Consolidated Financial Statements BioNTech SE, Mainz as of December 31, 2022

Consolidated Statements of Profit or Loss

(in millions, except per share data)	Note	Years ended December 31, 2022	2021	2020
Revenues				
Commercial revenues	6	€17,194.6	€18,874.0	€303.5
Research & development revenues	6	116.0	102.7	178.8
Total revenues		**€17,310.6**	**€18,976.7**	**€482.3**
Cost of sales	7.1	(2,995.0)	(2,911.5)	(59.3)
Research and development expenses	7.2	(1,537.0)	(949.2)	(645.0)
Sales and marketing expenses	7.3	(59.5)	(50.4)	(14.5)
General and administrative expenses	7.4	(484.7)	(285.8)	(94.0)
Other operating expenses	7.5	(407.0)	(94.4)	(2.4)
Other operating income	7.6	815.3	598.4	250.5
Operating income / (loss)		**€12,642.7**	**€15,283.8**	**€(82.4)**
Finance income	7.7	330.3	67.7	1.6
Finance expenses	7.8	(18.9)	(305.1)	(65.0)
Profit / (loss) before tax		**€12,954.1**	**€15,046.4**	**€(145.8)**
Income taxes	8	(3,519.7)	(4,753.9)	161.0
Profit for the period		**€9,434.4**	**€10,292.5**	**€15.2**
Earnings per share				
Basic profit for the period per share		€38.78	€42.18	€0.06
Diluted profit for the period per share		€37.77	€39.63	€0.06

The accompanying notes form an integral part of these consolidated financial statements.

Consolidated Statements of Comprehensive Income

(in millions)	Note	Years ended December 31, 2022	2021	2020
Profit for the period		**€9,434.4**	**€10,292.5**	**€15.2**
Other comprehensive income				
Other comprehensive income that may be reclassified to profit or loss in subsequent periods, net of tax				
Exchange differences on translation of foreign operations		11.2	8.4	(11.1)
Net other comprehensive income / (loss) that may be reclassified to profit or loss in subsequent periods		**€11.2**	**€8.4**	**€(11.1)**
Other comprehensive loss that will not be reclassified to profit or loss in subsequent periods, net of tax				
Net gain on equity instruments designated at fair value through other comprehensive income		10.5	—	—
Remeasurement income / (loss) on defined benefit plans		0.6	0.3	(0.3)
Net other comprehensive income / (loss) that will not be reclassified to profit or loss in subsequent periods		**€11.1**	**€0.3**	**€(0.3)**
Other comprehensive income / (loss) for the period, net of tax		**€22.3**	**€8.7**	**€(11.4)**
Comprehensive income for the period, net of tax		**€9,456.7**	**€10,301.2**	**€3.8**

The accompanying notes form an integral part of these consolidated financial statements.

Consolidated Statements of Financial Position

(in millions)		December 31, 2022	December 31, 2021
Assets	**Note**		
Non-current assets			
Intangible assets	11	€219.7	€202.4
Property, plant and equipment	10	609.2	322.5
Right-of-use assets	19	211.9	197.9
Other financial assets	12	80.2	21.3
Other non-financial assets	14	6.5	14.4
Deferred tax assets	8	229.6	—
Total non-current assets		**€1,357.1**	**€758.5**
Current assets			
Inventories	13	439.6	502.5
Trade and other receivables	12	7,145.6	12,381.7
Other financial assets	12	189.4	381.6
Other non-financial assets	14	271.9	113.4
Income tax assets	8	0.4	0.4
Cash and cash equivalents	12	13,875.1	1,692.7
Total current assets		**€21,922.0**	**€15,072.3**
Total assets		**€23,279.1**	**€15,830.8**
Equity and liabilities			
Equity			
Share capital	15	248.6	246.3
Capital reserve	15	1,828.2	1,674.4
Treasury shares	15	(5.3)	(3.8)
Retained earnings		18,833.0	9,882.9
Other reserves	16	(848.9)	93.9
Total equity		**€20,055.6**	**€11,893.7**
Non-current liabilities			
Lease liabilities, loans and borrowings	12	176.2	171.6
Other financial liabilities	12	6.1	6.1
Income tax liabilities	8	10.4	4.4
Provisions	17	8.6	184.9
Contract liabilities	6	48.4	9.0
Other non-financial liabilities	18	17.0	12.8
Deferred tax liabilities	8	6.2	66.7
Total non-current liabilities		**€272.9**	**€455.5**
Current liabilities			
Lease liabilities, loans and borrowings	12	36.0	129.9
Trade payables	12	204.1	160.0
Other financial liabilities	12	785.1	1,190.4
Refund liabilities	6	24.4	90.0
Income tax liabilities	8	595.9	1,568.9
Provisions	17	367.2	110.2
Contract liabilities	6	77.1	186.1
Other non-financial liabilities	18	860.8	46.1
Total current liabilities		**€2,950.6**	**€3,481.6**
Total liabilities		**€3,223.5**	**€3,937.1**
Total equity and liabilities		**€23,279.1**	**€15,830.8**

The accompanying notes form an integral part of these consolidated financial statements.

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Consolidated Statements of Changes in Stockholders' Equity

(in millions)	Note	Share capital	Capital reserve	Treasury shares	Retained earnings	Other reserves [1]	Total equity
As of January 1, 2020		**€232.3**	**€686.7**	**€(5.5)**	**€(424.8)**	**€4.8**	**€493.5**
Profit for the period		—	—	—	15.2	—	**€15.2**
Other comprehensive loss		—	—	—	—	(11.4)	**€(11.4)**
Total comprehensive profit / (loss)		**€—**	**€—**	**€—**	**€15.2**	**€(11.4)**	**€3.8**
Issuance of share capital		14.0	861.0	0.7	—	—	**€875.7**
Transaction costs		—	(33.2)	—	—	—	**€(33.2)**
Share-based payments	17	—	—	—	—	32.0	**€32.0**
As of December 31, 2020		**€246.3**	**€1,514.5**	**€(4.8)**	**€(409.6)**	**€25.4**	**€1,371.8**
Profit for the period		—	—	—	10,292.5	—	**€10,292.5**
Other comprehensive income		—	—	—	—	8.7	**€8.7**
Total comprehensive income		**—**	**—**	**—**	**10,292.5**	**8.7**	**€10,301.2**
Issuance of treasury shares	16	—	162.6	1.0	—	—	**€163.6**
Transaction costs		—	(2.7)	—	—	—	**€(2.7)**
Share-based payments	17	—	—	—	—	59.8	**€59.8**
As of December 31, 2021		**€246.3**	**€1,674.4**	**€(3.8)**	**€9,882.9**	**€93.9**	**€11,893.7**
Profit for the period		—	—	—	9,434.4	—	**€9,434.4**
Other comprehensive income		—	—	—	—	22.3	**€22.3**
Total comprehensive income		**€—**	**€—**	**€—**	**€9,434.4**	**€22.3**	**€9,456.7**
Issuance of share capital	15	0.5	67.1	—	—	—	**€67.6**
Redemption of convertible note	12	1.8	233.2	—	—	—	**€235.0**
Share repurchase program	15	—	(979.5)	(6.9)	—	—	**€(986.4)**
Transaction costs		—	(0.1)	—	—	—	**€(0.1)**
Dividends	15	—	—	—	(484.3)	—	**€(484.3)**
Share-based payments	16	—	833.1	5.4	—	(1,519.8)	**€(681.3)**
Current and deferred taxes	8	—	—	—	—	554.7	**€554.7**
As of December 31, 2022		**€248.6**	**€1,828.2**	**€(5.3)**	**€18,833.0**	**€(848.9)**	**€20,055.6**

(1) Includes foreign currency translation reserve which was presented separately in prior periods.

Consolidated Statements of Cash Flows

(in millions)	Years ended December 31, 2022	2021	2020
Operating activities			
Profit for the period	€9,434.4	€10,292.5	€15.2
Income taxes	3,519.7	4,753.9	(161.0)
Profit before tax	**€12,954.1**	**€15,046.4**	**€(145.8)**
Adjustments to reconcile profit before tax to net cash flows:			
Depreciation and amortization of property, plant, equipment, intangible assets and right-of-use assets	123.3	75.2	38.7
Share-based payment expenses	108.6	93.9	32.1
Net foreign exchange differences	625.5	(387.5)	41.3
Loss on disposal of property, plant and equipment	0.6	4.6	0.6
Finance income excluding foreign exchange differences	(265.3)	(1.5)	(1.6)
Finance expense excluding foreign exchange differences	18.9	305.2	22.3
Movements in government grants	0.3	(89.0)	92.0
Other non-cash income / (loss)	—	(2.2)	1.7
Unrealized net (gain) / loss on derivative instruments at fair value through profit or loss	(241.0)	57.3	—
Working capital adjustments:			
Decrease / (increase) in trade and other receivables, contract assets and other assets	4,369.9	(11,808.1)	(247.9)
Decrease / (increase) in inventories	62.9	(438.4)	(49.8)
Increase in trade payables, other financial liabilities, other liabilities, contract liabilities, refund liabilities and provisions	85.7	1,516.1	204.6
Interest received	29.3	1.2	1.4
Interest paid	(21.5)	(12.2)	(3.6)
Income tax received / (paid), net	(4,222.1)	(3,457.9)	0.5
Share-based payments	(51.8)	(13.4)	—
Net cash flows from / (used in) operating activities	**€13,577.4**	**€889.7**	**€(13.5)**
Investing activities			
Purchase of property, plant and equipment	(329.2)	(127.5)	(66.0)
Proceeds from sale of property, plant and equipment	0.6	3.4	1.2
Purchase of intangible assets and right-of-use assets	(34.1)	(26.5)	(19.4)
Acquisition of subsidiaries and businesses, net of cash acquired	—	(20.8)	(60.6)
Purchase of financial instruments	(47.8)	(19.5)	—
(Investment) / proceeds from maturity of other financial assets	375.2	(375.2)	—
Net cash flows used in investing activities	**€(35.3)**	**€(566.1)**	**€(144.8)**
Financing activities			
Proceeds from issuance of share capital and treasury shares, net of costs	110.5	160.9	753.0
Proceeds from loans and borrowings	0.8	—	156.0
Repayment of loans and borrowings	(18.8)	(52.6)	(1.6)
Payments related to lease liabilities	(41.1)	(14.1)	(12.7)
Share repurchase program	(986.4)	—	—
Dividends	(484.3)	—	—
Net cash flows from / (used in) financing activities	**€(1,419.3)**	**€94.2**	**€894.7**
Net increase in cash and cash equivalents	12,122.8	417.8	736.4
Change in cash and cash equivalents resulting from exchange rate differences	59.6	64.7	(45.3)
Cash and cash equivalents at the beginning of the period	1,692.7	1,210.2	519.1
Cash and cash equivalents at December 31	**€13,875.1**	**€1,692.7**	**€1,210.2**

The accompanying notes form an integral part of these consolidated financial statements.

Notes to the Consolidated Financial Statements

1 Corporate Information

BioNTech SE is a limited company incorporated and domiciled in Germany. American Depositary Shares (ADS) representing BioNTech SE's ordinary shares have been publicly traded on Nasdaq Global Select Market since October 10, 2019. The registered office is located in Mainz, Germany (An der Goldgrube 12, 55131 Mainz). BioNTech SE is registered in the commercial register B of the Mainz Local Court under the number HRB 48720. These consolidated financial statements have been prepared in accordance with International Financial Reporting Standards (IFRS) as endorsed by the European Union (EU), and give a true and fair view of the financial position and results of operations of the Group in accordance with International Financial Reporting Standards (IFRS) and the results of operation of BioNTech SE and its subsidiaries, hereinafter also referred to as "BioNTech," the "Group," "we" or "us".

Our consolidated financial statements for fiscal year 2022 were prepared by the Management Board on March 27, 2023.

2 Significant Accounting Policies

2.1 Basis of Preparation

General

The consolidated financial statements have been prepared on a going concern basis in accordance with the IFRS as issued by the International Accounting Standards Board (IASB) as endorsed by the European Union and applied on a mandatory basis, and with the supplementary requirements of German commercial law pursuant to Section 315e of the German Commercial Code (HGB).

We prepare and publish our consolidated financial statements in Euros and round numbers to thousands or millions of Euros, respectively. Accordingly, numerical figures shown as totals in some tables may not be exact arithmetic aggregations of the figures that preceded them and figures presented in the explanatory notes may not add up to the rounded arithmetic aggregations. Rounding applied may differ from rounding published in different units in the previous years.

Segment Information

Decisions with respect to business operations and resource allocations are made by our Management Board, as the chief operating decision maker (CODM) based on BioNTech as a whole. Accordingly, we operate and make decisions as a single operating segment, which is also our reporting segment.

2.2 Basis of Consolidation

The consolidated financial statements comprise the financial statements of BioNTech SE and its controlled investees (subsidiaries).

The Group controls an investee if, and only if, the Group has

- power over the investee (*i.e.*, existing rights that give it the current ability to direct the relevant activities of the investee);
- exposure, or rights, to variable returns from its involvement with the investee; and
- the ability to use its power over the investee to affect its returns.

Generally, there is a presumption that a majority of voting rights results in control.

Whether an investee is controlled is re-assessed if facts and circumstances indicate that there are changes to one or more of the three elements of control. Consolidation of a subsidiary begins when control is obtained over the subsidiary and ceases when control over the subsidiary is lost.

The profit / (loss) and each component of other comprehensive income / (loss) for the period are attributed to the equity holders of the parent of the Group and to the non-controlling interests, even if this results in the non-controlling

interests having a deficit balance. When necessary, adjustments are made to the consolidated financial statements of subsidiaries to bring their accounting policies in line with the Group's accounting policies. All intra-group assets and liabilities, equity, income, expenses and cash flows relating to transactions between members of the Group are eliminated on consolidation.

A change in the ownership interest of a subsidiary, without a loss of control, is accounted for as an equity transaction.

If control over a subsidiary is lost, the related assets (including goodwill), liabilities, non-controlling interests and other components of equity are derecognized, while any resultant gain or loss is recognized in the consolidated statements of profit or loss. Any investment retained is recognized at fair value.

2.3 Summary of Significant Accounting Policies

2.3.1 Business Combinations and Goodwill

Business combinations are accounted for using the acquisition method. The cost of an acquisition is measured as the aggregate of the consideration transferred, which is measured at acquisition date fair value, and the amount of any non-controlling interests in the acquiree.

Goodwill is initially measured at cost as the excess of the aggregate of the consideration transferred and the amount recognized for non-controlling interests and any previous interest held over the net identifiable assets acquired and liabilities assumed.

Costs related to executing business combinations are recognized when they are incurred and are classified as general and administrative expenses.

After initial recognition, goodwill is tested at least annually or when there is an indication for impairment. See Note 2.3.14. For the purpose of impairment testing, goodwill acquired in a business combination is, from the acquisition date, allocated to each of the cash-generating units that are expected to benefit from the combination, irrespective of whether other assets or liabilities of the acquiree are assigned to those units.

Where goodwill has been allocated to a cash-generating unit (CGU) and part of the operation within that unit is disposed of, the goodwill associated with the disposed operation is included in the carrying amount of the operation when determining the gain or loss on disposal. Goodwill disposed in these circumstances is measured based on the relative values of the disposed operation and the portion of the cash-generating unit retained.

2.3.2 Current versus Non-Current Classifications

Assets and liabilities in the consolidated statements of financial position are presented based on current or non-current classification.

An asset is current when it is either: (i) expected to be realized or intended to be sold or consumed in the normal operating cycle, (ii) held primarily for the purpose of trading, (iii) expected to be realized within twelve months after the reporting period or (iv) cash or cash equivalents, unless it is restricted from being exchanged or used to settle a liability for at least twelve months after the reporting period. All other assets are classified as non-current.

A liability is current when it is either: (i) expected to be settled in the normal operating cycle, (ii) held primarily for the purpose of trading, (iii) due to be settled within twelve months after the reporting period, or (iv) there is no unconditional right to defer the settlement of the liability for at least twelve months after the reporting period. The terms of the liability that could, at the option of the counterparty, result in its settlement by the issue of equity instruments do not affect its classification. The Group classifies all other liabilities as non-current.

Deferred tax assets and liabilities are classified as non-current assets and liabilities, respectively.

2.3.3 Fair Value Measurement

Fair value is a market-based measurement. For some assets and liabilities, observable market transactions or market information is available. For other assets and liabilities, observable market transactions or market information might not be

available. When a price for an identical asset or liability is not observable, another valuation technique is used. To increase consistency and comparability in fair value measurements, there are three levels of the fair value hierarchy:

- Level 1 contains the use of quoted prices in active markets for identical assets or liabilities.
- Level 2 inputs are inputs other than quoted prices included within Level 1 that are observable for the asset or liability either directly or indirectly.
- Level 3 inputs are unobservable.

Within this hierarchy, estimated values are made by management based on reasonable assumptions, including other fair value methods.

For assets and liabilities that are recognized in the financial statements at fair value on a recurring basis, we determine whether transfers have occurred between levels in the fair value hierarchy by re-assessing categorization (based on the lowest level input that is significant to the fair value measurement as a whole) at the end of each reporting period.

For the purpose of fair value disclosures, classes of assets and liabilities have been determined on the basis of the nature, characteristics and risks of the asset or liability and the level of the fair value hierarchy, as explained above.

2.3.4 Revenue from Contracts with Customers

Revenue

Identification of the Contract

We generate revenues from collaboration and license agreements, which contain multiple elements, including licenses to use, research, develop, manufacture and commercialize candidates and products, research and development services as well as obligations to develop and manufacture preclinical and clinical material and products. We determined that those collaboration and license agreements qualify as contracts with customers. A contract is an agreement between two or more parties that establishes enforceable rights and obligations.

Identification of Performance Obligations

Our customer contracts often include bundles of licenses, goods and services. If the granting of a license is bundled together with delivering of goods and or the rendering of services, it is assessed whether these agreements are comprised of more than one performance obligation. A performance obligation is only accounted for as the grant of a license if the grant of a license is the sole or the predominant promise of the performance obligation.

Determining Transaction Prices

We apply judgement when determining the consideration that is expected to be received. If the consideration in an agreement includes a variable amount, we estimate the amount of consideration to which we will be entitled in exchange for transferring the goods to the customer. At contract inception, the variable consideration is estimated based on the most likely amount of consideration expected from the transaction and constrained until it is highly probable that a significant revenues reversal in the amount of cumulative revenues recognized will not occur when the associated uncertainty with respect to the variable consideration is subsequently resolved. The estimated revenues are updated at each reporting date to reflect the current facts and circumstances.

Allocation of Transaction Prices

If a contract with a customer contains more than one performance obligation, the transaction price is allocated to each performance obligation based on relative standalone selling prices. We have established the following hierarchy to determine the standalone selling prices.

- Where standalone selling prices for offered licenses, goods or services are observable and reasonably consistent across customers, our standalone selling price estimates are derived from our respective pricing history. However due to the limited number of customers and the limited company history this approach can rarely be used.

- Where sales prices for an offering are not directly observable or highly variable across customers, we follow a cost-plus-margin approach.
- For offerings that have highly variable pricing and lack substantial direct costs to estimate based on a cost-plus-margin approach, we allocate the transaction price by applying a residual approach.

Judgment is required when estimating standalone selling prices.

