2022 compared to -€234.7 million in 2021. This includes non-cash-effective income of €148.9 million, predominantly from the reporting date valuation of the share-based earn-out liability in connection with the acquisition of BIA Separations, which had resulted in an expense of €207.8 million in the previous year.

In 2022, tax expenses amounted to €268.6 million (previous year: €241.4 million). In relation to the reported earnings before taxes, the tax rate is 22.7% (previous year: 36.1%). However, taking into account that the above-mentioned valuation effect in the financial result has no subsequent tax impact, the tax rate amounts to 26.0% (previous year: 27.6%).

Net profit for the period increased by 113.8% to €913.1 million (2021: €427.0 million).

Net profit attributable to shareholders of Sartorius AG rose to €678.1 million in the reporting year, up from €318.9 million in 2021. Non-controlling interest stood at €235.0 million (previous year: €108.1 million), which essentially reflected shares in Sartorius Stedim Biotech S.A. not held by the Sartorius Group.

Statement of Profit or Loss

€ in millions	**2022**	2021	Δ in %
Sales revenue	4,174.7	3,449.2	21.0
Cost of sales	–1,978.3	–1,610.3	–22.9
Gross profit on sales	**2,196.5**	**1,838.9**	**19.4**
Selling and distribution costs	–628.5	–580.7	–8.2
Research and development costs	–177.8	–139.9	–27.1
General administrative expenses	–200.5	–165.0	–21.5
Other operating income and expenses	–124.8	–50.2	–148.8
Earnings before interest and taxes (EBIT)	**1,064.8**	**903.2**	**17.9**
Financial income	198.2	29.3	576.7
Financial expenses	–81.3	–264.0	69.2
Financial result	**116.9**	**–234.7**	**149.8**
Profit before tax	**1,181.7**	**668.4**	**76.8**
Income taxes	**–268.6**	**–241.4**	**–11.2**
Net profit for the period	**913.1**	**427.0**	**113.8**
Attributable to:			
Equity holders of Sartorius AG	678.1	318.9	112.6
Non-controlling interest	235.0	108.1	117.4

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 178.

Reconciliation from EBIT to Underlying EBITDA

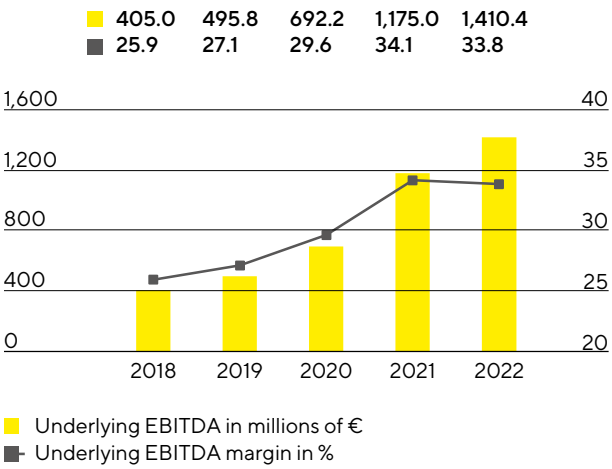
€ in millions	**2022**	2021
EBIT	1,064.8	903.2
Extraordinary items	60.4	40.7
Amortization | depreciation	285.3	231.1
Underlying EBITDA	1,410.4	1,175.0

Extraordinary items

€ in millions	**2022**	2021
M&A projects | Integration costs	–16.1	–22.5
Structuring measures	–29.6	–10.4
Other	–14.7	–7.8
Total	**–60.4**	**–40.7**

In fiscal 2022, the Sartorius Group increased its earnings and achieved high profit margins despite a significant rise in inflation rates. Underlying EBITDA increased by 20.0% to €1,410.4 million. The corresponding margin of 33.8% was close to the high level of the prior-year period of 34.1%. The 2021 margin had been positively influenced by a partially delayed cost development, for example, as a result of deferred new hires in relation to sales revenue growth because of the pandemic and low business travel activity. As planned, these cost positions normalized in 2022 and, in addition to the dilution caused by currency effects, had a dampening effect on profitability. Price effects on the procurement and customer sides largely offset each other.

Underlying EBITDA[1] and Margin



1 Underlying = excluding extraordinary items

Underlying EBITDA by Division

	Underlying EBITDA € in millions	Underlying EBITDA margin in %
Group	**1,410.4**	**33.8**
Bioprocess Solutions	1,188.4	35.7
Lab Products & Services	222.0	26.2

Underlying EBITDA of the Bioprocess Solutions Division rose by 20.5% to €1,188.4 million. The resulting margin of 35.7% was close to the high prior-year level of 36.2% and was dampened by higher costs, as planned, for example due to the growth in the number of employees as well as other normalized cost positions.

In the Lab Products & Services Division, underlying EBITDA increased by 17.6% to €222.0 million; the corresponding margin increased slightly to 26.2% (previous year: 26.1%). A positive product mix, mainly due to strong growth in the bioanalytics business, and economies of scale compensated for negative currency effects and planned higher costs.

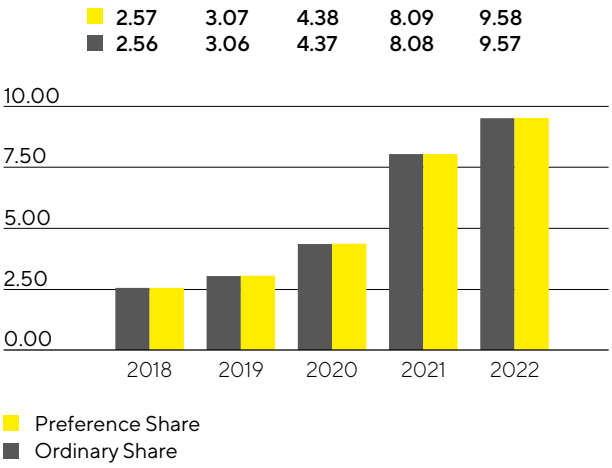
Relevant Net Profit

The relevant net profit attributable to the shareholders of Sartorius AG rose compared to the previous year by 18.4% to €655.4 million. 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 grew 18.4% to €9.57, up from €8.08 a year earlier, and by 18.4% per preference share to €9.58, up from €8.09 a year ago.

€ in millions	**2022**	2021
EBIT	1,064.8	903.2
Extraordinary items	60.4	40.7
Amortization	104.5	88.4
Normalized financial result[1]	–38.7	–28.1
Normalized income tax (27%)[2]	–321.6	–271.1
Underlying earnings	869.4	733.1
Non-controlling interest	–214.0	–179.7
Underlying earnings after taxes and non-controlling interest	655.4	553.4
Underlying earnings per share		
per ordinary share (in €)	9.57	8.08
per preference share (in €)	9.58	8.09

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 56 et seq. and 61 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 2022, the Sartorius Group spent €177.8 million on R&D, corresponding to an increase of 27.1% compared to the previous year. The ratio of R&D costs to sales revenue stood at 4.3% (previous year: 4.1%).

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, these development investments increased in connection with the growth in sales revenue to €81.7 million compared with €50.9 million the year before. This equates to a share of 31.5% (previous year: 26.7%) of the Group's total R&D expenses. Scheduled amortization related to capitalized development costs totaled €23.9 million in 2022 (previous year: €24.3 million). These expenses were disclosed in the cost of sales. At 6.2%, the gross capital expenditure ratio, which is even more meaningful for assessment of innovation-related expenses and includes capitalized development costs, was higher than the previous year's figure of 5.5%.

At Sartorius, we pursue a strategic intellectual and industrial property rights policy across our divisions to protect our 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 2022, Sartorius filed a total of 261 applications for intellectual and industrial property rights (previous year: 155). As a result of these applications, including those of prior years, we were issued 353 patents and trademarks during the reporting year (previous year: 298). As of the reporting date, we had a total of 6,421 patents and trademarks in our portfolio (previous year: 5,479).

Further information is provided in the sections covering the individual divisions on pages 54 et seq. and 59 et seq.

Investments

Against the backdrop of strong growth, Sartorius invested considerably in building up new capacities in all regions in the reporting year. 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 2022 and have contributed to meeting strong demand. Further projects will be completed in the current year.

At €522.6 million, capital expenditures in 2022 were significantly higher than the previous year's figure of €407.2 million. The corresponding CAPEX ratio was 12.5% (previous year: 11.8%).

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, Sartorius is expanding its clean room capacity for the manufacture of separation and fluid management products. In addition, a production facility for cell culture media will be established there for the first time, and is scheduled to come on stream in 2023.

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

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 heavily in Songdo, South Korea, in addition to China. After acquiring the necessary plots of land, the company began construction of 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 Finland, Great Britain, and Slovenia.

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 the reporting date of December 31, 2022, the Sartorius Group had 15,942 employees in 36 countries worldwide: 2,110 or 15.3% more than a year earlier. This figure includes 245 employees who joined the Group as a result of acquisitions in the reporting year. Due to the renewed sharp increase in the size of the workforce during the reporting year, the number of employees working for the Sartorius Group has nearly doubled since 2018.

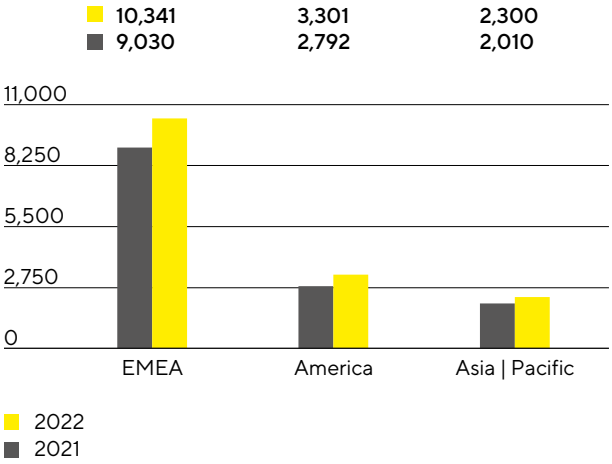
Employees

	2022	2021	Increase in %
Group	15,942	13,832	15.3
Bioprocess Solutions	12,560	10,745	16.9
Lab Products & Services	3,382	3,087	9.6

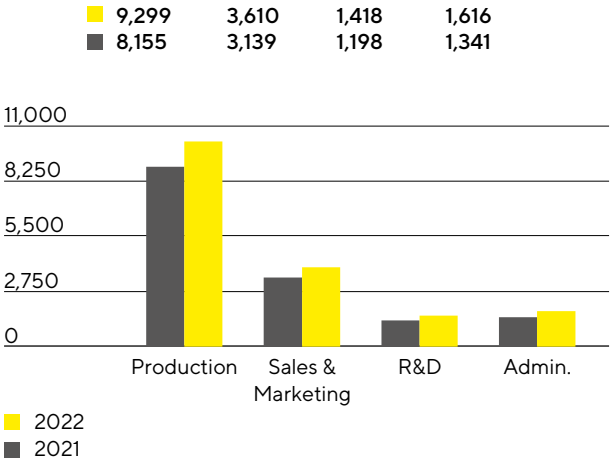
The Bioprocess Solutions Division had 12,560 employees at the end of the reporting year (previous year: 10,745). The Lab Products & Services Division had 3,382 employees (previous year: 3,087).

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 grew by 1,311, an increase of 14.5%. In Germany, Sartorius had 5,391 employees at the end of the reporting year, which corresponds to 33.8% of the total workforce.

With an increase of 18.2% or 509 employees, the Americas region recorded the strongest increase in percentage terms. In the Asia | Pacific region, the number of employees increased by 14.4% or 290.

At the end of 2022, approximately 58% of all Sartorius employees worked in production. At 9,299, the number of employees in this area increased by 14.0% year over year.

At the end of the year, 3,610 people were employed in marketing and sales, representing an increase of 15.0% and a share of around 23% of the total workforce.

A good 9% of all employees worked in R&D. This corresponded to an increase by 220 individuals or 18.4% more than in the previous year, bringing the total number of employees to 1,418.

As of the reporting date, 1,616 people worked in administrative positions. This corresponds to an increase of 20.5% compared with the same date last year and to 10% of all Sartorius employees.

Further information on employees can be found in the Group's Non-Financial Statement starting on page 106.

Net Worth and Financial Position

Cash Flow

Cash flow from operating activities amounted to €734.2 million in 2022, compared with €873.2 million in the previous year, a decrease of 15.9%. Higher earnings were offset by cash outflows in connection with the growth-related increase in working capital. Inventories were in particular built up to safeguard supply security in view of the continuing tensions in some supply chains. Recently, however, the focus has shifted back to optimizing inventories, as the supply chain situation for many product groups has improved significantly and shortages in these areas have become unlikely. In addition, increased tax payments had an impact.

Due to high demand, Sartorius had been driving the expansion of its production capacities full speed ahead. Cash outflows from investing activities increased in the reporting period by 38.8% to €593.8 million. Because of expenses of €536.1 million (previous year: €141.7 million) in connection with the most recent acquisitions, cash flow from investing activities and acquisitions rose to -€1,129.9 million compared with -€569.6 million in the previous year.

Primarily driven by the placement of a new note loan ("Schuldscheindarlehen"), cash flow from financing activities amounted to €209.9 million in 2022 (previous year: -€172.6 million). This also included dividend payments for the 2021 financial year of €118.1 million (previous year: €65.8 million).

Cash Flow Statement

€ in millions	**2022**	2021[1]
Cash flow from operating activities	734.2	873.2
- thereof change in working capital	-300.1	-217.8
Cash flow from investing activities and acquisitions	–1,129.9	–569.6
Cash flow from financing activities	209.9	–172.6
Cash and cash equivalents	165.9	342.8
Gross debt	2,541.2	2,075.5
Net debt	2,375.3	1,732.7

1 Interest received are reported under cash flows from operating activities since fiscal 2022. Prior year figures were restated accordingly.