Recognition of Revenues

For each separate performance obligation, it is evaluated whether control is transferred either at a point in time or over time. For performance obligations that are satisfied over time, revenues are recognized based on a measure of progress, which depicts the performance in transferring control to the customer. Under the terms of our licensing arrangements, we provide the licensee with a research and development license, which represents a right to access our intellectual property as it exists throughout the license period (as our intellectual property is still subject to further research). Therefore, the promise to grant a license is accounted for as a performance obligation satisfied over time as our customers simultaneously receive and consume the benefits from our performance.

Earnings based on the collaboration partners' gross profit, which is shared under the respective collaboration agreements, are recognized based on the sales-based or usage-based royalty exemption; i.e. when, or as, the underlying sales occur, which is when the performance obligation has been satisfied. As described further in Note 3 certain judgment is applied when accounting for the collaboration agreements.

Revenue arrangements that involve two or more partners who contribute to the provision of a specific good or service to a customer are assessed in terms of principal-agent considerations in order to determine the appropriate treatment for the transactions between us and the collaborator and the transactions between us and other third parties. The classification of transactions under such arrangements is determined based on the nature and contractual terms of the arrangement along with the nature of the operations of the participants. Any consideration related to activities in which we are considered the principal, which includes being in control of the good or service before such good or service is transferred to the customer, are accounted for as gross revenues. Any consideration related to activities in which we are considered the agent, are accounted for as net revenues.

Revenues from the sale of pharmaceutical and medical products (*e.g.*, COVID-19 vaccine sales and other sales of peptides and retroviral vectors for clinical supply) are recognized when we transfer control of the product to the customer. Control of the product normally transfers when the customer gains physical possession and we have not retained any significant risks of ownership or future obligations with respect to the product. In general, payments from customers are due within 30 days after invoice. However, with respect to our collaboration with Pfizer Inc., or Pfizer, there is a significant time lag between when revenues are recognized and the payments are received. The contractual settlement of the gross profit share has a temporal offset of more than one calendar quarter. As Pfizer's fiscal quarter for subsidiaries outside the United States differs from ours, it creates an additional time lag between the recognition of revenues and the payment receipt.

For certain contracts, the finished product may temporarily be stored at our location under a bill-and-hold arrangement. Revenues from bill-and-hold arrangements are recognized at the point in time when the customer obtains control of the product and all of the following criteria have been met: (i) the arrangement is substantive; (ii) the product is identified separately as belonging to the customer; (iii) the product is ready for physical transfer to the customer; and (iv) we do not have the ability to use the product or direct it to another customer. In determining when the customer obtains control of the product, we consider certain indicators, including whether title and significant risks and rewards of ownership have transferred to the customer and whether customer acceptance has been received.

Contract Balances

Contract Assets

A contract asset is the right to consideration in exchange for goods or services transferred to the customer. If we transfer goods or services to a customer before the customer pays the respective consideration or before payment is due, a contract asset is recognized for the earned consideration that is conditional.

Trade Receivables

A receivable represents our right to an amount of consideration that is unconditional (*i.e.*, only the passage of time is required before payment of the consideration is due).

Contract Liabilities

A contract liability is the obligation to transfer goods or services to a customer for which we have received consideration (or an amount of consideration is due) from the customer. If a customer pays consideration before we transfer goods or services to the customer, a contract liability is recognized when the payment is made or when the payment is due (whichever is earlier). Contract liabilities are recognized as revenue when we fulfill our performance obligations under the contract.

Refund Liabilities

A refund liability is a consideration which has been received but which will need to be refunded to the customer in the future as it represents an amount to which we are ultimately not entitled under the contract. A refund liability is measured at the amount of consideration received (or receivable) to which we do not expect to be entitled (i.e., amounts not included in the transaction price). We update our estimates of refund liabilities (and the corresponding change in the transaction price) at the end of each reporting period.

2.3.5 Government Grants

Government grants are recognized where there is reasonable assurance that the grant will be received and all attached conditions will be complied with. When the grant relates to an expense item, it is recognized as other income on a systematic basis over the periods that the related costs, for which the grant is intended to compensate, are expensed. When the grant relates to an asset, it is recognized as deferred income within the consolidated statements of financial position. Other income is subsequently recognized in our consolidated statements of profit or loss over the useful life of the underlying asset subject to funding.

2.3.6 Taxes

Current Income Tax

Current income tax assets and liabilities are measured at the amount expected to be recovered from or paid to the taxation authorities. The tax rates and tax laws used to compute the amount are those that are enacted or substantively enacted at the reporting date in the countries where the Group operates and generates taxable income.

In addition, current income taxes presented for the period include adjustments for uncertain tax payments or tax refunds for periods not yet finally assessed by tax authorities, excluding interest expenses and penalties on the underpayment of taxes. In the event that amounts included in the tax return are considered unlikely to be accepted by the tax authorities (uncertain tax positions), a provision for income taxes is recognized.

Management periodically evaluates positions taken in the tax returns with respect to situations in which applicable tax regulations are subject to interpretation and establishes provisions where appropriate.

Deferred Tax

Deferred tax is provided using the liability method on temporary differences between the tax bases of assets and liabilities and their carrying amounts for financial reporting purposes at the reporting date.

Deferred tax liabilities are recognized for all taxable temporary differences, except:

- when the deferred tax liability arises from the initial recognition of goodwill or an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss; or
- in respect of taxable temporary differences associated with investments in subsidiaries, associates and interests in joint arrangements, when the timing of the reversal of the temporary differences can be controlled and it is probable that the temporary differences will not reverse in the foreseeable future.

Deferred tax assets are recognized for all deductible temporary differences, the carry forward of unused tax credits and any unused tax losses. Deferred tax assets are recognized to the extent that it is probable that taxable profit will be available against which the deductible temporary differences, the carry forward of unused tax credits and unused tax losses can be utilized, except:

- when the deferred tax asset relating to the deductible temporary difference arises from the initial recognition of an asset or liability in a transaction that is not a business combination and, at the time of the transaction, affects neither the accounting profit nor taxable profit or loss; or
- in respect of deductible temporary differences associated with investments in subsidiaries, associates and interests in joint arrangements, deferred tax assets are recognized only to the extent that it is probable that the temporary differences will reverse in the foreseeable future and taxable profit will be available against which the temporary differences can be utilized.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the year in which the asset is realized, or the liability is settled, based on tax rates (and tax laws) that have been enacted or substantively enacted at the reporting date.

Unrecognized deferred tax assets are re-assessed at each reporting date and are recognized to the extent that it has become probable that future taxable profits will allow the deferred tax asset to be recovered.

Recognition of Taxes

Current and deferred tax items are recognized similarly to the underlying transaction either in profit or loss, other comprehensive income or directly in equity.

Current tax assets and current tax liabilities are offset if, and only if, we have a legally enforceable right to set off the recognized amounts and intend either to settle on a net basis, or to realize the asset and settle the liability simultaneously. Deferred tax assets and deferred tax liabilities are only offset when we have a legally enforceable right to set off current tax assets and current tax liabilities and the deferred tax assets and deferred tax liabilities relate to income taxes levied by the same taxation authority on either (i) the same taxable entity or (ii) different taxable entities, which intend either to settle current tax liabilities and assets on a net basis, or to realize the assets and settle the liabilities simultaneously, in each future period in which significant amounts of deferred tax liabilities or assets are expected to be settled or recovered.

Sales Tax

Expenses and assets are recognized net of sales tax, except when the sales tax incurred on a purchase of assets or services is not recoverable from the taxation authority.

The net amount of sales tax recoverable from, or payable to, the taxation authority is included as part of receivables or payables in the consolidated statements of financial position.

Future tax legislation

Based on the Organisation for Economic Co-operation and Development (OECD) Base Erosion and Profit Shifting (BEPS) project to tackle tax avoidance the OECD/G20 Inclusive Framework (an association of about 140 countries) decided to introduce a global minimum taxation for large multinational groups (so-called Pillar 2). The Global Anti-Base Erosion Rules shall ensure large multinational groups pay a minimum level of tax on the income arising in each jurisdiction where they operate. In December 2021, the OECD published so-called OECD Model Rules, which serve as a draft bill for implementation into national domestic law, followed by guidelines and commentaries published in March 2022. In December 2022, the EU adopted a corresponding EU directive (EU 2022/2523), which obliges EU member states to transpose the rules into national domestic law.

The date of application of the national domestic law in Germany is scheduled for the fiscal year 2024. Subsequent, when the OECD Model Rules has entered into force in Germany, the Group will be obliged to file top-up tax information returns for all entities which are part of the group, beginning with the fiscal year 2024. If in any jurisdiction the effective tax rate is below the minimum rate (15%) the Group may be subject to the so-called top-up tax or a so-called qualified domestic minimum top-up tax. To date, no jurisdiction in which the Group operates has transposed the OECD Model Rules

into national domestic law and entered into force. The Group closely follows the progress of the legislative process in each country in which the Group operates.

2.3.7 Foreign Currencies

Our consolidated financial statements are presented in Euros, which is also our functional currency. For each entity, the Group determines the functional currency, and items included in the consolidated financial statements of such entities are measured using that functional currency. We use the direct method of consolidation and, on disposal of a foreign operation, the gain or loss that is reclassified to the consolidated statements of profit or loss reflects the amount that arises from using this method.

Transactions and Balances

Transactions in foreign currencies are initially recorded by the Group's entities at their respective functional currency spot rates at the date the transaction first qualifies for recognition.

Monetary assets and liabilities denominated in foreign currencies are translated at the functional currency spot rates of exchange at the reporting date.

Non-monetary items that are measured in terms of historical cost in a foreign currency are translated using the exchange rates at the dates of the initial transactions.

In determining the spot exchange rate to use on initial recognition of the related asset, expense or income (or part of it) on the derecognition of a non-monetary asset or non-monetary liability relating to advance consideration, the date of the transaction is the date on which the Group initially recognizes the non-monetary asset or non-monetary liability arising from the advance consideration. If there are multiple payments or receipts in advance, the Group determines the transaction date for each payment or receipt of advance consideration.

Foreign Currency Translation

Foreign currency translation effects from the translation of operating activities include foreign exchange differences arising on operating items such as trade receivables and trade payables and are either shown as other operating income or expenses on a cumulative basis. Foreign currency translation effects presented within finance income and expenses include foreign exchange differences arising on financing items such as loans and borrowings as well as foreign exchange differences arising on cash and cash equivalents and are either shown as finance income or expenses on a cumulative basis.

Foreign Currency Translation on Consolidation

Upon consolidation, the assets and liabilities of foreign operations are translated into Euros at the rate of exchange prevailing at the reporting date and the transactions recorded in their consolidated statements of profit or loss are translated at exchange rates prevailing at the dates of the transactions.

The exchange differences arising on translation for consolidation are recognized in other comprehensive income. On disposal of a foreign operation, the component of other comprehensive income relating to that particular foreign operation is reclassified to profit or loss.

Any goodwill arising on the acquisition of a foreign operation and any fair value adjustments to the carrying amounts of assets and liabilities arising upon the acquisition are treated as assets and liabilities of the foreign operation and translated at the spot rate of exchange at the reporting date.

2.3.8 Cash Dividend

We recognize a liability to pay a dividend when the distribution is authorized. As per the corporate laws of Germany, a distribution is authorized when it is approved by the general shareholder meeting. A corresponding amount is recognized directly in equity.

2.3.9 Property, Plant and Equipment

Construction in progress is stated at cost. Property, plant and equipment are stated at cost, net of accumulated depreciation and accumulated impairment losses, if any. Such cost includes the cost of replacing part of the property, plant and equipment if the recognition criteria are met. All other repair and maintenance costs are expensed as incurred.

Depreciation is calculated on a straight-line basis over the estimated useful lives of the assets, as follows:

Property, plant and equipment	**Useful life (years)**
Buildings	10-33
Equipment, tools and installations	5-18

Operating and business equipment has a useful life of 1-10 years and is reported under equipment, tools and installations due to immateriality.

An item of property, plant and equipment initially recognized is derecognized upon disposal (*i.e.*, at the date the recipient obtains control) or when no future economic benefits are expected from its use or disposal. Any gain or loss arising on derecognition of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in the consolidated statements of profit or loss when the asset is derecognized.

The residual values, useful lives and methods of depreciation of property, plant and equipment are reviewed at each financial year-end and adjusted prospectively, if appropriate.

2.3.10 Leases

At the inception of a contract, we assess whether the contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. To assess whether a contract conveys the right to control the use of an identified asset, we assess whether:

- the contract involves the use of an identified asset—this may be specified explicitly or implicitly and should be physically distinct or represent substantially all of the capacity of a physically distinct asset. If the supplier has a substantive substitution right, then the asset is not identified;
- we have the right to obtain substantially all of the economic benefits from the use of the asset throughout the period of use; and
- we have the right to direct the use of the asset. We possess this right when we hold the decision-making rights that are most relevant to changing how and for what purpose the asset is used. In rare cases where the decision about how and for what purpose the asset is used is predetermined, the Group has the right to direct the use of the asset if either:
    - we have the right to operate the asset; or
    - we designed the asset in a way that predetermines how and for what purpose it will be used.

At inception or on reassessment of a contract that contains a lease component, the consideration in the contract is allocated to each lease component on the basis of their relative standalone prices. However, for leases of land and buildings in which it is a lessee, we have elected not to separate non-lease components, and instead account for the lease and non-lease components as a single lease component.

We recognize a right-of-use asset and a lease liability at the lease commencement date.

The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of the costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received by the Group.

The right-of-use asset is subsequently depreciated using the straight-line method from the commencement date to the earlier of the end of the useful life of the right-of-use asset and the end of the lease term. The estimated useful lives of right-of-use assets are determined on the same basis as those of property, plant and equipment. In addition, the right-of-use asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease liability.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the incremental borrowing interest rate implicit in the lease or, if that rate cannot be readily determined, the Group's incremental borrowing rate. Generally, the incremental borrowing rate is used as the discount rate.

Lease payments included in the measurement of the lease liability comprise the following:

- fixed payments, including in-substance fixed payments;
- variable lease payments that depend on an index or a rate, initially measured using the index or rate as of the commencement date;
- amounts expected to be payable under a residual value guarantee; and
- the exercise price under a purchase option that is reasonably certain to be exercised, lease payments in an optional renewal period if it is reasonably certain that the extension option is exercised, and penalties for early termination of a lease unless it is reasonably certain that the contract is not terminate early.

The lease liability is subsequently measured at amortized cost using the effective interest method. It is remeasured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in the estimate of the amount expected to be payable under a residual value guarantee, or if we change our assessment of whether we will exercise a purchase, extension or termination option. When the lease liability is remeasured, a corresponding adjustment is made to the carrying amount of the right-of-use asset or is recorded in the consolidated statements of profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

Right-of-use assets are presented separately and lease liabilities are presented in "Financial Liabilities" in the consolidated statements of financial position.

Depreciation is calculated on a straight-line basis over the estimated useful lives of the assets or shorter lease term, as follows:

Right-of-use assets	**Useful life or shorter lease term (years)**
Buildings	2-25
Equipment, tools and installations	2-5
Production facilities	2-3
Automobiles	3-4

Short-Term Leases and Leases of Low-Value Assets

We have elected not to recognize right-of-use assets and lease liabilities for short-term leases of machinery that have a lease term of 12 months or less or leases of low-value assets. We recognize the lease payments associated with these leases as an expense in the consolidated statements of profit or loss on a straight-line basis over the lease term.

2.3.11 Intangible Assets

Intangible assets acquired separately are measured on initial recognition at cost. The cost of intangible assets acquired in a business combination is their fair value at the date of acquisition. Following initial recognition, intangible assets are carried at cost less any accumulated amortization and accumulated impairment losses.

The useful lives of intangible assets are assessed as either finite or indefinite.

Intangible assets with finite lives are amortized generally on a straight-line basis over the useful life and assessed for impairment whenever there is an indication that the intangible asset may be impaired. The amortization period and the amortization method for an intangible asset with a finite useful life are reviewed at the end of each reporting period at the least. The amortization expense on intangible assets with finite lives is recognized in the consolidated statements of profit or loss in the expense category that is consistent with the function of the intangible assets.

A summary of the useful lives applied to the Group's intangible assets is as follows:

Intangible assets	**Useful life (years)**
Intellectual property rights	8-20
Licenses	3-20
Software	3-8

Intangible assets with indefinite useful lives are not amortized, but are tested for impairment at least annually, or when there is an indication for impairment, either individually or at the level of a cash-generating unit (see Note 2.3.14 for further details). The assessment of indefinite life is reviewed annually to determine whether the indefinite life continues to be supportable. If not, the change in useful life from indefinite to finite is made on a prospective basis.

We have classified advanced payments on intangible assets as intangible assets, which are not yet ready for use. Advanced payments on intangible assets are tested for impairment on an annual basis.

An intangible asset is derecognized upon disposal (*i.e.*, at the date the recipient obtains control) or when no future economic benefits are expected from its use or disposal. Any gain or loss arising upon derecognition of the asset (calculated as the difference between the net disposal proceeds and the carrying amount of the asset) is included in the consolidated statements of profit or loss.

Research and Development Costs

Research costs are expensed as incurred. Development expenditures on an individual project are recognized as an intangible asset if, and only if, all of the following six criteria can be demonstrated:

- the technical feasibility of completing the intangible asset so that the asset will be available for use or sale;
- the intention to complete the project;
- the ability and intention to use or sell the asset;
- how the asset will generate future economic benefits;
- the availability of resources to complete the asset; and
- the ability to reliably measure the expenditure during development.

Due to the inherent risk of failure in pharmaceutical development and the uncertainty of approval, management has determined that these criteria are not met in the biotech sector until regulatory approval has been obtained. The related expenditure is reflected in the consolidated statements of profit or loss in the period in which the expenditure is incurred.

Following initial recognition of the development expenditure as an asset, the asset is carried at cost less any accumulated amortization and accumulated impairment losses. Amortization of the asset begins when development is complete and the asset is available for use. It is amortized over the period of expected future benefit. Amortization is recorded in cost of sales. During the period of development, the asset is tested for impairment annually.

2.3.12 Financial Instruments

A financial instrument is any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity.

i) Financial Assets

Initial Recognition and Measurement

Financial assets mainly include trade receivables, cash and cash equivalents, cash deposits with an original term of six months recognized as other financial assets as well as equity investments. Financial assets are initially measured at fair value and – depending on their classification – subsequently measured at amortized cost, fair value through other comprehensive income (OCI) or fair value through profit or loss.

Subsequent Measurement

The measurement of financial assets depends on their classification, as described below.

Financial Assets measured at Amortized Cost

Financial assets at amortized cost include trade receivables. With respect to trade receivables, we applied the practical expedient which means that they are measured at the transaction price determined under IFRS 15. Refer to the accounting policies in Note 2.3.4. Other financial assets are measured at amortized costs since they are held to collect contractual cash flows, which are solely payments of principal and interest. Gains and losses are recognized in our consolidated statements of profit or loss when the financial asset is derecognized, modified or impaired.

Financial Assets designated at Fair Value through OCI (Equity Instruments)

Upon initial recognition, we can irrevocably elect to classify equity investments as equity instruments designated at fair value through OCI when they meet the definition of equity under IAS 32 and are not held for trading. The classification is determined on an instrument-by-instrument basis. Gains and losses on these financial assets are never recycled to profit or loss. Dividends are recognized as other income in the consolidated statements of profit or loss when the right of payment has been established. Equity instruments designated at fair value through OCI are not subject to impairment assessment. We elected to irrevocably classify our non-listed and listed equity investments under this category. They are recognized using trade date accounting.

Financial Assets at Fair Value through Profit or Loss

Derivatives not designated as hedging instruments are measured at fair value through profit or loss. A financial asset exists if the derivative has a positive fair value.

Derecognition

A financial asset (or, where applicable, a part of a financial asset or part of a group of similar financial assets) is primarily derecognized (i.e., removed from the consolidated statements of financial position) when the rights to receive cash flows from the asset have expired or have been transferred in terms of fulfilling the derecognition criteria.

Impairment of Financial Assets

An allowance for expected credit losses (ECLs) is considered for all non-derivative financial debt investments including cash, time deposits and debt securities of the Group. ECLs are based on the difference between the contractual cash flows due in accordance with the contract and all of the cash flows that the Group expects to receive, discounted at an approximation of the original effective interest rate. The expected cash flows will include cash flows from the sale of collateral held or other credit enhancements that are integral to the contractual terms.

For trade receivables and contract assets, the Group applies a simplified approach in calculating ECLs. Therefore, the Group does not track changes in credit risk, but instead recognizes a loss allowance based on lifetime ECLs at each reporting date. We have established an ECL-model that is based on the probability of default (PD), considers the respective country default probabilities and takes the maturities into account. For the PD of companies, we use the maturities of the trade receivables and the scoring of the companies.

ii) Financial Liabilities

Financial liabilities are generally measured at amortized cost using the effective-interest method. Derivatives with negative fair values not designated as hedging instruments and liabilities for contingent consideration in business combinations are measured at fair value.

All financial liabilities are recognized initially at fair value and, in the case of loans and borrowings and payables, net of directly attributable transaction costs.

Financial liabilities measured at amortized cost, include loans and borrowings, trade payables and other financial liabilities. They are measured at amortized cost using the effective interest rate (EIR) method. Gains and losses are recognized in the consolidated statements of profit or loss when the liabilities are derecognized as well as through the EIR amortization process.

Amortized cost is calculated by taking into account any discount or premium on acquisition and fees or costs that are an integral part of the EIR. The EIR amortization is included as finance costs in the consolidated statements of profit or loss.

Derecognition

A financial liability is derecognized when the obligation under the liability is discharged or cancelled or expires. When an existing financial liability is replaced by another from the same lender on substantially different terms, or the terms of an existing liability are substantially modified, such an exchange or modification is treated as the derecognition of the original liability and the recognition of a new liability. The difference in the respective carrying amounts is recognized in the consolidated statements of profit or loss.

iii) Expenses and Income from Exchange Forward Contracts

Effects from foreign exchange forward contracts, which are measured at fair value through profit or loss, are either shown as other operating income or expenses on a cumulative basis and might switch between those two positions during the year-to-date reporting periods.

2.3.13 Inventories

Inventories are valued at the lower of cost and net realizable value.

Costs incurred in bringing each product to its present location and condition are accounted for as follows:

- raw materials and supplies: purchase cost on a first-in / first-out basis; or
- unfinished goods and finished goods: cost of direct materials and labor, including both internal manufacturing and third-party contract manufacturing organizations, or CMOs, and a proportion of manufacturing overheads based on the normal operating capacity, but excluding borrowing costs.

Net realizable value is the estimated selling price in the ordinary course of business less estimated costs of completion and the estimated costs necessary to make the sale. Write-offs are recorded if inventories are expected to be unsaleable, do not fulfill the specification defined by our quality standards or if its shelf-life has expired. For inventories subject to the collaboration partners' gross profit share mechanism, we consider the contractual compensation payments in the estimate of the net realizable value.

2.3.14 Impairment of Non-Financial Assets

At each reporting date, we assess whether there is an indication that a non-financial asset may be impaired. Goodwill is tested for impairment at least annually as of October 1. Impairment is determined for goodwill by assessing the recoverable amount of each cash-generating unit (or group of CGUs) to which the goodwill relates. If any indication exists, or when annual impairment testing is performed, we estimate the asset's or CGU's recoverable amount. The recoverable amount is the higher of an asset's or CGU's fair value less costs of disposal and its value in use. The recoverable amount is determined for an individual asset, unless the asset does not generate cash inflows that are largely independent of those from other assets or groups of assets. In case the asset is not generating independent cash inflows the impairment test is performed for the smallest group of assets that generate largely independent cash inflows from other assets (CGU). When the carrying amount of an asset or cash-generating unit exceeds its recoverable amount, the asset or the non-current assets of the CGU are considered impaired and written down to their recoverable amount.

In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. In

determining fair value less costs of disposal, recent market transactions and our market capitalization are taken into account.

If a value in use is determined it is based on detailed budgets and forecast calculations, which are prepared separately for each of our cash-generating units to which the individual assets are allocated. These budgets and forecast calculations generally cover a period of at least five years. A long-term growth rate is calculated and applied to project future cash flows after the last year of the detailed planning period.

Impairment losses are recognized in the consolidated statements of profit or loss in expense categories consistent with the function of the impaired asset.

For assets excluding goodwill, an assessment is made at each reporting date to determine whether there is an indication that previously recognized impairment losses no longer exist or have decreased. If such indication exists, the asset's or cash-generating unit's recoverable amount is estimated. A previously recognized impairment loss is reversed only if there has been a change in the assumptions used to determine the asset's recoverable amount since the last impairment loss was recognized. The reversal is limited so that the carrying amount of the asset does not exceed its recoverable amount, nor exceed the carrying amount that would have been determined, net of depreciation, had no impairment loss been recognized for the asset in prior years. Such reversal is recognized in the consolidated statements of profit or loss.

2.3.15 Cash and Cash Equivalents

Cash and cash equivalents comprise cash at banks and on hand and short-term investments we consider to be highly liquid (including deposits and money market funds) with an original maturity of three months or less, that are readily convertible to a known amount of cash and subject to an insignificant risk of changes in value. Deposits with an original maturity of more than three months are recognized as other financial assets.

2.3.16 Provisions

Provisions are recognized when there is a present obligation (legal or constructive) as a result of a past event, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate can be made of the amount of the obligation. When we expect some or all of a provision to be reimbursed, for example, under an insurance contract, the reimbursement is recognized as a separate asset, but only when the reimbursement is virtually certain.

A provision is also recognized for certain contracts with suppliers for which the unavoidable costs of meeting the obligations exceed the economic benefits expected to be received. The economic benefits considered in the assessment comprise the future benefits we are directly entitled to under the contract as well as the anticipated future benefits that are the economic consequence of the contract if these benefits can be reliably determined.

The expense relating to a provision is presented in the consolidated statements of profit or loss net of any reimbursement.

2.3.17 Share-Based Payments

Employees (and others providing similar services) receive remuneration in the form of share-based payments, which are settled in equity instruments (equity-settled transactions) or in cash (cash-settled transactions).

In accordance with IFRS 2, share-based payments are generally divided into cash-settled and equity-settled. Both types of payment transactions are measured initially at their fair value as of the grant date. The fair value is determined using an appropriate valuation model, further details of which are given in Note 16. Rights granted under cash-settled transactions are remeasured at fair value at the end of each reporting period until the settlement date. The cost of share-based payment awards is recognized over the relevant service period, applying either the straight-line method or the graded vesting method, where applicable.

These costs are recognized in cost of sales, research and development expenses, sales and marketing expenses or general and administrative expenses, together with a corresponding increase in equity (other reserves) or other liabilities, over the period in which the service is provided (the vesting period). The cumulative expense recognized for cash- and

equity-settled transactions at each reporting date until the vesting date reflects the extent to which the vesting period has expired, and also reflects the best estimate of the number of equity instruments that will ultimately vest.

If we have a choice of settling either in cash or by providing equity instruments, the rights granted are accounted for as an equity-settled transaction, unless there is a present obligation to settle in cash.

If, due to local tax regulations, an amount is withheld for the employee's tax obligations and paid directly to the tax authorities in cash on the employee's behalf, the entire share-based payment program remains an equity-settled plan based on the IFRS 2 classification. Accordingly the amount withheld for the employee's tax obligations expected to be paid directly to the tax authorities is reclassified from Other reserves to Other non-financial liabilities.

2.3.18 Treasury Shares

We apply the par value method to our repurchases of outstanding American Depositary Shares, or ADSs. Accordingly, the nominal value of acquired treasury shares is deducted from equity shown in a separate category, Treasury Shares. Any premium paid in excess of the nominal value of a repurchased ADS is deducted from capital reserves. On the trade date, we recognize a liability and on the settlement date, we settle in cash. We recognize the foreign exchange differences that may occur between trade and settlement date as profit or loss.

2.4 Standards Applied for the First Time

In 2022, the following potentially relevant new and amended standards and interpretations became effective, but did not have an impact on our consolidated financial statements:

Standards / Interpretations	Date of application
Amendments to IFRS 3 Business Combinations: Reference to the Conceptual Framework	January 1, 2022
Amendments to IAS 37 Provisions, Contingent Liabilities and Contingent Assets: Onerous Contracts – Cost of Fulfilling a Contract Amendments to IAS 37	January 1, 2022
Amendments to IAS 16 Property, Plant and Equipment: Proceeds before Intended Use	January 1, 2022
Annual Improvements to IFRS Standards 2018-2020	January 1, 2022

2.5 Standard Issued but Not Yet Effective

The new and amended standards and interpretations that are issued, but not yet effective, up to the date of issuance of the financial statements and that might have an impact on our financial statements are disclosed below. We have not adopted any standards early and intend to adopt these new and amended standards and interpretations, if applicable, when they become effective.

Standards / Interpretations		Date of application
IFRS 17 Insurance Contracts		January 1, 2023
Amendments to IFRS 17 Insurance Contracts		January 1, 2023
Amendments to IAS 1 and IFRS Practice Statement 2: Disclosure of Accounting Policies		January 1, 2023
Amendments to IAS 8 Accounting policy changes: Definition of Accounting Estimates		January 1, 2023
Amendments to IAS 12 Income Taxes: Deferred Tax related to Assets and Liabilities arising from a Single Transaction		January 1, 2023
Amendments to IAS 1 Presentation of Financial Statements: Classification of Liabilities as Current or Non-Current	(1)	January 1, 2024
Amendments to IAS 1 Presentation of Financial Statements: Non-current Liabilities with Covenants	(1)	January 1, 2024
Amendments to IFRS 16 Leases: Lease Liability in a Sale and Leaseback	(1)	January 1, 2024

(1) Standards had not yet been endorsed in the European Union at the time of publication.

We do not expect a significant impact of the application of any of these standards and amendments.

3 Significant Accounting Judgments, Estimates and Assumptions

The preparation of the consolidated financial statements requires management to make judgments, estimates and assumptions that affect the reported amounts of revenues, expenses, assets and liabilities, the accompanying disclosures and the disclosure of contingent liabilities. Uncertainty about these assumptions and estimates could result in outcomes that require a material adjustment to the carrying amount of assets or liabilities affected in future periods.

Significant accounting judgement as well as key assumptions concerning the future and other key sources of estimation uncertainty at the reporting date that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are described below. We based our assumptions and estimates on parameters available when the consolidated financial statements were prepared. Existing circumstances and assumptions about future developments, however, may change due to market changes or circumstances arising that are beyond the control of the Group. Such changes are reflected in the assumptions when they occur.

Revenues from Contracts with Customers

We applied the following judgments, estimates and assumptions that significantly affect the determination of the amount and timing of revenues from contracts with customers:

Identification and Determination of Performance Obligations

We generate revenues from collaboration and license agreements, which contain multiple elements, including licenses to use, research, develop, manufacture and commercialize candidates and products, research and development services as well as obligations to develop and manufacture preclinical and clinical material and products. We determined that those collaboration and license agreements qualify as contracts with customers. A contract is an agreement between two or more parties that establishes enforceable rights and obligations. At inception of each agreement, we apply judgment when determining which promises represent distinct performance obligations. If promises are not distinct, they are combined until the bundle of promised goods and services is distinct. For some agreements, this results in accounting for goods and services promised in a collaboration and license agreement as a single performance obligation with a single measure of progress. For these combined performance obligations, we assess which of these promises is the predominant promise to determine the nature of the performance obligation. When licenses are granted, we determined that the grant of the license is the predominant promise within the combined performance obligations. It is assessed that we grant our customers a right to access or a right to use our intellectual property due to the collaboration and license agreements.

Measurement of the Transaction Price

Our collaboration and license agreements often include variable considerations, which are contingent on the occurrence or non-occurrence of a future event *(i.e.*, reaching a certain milestone). When determining deferred revenues of a collaboration and license agreement, we need to estimate the amount of consideration to which we will be entitled in exchange for transferring the promised goods or services to our customers.

As there are usually only two possible outcomes (i.e., milestone is reached or not), we have assessed that the method of the most likely amount is the best method to predict the amount of consideration to which we will be entitled. At contract inception, the most likely amount for milestone payments is estimated to be zero. We have assessed that the likelihood of achieving the respective milestone decreases depending on how far the expected date of achieving the milestone lies in the future. At each reporting date, we use judgment to determine when to include variable consideration in the transaction price, such that it is highly probable that a significant revenue reversal in the amount of cumulative revenue recognized will not occur when the associated uncertainty with respect to the variable consideration is subsequently resolved. We have concluded that future milestone payments are fully constrained at the end of the current fiscal year.

Future milestone payments would become unconstrained at the satisfaction of the milestone event, specifically a development event, a regulatory approval or achievement of a sales milestone.

Allocation of the Transaction Price to Performance Obligations and Revenue Recognition as Performance Obligations are Satisfied

We allocate the transaction price to performance obligations based on their relative standalone selling prices, which are generally based on our best estimates and interpretations of facts and circumstances of each contractual agreement and may require significant judgment to determine appropriate allocation.

Upfront payments and reimbursement for expenses are initially deferred on our consolidated statements of financial position. We assessed that no significant financing component exists within our collaboration agreements since the overall business purpose of advanced payments is to support the payment structure other than to provide a significant benefit of financing. For performance obligations in which the costs vary based on progress, an input-based measure considering cost incurred depicts most reliably the progress of the related research activities. In other cases, revenue recognition on a straight-line basis may most reliably depict our performance toward complete satisfaction. If the contractual activities progress, the achievement of development milestones will be used to measure the progress toward complete satisfaction. We evaluate the measure of progress each reporting period and, if necessary, adjust the measure of performance and related revenue recognition. Any such adjustments are recorded on a cumulative catch-up basis, which would affect revenues and net loss in the period of adjustment.

Upon successfully commercializing a pharmaceutical product, the collaboration and license agreements also provide for additional profit-sharing or tiered royalties earned when customers recognize net sales of licensed products as well as sales milestone payments. Revenue is recognized based on the sales-based or usage-based royalty exemption; *i.e.*. when, or as, the underlying sales occur, which is when the performance obligation has been satisfied.

Principal-Agent Considerations

Collaboration agreements that involve two or more partners who contribute to the provision of a specific good or service to a customer are assessed in terms of principal-agent considerations. Under our current collaboration agreements, the allocation of marketing and distribution rights defines territories in which the collaboration partner acts as a principal respectively. We recognize revenue net based on the collaboration partners' gross profit in territories where the partner is responsible for supply and on a gross basis when directly supplying our customers in our territories when control has been transferred. Amounts paid to collaboration partners for their share of our profits earned where we are the principal in the transaction are recorded as cost of sales.

Pfizer Agreement Characteristics

With respect to our collaboration with Pfizer, commercial revenues are recognized based on our collaboration partners' gross profit from COVID-19 vaccine sales, which is shared under the respective collaboration agreement. In determining commercial revenues pursuant to this collaboration agreement, we are reliant on our collaboration partner for details regarding its gross profit for the period at hand. Certain of the information which our collaboration partner provides us with to identify the gross profit are, by necessity, preliminary and subject to change.

Pfizer's gross profit shares are calculated based on sales and include consideration of transfer prices. The latter includes manufacturing and shipping costs, which represent standard prices and include mark-ups on manufacturing costs as specified by the terms of the agreement. Manufacturing and shipping cost variances were considered as far as those have been identified. Nevertheless, those input parameters may be adjusted once actual costs are determined. The sales as reported by Pfizer have been used to estimate license obligations in terms of royalties and sales milestones. Sales milestones and royalties are recognized as they are earned by the partners. Sales milestones are shared equally, while royalty payments are borne by the partners on the basis of revenues in the territories for which the partners are responsible and subsequently deducted as cost under the gross profit shared. The estimated royalty fees applied to net sales reflect the license obligations to the extent currently identified from third party contractual arrangements. Changes in estimates are accounted for prospectively, when determined.

Manufacturing cost variances include expenses from unused contract manufacturing capacities and overstock inventories finally scrapped. As only materialized costs – which means manufacturing capacities finally lapsed or inventories finally scrapped – are cash-effectively shared with the partner, the gross profit share impact is anticipated once assessed as highly probable to occur. Any changes to this assessment will be recognized prospectively.

Pfizer's determination of manufacturing and shipping costs also affects the transfer prices that have been charged to COVID-19 vaccine supplies that it manufactures and supplies to us and may be subject to adjustment whenever manufacturing and shipping cost variances are identified. Likewise, our own cost of sales and the respective gross profit share owed to our partner may be adjusted prospectively, when changes are determined.

For the carrying amounts of the revenue recognition-related contract balances, see Note 6. Judgment is required in determining whether a right to consideration is unconditional and thus qualifies as a receivable.

Provisions and Contingencies

We are currently confronted with claims and legal proceedings. Those include claims from third parties demanding indemnification for purported infringement of third party's patent or other intellectual proprietary rights as well as product liability claims. For these matters we assess whether provisions must be recorded and whether contingencies must be reported.

Due to uncertainties relating to these matters, provisions and contingencies are based on the best information available.

Significant judgment is required in the determination of whether and when a provision is to be recorded and what the appropriate amount for such provision should be. Notably, judgment is required in the following areas:

- Determining whether an obligation exists
- Determining the probability of outflow of economic benefits
- Determining whether the amount of an obligation is reliably estimable
- Estimating the amount of the expenditure required to settle the present obligation

At the end of each reporting period, we reassess the potential obligations related to our pending claims and litigation and adjust our respective provisions and contingencies to reflect the current best estimate. In addition, we monitor and evaluate new information that we receive after the end of the respective reporting period, but before the Consolidated Financial Statements are authorized for issue, to determine whether this provides additional information regarding conditions that existed at the end of the reporting period. Changes to the estimates and assumptions and outcomes that differ from these estimates and assumptions, could require material adjustments to the carrying amounts of the respective provisions recorded and additional provisions.

The expected timing or amounts of any outflows of economic benefits resulting from these lawsuits and claims are uncertain and difficult to estimate or even not estimable, as they generally depend on the duration of the legal proceedings and settlement negotiations required to resolve the litigation and claims and the unpredictability of the outcomes of legal disputes in several jurisdictions.

Disclosures in respect of third-party claims and litigation for which no provisions have been recognized are made in the form of contingent liabilities, unless a potential outflow of resources is considered remote. It is not practicable to estimate the financial impact of contingent liabilities due to the uncertainties around lawsuits and claims as outlined above.

For further disclosures and carrying amounts relating to provisions and contingencies, see Note **17**.