Consolidated Statement of Financial Position

The balance sheet total of the Sartorius Group was €6,977.7 million as of the end of fiscal 2022 and thus €1,279.8 million higher than the prior-year level. This increase is largely due to the rise in non-current assets by €1,053.4 million to €4,954.6 million, predominantly driven by the recent acquisitions and by the continuation of the extensive investment program. In addition, current assets rose by €226.4 million year over year to €2,023.2 million, mainly as a result of the increase in working capital and, in particular, the build-up of inventories as a risk provision to ensure supply security in the event of interrupted supply chains. Working capital amounted to €1,663.5 million as of December 31, 2022 (previous year: €1,316.8 million).

Key Figures for Working Capital

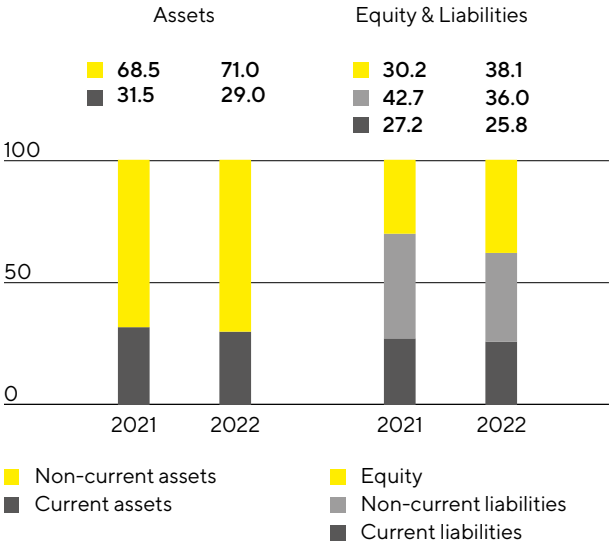
in days		2022	2021
Days inventory outstanding			
Inventories | Sales revenue[1]	x 360	101	93
Days sales outstanding			
Trade receivables | Sales revenue[1]	x 360	41	44
Days payables outstanding			
Trade payables | Sales revenue[1]	x 360	47	54
Net working capital days			
Net working capital[2] | Sales revenue[1]	x 360	95	83

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

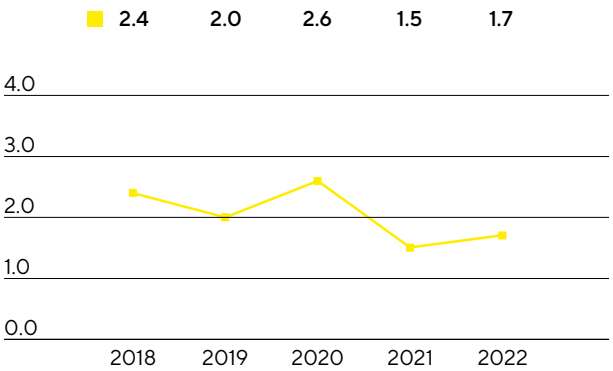
Equity grew by €938.7 million to €2,658.9 million as of year-end. The equity ratio was 38.1% (previous year: 30.2%).

In the reporting year, current and non-current liabilities for the Sartorius Group of €4,318.8 million were higher than the previous year's figure of €3,977.7 million. The increase resulted, among other things, from the financing of recent acquisitions and the build-up of working capital.

Balance Sheet Structure
in %



Ratio of Net Debt to Underlying EBITDA[1]



1 Quotient of net debt and underlying EBITDA over the past 12 months, including the pro forma amount contributed by acquisitions for this period

At the end of fiscal 2022, gross debt stood at €2,541.2 million relative to €2,075.5 million in fiscal 2021 and is comprised of liabilities to banks, including note loans ("Schuldscheindarlehen"), as well as lease liabilities. The increase is essentially due to the placement of a new note loan, which was mainly used to refinance the acquisition of Albumedix completed at the end of September 2022. Net debt, defined as gross debt less cash and cash equivalents, was €1,732.7 million compared to €2,375.3 million a year ago.

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. At 1.7 as of December 31, 2022, this ratio was only slightly higher than the prior-year figure of 1.5, despite extensive investments and the acquisitions made in the reporting year.

Reconciliation

€ in millions	**2022**	2021
Gross debt	2,541.2	2,075.5
- Cash & cash equivalents	165.9	342.8
Net debt	2,375.3	1,732.7
Underlying EBITDA (12 months)	1,410.4	1,175.0
+ Pro forma EBITDA from acquisitions (12 months)	11.7	6.1
Pro forma underlying EBITDA	1,422.1	1,181.1
Ratio of net debt to underlying EBITDA	1.7	1.5

Impact of War in Ukraine

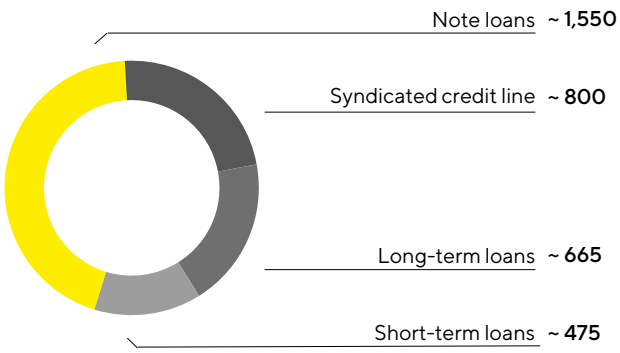
Since the beginning of Russia's attack on Ukraine, Sartorius has suspended all business activities in Russia that are not related to humanitarian medical products. This has been done in compliance with all applicable sanctions and in line with the practice of other companies in the pharmaceutical and healthcare sectors. In 2021, Russia had accounted for a good 2% of Group sales. In fiscal 2022, sales were significantly below this level and a further decline is expected in 2023.

Further explanations on the impact of the war in Ukraine on Sartorius can be found on pages 73 and 177 et seq.

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

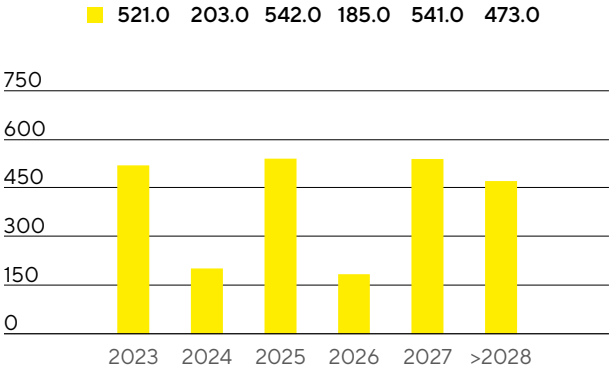


A major pillar in the financing mix is a syndicated credit line with a term of five years and extension options, which was refinanced in the reporting year and increased from €600 million to €800 million. In addition, Sartorius has diverse short-term credit lines totaling around €475 million. As of December 31, 2022, the total volume of all available credit lines amounted to €1,275 million, of which around €180 million was used. Thus, the available credit lines unused as of the end of 2022 was €1,095 million.

Corporate financing was supplemented in the reporting year by the placement of new note loans ("Schuldscheindarlehen") with a volume of €650 million and maturities of 3, 5, 7, 10 and 13 years. Around €210 million of this placement will be paid out in the first quarter of 2023. The funds were mainly used to refinance the acquisition of Albumedix completed at the end of September 2022. The total volume of all outstanding note loans amounted to around €1,550 million at the end of the year. In addition, the company has several short- and long-term loans in place that total around €665 million and are being used in part for the expansion of production capacities.