Research and Development Expenses

The nature of our business and primary focus of our activities, including development of our platforms and manufacturing technologies, generate a significant amount of research and development expenses. Research costs are expensed as incurred. Development expenditures on an individual project are recognized as an intangible asset if, and only if, the capitalization criteria are met. We have entered into agreements under which third parties grant licenses to us. If those licenses grant access to technologies, both parties jointly perform research or development activities and both are exposed to significant risks and rewards of the activities, costs incurred with the agreements are not treated differently from costs related to own product candidates. If the agreements grant us rights to use certain patents and technologies that meet the definition of an identifiable asset, they are treated as acquired intangible assets. Based on our assessment we have concluded that, due to the inherent risk of failure in pharmaceutical development and the uncertainty of approval, these

criteria are regularly not met before regulatory approval is achieved. The related expenditure is reflected in the consolidated statements of profit or loss in the period in which the expenditure is incurred. Sales-based milestone or royalty payments incurred under license agreements relating to self-developed intangibles after the approval date of the respective pharmaceutical product are recognized as expenses as incurred. Prior to initial regulatory approval, costs relating to production of pre-launch products which do not fulfill capitalization criteria are expensed as research and development expenses in the period incurred.

Share-Based Payments

Determining the fair value of share-based payment transactions requires the most appropriate valuation for the specific program, which depends on the underlying terms and conditions. We used valuation models like a binomial or Monte-Carlo simulation model for the measurement of the cash- and equity-settled transactions' fair value considering certain assumption relating to, *e.g.*, the volatility of stock price, the determination of an appropriate risk-free interest rate, expected dividends and the probability of reaching a minimum hurdle to exercise the relevant options. For awards which were granted prior to the initial public offering, at a time where no quoted market prices existed, the valuation model assumptions included the option's underlying share price. For awards which were granted post the initial public offering, the grant date's share prices on the Nasdaq Global Select Market were included in the valuation.

A retention assumption is applied when estimating the number of equity instruments for which service conditions are expected to be satisfied and will be revised in case material differences arise. Ultimately, a true-up to the number satisfied until settlement date will be recorded.

For further disclosures relating to share-based payments, see Note 16.

Embedded Derivatives

Defining the fair value of the embedded derivative which was bifurcated from the convertible note, as host contract, requires significant judgment. We used the Cox-Rubinstein binomial tree model when determining the fair value of the conversion right, the embedded derivative which was bifurcated from the convertible note, as host contract. The primary inputs used in the model include stock price volatility, credit spreads, risk-free interest rate and foreign exchange forward rates. Stock price volatility is based on our implied volatility, credit risk is model implied and adjusted for movement in credit spreads for B-rated corporates at each valuation date, the risk-free interest rate is based on currency specific time congruent IBOR and swap rates whereas the foreign exchange forward rates are based on observable market data.

For further disclosures relating to financial instruments, see Note 12.

Income Taxes

We are subject to income taxes in more than one tax jurisdiction. Due to the increasing complexity of tax laws and the corresponding uncertainty regarding the legal interpretation by the fiscal authorities, tax calculations are generally subject to an elevated amount of uncertainty. To the extent necessary, possible tax risks are taken into account in the form of provisions.

We do not recognize or impair deferred tax assets when it is unlikely that a corresponding amount of future taxable profit will be available against which the deductible temporary differences, tax loss carry forwards and tax credits can be utilized. When determining whether sufficient future taxable profit will be available against which the deductible temporary differences, tax loss carry forwards and tax credits can be utilized, significant management judgment is required. This includes management's assessment on the character and amounts of taxable future profits, the periods in which those profits are expected to occur, and the availability of tax planning opportunities. As a matter of policy, convincing evidence supporting the recognition of deferred tax assets is required if an entity has suffered a loss in either the current or the preceding periods.

Our management continued to determine that deferred tax assets on tax losses carried forward that relate to subsidiaries which have a loss making history cannot be recognized. This includes the assessment that those subsidiaries neither have any taxable temporary difference nor any tax planning opportunities available that could support the recognition of deferred tax assets.

For further disclosures relating to deferred taxes, see Note 8.

4 Group Information

Information about Subsidiaries

The consolidated financial statements include the following subsidiaries:

Name	Country of incorporation	Registered office	% equity interest December 31, 2022		% equity interest December 31, 2021	
BioNTech BioNTainer Holding GmbH	Germany	Mainz [2]	100	%		n/a[1]
BioNTech Cell & Gene Therapies GmbH	Germany	Mainz [2]	100	%	100	%
BioNTech Delivery Technologies GmbH	Germany	Halle [2]	100	%	100	%
BioNTech Diagnostics GmbH	Germany	Mainz [2]	100	%	100	%
BioNTech Europe GmbH	Germany	Mainz [2]	100	%	100	%
BioNTech Individualized mRNA Manufacturing GmbH i.G.	Germany	Mainz [2]	100	%		n/a[1]
BioNTech Innovation GmbH	Germany	Mainz [2]	100	%	100	%
BioNTech Innovative Manufacturing Services GmbH	Germany	Idar-Oberstein [2]	100	%	100	%
BioNTech Idar-Oberstein Services GmbH	Germany	Idar-Oberstein [2]	100	%		n/a[1]
BioNTech Manufacturing GmbH	Germany	Mainz [2]	100	%	100	%
BioNTech Manufacturing Marburg GmbH	Germany	Marburg [2]	100	%	100	%
BioNTech Innovation and Services Marburg GmbH	Germany	Marburg [2]	100	%	100	%
JPT Peptide Technologies GmbH	Germany	Berlin [2]	100	%	100	%
NT Security and Services GmbH	Germany	Mainz [2]	100	%		n/a[1]
reSano GmbH	Germany	Mainz [2]	100	%	100	%
BioNTech Real Estate Holding GmbH	Germany	Holzkirchen [2]	100	%	100	%
BioNTech Real Estate Verwaltungs GmbH	Germany	Holzkirchen [2]	100	%	100	%
BioNTech Real Estate GmbH & Co. KG	Germany	Holzkirchen [2]	100	%	100	%
BioNTech Real Estate An der Goldgrube GmbH & Co. KG	Germany	Holzkirchen [2]	100	%	100	%
BioNTech Real Estate Haus Vier GmbH & Co. KG	Germany	Holzkirchen [2]	100	%	100	%
BioNTech Real Estate Adam-Opel-Straße GmbH & Co. KG	Germany	Holzkirchen [2]	100	%	100	%
BioNTech Real Estate An der Goldgrube 12 GmbH & Co. KG	Germany	Holzkirchen [2]	100	%	100	%
BioNTech Australia Pty Ltd	Australia	Melbourne	100	%		n/a[1]
BioNTech R&D (Austria) GmbH	Austria	Vienna	100	%	100	%
BioNTech (Shanghai) Pharmaceuticals Co. Ltd.	China	Shanghai	100	%	100	%
BioNTech Rwanda Ltd.	Rwanda	Kigali	100	%		n/a[1]
BioNTech Pharmaceuticals Asia Pacific Pte. Ltd.	Singapore	Singapore	100	%	100	%
BioNTech Turkey Tıbbi Ürünler Ve Klinik Araştirma Ticaret Anonim Şirketi	Turkey	Istanbul	100	%	100	%
BioNTech UK Limited	United Kingdom	London (previously Reading)	100	%	100	%
BioNTech Research and Development, Inc.	United States	Cambridge	100	%	100	%
BioNTech USA Holding, LLC	United States	Cambridge	100	%	100	%
BioNTech US Inc.	United States	Cambridge	100	%	100	%
JPT Peptide Technologies Inc.	United States	Cambridge	100	%	100	%

[1] Has been incorporated during the year ended December 31, 2022.

[2] Subsidiary makes use of the exemption of Sections 264 para. 3 and 264b HGB for the 2022 financial year.

All entities listed above are included in our consolidated financial statements.

Parent Company

ATHOS KG, Holzkirchen, Germany is the sole shareholder of AT Impf GmbH, Munich, Germany, and beneficial owner of the following percentage of ordinary shares in BioNTech at the dates as indicated. ATHOS KG via AT Impf GmbH has de facto control over BioNTech based on its substantial shareholding, which practically enabled it to exercise the majority of voting rights to pass resolutions at our Annual General Meeting, or AGM.

			Ownership of ordinary shares in BioNTech (in %)	
Name	**Country of incorporation**	**Registered office**	**December 31, 2022**	**December 31, 2021**
AT Impf GmbH	Germany	Munich	43.42 %	43.75 %

Entity with significant Influence over the Group

Medine GmbH, Mainz, owned the following percentage of ordinary shares in BioNTech at the following dates as indicated:

			Ownership of ordinary shares in BioNTech (in %)	
Name	**Country of incorporation**	**Registered office**	**December 31, 2022**	**December 31, 2021**
Medine GmbH	Germany	Mainz	17.38 %	17.11 %

5 Business Combinations

Business Combinations during the year ended December 31, 2021

BioNTech R&D (Austria) GmbH, or BioNTech Austria (previously PhagoMed Biopharma GmbH)

On October 1, 2021, BioNTech Austria, an Austrian biotechnology company, specialized in the development of a new class of antibacterials, was fully acquired to expand our infectious disease portfolio capabilities.

The total consideration comprised an upfront consideration of €50.0 million (less acquired debt) of which €23.2 million are considered remuneration and will be recognized as personnel expense over a three-year period in which services are to be provided. An additional consideration of maximum €100.0 million is dependent the achievement of certain clinical development milestones. At the acquisition date, the contingent consideration was recognized with its fair value of €5.5 million and is presented as non-current financial liabilities in the consolidated statements of financial position (see Note 12).

The final fair values and values in accordance with IFRS 3 of the identifiable net assets of BioNTech Austria as of the date of acquisition were as follows:

(in millions)	**Fair value recognized on acquisition** BioNTech R&D (Austria) GmbH
Assets	
Intangible assets	€43.3
Other non-financial assets non-current and current	1.5
Total assets	**€44.8**
Liabilities	
Other non-financial liabilities non-current and current	15.4
Total liabilities	**€15.4**
Total identifiable net assets at fair value	**€29.4**
Bargain purchase	(2.2)
Consideration transferred	**€27.2**
Consideration	
Cash paid	21.7
Contingent consideration liability	5.5
Total consideration	**€27.2**

(in millions)	BioNTech R&D (Austria) GmbH
Transaction costs of the acquisition (included in cash flows from operating activities)	€(0.5)
Net cash acquired (included in cash flows used in investing)	0.9
Cash paid (included in cash flow used in investing activities)	(21.7)
Net cash flow on acquisition	**€(21.3)**

The intangible assets comprise a pre-clinical candidate, PM-477 as well as a platform.

A bargain purchase of €2.2 million was recognized in other operating income.

The consolidated statements of profit or loss include the results of BioNTech Austria since the acquisition date. From the date of acquisition through December 31, 2021, BioNTech Austria did not have any significant impact on the operating income or the revenues of the Group. The same applies if the transaction had occurred at the beginning of the reporting period.

6 Revenues from Contracts with Customers

6.1 Disaggregated Revenue Information

Set out below is the disaggregation of the Group's revenues from contracts with customers:

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Commercial revenues	**€17,194.6**	**€18,874.0**	**€303.5**
COVID-19 vaccine revenues	17,145.2	18,806.8	270.5
Sales to collaboration partners[1)]	*1,224.3*	*970.9*	*61.4*
Direct product sales to customers	*3,184.7*	*3,007.2*	*20.6*
Share of collaboration partners' gross profit and sales milestones	*12,736.2*	*14,828.7*	*188.5*
Other sales	49.4	67.2	33.0
Research & development revenues from collaborations	**116.0**	**102.7**	**178.8**
Total	**€17,310.6**	**€18,976.7**	**€482.3**

1) Represents sales to our collaboration partners of products manufactured by us and reflects manufacturing costs and variances to the extent identified.

During the year ended December 31, 2022, revenues recognized from Pfizer Inc., or Pfizer (€13,795.8 million) and the German Federal Ministry of Health (€3,020.5 million), each account for more than 10% of total revenues. During the year ended December 31, 2021, revenues recognized from Pfizer (€15,500.0 million) and the German Federal Ministry of Health (€1,945.6 million) account for more than 10% of total revenues. During the year ended December 31, 2020, revenues recognized from Genentech (€49.2 million) and Pfizer (€371.5 million), accounted for more than 10% of total revenues. During the year ended December 31, 2022, based on the geographic region in which our customers and collaboration partners are located we mainly recognized revenues in the United States (€12,709.7 million) and Germany (€3,031.0 million). During the year ended December 31, 2021, the main geographic regions were United States (€14,636.5 million), Germany (€2,241.9 million) and Belgium (€675.0 million). During the year ended December 31, 2020, the main geographic regions were United States (€381.9 million) and Belgium (€56.2 million).

Commercial Revenues

During the year ended December 31, 2022, commercial revenues were recognized from the supply and sales of our COVID-19 vaccine worldwide. We are the marketing authorization holder in the United States, the European Union, the United Kingdom, Canada and other countries, and holder of emergency use authorizations or equivalents in the United States (jointly with Pfizer) and other countries, submissions to pursue regulatory approvals in those countries where emergency use authorizations or equivalent were initially granted are ongoing. Pfizer has marketing and distribution rights worldwide with the exception of China, Germany and Turkey. Shanghai Fosun Pharmaceutical (Group) Co., Ltd, or Fosun Pharma has marketing and distribution rights in China, Hong Kong special administrative region, or SAR, Macau SAR and the region of Taiwan. The allocation of marketing and distribution rights defines territories in which the collaboration partners act as a principal.

Sales to Collaboration Partners

Sales to collaboration partners represent sales of products manufactured by us to collaboration partners. Whenever responsibilities in the manufacturing and supply process of the COVID-19 vaccine shift and the COVID-19 vaccine is transferred, the vaccine is sold from one partner to the other. Under the collaboration with Pfizer, from time to time, those sales are significantly influenced by amounts due to write-offs of inventories as well as costs related to production capacities derived from contracts with Contract Manufacturing Organizations (CMOs) that became redundant. Those costs represent accrued manufacturing variances and are charged to our partner once finally materialized. These manufacturing variances are reflected as transfer price adjustment once identified and assessed highly probable. Sales to collaboration partners during the years ended December 31, 2022, 2021 and 2020, amounted to €1,224.3 million, €970.9 million and €61.4 million, respectively. During the years ended December 31, 2022, and 2021 those sales included €850.0 million and

€31.0 million, respectively, related to the aforementioned manufacturing variances. (Nil with respect to sales during the year ended December 31, 2020).

Direct Product Sales to Customers

By supplying our territories during the years ended December 31, 2022, 2021 and 2020, we recognized €3,184.7 million, €3,007.2 million and €20.6 million of revenues, respectively, from direct COVID-19 vaccine sales in Germany and Turkey. The share of gross profit that we owe our collaboration partner Pfizer based on our sales is recognized as cost of sales.

Share of Collaboration Partners' Gross Profit and Sales Milestones

Based on COVID-19 vaccine sales in the collaboration partners' territories, we are eligible to receive a share of their gross profit, which represents a net figure and is recognized as collaboration revenue during the commercial phase, together with sales milestones that are recorded once the underlying thresholds are met. When determining the gross profit, manufacturing cost variances either reflected as transfer price adjustment as described above, or resulting from costs highly probable to be incurred by the partner were considered. During the year ended December 31, 2022, €12,736.2 million gross profit share has been recognized as revenues. During the year ended December 31, 2021 €14,352.1 million gross profit share and €476.6 million of sales milestones have been recognized as revenues. During the year ended December 31, 2020, we recognized €188.5 million gross profit share has been recognized as revenues.

Research and Development Revenues from Collaborations

During the year ended December 31, 2022, research and development revenues were mainly derived from our collaborations with Pfizer, Genentech Inc., or Genentech, and Sanofi S.A, or Sanofi. This includes revenues derived from our new research, development and commercialization collaboration with Pfizer to develop a potential first mRNA-based vaccine for the prevention of shingles (herpes zoster virus, or HZV) which we entered during the year ended December 31, 2022.

During the year ended December 31, 2021, research and development revenues were mainly derived from our collaborations with Genentech and Pfizer.

During the year ended December 31, 2020, research and development revenues were mainly derived from our collaborations with Pfizer and Genentech.

The revenues from contracts with customers disclosed above were recognized as follows:

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Timing of revenue recognition			
Goods and services transferred at a point in time	€4,447.2	€4,034.3	€108.8
Goods and services transferred over time	127.2	113.7	185.0
Revenue recognition applying the sales-based or usage-based royalty recognition constraint model[(1)]	12,736.2	14,828.7	188.5
Total	**€17,310.6**	**€18,976.7**	**€482.3**

(1) Represents sales based on the share of the collaboration partners' gross profit and sales milestones.

6.2 Contract Balances

(in millions)	**December 31, 2022**	**December 31, 2021**
Trade and other receivables	€7,145.6	€12,381.7
Contract liabilities	125.5	195.1
Refund liabilities	24.4	90.0

Trade and other receivables significantly decreased from €12,381.7 million to €7,145.6 million and predominantly comprise trade receivables from our COVID-19 collaboration with Pfizer as well as our direct product sales to customers in our territory. The contractual settlement of the gross profit share has a temporal offset of more than one calendar quarter. As Pfizer's fiscal quarter for subsidiaries outside the United States differs from ours, it creates an additional time lag between the recognition of revenues and the payment receipt. Consequently, as of December 31, 2022, our trade receivables included, in addition to the profit share for the fourth quarter of 2022, trade receivables which related to the gross profit share for the third quarter of 2022. The payment settling our gross profit share for the third quarter of 2022 (as defined by the contract) in the amount of €1,816.5 million was received from our collaboration partner subsequent to the end of the reporting period as of January 12, 2023.

Contract liabilities mainly include upfront fees received from our major collaboration and license agreements as well as advance payments received for future COVID-19 vaccine sales and other sales. The contract liabilities from collaboration and commercial supply agreements as of December 31, 2022, comprise €65.7 million remaining upfront fees from collaboration agreements, and €56.3 million of advance payments for future COVID-19 vaccine sales (as of December 31, 2021: €61.9 million of remaining upfront fees from collaborations as well as €131.9 million of advance payments for future COVID-19 vaccine sales).

During the year ended December 31, 2022, the contract liabilities changed as revenues were recognized from contract liabilities outstanding at the beginning of the year by progressing our research and development collaboration agreements as well as partially reclassified into refund liabilities (during the year ended December 31, 2021: decrease in contract liabilities by fulfilling commercial performance obligations and progressing our research and development collaboration agreements).

The refund liabilities relate to our collaboration partner and represent consideration which has been received but which will need to be refunded to the collaboration partner.

Set out below is the amount of revenue recognized for the periods indicated:

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Amounts included in contract liabilities at the beginning of the year	€63.1	€73.7	€58.9

6.3 Performance Obligations

The contract liabilities allocated to the remaining performance obligations from collaboration or commercial supply agreements (unsatisfied or partially unsatisfied) as of year-end are as follows:

(in millions)	**December 31, 2022**	**December 31, 2021**
Within one year	€77.1	€186.1
More than one year	48.4	9.0
Total	**€125.5**	**€195.1**

7 Income and Expenses

7.1 Costs of Sales

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Cost of sales related to COVID-19 vaccine revenues	€2,960.1	€2,855.6	€35.6
Cost related to other sales	34.9	55.9	23.7
Total	**€2,995.0**	**€2,911.5**	**€59.3**

During the year ended December 31, 2022, cost of sales increased compared to the year ended December 31, 2021, mainly due to recognizing cost of sales from our COVID-19 vaccine sales, which included the share of gross profit that we owe our collaboration partner Pfizer based on our sales. In addition, cost of sales was impacted by expenses arising from inventory write-offs and expenses for production capacities derived from contracts with Contract Manufacturing Organizations, or CMOs, that became redundant. The effects were driven by the introduction of a new COVID-19 vaccine formulation, the switch from the monovalent vaccine to our Omicron-adapted bivalent COVID-19 vaccines and due to accelerating internal manufacturing capacities during the year ended December 31, 2022.