The financing instruments mentioned above comprise those with both fixed and variable interest rates. The maturity profile of the Group's financing instruments is broadly and appropriately diversified.

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



1 As of December 31, 2022, 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 2022, foreign exchange contracts amounted to a volume of €585 million on a reported basis, with a market value of -€3.3 million.

Business Development of Bioprocess Solutions

Strong increase in sales and earnings

Growth driven by all product areas and regions

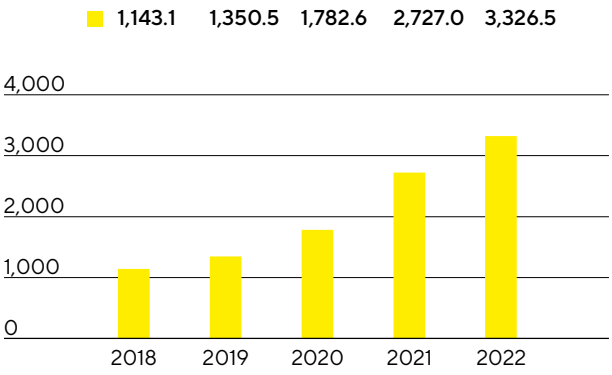
Expected normalization of demand as of mid-2022

Division sales	Order intake	Underlying EBITDA margin
€3,326.5m	€3,122.7m	35.7%
In constant FX: +15.9%	In constant FX: -14.0%	-0.5 percentage points

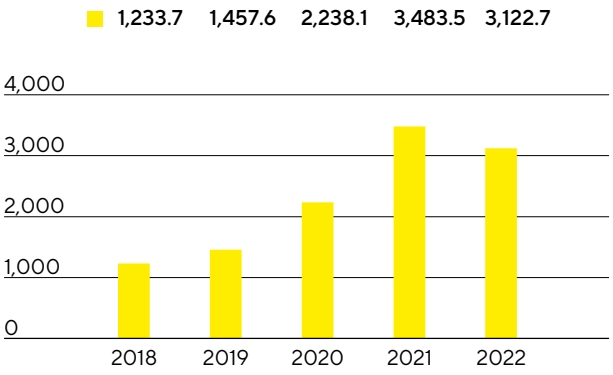
Sales Revenue and Order Intake

Following the exceptionally high growth rates in 2020 and 2021, the Bioprocess Solutions Division again grew at a double-digit rate in the reporting year by 15.9% in constant currencies to €3,326.5 million (reported: +22.0%). This includes around 2 percentage points of non-organic growth from acquisitions. All product areas contributed to this good development, while the Covid-19-related business declined significantly compared to the previous year.

Sales Revenue 2018 to 2022
€ in millions



Order Intake 2018 to 2022
€ in millions



Sales Revenue and Order Intake

€ in millions	**2022**	2021	in % reported	in % cc[1]
Sales revenue	3,326.5	2,727.0	22.0	15.9
Order intake	3,122.7	3,483.5	–10.4	–14.0

1 In constant currencies

In 2022, the Bioprocess Solutions Division increased its sales revenues in all business regions. In the EMEA region, which accounted for around 38% of the division's sales, revenues increased by 10.6% to €1,260.5 million compared with a strong prior-year base. The Americas region again showed particularly strong growth, with an increase of 22.0% to €1,240.8 million. The region accounted for 37% of total sales. The Asia | Pacific region, which accounted for 25% of the division's sales, also posted significant double-digit growth of 16.5% to €825.2 million. (All growth rates for the regional development are in constant currencies unless otherwise stated.)

As expected, order intake declined year over year against the backdrop of noticeable demand normalization and significantly lower Covid-19-related business, reaching €3,122.7 million (in constant currencies: -14.0%; reported: -10.4%). Excluding the Covid-19-related business, order intake would have grown slightly. In the two previous years, the division had recorded exceptionally high growth rates due to changed ordering patterns and strong demand from coronavirus vaccine manufacturers.

Sales by Region

€ in millions	**2022**	2021	in % reported	in % cc
EMEA	1,260.5	1,130.5	11.5	10.6
Americas	1,240.8	913.1	35.9	22.0
Asia	Pacific	825.2	683.5	20.7	16.5

Earnings

Underlying EBITDA of the Bioprocess Solutions Division increased by 20.5% to €1,188.4 million. The corresponding margin of 35.7% was close to the high level of the prior-year period of 36.2%. The 2021 margin had been positively influenced by a partially delayed cost development, for example, as a result of deferred new hires in relation to sales revenue growth because of the pandemic and low business travel activity. As planned, these cost positions normalized in 2022 and had a dampening effect on profitability. Price effects on the procurement and customer sides largely offset each other.

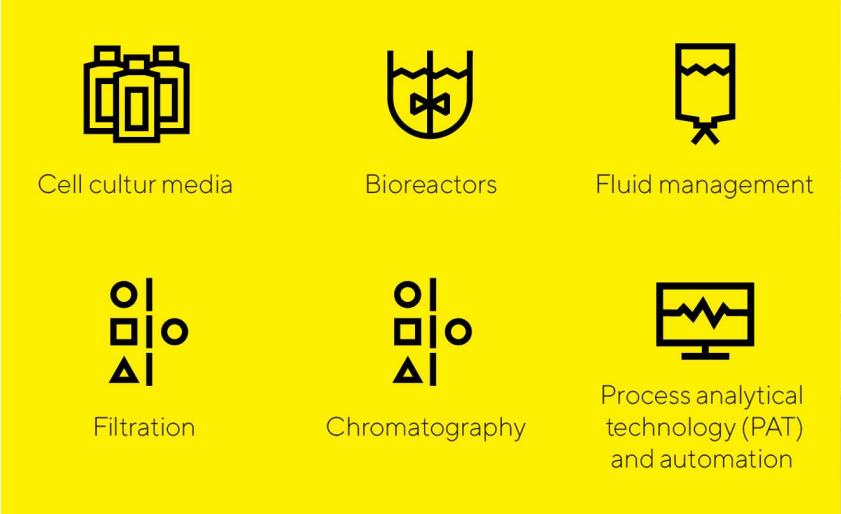
Underlying EBITDA and EBITDA Margin

	2022	2021
Underlying EBITDA in millions of €	1,188.4	986.3
Underlying EBITDA margin in %	35.7	36.2

In the year under review, the Bioprocess Solutions Division recorded extraordinary items of -€46.5 million relative to -€32.1 million a year earlier. These items predominantly consisted of expenses in connection with the most recent acquisitions as well as for various cross-divisional projects.

Products and Sales

The Bioprocess Solutions Division markets products and services for the entire added-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.



Sartorius expanded its product portfolio in the Bioprocess Solutions Division by making two acquisitions in 2022:

- By acquiring the business from Novasep in February 2022, Sartorius added a complementary offering to its chromatography portfolio. The acquired portfolio includes chromatography systems primarily suited for small biomolecules such as oligonucleotides, peptides, and insulin, as well as innovative systems for the continuous production of biopharmaceuticals.

- The acquisition of Albumedix, a leading provider of solutions based on recombinant human albumin, completed at the end of September 2022, adds an important component to Sartorius' portfolio in the production of innovative biopharmaceuticals, especially for modalities such as cell therapies, viral therapies, and vaccines.

During 2022, the Bioprocess Solutions Division launched a scalable and ready-to-use disposable membrane for separating monoclonal antibodies as an alternative to classical resin-based column chromatography for the affinity purification step. Furthermore, the division introduced a computer-based application for optimizing cell culture development that enables substantial time and cost savings. The application is part of a cloud-based software ecosystem for analyzing and managing data along the biopharma value chain and makes it possible to maximize insights from in vitro experiments by using simulations in virtual bioreactors.

Sales Activities

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

After the gradual lifting of pandemic-related travel and contact restrictions, sales representatives continued to interact directly with many customers using digital communication tools. Video conferencing and

augmented reality continue to be used for such direct interactions, for example, when demonstrating products, conducting training sessions, and bringing systems into service. One focus aimed at strengthening the sales force is on expanding the company's international presence. A further focus is on the ongoing enhancement of sales effectiveness, for example, through 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; various technology platforms, such as single-use containers for fluid management in biopharmaceutical processes and sensors; and control technologies for processes such as fermentation and cell cultivation. Additional focal areas comprise developments in materials and components that include plastics, elastomers, and intelligent polymers; expanded data analysis; and cell line development.

The largest product development site is located in Göttingen, Germany, where a new product development building is scheduled to begin operations in the first quarter of 2023. Further important activities take place in France, India, the USA, and the UK, as well as in Sweden, Israel, Slovenia, and other locations in Germany.

Production and Supply Chain Management

Bioprocess Solutions has a very well developed global production network that was expanded at many sites in 2022. 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 in Slovenia. Recent acquisitions have added sites in France and the UK.

The supply chain situation remained challenging in 2022, but has eased somewhat overall compared with 2021. 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. The prices of many primary products used by Sartorius did increase, however, in some cases significantly.

With regard to its energy supply, the company has taken extensive measures in Germany in order to become as independent as possible from the availability of gas, if necessary.

Sartorius has expanded production capacity in all business regions, such as China, Tunisia, and Puerto Rico. Additional production employees were hired for this purpose.

To meet the growing demand for consumables in China, the expansion of the clean room in Beijing was brought into operation in 2022. This significantly expanded the local production capacity for sterile disposable bags. In addition to bags, the company has recently started producing other types of filters in the expanded clean rooms.

Following the opening of a significantly expanded application, validation, and service center for biopharma customers at the Shanghai site in 2021, the company opened new application centers in Yantai, China, and Bangalore, India, in the reporting year. These enable customers to test complex systems at a Sartorius site first before they are delivered to and set up at their plant facilities.

Business Development of Lab Products & Services

Significant sales growth following strong prior-year performance

The bioanalytical instruments business showed a particularly strong expansion

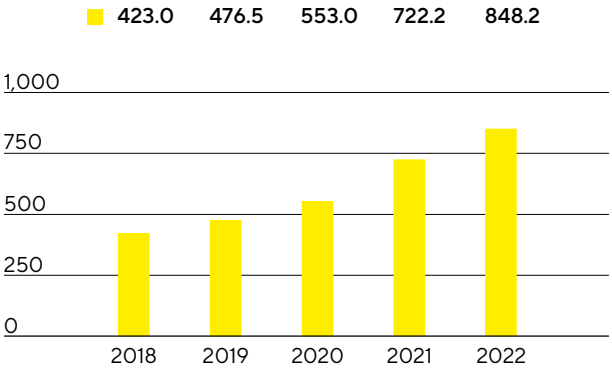
Profit margin rises slightly above the already high prior-year level

Division sales	Order intake	Underlying EBITDA margin
€848.2m	€884.6m	26.2%
In constant FX: +11.5%	In constant FX: +7.4%	+0.1 percentage points

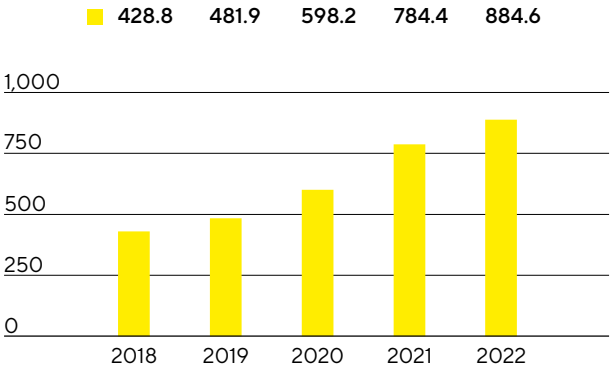
Sales Revenue and Order Intake

The Lab Products & Services Division recorded a very dynamic development against a high prior year base, growing by 11.5% in constant currencies to €848.2 million (reported: +17.4%). The major part of this growth was organic, and recent acquisitions contributed around 1 percentage points to the increase in sales. Business with bioanalytical instruments, which life science customers use to develop medications and cell lines, continued to develop particularly positively across all regions. In contrast, the decline in Covid-19-related business had a somewhat dampening effect on growth.

Sales Revenue 2018 to 2022
€ in millions



Order Intake 2018 to 2022
€ in millions



Sales Revenue and Order Intake

€ in millions	**2022**	2021	in % reported	in % cc[1]
Sales revenue	848.2	722.2	17.4	11.5
Order intake	884.6	784.4	12.8	7.4

1 In constant currencies

Following the strong development in the previous year, sales in the Americas region again grew significantly by 19.0% to €303.0 million in 2022, so that this region accounted for the largest share of the division's sales for the first time at 36%. Sales in the EMEA region, which accounted for around 34% of the division's sales, grew moderately by 2.5% to €290.1 million. The Asia | Pacific region, which contributed 30% to the Lab Products & Services Division's business, expanded by 15.5% to €255.1 million. (All growth rates for the regional development are in constant currencies unless otherwise stated.)

Order intake rose 7.4% in constant currencies to €884.6 million (reported: +12.8%).

Sales by Region

€ in millions	**2022**	2021	in % reported	in % cc
EMEA	290.1	280.5	3.4	2.5
Americas	303.0	228.2	32.8	19.0
Asia	Pacific	255.1	213.5	19.5	15.5

Earnings

The underlying EBITDA of the Lab Products & Services Division increased by 17.6% to €222.0 million in the reporting year. The corresponding margin slightly increased to 26.2% (previous year: 26.1%). The above-average growth contribution of the bioanalytics business and economies of scale more than compensated for negative currency effects and planned higher costs.

Underlying EBITDA and EBITDA Margin

	2022	2021
Underlying EBITDA in millions of €	222.0	188.8
Underlying EBITDA margin in %	26.2	26.1

The Lab Products & Services Division recorded extraordinary items of –€13.9 million in the reporting year relative to –€8.7 million a year ago. These were predominantly related to the most recent acquisitions as well as to expenses for various cross-divisional projects.