During the year ended December 31, 2021, cost of sales increased compared to the year ended December 31, 2020, mainly due to recognizing cost of sales from our COVID-19 vaccine sales, which included the share of gross profit that we owe our collaboration partner Pfizer based on our sales.

7.2 Research and Development Expenses

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Purchased services	€621.6	€572.6	€359.9
Wages, benefits and social security expense	385.9	233.1	126.3
Laboratory supplies	398.0	53.8	107.8
Depreciation and amortization	49.3	32.9	30.2
Other	82.2	56.8	20.8
Total	**€1,537.0**	**€949.2**	**€645.0**

During the year ended December 31, 2022, research and development expenses increased compared to the year ended December 31, 2021, mainly due to expenses in connection with the development and production of our Omicron-adapted bivalent COVID-19 vaccines and from progressing the clinical studies for our pipeline candidates. The increase was further driven by an increase in wages, benefits and social security expenses resulting from an increase in headcount as well as expenses incurred under our share-based-payment arrangements.

During the year ended December 31, 2021, research and development expenses increased compared to the year ended December 31, 2020, mainly due to increased research and development expenses from the BNT162 clinical trials launched and conducted in the year ended December 31, 2021, recorded as purchased services with respect to those expenses, which are initially incurred by Pfizer and subsequently charged to us under the collaboration agreement. The increase was further driven by an increase in wages, benefits and social security expenses resulting from an increase in headcount, recording expenses incurred under our share-based-payment arrangements as well as from recognizing inventor remuneration expenses.

7.3 Sales and Marketing Expenses

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Purchased services	€24.0	€26.5	€10.9
IT costs	11.2	5.0	0.2
Wages, benefits and social security expense	7.8	4.3	1.6
Other	16.5	14.6	1.8
Total	**€59.5**	**€50.4**	**€14.5**

During the year ended December 31, 2022, sales and marketing expenses increased compared to the year ended December 31, 2021, mainly due to increased expenses for IT consulting and an increase in wages, benefits and social security expenses resulting from an increase in headcount.

During the year ended December 31, 2021, sales and marketing expenses increased compared to the year ended December 31, 2020, mainly due to an increase in purchased service which we incurred in connection with our COVID-19 vaccine commercial activities.

7.4 General and Administrative Expenses

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Wages, benefits and social security expense	€145.9	€90.5	€33.0
Purchased services	143.9	70.2	26.0
IT and office equipment	88.1	25.1	7.4
Insurance premiums	21.3	30.4	4.8
Other	85.5	69.6	22.8
Total	**€484.7**	**€285.8**	**€94.0**

During the year ended December 31, 2022, general and administrative expenses increased compared to the year ended December 31, 2021, mainly due to increased expenses for IT consulting and IT services, increased expenses for purchased management consulting and legal services as well as an increase in wages, benefits and social security expenses resulting mainly from an increase in headcount. Our business development transactions also contributed to the increase in general and administrative expenses.

During the year ended December 31, 2021, general and administrative expenses increased compared to the year ended December 31, 2020, mainly due to an increase in wages, benefits and social security expenses resulting from an increase in headcount and expenses incurred under the share-based payment arrangements, increased expenses for purchased management consulting and legal services as well as higher insurance premiums caused by increased business volume.

7.5 Other Operating Expenses

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Loss on derivative instruments at fair value through profit or loss	€385.5	€86.3	€—
Other	21.5	8.1	2.4
Total	**€407.0**	**€94.4**	**€2.4**

During the year ended December 31, 2022, the other expenses increased compared to the year ended December 31, 2021, mainly from recording the change in fair value of foreign exchange forward contracts that were entered into during the year ended December 31, 2022, to manage some of our transaction exposures but were not designated as hedging instruments under IFRS.

During the year ended December 31, 2021, the other operating expenses increased compared to the year ended December 31, 2020, mainly from recording the change in fair value of foreign exchange forward contracts.

7.6 Other Operating Income

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Foreign exchange differences, net	€727.4	€446.3	€—
Government grants	1.4	137.2	239.0
Gain on derivative instruments at fair value through profit or loss	—	5.7	—
Other	86.5	9.2	11.5
Total	**€815.3**	**€598.4**	**€250.5**

During the year ended December 31, 2022, the other income increased compared to the year ended December 31, 2021, which was mainly due from recognizing foreign exchange differences arising on operating items. The foreign exchange differences included in operating income primarily arose from valuing our U.S. dollar denominated trade receivables which were mainly incurred under our COVID-19 collaboration with Pfizer, U.S. dollar denominated trade payables as well as U.S. dollar denominated other financial liabilities which mainly relate to obligations incurred from our license agreements.

During the year ended December 31, 2021, the other income increased compared to the year ended December 31, 2020, which was mainly due from recognizing foreign exchange differences and government grant funding. The government grant funding mainly related to an initiative by the German Federal Ministry of Education (*Bundesministerium für Bildung und Forschung*, or the BMBF) to support our COVID-19 vaccine program, BNT162. During the year ended December 31, 2021, the final draw downs were made. The government funding from the BMBF amounted in total to €375.0 million during the years ended December 31, 2021, and 2020.

7.7 Finance Income

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Fair value adjustments of financial instruments measured at fair value	€216.8	€—	€—
Foreign exchange differences, net	65.0	66.2	—
Interest income	48.5	1.5	1.6
Total	**€330.3**	**€67.7**	**€1.6**

During the year ended December 31, 2022, the finance income increased compared to the year ended December 31, 2021, mainly due to final fair value measurement adjustments of the derivative embedded within the convertible note upon the early redemption of the convertible note as of March 1, 2022, the redemption date, as well as increased interest income from our bank deposits.

7.8 Finance Expenses

(in millions)	Years ended December 31, 2022	2021	2020
Interest expenses related to financial assets	€11.1	€2.5	€—
Interest expenses related to lease liabilities	5.1	2.9	2.0
Amortization of financial instruments	2.7	21.9	3.1
Fair value adjustments of financial instruments measured at fair value	—	277.8	17.3
Foreign exchange differences, net	—	—	42.6
Total	**€18.9**	**€305.1**	**€65.0**

During the year ended December 31, 2022, the finance expenses decreased compared to the year ended December 31, 2021, mainly due to final settlement of the derivative embedded within the convertible note which led to financial income whereas during the year ended December 31, 2021, expenses in the amount of €277.8 million were derived from the respective fair value measurement adjustment.

7.9 Employee Benefits Expense

(in millions)	Years ended December 31, 2022	2021	2020
Wages and salaries	€544.8	€345.9	€160.7
Social security costs	58.6	31.7	17.9
Pension costs	2.1	1.2	0.8
Total	**€605.5**	**€378.8**	**€179.4**

Wages and salaries include, among other things, expenses for share-based payments.

8 Income Tax

Income tax for the years ended December 31, 2022, December 31, 2021, and December 31, 2020, comprised current income taxes, other taxes and deferred taxes. We are subject to corporate taxes, the solidarity surcharge and trade taxes. Our corporate tax rate in the reporting year remained unchanged (15.0%) as did the solidarity surcharge (5.5%) whereas the average trade tax rate changed resulting in a combined income tax rate of 27.25% in the year ended December 31, 2022 (during the years ended December 31, 2021 and 2020: 30.72% and 30.79%, respectively). Deferred taxes are calculated at a rate of 27.2%. Deferred taxes for Austria are calculated at a corporate tax rate of 25.0%. Austria's decrease of its corporate tax rate down to 23.0% in 2024 will be recognized from 2023 onwards. BioNTech USA Holding, LLC is subject to Federal Corporate Income Tax (21.0%) as well as State Income Tax in various state jurisdictions (effective rate of 4.7%). The deferred tax rates calculations basis remained unchanged compared to the previous period.

The following table illustrates the current and deferred taxes for the periods indicated:

(in millions)	Years ended December 31, 2022	2021	2020
Current income taxes	€3,629.6	€4,535.0	€—
Deferred taxes	(109.9)	218.9	(161.0)
Income taxes	**€3,519.7**	**€4,753.9**	**€(161.0)**

The following table reconciles the expected income taxes to the actual current income taxes and deferred taxes as presented in the table above. The expected income taxes were calculated using the combined income tax rate of BioNTech

SE applicable to the Group and mentioned above which was applied to profit before taxes to calculate the expected income taxes.

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**[1]
Profit / (Loss) before tax	**€12,954.1**	**€15,046.4**	**€(145.8)**
Expected tax credit / (benefit)	€3,529.7	€4,622.5	€(44.9)
Effects			
Deviation due to local tax basis	8.9	9.1	0.6
Deviation due to deviating income tax rate (Germany and foreign countries)	7.3	9.4	1.3
Change in valuation allowance	30.6	3.0	(26.2)
Effects from tax losses	23.2	19.5	(90.4)
Change in deferred taxes due to tax rate change	(2.3)	(7.5)	—
Non-deductible expenses	2.5	90.5	0.8
Non tax-effective income	(87.9)	(0.3)	—
Non tax-effective share-based payment expenses	8.7	15.5	9.8
Tax-effective equity transaction costs	—	(1.2)	(10.2)
Adjustment prior year taxes	(31.5)	(2.9)	0.3
Non-tax effective bargain purchase	—	(0.7)	(2.2)
Other effects	30.5	(3.0)	0.1
Income taxes	**€3,519.7**	**€4,753.9**	**€(161.0)**
Effective tax rate	**27.2%**	**31.6%**	**n.m.**[2]

[1] Certain amounts have been combined in the prior period to conform with the current period presentation.

[2] The information is not meaningful due to the loss before tax in the respective period.

The non-tax effective income of €87.9 million mainly contained the finance income effect of the final fair value measurement adjustments of the derivative embedded within the convertible note upon the early redemption of the convertible note as of March 1, 2022.

On November 15, 2018, we established a share option program pursuant to which we were permitted to grant selected employees and our Management Board options to receive shares in the Company. The program is designed as an Employee Stock Ownership Plan, or ESOP. We offered the participants a certain number of rights, or option rights, subject to their explicit acceptance. Grants under the ESOP took place from November 2018 until December 2019. An exercise of option rights in accordance with the terms of the ESOP gives a participant the right to obtain shares against payment of the exercise price. By way of an updated decision of the Supervisory Board at the end of September 2022 compared to the initial settlement mechanism, an ESOP settlement may be made by delivery to the participant of such number of ADSs equal to the net value of the exercised option rights after deduction of (i) the exercise price and (ii) the applicable wage taxes (including solidarity surcharge thereon and church tax, if applicable) and social security contributions resulting from such exercise. The respective number of ADS shall be settled with ADS acquired in the course of the share repurchase program. The applicable wage taxes (including solidarity surcharge thereon and church tax, if applicable) and social security contributions resulting from such exercise are paid in cash directly to the respective authorities. Tax expenses on the settlement are only recognized once the option rights have been exercised. After considering the settlement in the three months ended December 31, 2022, a deferred tax asset remained in our consolidated statement of financial position of €33.4 million which relates to future settlements. As the current tax effect resulting from the settlement exceeded the amount of the related cumulative remuneration expense, the current tax associated with the excess was directly recognized in equity in the amount of €368.8 million.

The settlement mechanism of the LTI-plus program (see Note 16.1 for plan details) in the course of the three months ended December 31, 2022, led to a decrease in payable income taxes in the amount of €14.0 million. Thereof current income taxes in the total amount of €8.7 million were recognized in our consolidated financial statements of profit or loss to the extent expenses have been recognized with an effect of profit and loss in the past. As the current tax effect resulting from the settlement exceeded the amount of the related cumulative remuneration expense, the current tax associated with the excess was directly recognized in equity in the amount of €5.3 million.

The current actual tax savings associated with the excess were directly recognized in equity in a total amount of €374.1 million. Considering these tax amounts directly recognized in equity when calculating an effective tax rate, the tax rate would be decreased by about three percentage points.

Taxes

Deferred taxes for the periods indicated relate to the following:

Year ended December 31, 2022

(in millions)	**January 1, 2022**	**Recognized in P&L**	**Recognized in OCI**	**Recognized directly in equity**	**December 31, 2022**
Fixed assets	€(6.5)	€22.3	€—	€—	€15.8
Right-of-use assets	(47.5)	(8.3)	—	—	(55.8)
Inventories	1.8	147.1	—	—	148.9
Trade and other receivables	(95.6)	(67.1)	—	—	(162.7)
Contract liabilities	10.6	(20.6)	—	—	(10.0)
Lease liabilities, loans and borrowings	71.8	(9.0)	—	—	62.8
Net employee defined benefit liabilities	0.9	(0.5)	0.3	—	0.7
Share-based payments	—	8.5	—	179.9	188.4
Other provisions	6.3	4.7	—	—	11.0
Other (incl. deferred expenses)	1.6	59.9	—	—	61.5
Tax losses / tax credits	70.9	28.6	—	—	99.5
Deferred tax assets net (before valuation adjustment)	**€14.3**	**€165.6**	**€0.3**	**€179.9**	**€360.1**
Valuation adjustment	(81.0)	(55.7)	—	—	(136.7)
Deferred tax assets / (liabilities), net (after valuation adjustment)	**€(66.7)**	**€109.9**	**€0.3**	**€179.9**	**€223.4**
Thereof deferred tax assets	**€—**	**€58.9**	**€—**	**€179.9**	**€238.8**
Thereof deferred tax liability	**€(66.7)**	**€60.2**	**€0.3**	**€—**	**€(6.2)**

Year ended December 31, 2021

(in millions)	January 1, 2021	Recognized in P&L	Recognized in OCI	Acquisition of subsidiaries and businesses	December 31, 2021
Fixed assets	€5.6	€(1.3)	€—	€(10.8)	€(6.5)
Right-of-use assets	(30.0)	(17.5)	—	—	(47.5)
Inventories	1.0	0.8	—	—	1.8
Trade and other receivables	(3.0)	(92.6)	—	—	(95.6)
Lease liabilities	—	—	—	—	—
Lease liabilities, loans and borrowings	25.9	45.9	—	—	71.8
Contract liabilities	23.4	(12.8)	—	—	10.6
Net employee defined benefit liabilities	0.8	0.1	—	—	0.9
Other provisions	1.5	4.8	—	—	6.3
Other (incl. deferred expenses)	10.6	(9.0)	—	—	1.6
Tax losses / tax credits	175.7	(106.8)	—	2.0	70.9
Deferred tax assets net (before valuation adjustment)	**€211.5**	**€(188.4)**	**€—**	**€(8.8)**	**€14.3**
Valuation adjustment	(50.5)	(30.5)	—	—	(81.0)
Deferred tax assets / (liabilities), net (after valuation adjustment)	**€161.0**	**€(218.9)**	**€—**	**€(8.8)**	**€(66.7)**

As of December 31, 2022, our accumulated tax losses comprised tax losses of German entities not within the tax group (as of December 31, 2022: BioNTech BioNTainer Holding GmbH and BioNTech Idar-Oberstein Services GmbH, NT Security and Services GmbH, BioNTech Real Estate Verwaltungs GmbH and the Real Estate partnerships; as of December 31, 2021: BioNTech Innovation and Services Marburg GmbH, BioNTech Innovation GmbH, BioNTech Real Estate Verwaltungs GmbH and the Real Estate partnerships) and U.S. tax group. Up until the year ended December 31, 2021, our accumulated tax losses also comprised those of the German tax group. Our accumulated tax losses for the periods indicated amounted to the following:

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Corporate tax	€352.3	€272.0	€596.4
Trade tax	204.1	170.6	513.6

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Federal tax credits	€10.5	€4.0	€0.8
State tax credits	4.1	1.6	0.3

Up until the year ended December 31, 2022, deferred tax assets on tax losses had not been recognized, as there was not sufficient probability in terms of IAS 12 that there would have been future taxable profits available against which the unused tax losses could have been utilized.

During the year ended December 31, 2021, deferred tax assets on tax losses which had been recognized for the losses incurred by the German tax group were fully utilized (as per the end of each quarter during the year ended December 31, 2021, a proportionate amount of the deferred tax assets related to the tax loss carryforward was utilized). The change in deferred taxes was also supplemented by deferred taxes on temporary differences.

Since December 2020, our COVID-19 vaccine has been fully approved, granted conditional marketing authorization, or approved or authorized for emergency or temporary use in over 100 countries and regions worldwide, which resulted in recognition of revenues from the commercial sale of pharmaceutical products for the first time. Therefore as of December 31, 2020, it was considered highly probable that taxable profits for the German tax group would be available against which the tax losses could be utilized. On this basis, we had recognized deferred tax assets and liabilities with a net amount of €161.0 million for the cumulative tax losses and temporary differences determined for the German tax group as of December 31, 2020.

The intended settlement mechanism of Option Rights of the Chief Executive Officer Grant (see Note 16.4 for plan details) led, based on IAS 12, to a deferred tax asset in the total amount of €153.6 million as of December 31, 2022. Thereof a deferred tax asset in the amount of €6.4 million is recognized as income taxes in our consolidated statements of profit or loss to the extent expenses have been recognized with an effect of profit and loss in the past. In accordance with IAS 12.68c, the remainder in the amount of €147.2 million is recognized directly in equity as other reserves in our consolidated statements of changes in stockholders' equity.

As of December 31, 2022, we have not recognized deferred tax assets for unused tax losses and temporary differences at amount of €136.7 million (December 31, 2021: €81.0 million December 31, 2020 €50.5 million) as there is not sufficient probability in terms of IAS 12 that there will be future taxable income available against which the unused tax losses and temporary differences can be utilized.

These amounts included tax losses at an amount of €304.0 million U.S. federal tax losses and €184.6 million US state tax losses (December 31, 2021: €238.1 million U.S. federal tax losses and €147.4 million U.S. state tax losses, December 31, 2020: €136.8 million U.S. federal tax losses and €60.9 million U.S. state tax losses) related to the US tax group, thereof €24.0 million U.S. federal losses and thereof €179.0 million U.S. state tax losses that begin to expire at various dates beginning in 2033. All other material unused tax losses and temporary differences can be carried forward indefinitely.

9 Earnings per Share

Basic earnings per share (EPS) is calculated by dividing the profit for the year attributable to ordinary equity holders of the parent by the weighted average number of ordinary shares outstanding during the year.

Diluted EPS is calculated by dividing the profit attributable to ordinary equity holders of the parent by the weighted average number of ordinary shares outstanding during the year plus the weighted average number of ordinary shares that would be issued on conversion of all the dilutive potential ordinary shares into ordinary shares.