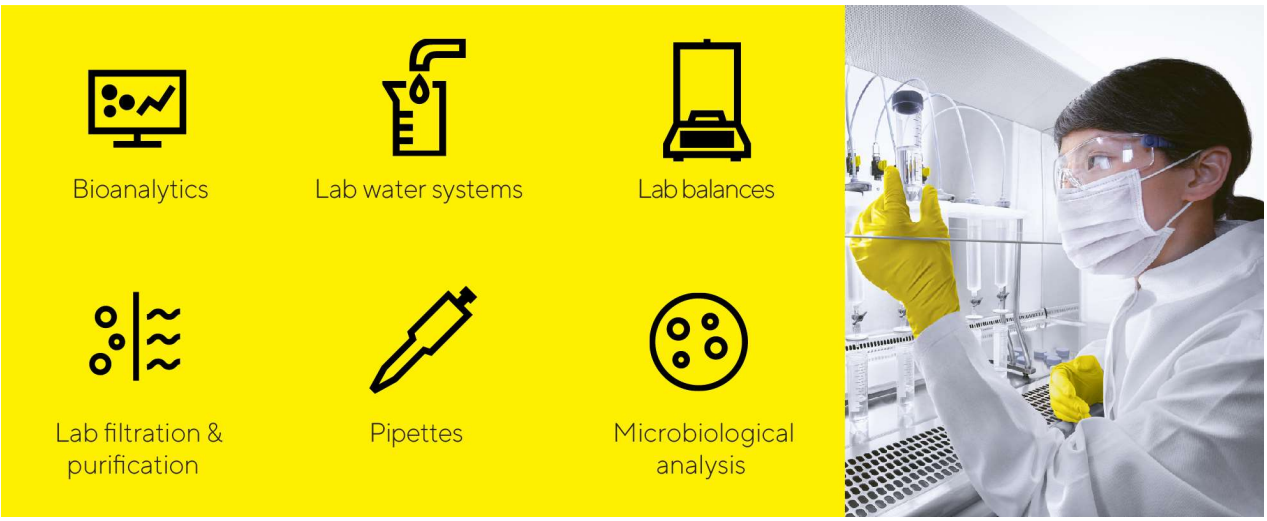
Products and Sales

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. Sartorius expanded its bioanalytics portfolio by acquiring a majority stake in ALS Automated Lab Solutions on January 3, 2022. ALS develops, manufactures, and markets solutions for automated analysis, selection, and isolation of cells. With these solutions, the company enables life science customers to significantly reduce time to result as well as cost in cell line development and antibody discovery. Furthermore, the division introduced a new version of its system for label-free, real-time analysis of biomolecular interactions.

Since the end of the year, Sartorius has been holding around 10% of the shares and 8.5% of the voting rights in the Swedish BICO Group, a provider of instruments and consumables for bioprinting, biosciences, and bioautomation applications. In addition, the partners have agreed on a comprehensive technology, as well as sales and marketing cooperation.

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, pipettes, 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 the chemical and food industries. The division expanded its product array by launching new vacuum filtration systems and dosing stations for lab water.



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. New laboratories were opened in China and India, among other places, during the reporting year.

Sales Activities

The division sells its products directly and through laboratory distributors, focusing on direct sales that are continuously being expanded along with the company's alignment with the needs of life science customers. In aligning its activities, the division is increasing 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. Sartorius expects that such software solutions will become increasingly important.

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 is scheduled to open in the first quarter of 2023. Sartorius also carries out R&D activities at its sites in Finland and the UK, as well as in the USA.

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 2022, 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.

The overall supply chain situation has eased somewhat in 2022 compared with the previous year. The availability of electronic components continued to pose a challenge, but improved over the course of the year. The prices of many of Sartorius' preliminary products did increase, however, in some cases significantly. In response to high demand, the company significantly ramped up the production of individual bioanalytical systems by making changes to the production process.

Assessment of Economic Position

Following the company's exceptionally high growth rates in 2020 and 2021, and in a geopolitically as well as macroeconomically challenging environment, Sartorius achieved double-digit growth rates again in the reporting year. This good development was predominantly based on organic growth in both divisions. The Bioprocess Solutions Division reported significant sales revenue growth in 2022, and at the same time, as expected, a noticable normalization of demand following two years influenced by strong special effects due to the pandemic. The Lab Products & Services Division once again grew dynamically in the reporting year, primarily driven by the strong performance of the bioanalytical instruments business. Despite high inflation, profit margins remained at the high levels of the previous year, as cost increases incurred by the company and price increases at customers largely offset each other.

Consolidated sales revenue in 2022 rose by 15.0% in constant currencies to €4,174.7 million. The Group's earnings margin, measured on the basis of underlying EBITDA, stood at 33.8%. This means that both the forecast for revenue growth specified in October 2022 (lower half of the range of around 15% – 19%) and the profitability target of approximately 34% communicated at the beginning of the year were achieved.

The Bioprocess Solutions Division grew its sales revenue by 15.9% in constant currencies to €3,326.5 million and achieved an underlying EBITDA margin of 35.7%. Consequently, sales revenue growth was slightly below the range specified in October of the reporting year (lower half of the range of around 17% – 21%), mainly due to the stronger than expected decline in Covid-19-related business, which reduced growth by approximately 2 percentage points on a full-year basis. The division's earnings margin was in line with the forecast of approximately 36% published in January 2022.

With an increase in sales revenue of 11.5% in constant currencies to €848.2 million, the Lab Products & Services Division slightly exceeded the forecast for sales revenue growth specified in the publication of the nine-month 2022 figures (upper half of the range of around 6% – 10%) and, with an earnings margin of 26.2%, also achieved the profitability target of approximately 26% set at the beginning of the year.

At €220 million, the Covid-19-related business was slightly below the forecast of €250 million that was adjusted at mid-year 2022. At the beginning of 2022, the company had expected around €500 million.

The ratio of net debt to underlying EBITDA stood at 1.7 as of December 31, 2022, in line with the forecast of approximately 1.6, which was revised in October 2022 following the completion of the acquisition of Albumedix.

In line with its ambitious growth targets through 2025, Sartorius continued to expand its production capacity in the reporting year. At 12.5%, the ratio of capital expenditures (CAPEX) to sales revenue remained high, but stood slightly below the forecast of approximately 14% published at the beginning of the year.

Projected | Actual Comparison for the Year 2022

	Actual 2021	Guidance January 2022	Guidance October 2022	Actual **2022**
Sartorius Group				
Sales growth[1]	49.3%	~15% - 19%	lower end ~15% - 19%	15.0%
Underlying EBITDA margin in %	34.1%	~34%	~34%	33.8%
Net debt to underlying EBITDA	1.5	~1.1[2]	~1.6[2]	1.7
CAPEX ratio	11.8%	~14%	~14%	12.5%
Sartorius Divisions				
Bioprocess Solutions				
Sales growth[1]	54.7%	~17% - 21%	lower end ~17% - 21%	15.9%
Underlying EBITDA margin in %	36.2%	~36%	~36%	35.7%
Lab Products & Services				
Sales growth[1]	32.0%	~6% - 10%	upper end ~6% - 10%	11.5%
Underlying EBITDA margin in %	26.1%	~26%	~26%	26.2%

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 2022 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

Sartorius AG has exercised only the functions of the strategic, group-leading management holding entity for the Sartorius Group since the beginning of fiscal 2011, 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 23 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 fiscal year includes 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 €85.5 million relative to €46.3 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 €11.9 million from Sartorius Corporate Administration GmbH (previous year: €16.1 million). In addition, Sartorius Lab Holding GmbH transferred a profit of €7.6 million (previous year: loss of €2.5 million).

Net Worth and Financial Position

The balance sheet total of Sartorius AG increased in the reporting year by €516.4 million to €2,874.1 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 €2,748.4 million (previous year: €2,226.8 million). Accordingly, fixed assets accounted for 95.6% of the balance sheet total (previous year: 94.4%). The equity ratio stood at 14.1%, compared with 14.2% in the previous year.

Financing of the Sartorius Group is carried out centrally by Sartorius AG. Internal Group financing is provided by granting corresponding short-term and long-term loans. Long-term loans are reported under financial assets as loans to affiliated companies, which totaled €2,158.9 million in the fiscal year (previous year: €1,658.9 million). This increase as well as the increase in liabilities is primarily due to the acquisitions made by the Sartorius Group in the fiscal year.

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 €	**2022**	2021
1. Sales revenue	20.0	16.3
2. Other operating income	67.7	1.4
3. Employee benefits expense	–7.2	–8.7
4. Depreciation and amortization	–9.9	–9.4
5. Other operating expenses	–18.9	–14.9
6. Income from investments	85.5	46.3
7. Income from long term loans	21.7	16.8
8. Profit received under a profit and loss transfer agreement	19.5	16.1
9. Loss accepted under a profit and loss transfer agreement	0.0	–2.5
10. Interest and similar income	2.7	1.1
11. Interest and similar expenses	–26.4	–23.0
12. Income tax expense	–0.1	1.1
13. Profit after tax	**154.6**	**40.6**
14. Other taxes	–0.1	–0.1
15. Net profit for the period	**154.5**	**40.5**
16. Profit brought forward	112.6	158.0
17. Retained profits incl. net profit for the period	**267.1**	**198.5**

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

Assets	**Dec. 31, 2022**	Dec. 31, 2021
A. Fixed Assets		
I. Intangible assets	12.9	18.5
II. Property, plant and equipment	133.0	105.7
III. Financial assets	2,602.5	2,102.6
	2,748.4	**2,226.8**
B. Current Assets		
I. Trade and other receivables	117.8	113.6
II. Cash on hand, deposits in banks	4.4	14.5
	122.2	**128.1**
C. Prepaid Expenses	**3.5**	**2.8**
	2,874.1	**2,357.7**

Equity and Liabilities	**Dec. 31, 2022**	Dec. 31, 2021
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	59.0	57.7
III. Earnings reserves	10.9	10.9
IV. Retained profits incl. net profit for the period	267.1	198.5
	405.4	**335.5**
B. Provisions	**37.0**	**37.4**
C. Liabilities	**2,431.7**	**1,984.8**
	2,874.1	**2,357.7**

1 HGB = German Commercial Code

Proposal for Appropriation of Profits

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, 2022, in the amount of €267.109.441,57 be appropriated as follows:

in €	
Payment of a dividend of €1.43 per ordinary share	48,943,192.87
Payment of a dividend of €1.44 per preference share	49,233,388.32
Unappropriated profit carried forward	168,932,860.38
	267,109,441.57

Research and Development

Detailed information on the research and development activities of the Sartorius Group and its divisions is provided on pages 32, 58, and 63.

Employees

As a holding company, Sartorius AG does not employ any staff to be disclosed pursuant to Section 285, No. 7, of 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 70 to 82; a description of the internal control and risk management system, on page 88.

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, a slightly higher annual profit is expected due to the anticipated increase in dividend income from Sartorius Stedim Biotech S.A.

The Sartorius Group's business performance is discussed in the Forecast Report on pages 83 to 86.

Opportunity and Risk Report

Principles

Every business activity entails opportunities and risks, which 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's 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 with 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 "Sector Conditions" and "Outlook for the Sectors" on pages 34 and 84, 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 them are outlined in the sections "Strategy of the Bioprocess Solutions Division" on page 27 and "Strategy of the Lab Products & Services Division" on page 28.

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. These insurance policies include coverage against product liability, property damage, business interruption, transport, material and pecuniary damages and other risks, 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 as a whole 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 strong growth over the past few years as well as increasing regulatory and customer requirements necessitate the ongoing refinement of these guidelines and specifications.

The prescribed reporting process in the risk categories subsequently described establishes the rules for the ongoing review of 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, 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.

Moreover, a risk matrix has been created 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

General Risks

In principle, the ability to foresee and mitigate direct or indirect effects of general existential risks, such as natural disasters, pandemics, armed conflicts, or force majeure, and the resulting damage to economically relevant or even critical infrastructure, is limited. Yet Sartorius proactively takes measures, whenever feasible, to ensure that the Group can respond appropriately and at short notice is insured against any damage entailed in such risks.

The effects of the coronavirus pandemic also had a significant impact on Sartorius' business performance. Overall, 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 testing methods. Revenue generated in this context, however, fell significantly short of the previous year's level. At the same time, the temporary lockdown in China had a slightly adverse effect on the Group's business. Pandemic-related travel and contact restrictions were largely phased out in the reporting year and therefore had less of an impact than in previous years. Sartorius currently assumes that the additional business in connection with the coronavirus pandemic will no longer have a significant impact on the Group's business performance in the future. The supply chain situation remained challenging in 2022, but has eased somewhat overall compared with the previous year.

The war in Ukraine, which has been ongoing since February 2022, had no significant direct impact on the Group as a whole in 2022. The countries affected accounted for just over 2% of consolidated revenues in 2021. Since the beginning of the war, Sartorius has discontinued all business activities in Russia that are not related to humanitarian medical products. These activities are carried out in compliance with the applicable sanctions and in line with the practices of other companies in the pharmaceutical and health sectors. In 2022, however, revenues fell significantly short of the previous year's level, and a further decline is expected in 2023.

From the perspective of the Group as a whole, Sartorius does not hold any significant non-current assets in Russia, Belarus, or Ukraine. The risk of default in connection with accounts receivable in Russia is limited due to an insignificant amount of receivables as of the reporting date, intensive receivables management, and changes in payment terms (e.g., delivery of products only after receiving payment in advance).

While the direct effects of the war on the Sartorius Group's financial situation were limited overall, there were noticeable indirect effects. For example, although the Group does not do business with any major suppliers in the countries concerned, it saw an increase in logistics and energy costs as well as a rise in procurement costs for primary products and raw materials. In addition, some countries, particularly Germany, are highly dependent on natural gas from Russia, which means that there is a risk of massive repercussions, including production stoppages, at the Group's own sites and those of key suppliers in the event of a gas shortage.