The following table reflects the income and share data used in the basic and diluted EPS calculations:

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Profit attributable to ordinary equity holders of the parent for basic earnings	**€9,434.4**	**€10,292.5**	**€15.2**
Weighted average number of ordinary shares outstanding for basic EPS	**243.3**	**244.0**	**235.4**
Effects of dilution from share options	6.5	15.7	13.1
Weighted average number of ordinary shares outstanding adjusted for the effect of dilution	**249.8**	**259.7**	**248.5**
Earnings per share			
Basic profit for the period per share	€38.78	€42.18	€0.06
Diluted profit for the period per share	€37.77	€39.63	€0.06

10 Property, Plant and Equipment

(in millions) **Acquisition and production costs**	**Land and buildings**	**Equipment, tools and installations**	**Construction in progress and advance payments**	**Total**
As of January 1, 2021	€61.3	€142.4	€81.6	€285.3
Additions	20.0	44.3	63.2	127.5
Disposals	(0.8)	(15.1)	(1.7)	(17.6)
Reclassifications	23.1	25.8	(48.9)	—
Currency differences	0.5	0.7	0.1	1.3
Acquisition of subsidiaries and businesses	—	0.2	—	0.2
As of December 31, 2021	**€104.1**	**€198.3**	**€94.3**	**€396.7**
As of January 1, 2022	104.1	198.3	94.3	396.7
Additions	100.2	46.7	182.3	329.2
Disposals	—	(1.1)	(0.5)	(1.6)
Reclassifications	12.0	28.2	(40.2)	—
Currency differences	0.7	0.9	(0.4)	1.2
As of December 31, 2022	**€217.0**	**€273.0**	**€235.5**	**€725.5**

(in millions) **Cumulative depreciation and impairment charges**	**Land and buildings**	**Equipment, tools and installations**	**Construction in progress and advance payments**	**Total**
As of January 1, 2021	**€10.4**	**€47.9**	**€—**	**€58.3**
Depreciation	4.4	25.0	—	29.4
Disposals	(0.6)	(13.1)	—	(13.7)
Currency differences	—	0.2	—	0.2
As of December 31, 2021	**€14.2**	**€60.0**	**€—**	**€74.2**
As of January 1, 2022	14.2	60.0	—	74.2
Depreciation	7.8	34.6	—	42.4
Disposals	—	(0.4)	—	(0.4)
Currency differences	—	0.1	—	0.1
As of December 31, 2022	**€22.0**	**€94.3**	**€—**	**€116.3**

(in millions) **Carrying amount**	**Land and buildings**	**Equipment, tools and installations**	**Construction in progress and advance payments**	**Total**
As of December 31, 2021	**€89.9**	**€138.3**	**€94.3**	**€322.5**
As of December 31, 2022	**€195.0**	**€178.7**	**€235.5**	**€609.2**

11 Intangible Assets

(in millions) **Acquisition costs**	**Goodwill**	**Concessions, licenses, in-process R&D and similar rights**	**Advance payments**	**Total**
As of January 1, 2021	€53.7	€147.2	€6.0	€206.9
Additions	—	5.9	4.2	10.1
Disposals	—	(8.5)	(1.2)	(9.7)
Reclassifications	—	1.2	(1.2)	—
Currency differences	4.1	2.5	—	6.6
Acquisition of subsidiaries and businesses	—	43.3	—	43.3
As of December 31, 2021	**€57.8**	**€191.6**	**€7.8**	**€257.2**
As of January 1, 2022	57.8	191.6	7.8	257.2
Additions	—	22.8	11.4	34.2
Disposals	—	(0.1)	—	(0.1)
Reclassifications	—	6.1	(6.1)	—
Currency differences	3.4	1.9	—	5.3
As of December 31, 2022	**€61.2**	**€222.3**	**€13.1**	**€296.6**

(in millions) **Cumulative amortization and impairment charges**	**Goodwill**	**Concessions, licenses, in-process R&D and similar rights**	**Advance payments**	**Total**
As of January 1, 2021	**€—**	**€43.4**	**€—**	**€43.4**
Amortization	—	16.8	—	16.8
Disposals	—	(5.5)	—	(5.5)
Currency differences	—	0.1	—	0.1
As of December 31, 2021	**€—**	**€54.8**	**€—**	**€54.8**
As of January 1, 2022	**—**	54.8	—	54.8
Amortization	—	22.0	—	22.0
Disposals	—	(0.1)	—	(0.1)
Currency differences	—	0.2	—	0.2
As of December 31, 2022	**€—**	**€76.9**	**€—**	**€76.9**

(in millions) **Carrying amount**	**Goodwill**	**Concessions, licenses, in-process R&D and similar rights**	**Advance payments**	**Total**
As of December 31, 2021	**€57.8**	**€136.8**	**€7.8**	**€202.4**
As of December 31, 2022	**€61.2**	**€145.4**	**€13.1**	**€219.7**

Goodwill and Intangible Assets with Indefinite Useful Lives

	CGU Immunotherapies		External Product Sales of JPT		Total	
(in millions)	As of December 31, 2022	As of December 31, 2021	As of December 31, 2022	As of December 31, 2021	**As of December 31, 2022**	**As of December 31, 2021**
Goodwill	€60.7	€57.3	€0.5	€0.5	**€61.2**	**€57.8**

For the year ended December 31, 2022, we have total Goodwill of €61.2 million, which relates almost completely to the CGU immunotherapies. The CGU immunotherapies focus on the development of therapies to address a range of rare and infectious diseases and include our broad pipeline that includes mRNA-based immune activators, antigen-targeting T cells and antibodies, and defined immunomodulators of various immune cell mechanisms.

The recoverable amount of the CGU immunotherapies has been determined based on a fair value less cost of disposal (FVLCD) derived from our market capitalization as observable input parameter. As a result of the analysis, management did not identify an impairment for this CGU.

We concluded that no reasonable possible change of the recoverable amount would cause the carrying amount of the CGU Immunotherapies to exceed its recoverable amount.

Non-Current Assets by Region

As of December 31, 2022, non-current assets comprised €188.0 million intangible assets, property, plant and equipment, right-of-use assets and other assets of our subsidiaries incorporated in the United States (as of December 31, 2021: €139.7 million). The remaining non-current assets mainly relate to subsidiaries incorporated in Germany.

12 Financial Assets and Financial Liabilities

12.1 Capital Risk Management

Our capital management objectives are designed primarily to finance our growth strategy.

Our treasury committee reviews the total amount of cash on a regular basis. As part of this review, the committee considers the total cash and cash equivalents, the cash outflow, currency translation differences and refinancing activities. We monitor cash using a burn rate. The cash burn rate is defined as the average monthly net cash flow from operating and investing activities during a financial year.

(in millions)	December 31, 2022	December 31, 2021
Cash at banks and on hand	**€1,325.2**	**€1,092.7**
Cash equivalents	**12,549.9**	**600.0**
Bank deposits	9,401.0	600.0
Money market funds	3,148.9	—
Total	**€13,875.1**	**€1,692.7**

In general, the aim is to maximize the financial resources available for further research and development projects.

Since December 1, 2021, we have an investment and asset management policy in place that contains policies and processes for managing cash, which requires that our investment portfolio shall be maintained in a manner that minimizes risk of the invested capital. These risks include mainly credit risk and concentration risk. The portfolio must provide liquidity in a timely manner to accommodate operational and capital needs. The portfolio is managed efficiently by the Treasury department.

We are not subject to externally imposed capital requirements. Our capital management objectives were achieved in the reporting year.

12.2 Categories of Financial Instruments

Financial Assets: Financial Assets at Amortized Cost and at Fair Value through OCI and Profit or Loss

Set out below, is an overview of financial assets at amortized cost and at fair value through OCI and profit or loss, other than cash and cash equivalents, held by the Group as of the dates indicated:

Financial assets

(in millions)	December 31, 2022	December 31, 2021
Derivatives not designated as hedging instruments		
Foreign exchange forward contracts	€183.7	€5.7
Equity instruments designated at fair value through OCI		
Non-listed equity investments	57.1	19.5
Listed equity investments	20.0	—
Financial assets at amortized cost		
Trade and other receivables	7,145.6	12,381.7
Cash deposit with an original term of six months	—	375.2
Other financial assets	8.8	2.5
Total	**€7,415.2**	**€12,784.6**
Total current	7,335.0	12,763.3
Total non-current	80.2	21.3

Derivatives Not Designated as Hedging Instruments

Derivatives not designated as hedging instruments relate to foreign exchange forward contracts that were entered into during the years ended December 31, 2022, and 2021, to manage some of our foreign currency exposures. The foreign exchange forward contracts are measured at fair value through profit or loss and are intended to reduce the exposure to foreign currency risk resulting from trade receivables denominated in U.S. dollar.

Equity Instruments Designated at Fair Value through OCI

In January 2022, we acquired 13.0% of the shares (fully diluted as of closing) of Crescendo Biologics Ltd., a private, clinical-stage immuno-oncology company developing novel, targeted T-cell enhancing Humabody therapeutics headquartered in Cambridge, United Kingdom. The equity investment complements a collaboration to develop novel immunotherapies for the treatment of patients with cancer and other diseases.

In November 2022, we acquired 8.3% of the shares (fully diluted as of closing) leading to 7.1% of the voting rights, of Ryvu Therapeutics S.A., a listed clinical-stage drug discovery and development company focused on novel small-molecule therapies that address emerging targets in oncology headquartered in Krakow, Poland. The equity investment complements a multi-target research collaboration to develop multiple small molecule programs targeting immune modulation in cancer and potentially other disease areas.

In accordance with IFRS 9, we elected to present changes in fair value of these equity investments in OCI to avoid fluctuation to be disclosed in our consolidated financial statements of profit or loss.

In connection with the agreement announced in January 2023, under which we plan to acquire, subject to the satisfaction of customary closing conditions and certain regulatory approvals, all remaining shares of InstaDeep Ltd., or InstaDeep, a leading global technology company in the field of artificial intelligence ("AI") and machine learning. The fair value of our stake in InstaDeep which was initially acquired during the year ended December 31, 2021, was remeasured based on the preliminary estimate of the expected purchase price.

Since the acquisition date, no material gains and losses on our equity investments in Crescendo Biologics Ltd. and Ryvu Therapeutics S.A. have occurred.

Financial Assets at Amortized Cost

Trade and other receivables remained outstanding as of December 31, 2022, mainly due to the contractual settlement of the gross profit share under our COVID-19 collaboration with Pfizer as described in Note 6.2 as well as from our direct product sales to customers in our territory.

Financial Liabilities: Financial Liabilities at Amortized Cost and at Fair Value through Profit or Loss (including Loans and Borrowings and Other Financial Liabilities)

Set out below, is an overview of financial liabilities, other financial liabilities and trade payables held by the Group as of the dates indicated:

Lease liabilities, loans and borrowings

(in millions)	**December 31, 2022**	**December 31, 2021**
Lease liabilities	€210.1	€181.6
Convertible note – host contract[(1)]	—	99.7
Loans and borrowings	2.1	20.2
Total	**€212.2**	**€301.5**
Total current	36.0	129.9
Total non-current	176.2	171.6

(1) The convertible note was fully redeemed by exercising our early redemption option as of March 1, 2022, the redemption date.

Other financial liabilities

(in millions)	December 31, 2022	December 31, 2021
Derivatives not designated as hedging instruments		
Convertible note – embedded derivative[1]	€—	€308.7
Foreign exchange forward contracts	—	63.0
Financial liabilities at fair value through profit or loss		
Contingent consideration	6.1	6.1
Total financial liabilities at fair value	**€6.1**	**€377.8**
Trade payables and other financial liabilities at amortized cost, other than loans and borrowings		
Trade payables	204.1	160.0
Other financial liabilities	785.1	818.7
Total trade payables and other financial liabilities at amortized cost, other than loans and borrowings	**€989.2**	**€978.7**
Total other financial liabilities	**€995.3**	**€1,356.5**
Total current	989.2	1,350.4
Total non-current	6.1	6.1

[1] The convertible note was fully redeemed by exercising our early redemption option as of March 1, 2022, the redemption date.

Total financial liabilities

(in millions)	December 31, 2022	December 31, 2021
Lease liabilities, loans and borrowings	€212.2	€301.5
Other financial liabilities	995.3	1,356.5
Total	**€1,207.5**	**€1,658.0**
Total current	1,025.2	1,480.3
Total non-current	182.3	177.7

Loans and Borrowings

June 2020 Private Placement – Convertible Note

A fund associated with Temasek (Ellington Investments Pte. Ltd.), or Temasek, and another accredited investor participated in a private investment which we refer to as the June 2020 Private Placement. The private placement included an investment in a four-year mandatory convertible note and an investment in ordinary shares and closed as of August 28, 2020, following the satisfaction of customary closing conditions. The private placement included an investment in ordinary shares (see Note 15) and a €100.0 million investment in a four-year mandatory convertible note with a coupon of 4.5% per annum and a conversion premium of 20% above its reference price. As of closing, the convertible note had been classified as a financial liability according to IAS 32 because the conversion features of the note lead to a conversion into a variable number of shares and is measured at amortized cost since the fair value option was not applied. On initial recognition, the financial liability was measured at the present value of the contractually determined future cash flows discounted at the effective interest rate of 9.0%. The financial liability was subsequently measured at amortized cost by using the effective interest rate method, reflecting actual and revised estimated contractual cash flows until extinguished upon conversion. In February 2022, we gave notice to Temasek that we would exercise our early redemption option and fully redeemed the convertible note on March 1, 2022, the redemption date. As of the redemption date, the conversion features provided for in the contract initially identified as a combined embedded derivative were finally measured at fair value through profit and loss and recognized as finance income in our consolidated statements of profit or loss. During April 2022, the early redemption was fulfilled by issuing the number of our ordinary shares calculated pursuant to the early redemption

provisions of the convertible note (see Note 15), plus paying a fractional share and accrued but unpaid interest up to (but excluding) the redemption date.

Derivatives Not Designated as Hedging Instruments

Derivatives not designated as hedging instruments relate to foreign exchange forward contracts that were entered into during the years ended December 31, 2022, and 2021, to manage some of our foreign currency exposures. The foreign exchange forward contracts are measured at fair value through profit or loss and are intended to reduce the exposure to foreign currency risk resulting from trade receivables denominated in U.S. dollar.

Other Financial Liabilities at Amortized Cost

Other financial liabilities at amortized cost mainly include obligations derived from license agreements which are being incurred with respect to our COVID-19 vaccine sales in our and the collaboration partners' territories where we and our partners are using third party intellectual property. In addition, other financial liabilities at amortized cost comprise obligations from services received but not yet invoiced.

12.3 Fair Values

Fair values of cash and cash equivalents, trade receivables, trade payables and other current financial assets and liabilities approximated their carrying amounts as of December 31, 2022 and December 31, 2021, largely due to the short-term maturities of these instruments.

The fair values of financial instruments measured at fair value were reassessed on a quarterly basis. The money market funds, or MMFs, which are recognized as cash and cash equivalents, are valued using quoted prices on the valuation date in active markets (Level 1). The change in the derivative's fair value related to the equity investment of Pfizer (see Note 15) was derived from our share price development between contract signing and closing (Level 1). As described above, as of the redemption date, the fair value of the derivative embedded in our convertible note was finally assessed by applying the Cox-Ross-Rubinstein binomial tree model which is based on significant observable inputs (Level 2) and described in further detail in Note 15. The foreign exchange forward contracts are valued using valuation techniques, which employ the use of foreign exchange spot and forward rates (Level 2). The fair values of listed equity investments are measured based on the stock prices of the listed companies (Level 1). The fair values of non-listed equity investments are measured based on observable inputs, e.g., based on multiple analyses (Level 2). The initial fair value of contingent considerations determined at acquisition was based on cash flow projections (unobservable Level 3 input factors) and remained valid since no material changes of the underlying performance criteria have occurred.

12.4 Financial Instruments Risk Management Objectives and Policies

Our financial liabilities comprise lease liabilities, loans and borrowings, trade and other payables as well as hedging liabilities. The main purpose of these financial liabilities is to enable our operations. Our principal financial assets include mainly cash and trade receivables that derive directly from our operations.

We are exposed to market risk, credit risk and liquidity risk. Our Management Board oversees the management of these risks.

The treasury committee provides assurance to our Management Board that our financial risk activities are governed by appropriate policies and procedures and that financial risks are identified, measured and managed in accordance with our policies and risk objectives. The Management Board reviews and agrees policies for managing each of these risks, which are summarized below.

12.5 Market Risks

Market risks address the risks that the fair value or future cash flows of a financial instrument will fluctuate due to changes in market prices. Market risks comprise three types of risk: interest risks, foreign currency risks and other price risks. Financial instruments affected by market risks include financial assets like trade and other receivables, cash and cash equivalents as well as financial liabilities like trade payables and other financial liabilities. We do not consider interest risks as well as other price risks as material risks for us.

The sensitivity analysis in the following sections is related to the position as of December 31, 2022 and December 31, 2021.

There were no material changes in the way the risks were managed and valued during the years ended December 31, 2022, and 2021. Because of the significantly higher cash balances the market risk exposure on counterparty risk has increased.

Foreign Currency Risks

Foreign currency risks address the risks that the fair value or future cash flows of an exposure will fluctuate because of changes in foreign exchange rates. We are subject to currency risks, as our income and expenditures are denominated in Euro and the U.S. dollar. As such, we are exposed to exchange rate fluctuations between these currencies. Cash inflows denominated in U.S. dollar mainly result from generating proceeds under our collaboration agreements which significantly increased in the past year. Our commercial revenues are primarily collaboration revenues from earnings based on our partners' gross profit, which is shared under the respective collaboration agreements and represents payments we receive in U.S. dollar. Cash outflows dominated in U.S. dollar mainly result from amounts spent on research and development activities as well as expanding our global footprint further. Especially when funds are required in Euros, we are exposed to foreign currency exchange risks. With the aim of preserving capital, surplus liquidity is invested carefully for example into foreign currency investments. Exchange rate fluctuations can reduce the value of our financial positions. We limit the effects of the identified risks by means of a coordinated and consistently implemented risk strategy. Besides applying natural hedging relationships where possible, a matter of principle, foreign exchange forward contracts are concluded as instruments to mitigate foreign currency exchange risk associated with foreign currency-denominated payments. However, the foreign exchange forward contracts which we entered were not designated as hedging instruments under IFRS.

The carrying amount of the monetary assets and liabilities denominated in U.S. dollar at the dates indicated are as follows:

(in millions)	**December 31, 2022**	**December 31, 2021**
Cash and cash equivalents in U.S. dollar	€1,487.4	€436.2
Monetary assets in U.S. dollar	7,098.5	11,895.5
Monetary liabilities and provisions in U.S. dollar	1,527.8	656.7
Total	**€7,058.1**	**€11,675.0**

The following tables demonstrate the sensitivity to a reasonably possible change in U.S. dollar exchange rates or U.S. dollar forward rates, with all other variables held constant. The impact on our profit before tax is due to changes in the fair value of monetary assets and liabilities. The exposure to foreign currency changes for all other currencies is not material.

		1 € =	**Closing rate**		**Average rate**	
Currency	**Country**		**2022**	**2021**	**2022**	**2021**
U.S. dollar	United States		1.0666	1.1326	1.0530	1.1827

(in millions)	**Change in U.S. dollar rate**	**Effect on profit / (loss) before tax**	**Effect on pre-tax equity**
2022	+5 %	€(195.2)	€(191.5)
	-5 %	215.7	211.7
2021	+5 %	(329.5)	(328.5)
	-5 %	364.3	363.0

12.6 Credit Risk Management

Credit risks address the risks that a counterparty will not meet its obligations under a financial instrument or customer contract, leading to a financial loss. We are exposed to credit risks from our operating activities, including deposits with banks and financial institutions, foreign exchange transactions and trade and other receivables.