The Group has been implementing a wide range of measures to mitigate these risks since the beginning of the crisis. Extensive price increases were introduced to compensate for the rise in procurement costs. The Group's German sites have largely succeeded in making themselves independent of Russian gas supplies, e.g., by creating the technical conditions necessary in order to switch to oil. Safety stocks from suppliers with energy-intensive production processes were increased significantly.

Overall, the direct and indirect effects of the war in Ukraine are not currently having a material impact on the Group's business performance. 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 is subject to a relatively high degree of uncertainty.

The Group's largest sites in Germany and France do not face any major risks from natural catastrophes, 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. 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.

In 2022, Hurricane Fiona caused significant damage in the Caribbean and Canada. Sartorius had to temporarily halt production at its site in Yauco, Puerto Rico, but there was no lasting impact on the Group's ability to supply its customers, and production was fully resumed within a few days.

Furthermore, political developments such as changes in the foreign trade policy of various countries can have an impact on the Group's business.

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.

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

Business Cycle Risks

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.

Operating Risks and Opportunities

At Sartorius, value creation extends from procurement through production to distribution. Problems within this workflow can have consequential effects, including delays in 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 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.

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. 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 the current shortage of raw materials on the market. By concluding binding purchase agreements with suppliers and/or by seeking alternatives within the supplier network, Sartorius can reduce their impact and secure continuous supply. Due to the strained market for electronic components, there is currently an increased risk of product counterfeiting in this area. To keep this risk as low as possible, the Group has implemented additional internal and external test cycles.

In addition, Sartorius identifies and evaluates its supplier base with respect to compliance with sustainability standards. In the event of deviations, the process provides for a variety of measures that are coordinated with the suppliers in question.

Opportunities in the field of procurement may arise if order volumes increase, thereby strengthening the Group's position with key suppliers.

Production Risks and Opportunities

On the basis of its core technological expertise, 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 reusable fermenters, 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.

Carefully planning of production capacities, using versatile machines, and semi-automated individual workstations in conjunction with flextime work schedules, and continuously monitoring of production processes, can significantly 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. Furthermore, the Group has taken out business interruption insurance policies to compensate for any possible losses due to production downtimes.

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 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. 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.

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, through acquisitions in cell analysis, Sartorius offers customers in the biopharmaceutical industry, a key sector for the Group, comprehensive product solutions to address needs ranging from research laboratories all the way to production processes.

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. 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 Groups 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 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 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, in the worst case, lead to losses on the part of customers, for which Sartorius may be held liable in the form of damages.

Through extensive quality controls and the use of modern manufacturing techniques in a classified clean room environment, Sartorius ensures that all of its products meet the highest standards of quality and the stringent regulatory requirements. Furthermore, these manufacturing methods and processes are subject to constant review as part of continuous improvement processes and are 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.

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 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-concepts 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. By contrast, the purchase and sale of companies or parts of companies entail a number of typical risks, such as incorrect valuation assumptions or insufficient usage of anticipated synergy effects.

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.

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 a sufficient number of highly qualified employees in the future or may lose high performers currently working for the company. The strong growth of the Group and the associated expansion of its workforce also pose sizable challenges in connection with the integration and familiarization of new employees with the company, and thus also harbor risks.

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 software applications and IT systems. A failure or significant impairment of the business-critical IT systems and the supporting technical infrastructure due to cyberattacks or other threats, could significantly hamper the smooth functioning of the company's business processes and lead to manipulation, uncontrolled loss, or outflow of data.

Sartorius mitigates these risks by continuously investing in the implementation and operation of secure IT systems and applications and by continually developing and applying concepts and security measures on the basis of the international ISO 27001 Standard for Information Security Management Systems, among others. In addition, the Group incorporates the results of regular audits and vulnerability assessments by external companies specializing in IT security.

Safeguarding data, systems, and applications from misuse and other threats is managed via the uniform risk management system at Group level and implemented via the governance structure and IT risk management through appropriate IT security policies and effective communication and practices. Fundamental principles such as secure configuration, user training and security awareness, network security, malware prevention, privilege management, and incident response are fundamental to the security organization and procedures.

The Group continues to expect the threat of cyberattacks to increase worldwide, both in number and intensity. For this reason, the corresponding measures and activities were further expanded in the past fiscal year. Sartorius has strengthened the Group-wide IT security organization in terms of personnel and expertise, established a round-the-clock security control and defense team, and set up further systems and services to monitor, detect, and defend against cyberattacks.

The IT Department actively provides targeted information across the Group on potential cyberthreats and risks, and engages employees by giving them simple but effective ways to defend themselves in a decentralized manner and report suspicious incidents for review.

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.

Interest Rate Risks and Opportunities

Sartorius has concluded fixed interest agreements for more than 70% of its loans outstanding so that any changes in the interest rate will not have any meaningful effects 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, 2022.

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.

A syndicated credit line of 800 million euros, 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.

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.

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. In addition, adherence to the regulations of other relevant authorities like the Environmental Protection Agency or the Department of Agriculture in the USA is important to contain local or global regulatory risks.

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.

Environmental Risks

Sartorius purchases a wide range of raw materials: consumables, and supplies, for example, plastic, metal, and electronic components, as well as packaging. In addition, some production processes generate waste due to the use of solvents, which is subject to special recycling and disposal regulations. In this context, there is a risk that the Group will fail to comply with the applicable legal requirements.

The Environmental Protection, Health, and Safety Department is responsible for ensuring that the Group complies with all applicable regulations. In order to manage environmental issues and mitigate risks, Sartorius has established environmental management systems (according to ISO 14001:2015 for both divisions. In addition, most of the Group's large production sites have been certified according to ISO 14001:2015, including the sites in France, India, Puerto Rico, and China. Appropriate functions exist at these locations to ensure compliance with legal and internal requirements and the ongoing implementation of sustainable technical innovations to improve environmental aspects in production processes. Environmental and

sustainability aspects are playing an increasingly important role in many business processes at Sartorius. The aspect of environmentally sustainable business activities has thus become a central element of how suppliers are selected.

For more information on these topics, please see the non-financial Group statement.

Litigation Risks

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 that lack any cost coverage allowances in the statement of financial position or 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, and 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. There were no material changes in comparison with the prior year.

Risk Category	Probability of Occurrence	Significance	Total Impact	Total Impact (Previous Year)
External risks				
General risks	Probable	Moderate	Medium	Medium
Business cycle risks	Possible	Moderate	Medium	Medium
Operating risks				
Procurement risks	Possible	Significant	Medium	Medium
Production risks	Possible	Significant	Medium	Medium
Sales and distribution risks	Possible	Moderate	Medium	Medium
Competitive risks	Possible	Moderate	Medium	Low
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	Low
Liquidity risks	Remote	Moderate	Low	Low
Tax risks	Possible	Moderate	Medium	Medium
Compliance risks				
Regulatory risks	Possible	Significant	Medium	Medium
Environmental risks	Remote	Moderate	Low	Low
Litigation risks	Possible	Moderate	Medium	Medium

Following a detailed analysis of the overall risk situation, there are no risks discernible from today's perspective that could jeopardize the Group's continued existence as a going concern.

Furthermore, from today's perspective, there are no foreseeable risks that could jeopardize the Group's continued existence as a going concern in the future.