Trade and Other Receivables

Our exposure to credit risks of trade receivables is primarily related to transactions with corporate customers in the biopharma / biotech industry that operate in the United States or Germany as well as governments which are customers established in connection with fulfilling our commercial obligations in our territories as defined under our current COVID-19 collaboration agreements. An analysis of the aging of receivables and the creditworthiness of customers is used to evaluate this risk at each reporting date. We follow risk control procedures to assess the credit quality of our customers taking into account their financial position, past experience and other factors. The compliance with credit limits by corporate customers is regularly monitored by us.

As of December 31, 2022, the outstanding trade receivables were mainly due from our collaboration partner Pfizer. Besides well-established pharmaceutical companies and governmental institutions, to a smaller extent, our other customers are medical universities, other public institutions and peers in the biopharma industry, which all have very high credit ratings. Due to this customer portfolio, the credit risk on trade receivables is generally very low. We have not incurred bad debt expense and do not expect that this will change with respect to the trade receivables outstanding as of December 31, 2022.

Generally, if overdue by more than 90 days and not subject to enforcement activity, trade receivables are considered for write-offs. The maximum exposure to credit risk at the reporting date is the carrying value of each class of financial assets disclosed in Note 12.2. The expected credit risk on trade receivables and other financial assets derived from applying the simplified approach in calculating expected credit losses was estimated to be not material as of December 31, 2022, and December 31, 2021. We do not hold collateral as security.

Cash and Cash Equivalents as well as Cash Deposits with an Original Term of Three Months and MMFs

Credit risks from balances with banks and financial institutions are managed by our Treasury department in accordance with our investment and asset management policy.

Credit risk stemming from cash and cash equivalents, cash deposits with an original term of three months as well as from MMFs is very low due to its demand feature and the high credit rating of the respective banks.

The maximum exposure to credit risk for the components of the consolidated statements of financial position as of December 31, 2022, and December 31, 2021, are the carrying amounts as illustrated in Note 12.1 and Note 12.2.

12.7 Liquidity Risk

We plan to invest heavily in R&D as we make a strong drive to build out our global development organization and diversify our therapeutic area footprint. Additionally, we plan to enhance capabilities through complementary acquisitions, technologies, infrastructure and manufacturing. Our liquidity management ensures the availability of cash and cash equivalents, short term financial instruments for operational activities and further investments through appropriate budget planning. In addition, a sufficient level of cash and cash equivalents, which is managed centrally, is always maintained to finance the operational activities.

We monitor liquidity risks using a liquidity planning tool.

Ultimately, the responsibility for liquidity risk management lies with our Management Board, which has established an appropriate approach to managing short-, medium- and long-term financing and liquidity requirements. We manage liquidity risks by holding appropriate reserves, as well as by monitoring forecasted and actual cash flows and reconciling the maturity profiles of financial assets and liabilities.

Risk Concentration

Concentrations arise when the number of counterparties is small or when a larger number of counterparties is engaged in similar business activities, or activities in the same geographical region, or has economic features that would cause their ability to meet contractual obligations to be affected similarly by changes in economic, political or other conditions. Concentrations indicate the relative sensitivity of our performance to developments affecting a particular industry.

The maturity profile of our financial liabilities based on contractual undiscounted payments is summarized as follows:

Year ended December 31, 2022

(in millions)	Less than 1 year	1 to 5 years	More than 5 years	Total
Loans and borrowings	€—	€2.1	€—	**€2.1**
Trade and other payables	204.1	—	—	**204.1**
Lease liabilities	40.5	112.9	79.1	**232.5**
Contingent consideration	—	—	6.1	**6.1**
Other financial liabilities	785.1	—	—	**785.1**
Total	**€1,029.7**	**€115.0**	**€85.2**	**€1,229.9**

Year ended December 31, 2021

(in millions)	Less than 1 year	1 to 5 years	More than 5 years	Total
Loans and borrowings	€2.6	€11.5	€6.1	**€20.2**
Trade and other payables	160.0	—	—	**160.0**
Lease liabilities	31.3	89.1	88.9	**209.3**
Contingent consideration	—	—	6.1	**6.1**
Foreign exchange forward contracts	63.0	—	—	**63.0**
Other financial liabilities	818.7	—	—	**818.7**
Total	**€1,075.6**	**€100.6**	**€101.1**	**€1,277.3**

12.8 Changes in Liabilities Arising from Financing Activities

Year ended December 31, 2022

(in millions)	January 1, 2022	Cash flows	Acquisition of subsidiaries and businesses	Changes in fair value	New leases and disposals	Reclassification	Other	December 31, 2022
Current obligations under lease contracts	€27.9	€(41.1)	€—	€—	€14.8	€33.3	€1.1	**€36.0**
Non-current obligations under lease contracts	153.7	—	—	—	52.6	(33.3)	1.1	**174.1**
Loans and borrowings	119.9	(18.0)	—	—	—	—	(99.8)[(1)]	**2.1**
Convertible note – embedded derivative	308.7	—	—	—	—	—	(308.7)[(1)]	**—**
Total	**€610.2**	**€(59.1)**	**€—**	**€—**	**€67.4**	**€—**	**€(406.3)**	**€212.2**

(1) Related to the early redemption of our convertible note during the year ended December 31, 2022, as further described in Note 15.

Year ended December 31, 2021

(in millions)	January 1, 2021	Cash flows	Acquisition of subsidiaries and businesses	Changes in fair value	New leases and disposals	Reclassifi-cation	Other	December 31, 2021
Current obligations under lease contracts	€6.1	€(14.1)	€—	€—	€22.1	€13.4	€0.4	**€27.9**
Non-current obligations under lease contracts	78.1	—	—	—	87.7	(13.4)	1.3	**153.7**
Loans and borrowings	155.9	(52.6)	1.3	—	—	—	15.3	**119.9**
Convertible note – embedded derivative	30.9	—	—	277.8	—	—	—	**308.7**
Total	**€271.0**	**€(66.7)**	**€1.3**	**€277.8**	**€109.8**	**€—**	**€17.0**	**€610.2**

13 Inventories

(in millions)	December 31, 2022	December 31, 2021
Raw materials and supplies	€409.7	€248.3
Unfinished goods	21.0	84.5
Finished goods	8.9	169.7
Total	**€439.6**	**€502.5**

During the year ended December 31, 2022, inventory write-offs to net realizable value and reserves related to our COVID-19 vaccine amounting to €484.6 million were recognized in cost of sales due to the switch from the BNT162b2 vaccine to an Omicron-adapted bivalent vaccine and further raw materials reserves recognized with respect to our excess stock, compared to €194.6 million in the previous period. The inventories valued at net realizable value in our consolidated statements of financial position as of December 31, 2022, consider contractual compensation payments. We have not pledged any inventories as securities for liabilities. During the years ended December 31, 2022, and 2021, costs of inventories in the amount of €1,550.6 million and €1,255.1 million, respectively, were recognized as cost of sales.

14 Other Non-Financial Assets

(in millions)	December 31, 2022	December 31, 2021
Sales tax receivable	€93.8	€26.7
Deferred expenses	88.7	62.1
Prepayments related to CRO and CMO contracts	35.3	22.8
Prepayments related to service contracts	31.3	6.5
Other	29.3	9.7
Total	**€278.4**	**€127.8**
Total current	271.9	113.4
Total non-current	6.5	14.4

15 Issued Capital and Reserves

As of December 31, 2022, the number of shares outstanding was 243,215,169. This amount excludes 5,337,031 shares held in treasury. For the year ended December 31, 2021, the number of shares outstanding was 242,521,489, excluding 3,788,592 shares held in treasury.

Second Tranche Share Repurchase Program

In November 2022, our Management Board and Supervisory Board authorized the second tranche of our share repurchase program of ADSs, with a value of up to $0.5 billion, commencing on December 7, 2022.

Capital Transactions During the Year Ended December 31, 2022

In January 2022, we announced a new research, development and commercialization collaboration with Pfizer to develop a potential first mRNA-based vaccine for the prevention of shingles (herpes zoster virus, or HZV). In connection with this collaboration, Pfizer agreed to make an equity investment in us, acquiring 497,727 ordinary shares paying a total amount of €110.6 million. The issuance of 497,727 ordinary shares with the nominal amount of €0.5 million was registered with the commercial register (*Handelsregister*) on March 24, 2022. The equity investment which was issued in a foreign currency represents a derivative from the date of signing until the date of closing of the transaction. From the fair value measurement of this derivative, €43.0 million were recognized in finance income in our consolidated statements of profit or loss during the year ended December 31, 2022. At closing date, in February 2022, this derivative and the agreed investment amount were recognized in our capital reserve and, taking an increase in share capital of €0.5 million into account, led to a net increase of the capital reserve of €67.1 million in our consolidated statements of financial position.

In March 2022, we redeemed our convertible note by exercising our early redemption option (see Note 12), which was fulfilled in April 2022, by issuing 1,744,392 ordinary shares. The nominal amount of €1.8 million was recorded in share capital and, finally, as a result of the transaction, the capital reserve increased by €233.2 million in our consolidated statements of financial position. The declaratory registration with the commercial register (*Handelsregister*) was made on May 20, 2022.

In June 2022, at the Annual General Meeting, our shareholders approved the proposed special cash dividend of €2.00 per ordinary share (including those held in the form of ADSs), which led to an aggregate payment of €484.3 million.

In March 2022, our Management Board and Supervisory Board authorized a share repurchase program of ADSs, pursuant to which we may repurchase ADSs in the amount of up to $1.5 billion over the next two years. On May 2, 2022, the first tranche of our share repurchase program of ADSs, with a value of up to $1.0 billion, commenced. In November 2022, our Management Board and Supervisory Board authorized the second tranche of our share repurchase program of ADSs, with a value of up to $0.5 billion, commencing on December 7, 2022. During the year ended December 31, 2022, ADSs were repurchased at an average price of $143.98, for total consideration of $1.0 billion (€986.4 million).Repurchased ADSs were used to satisfy settlement obligations under our share-based payment arrangements.

In November and December 2022, the ESOP 2018 and LTI-plus awards were settled by transferring ordinary shares previously held in treasury to the entitled employees and Management Board members (see Note 16**)**.

Capital Transactions During the Year Ended December 31, 2021

In November 2020, we entered into a sales agreement, or the Sales Agreement, with Jefferies LLC and SVB Leerink LLC (now known as SVB Securities LLC), as sales agents, to establish an at-the-market offering program, pursuant to which we may sell, from time to time, ADSs representing ordinary shares for aggregate gross proceeds of up to $500.0 million. During the year ended December 31, 2021, we sold 995,890 ADSs, each representing one of our ordinary shares and previously held in treasury, under the Sales Agreement. During the year ended December 31, 2021, the aggregate gross proceeds were $200.0 million (€163.6 million). We did not sell any ADS during year ended December 31, 2022. As of December 31, 2022, the remaining capacity under the Sales Agreement is still $207.1 million. Under the at-the-market offering program ADSs are sold via the stock exchange and therefore no shareholders' subscription rights are affected. As a result of the transaction, treasury shares in the amount of €1.0 million were issued and the capital reserve increased by €162.6 million during the year ended December 31, 2021. Costs of €2.7 million related to the equity transaction were recorded in equity as deduction from the capital reserve.

16 Share-Based Payments

During the years ended December 31, 2022, 2021, and 2020, our share-based payment arrangements led to the following expenses:

		Years ended December 31,		
(in millions)	**Note**	**2022**	**2021**	**2020**
Expense arising from equity-settled share-based payment arrangements		€46.5	€61.0	€32.1
Employee Stock Ownership Plan	16.5	*13.8*	*20.2*	*17.1*
Chief Executive Officer Grant	16.4	*3.1*	*5.9*	*11.3*
Management Board Grant[(1)]	16.3	*4.3*	*2.4*	*2.7*
BioNTech 2020 Employee Equity Plan for Employees Based Outside North America	16.1	*25.3*	*32.5*	*1.0*
Expense arising from cash-settled share-based payment arrangements		61.5	32.7	0.7
Employee Stock Ownership Plan	16.5	*53.4*	*6.3*	—
Management Board Grant[(1)]	16.2, 16.3	—	*3.6*	*0.7*
BioNTech Restricted Stock Unit Plan for North America Employees	16.1	*8.1*	*22.8*	—
Total		**€108.0**	**€93.7**	**€32.8**
Cost of sales		3.0	7.0	1.1
Research and development expenses		84.6	60.5	24.9
Sales and marketing expenses		0.8	0.5	0.1
General and administrative expenses		19.6	25.7	6.7
Total		**€108.0**	**€93.7**	**€32.8**

(1) In May 2021 and 2022, phantom options were granted under the Management Board Grant for the years 2021 and 2022 which led to a modification from equity-settled to cash-settled share-based payment arrangement and a reclassification of €1.1 million and €3.3 million between equity and non-current other liabilities, respectively. Expenses incurred before and after the modification dates have been disclosed as equity-settled or cash-settled share-based payment arrangement, respectively. The amount includes expenses incurred with respect to a one-time signing bonus granted to Jens Holstein as of his appointment to the Management Board (see Note 20.2).

During the years ended December 31, 2022, 2021, and 2020, our share-based payment arrangements led to a cash outflow of €51.8 million, €13.4 million and nil million, respectively. We expect to settle equity-settled share-based payment arrangements under the Chief Executive Officer Grant (see Note 16.4) and under the Employee Stock Ownership Plan (see Note 16.5) on a net basis by delivering to the participant a number of ADSs equal to the net value of the exercised option rights after deduction of (i) the exercise price and (ii) the applicable wage taxes (including solidarity surcharge thereon and church tax, if applicable) and social security contributions resulting from such exercise. This reduces the dilutive impact of the respective rights. If all of the rights outstanding as of December 31, 2022, will be exercised accordingly, the cash outflow to the tax authority in 2023 would amount to approximately €360.0 million (based on the share price as of December 31, 2022).

16.1 BioNTech Employee Equity Plan

BioNTech 2020 Employee Equity Plan for Employees Based Outside North America (Equity-Settled)

Description of Share-Based Payments

In December 2020, we approved the BioNTech 2020 Employee Equity Plan for employees based outside North America, or the European Plan. Under the European Plan, Restricted Stock Units, or RSUs, are offered to our employees. As of the grant date in February 2021, the European Plan was implemented for the calendar year 2020 by entering into

award agreements with our employees under the LTI 2020 program. In addition, further award agreements were entered into under the LTI-plus program with employees who did not participate in the Employee Stock Ownership Plan, or ESOP. In January 2022 and December 2022, the European Plan was granted for the calendar years 2021 and 2022, the LTI 2021 and LTI 2022 program, respectively. RSUs issued under the LTI 2020, LTI 2021 and LTI 2022 programs vest annually in equal installments over respective waiting periods of four years commencing in December 2020, December 2021 and December 2022, respectively. RSUs issued under the LTI-plus program vested annually in equal installments over the waiting period of two years, which elapsed in December 2022. Hence, during the year ended December 31, 2022, the LTI-plus awards were settled by transferring shares previously held in treasury, see Note 15. All programs were classified as equity-settled as we have the ability to determine the method of settlement.

Measurement of Fair Values

The fair values of the awards issued under the European Plan were based upon the price of our ADSs representing ordinary shares at grant date.

Reconciliation of Outstanding Share-Options

	LTI-plus program	LTI 2020 program	LTI 2021 program	LTI 2022 program
As of January 1, 2021	396,938	252,766	—	—
Forfeited / Modified	(24,927)	(10,350)	—	—
Granted / Allocated	—	—	110,036	—
As of December 31, 2021	372,011	242,416	110,036	—
As of January 1, 2022	372,011	242,416	110,036	—
Forfeited / Modified	(7,932)	(7,111)	(5,428)	—
Granted / Allocated	—	—	—	396,110
Exercised[(1)]	(364,079)	—	—	—
As of December 31, 2022	**—**	**235,305**	**104,608**	**396,110**
thereof vested	—	*119,291*	*27,365*	—
thereof un-vested	—	*116,014*	*77,243*	*396,110*

(1) The closing price of an American Depositary Share of BioNTech on Nasdaq on December 15, 2022, the settlement date, converted from USD to Euro using the exchange rate published by the German Central Bank (*Deutsche Bundesbank)* on the same day was €171.40.

Inputs Used in Measurement of the Fair Values at Grant Dates

	LTI-plus program	LTI 2020 program	LTI 2021 program	LTI 2022 program
Weighted average fair value	87.60	92.21	203.22	165.03
Waiting period (in years)	2.0	4.0	4.0	4.0

BioNTech 2020 Restricted Stock Unit Plan for North America Employees (Cash-Settled)

Description of Share-Based Payments

In December 2020, we approved the BioNTech 2020 Restricted Stock Unit Plan for North America Employees, or the North American Plan. Under the North American Plan, RSUs are offered to our employees. These RSUs vest over four years, with 25% vesting one year after the service commencement date and the remainder vesting in equal quarterly installments thereafter. The first awards under the North American Plan were granted in February 2021. The service date for these awards is the date as of which the employee became employed by BioNTech US. During the years ended December 31, 2022, and 2021, further awards were granted under the North American Plan, which included awards granted to new hire employees and ongoing recurring awards to existing employees on the approximate anniversary of each employee's start date of employment with BioNTech US. As these RSUs are intended to be cash-settled upon vesting, the awards were defined as a cash-settled share-based payment arrangement. During the years ended December 31, 2022, 2021, and 2020, the exercise of RSUs resulted in a cash outflow of €9.4 million, €10.1 million and nil million, respectively.

As of December 31, 2022, the liability related to these awards amounted to €13.4 million (€13.0 million as of December 31, 2021).

16.2 Management Board Grant – Short-Term Incentive (Cash-Settled)

The service agreements with our Management Board provide for a short-term incentive compensation which is an annual performance-related bonus for the years of their respective service periods.

50% of those yearly awards are paid out one year after the achievement of the performance targets for the respective bonus year has been determined subject to an adjustment relative to the performance of the price of the American Depositary Shares representing our ordinary shares during that year (second installment). The second installments represent cash-settled share-based payment arrangements. The fair values of the liabilities are recognized over the awards' vesting periods beginning when entering or renewing service agreements, i.e., being the service commencement date, until each separate determination date and are remeasured until settlement date. As of December 31, 2022, the liability related to these awards amounted to €2.3 million (€1.0 million as of December 31, 2021).

16.3 Management Board Grant Long-Term Incentive (Partly Equity-Settled, Partly Cash-Settled)

Description of Share-Based Payments

The service agreements with our Management Board provide for long-term incentive compensation (Management Board Grant - LTI) through an annual grant of options to acquire BioNTech shares during their respective service periods. The options granted each year will be subject to the terms and conditions of the respective authorizations of the Annual General Meeting creating our Employee Stock Ownership Plan (ESOP) and the applicable option agreement thereunder.

The options will vest annually in equal installments over four years commencing on the first anniversary of the allocation date and will be exercisable four years after the allocation date. The vested options can only be exercised if each of the following performance criteria has been achieved: (i) at the time of exercise, the current price is equal to or greater than the threshold amount (that is, the exercise price, provided that such amount increases by seven percentage points on each anniversary of the allocation date); (ii) at the time of exercise, the current price is at least equal to the target price (that is, (a) for the twelve-month period starting on the fourth anniversary of the allocation date, $8.5 billion divided by the total number of the ordinary shares outstanding immediately following the initial public offering (other than ordinary shares owned by BioNTech), and (b) for each twelve-month period starting on the fifth or subsequent anniversary of the allocation date, 107% of the target share price applicable for the prior twelve-month period); and (iii) the closing price for the fifth trading day prior to the start of the relevant exercise window is higher than the exercise price by at least the same percentage by which the Nasdaq Biotechnology Index or a comparable successor index as of such time is higher than such index was as of the last trading day before the allocation date. Following the expiry of the waiting period, option rights may be exercised during the exercise windows as set out in the ESOP agreement. The option rights can be exercised up to ten years after the allocation date. If they have not been exercised by that date, they will be forfeited without compensation.

The right to receive options generally represents an equity-settled share-based payment arrangement. The allocation of the number of issued options in 2020 occurred in February 2020. In May 2021 and May 2022, phantom options equivalent to the number of options the Management Board members would have been entitled to receive for 2021 and 2022 were granted under the Management Board Grant which led to a modification from equity-settled to cash-settled share-based payment arrangement and a reclassification of €1.1 million and €3.3 million between equity and non-current other liabilities as of the respective allocation dates. As of December 31, 2022, the assessment of options expected to be allocated in future years was based on estimated allocation dates in the middle of the respective years.

Measurement of Fair Values

A Monte-Carlo simulation model has been used to measure the fair values at the (estimated) allocation dates of the Management Board Grant. This model incorporates the impact of the performance criteria regarding share price and index development described above. The parameters used for measuring the fair values as of the respective (estimated) allocation dates were as follows:

	Allocation date February 2020	Allocation date May 12, 2021[1]	Allocation date May 17, 2021[1]	Allocation date May 2022[1]
Weighted average fair value	€10.83	€54.51	€50.69	€65.99
Weighted average share price	€28.20	€ 174.51	€ 185.92	€153.16
Exercise price[2]	€28.32	€173.66	€175.16	€142.60
Expected volatility (%)	36.6%	46.5%	46.5%	44.4%
Expected life (years)	4.8	4.6	4.6	5.8
Risk-free interest rate (%)	1.6%	3.8%	3.8%	3.9%

(1) Classified as cash-settled share-based payment arrangement; all other share-based payment arrangements are classified as equity-settled.

(2) The share options allocated as of February 2020 and the phantom share options allocated as of May 2021 and 2022 are subject to an effective exercise price cap.

	Estimated allocation date 2023	Estimated allocation date 2024	Estimated allocation date 2025	Estimated allocation date 2026
Weighted average fair value[1]	€63.84	€57.06	€54.80	€49.70
Weighted average share price[1]	€140.84	€140.84	€140.84	€140.84
Exercise price[1]	€142.95	€148.51	€155.51	€161.62
Expected volatility (%)	43.1%	38.3%	38.2%	38.5%
Expected life (years)[1]	5.8	5.8	5.8	5.8
Risk-free interest rate (%)	3.9%	3.9%	3.9%	3.9%

(1) Valuation parameter for estimated allocation dates derived from the Monte-Carlo simulation model.

For the awards allocated as of February 2020, the exercise price for each option is $30.78 (€28.32), calculated using the foreign exchange rate published by the German Central Bank (*Deutsche Bundesbank*) as of the grant date. The share options allocated as of February 2020 are subject to an effective exercise price cap, which means that the exercise price shall be adjusted to ensure that the current price of an ADS as of the exercise date does not exceed 800% of the exercise price. Our Supervisory Board reserves the right to limit the economic benefit from the exercise of the options to extent the result from extraordinary events or developments. For the awards allocated as of May 12, 2021, May 17, 2021, and May 31, 2022 the exercise prices are $185.23 (€173.66), $186.83 (€175.16) and $152.10 (€142.60), respectively (all amounts calculated as of December 31, 2022, using the foreign exchange rate as published by the German Central Bank (*Deutsche Bundesbank*)). For the awards with estimated allocation dates, the exercise prices of options expected to be allocated have been derived from the Monte-Carlo simulation model. Those will be adjusted until the actual allocation has occurred and the exercise price has ultimately been determined. The phantom share options allocated as of May 2021 and 2022 are subject to the effective exercise price cap. In addition, the maximum compensation that the Management Board members are entitled to receive under those relevant agreements together with other compensation components received by each such board member in the respective grant year is capped at €20.0 million for Ugur Sahin as Chief Executive Officer (CEO) and €10.0 million for all other Management Board members. Expected volatility was based on an evaluation of the historical volatilities of comparable companies over the historical period commensurate with the expected option term. The expected term was based on general option holder behavior for employee options.

Reconciliation of Outstanding Share-Options

The (phantom) share options allocated and expected to be allocated to our Management Board as of December 31, 2022, are presented in the table below.

	Allocation date February 2020	Allocation date May 12, 2021[1]	Allocation date May 17, 2021[1]	Allocation date May 2022[1]
(Phantom) share options outstanding (expected to be allocated)	248,096	45,279	6,463	86,118
thereof allocated and vested but subject to performance and waiting requirements	*124,048*	*11,320*	*1,616*	—
thereof allocated and un-vested	*124,048*	*33,959*	*4,847*	*86,118*
Weighted average exercise price (€)	28.32	173.66	175.16	142.60

[1] Classified as cash-settled share-based payment arrangement; all other share-based payment arrangements are classified as equity-settled.

	Estimated allocation date 2023[1]	Estimated allocation date 2024[1]	Estimated allocation date 2025[1]	Estimated allocation date 2026[1]
(Phantom) share options outstanding (expected to be allocated)	97,436	93,785	63,251	48,705
Weighted average exercise price (€)	142.95	148.51	155.51	161.62

[1] Valuation parameter derived from the Monte-Carlo simulation model.

For the awards with estimated allocation dates, the numbers of options expected to be allocated have been derived from a Monte-Carlo simulation model. Those will be adjusted until the actual allocation has occurred and the number of options granted has ultimately been determined.

As of December 31, 2022, the share options allocated and expected to be allocated under our equity-settled share-based payment arrangements had a remaining weighted average expected life of 4.0 years (as of December 31, 2021: 3.6 years).

As of December 31, 2022, the liability related to the phantom option awards amounted to €5.6 million (€3.2 million as of December 31, 2021).

16.4 Chief Executive Officer Grant (Equity-Settled)

Description of Share-Based Payments

In September 2019, we granted Prof. Ugur Sahin, M.D., an option to purchase 4,374,963 of our ordinary shares, subject to Prof. Sahin's continuous employment with us. The options' exercise price per share is the Euro translation of the public offering price from our initial public offering, €13.60 ($15.00), which is subject to the effective exercise price cap and the maximum cap mechanism. Under the exercise price cap the exercise price shall be adjusted to ensure that the current price of an ADS as of the exercise date does not exceed 800% of the exercise price. Under the maximum cap mechanism the maximum economic benefit receivable in respect of any exercised option, is capped at $240.00. As a result, the effective exercise price will not increase above a Euro amount equivalent to $30.00. The options vest annually in equal installments after four years commencing on the first anniversary of the initial public offering and will be exercisable four years after the initial public offering. The vested option rights can only be exercised if and to the extent that each of the following performance criteria has been achieved: (i) at the time of exercise, the current price is equal to or greater than the threshold amount (that is, the exercise price, provided that such amount increases by seven percentage points on each anniversary of the allocation date); (ii) at the time of exercise, the current price is at least equal to the target price (that is, (a) for the twelve-month period starting on the fourth anniversary of the allocation date, $8.5 billion divided by the total number of the shares outstanding immediately following the initial public offering (other than shares owned by us), and (b) for each twelve-month period starting on the fifth or subsequent anniversary of the allocation date, 107% of the target share price applicable for the prior twelve-month period); and (iii) the closing price for the fifth trading day prior to the start of the relevant exercise window is higher than the exercise price by at least the same percentage by which the Nasdaq

Biotechnology Index or a comparable successor index as of such time is higher than such index was as of the last trading day before the allocation date. Following the expiry of the waiting period, option rights may be exercised during the exercise windows as defined by our ESOP. The option rights can be exercised up to ten years after the allocation date. If they have not been exercised by that date, they will be forfeited without compensation.

Measurement of Fair Values

A Monte-Carlo simulation model has been used to measure the fair value at the grant date of the Chief Executive Officer Grant. This model incorporates the impact of the performance criteria regarding share price and index development described above in the calculation of the award's fair value at grant the date. The inputs used in the measurement of the fair value at grant the date of the Chief Executive Officer Grant were as follows:

	Grant date October 9, 2019
Weighted average fair value	€5.63
Weighted average share price	€13.60
Exercise price	€13.60
Expected volatility (%)	41.4 %
Expected life (years)	5.4
Risk-free interest rate (%)	1.5%

Expected volatility was based on an evaluation of the historical volatilities of comparable companies over the historical period commensurate with the expected term. The expected term was based on general option holder behavior for employee options.

Reconciliation of Outstanding Share-Options

During the years ended December 31, 2022, and 2021, no further options were granted or forfeited. As of December 31, 2022, 75% of the options have vested but are subject to waiting requirements.

As of December 31, 2022, the share options outstanding had a remaining weighted average expected life of 2.1 years (as of December 31, 2021: 3.1 years).

16.5 Employee Stock Ownership Plan (Partly Equity-Settled, Partly Cash-Settled)

Description of Share-Based Payments

Based on an authorization of the general meeting on August 18, 2017, we established a share option program under which we granted selected employees options to receive our shares. The program is designed as an Employee Stock Ownership Plan, or ESOP. We offered the participants a certain number of rights by explicit acceptance by the participants. The exercise of the option rights in accordance with the agreement gives the participants the right to obtain shares against payment of the exercise price. With respect to the Management Board members, other than Ryan Richardson, who was not a Management Board member at the time the options were granted, the options are subject to the effective exercise price cap as well as the maximum cap mechanism. Under the exercise price cap the exercise price shall be adjusted to ensure that the current price of an ADS as of the exercise date does not exceed 800% of the exercise price. Under the maximum cap mechanism, the maximum economic benefit receivable in respect of any exercised option, is capped at $240. As a result, the effective exercise price will not increase above a Euro amount equivalent to $30.00. The option rights (other than Prof. Özlem Türeci's, M.D., and Ryan Richardson's options) generally fully vest after four years and can only be exercised if: (i) the waiting period of four years has elapsed; and (ii) at the time of exercise, the average closing price of the shares of the Company or the average closing price of the right or certificate to be converted into an amount per share on the previous ten trading days preceding the exercise of the option right exceeds the strike price by a minimum of 32%, with this percentage increasing by eight percentage points as of the fifth anniversary of the respective issue date and as of each subsequent anniversary date. Following the expiry of the waiting period, option rights may be exercised within a period of four weeks from the date of the Annual General Meeting or the publication of the annual financial statements, the semi-annual report or our most recent quarterly report or interim report (exercise windows). The option rights can be exercised up to eight years after the allocation date. If they have not been exercised by that date, they will be forfeited without compensation.

By way of a shareholders' resolution of the general meeting on August 19, 2019, the authorization to issue such option rights was amended such that, in order for the options to be exercisable, the average closing price of the Company's shares or the average closing price of the right or certificate to be converted into an amount per share on the ten trading days immediately preceding the exercise must exceed the strike price by a minimum of 28%, with this percentage increasing by seven percentage points as of the fifth anniversary of the issue date and as of each subsequent anniversary date. Also, in addition to the aforementioned requirements, the exercise is only possible if the share price (calculated by reference to the price of the ordinary share underlying the ADS) has performed similar to or better than the Nasdaq Biotechnology Index. The changes made do not affect option rights already issued.

Measurement of Fair Values

The fair value of the ESOP has been measured using a binomial model. Service conditions attached to the arrangement were not taken into account in measuring the fair value.

The share options can only be exercised by the grantee if the price of the share is equal or greater to the threshold amount as defined in the arrangement. Moreover, the option rights can only be exercised if the IPO has occurred. Both conditions have been incorporated into the fair value at the grant date.

The inputs used in the measurement of the fair values at the grant date of the ESOP were as follows:

	Grant date November 15, 2018	Grant dates between February 21 and April 3,	Grant dates between April 29 and May 31,	Grant date December 1, 2019
Weighted average fair value	€7.41	€6.93	€7.04	€9.49
Weighted average share price	€14.40	€15.72	€16.03	€19.84
Exercise price[(1)]	€10.14	€15.03	€15.39	€15.82
Expected volatility (%)	46.0%	46.0%	46.0%	46.0%
Expected life (years)	5.8	6.0	6.0	5.5
Risk-free interest rate (%)	0.1 %	0.1 %	0.1 %	0.1 %

(1) With respect to the Management Board members, other than Ryan Richardson who was not a Management Board member at the time the options were granted, the options are subject to the effective exercise price cap as well as the maximum cap mechanism.

Expected volatility has been based on an evaluation of the historical and the implied volatilities of comparable companies over the historical period commensurate with the expected term. The expected term has been based on general option holder behavior for employee options.

Reconciliation of Outstanding Share-Options (Equity-Settled)

Set out below is an overview of changes to share options outstanding and number of ordinary shares underlying these options that occurred during the periods indicated:

	Share options outstanding	Number of ordinary shares underlying options	Weighted average exercise price (€)[1]
As of January 1, 2021	645,892	11,626,056	10.23
Forfeited	(3,885)	(69,932)	10.14
As of December 31, 2021	**642,007**	**11,556,124**	**10.23**
As of January 1, 2022	642,007	11,556,124	10.23
Modified[2]	(1,040)	(18,720)	10.14
Exercised[3]	(583,383)	(10,500,890)	10.14
As of December 31, 2022	**57,584**	**1,036,514**	**11.10**
thereof vested	*48,331*	*869,960*	*10.14*
thereof un-vested	*9,253*	*166,554*	*15.29*

(1) With respect to the Management Board members, other than Ryan Richardson who was not a Management Board member at the time the options were granted, the options are subject to the effective exercise price cap as well as the maximum cap mechanism.

(2) Rights have been modified to cash-settled rights, all other terms remained unchanged.

(3) The average closing price of an American Depositary Share of BioNTech on Nasdaq weighted over the various settlement dates converted from USD to Euro using the exchange rate published by the German Central Bank (*Deutsche Bundesbank)* on the same days was €160.44.

The Supervisory Board determined in September 2022 that the ESOP settlement in November and December 2022 would be made by delivery of shares (in the form of ADSs) equal to the net value of the exercised option rights after deduction of (i) the exercise price and (ii) the applicable wage taxes (including solidarity surcharge thereon and church tax, if applicable) and social security contributions resulting from such exercise. The respective number of ADSs was settled with treasury shares. The applicable wage taxes (including solidarity surcharge thereon and church tax, if applicable) and social security contributions resulting from and withheld upon the exercise amounted to €724.0 million and were paid in January 2023 in cash directly to the respective authorities. The settlement mechanism decision did neither change the rights as such nor did it change the classification as equity-settled option rights.

As of December 31, 2022, the share options outstanding under our equity-settled share-based payment arrangements had a remaining weighted average expected life of 1.8 years (as of December 31, 2021: 2.7 years).

Development of Share-Options (Cash-Settled)

During the year ended December 31, 2022, 343,854 phantom options were granted under the ESOP which each gives the participants the right to receive a cash-payment equal to the difference between an exercise closing price (average closing price of an American Depositary Share of BioNTech on Nasdaq over the last ten trading days preceding the exercise date) and the exercise price. Generally, the options' exercise prices are €10.14. Contemporaneous with the exercise of the equity-based option rights in November and December 2022, 289,168 cash-settled phantom option rights were exercised and resulted in a cash outflow of €42.2 million. The average closing prices (10-day averages) of an American Depositary Share of BioNTech on Nasdaq weighted over the various settlement dates converted from USD to Euro using the exchange rate published by the German Central Bank (*Deutsche Bundesbank*) on the same days was €155.39. As of December 31, 2022, 131,853 cash-settled option rights remained outstanding. As of December 31, 2022, the liability related to cash-settled share-based payment option rights under the ESOP program amounted to €14.5 million (€3.1 million as of December 31, 2021), of which €11.2 million (nil as of December 31, 2021) related to rights already vested (partly subject to performance and waiting requirements). The liability is based on the fair value of the respective rights. The fair value is measured using a binomial model consistent with the grant date fair value measurement of the equity-based option rights described above which is updated on every reporting date.

17 Provisions and Contingencies

Provisions

(in millions)	December 31, 2022	December 31, 2021
Obligations from onerous CMO contracts	€235.5	€—
Legal proceedings	0.1	177.9
Other	140.2	117.2
Total	**€375.8**	**€295.1**
Total current	367.2	110.2
Total non-current	8.6	184.9

As of December 31, 2022, our current provisions included €235.5 million (nil as of December 31, 2021) of obligations for production capacities derived from contracts with Contract Manufacturing Organizations, or CMOs, that became redundant as a direct result of the introduction of a new COVID-19 vaccine formulation, the switch from the BNT162b2 vaccine to an Omicron-adapted bivalent vaccine and due to increased internal manufacturing capacities during the year ended December 31, 2022. The related expenses were recognized in cost of sales in our consolidated statements of profit or loss. The change of €235.5 million compared to the previous period related to additions.

Provisions for legal proceedings mainly related to purported obligations arising out of certain contractual disputes unrelated to the below mentioned patent proceedings (€177.9 million as of December 31, 2021), were mainly released due to the favorable outcome of such proceeding received in March 2023 and treated as an adjusting event.

As of December 31, 2022, our current provisions included €140.2 million in other obligations mainly comprising inventor remunerations as well as customs and duties (€117.2 million as of December 31, 2021, mainly comprising inventor remunerations as well as customs and duties). The change of €23.0 million compared to the previous period related mainly to additions.

Contingencies

Our contingencies include, but are not limited to, intellectual property disputes and product liability and other product-related litigation. From time to time, in the normal course and conduct of our business, we may be involved in discussions with third parties about considering, for example, the use and/or remuneration for use of such third party's intellectual property. As of December 31, 2022, none of such intellectual property-related considerations that we have been notified of and for which potential claims could be brought against us or our subsidiaries in the future, fulfill the criteria for recording a provision. We are subject to an increasing number of product liability claims. Such claims often involve highly complex issues related to medical causation, correctness and completeness of product information (Summary of Product Characteristics/package leaflet) as well as label warnings and reliance thereon, scientific evidence and findings, actual and provable injury, and other matters. These complexities vary from matter to matter. As of December 31, 2022, none of these claims fulfill the criteria for recording a provision. Substantially all of our contingencies are subject to significant uncertainties and, therefore, determining the likelihood of a loss and/or the measurement of any loss can be complex. Consequently, we are unable to estimate the range of reasonably possible loss. Our assessments, which result from a complex series of judgments about future events and uncertainties, are based on estimates and assumptions that have been deemed reasonable by management, but that may prove to be incomplete or inaccurate, and unanticipated events and circumstances may occur that might cause us to change those estimates and assumptions. We currently do not believe that any of these matters will have a material adverse effect on our financial position, and will continue to monitor the status of these and other claims that may arise. However, we could incur judgments, enter into settlements or revise our expectations regarding the outcome of matters, which could have a material adverse effect on our results of operations and/or our cash flows in the period in which the amounts are accrued or paid. We will continue to evaluate whether, if circumstances were to change in the future, the recording of a provision may be needed and whether potential indemnification entitlements exist against any such claim.

Certain pending matters to which we are a party are discussed below.

Alnylam Proceedings

In March 2022, Alnylam Pharmaceuticals, Inc., or Alnylam, filed a lawsuit against Pfizer and Pharmacia & Upjohn Co. LLC in the U.S. District Court for the District of Delaware alleging that an existing patent owned by Alnylam, U.S. Patent No. 11,246,933, or the '933 Patent, is infringed by the cationic lipid used in *Comirnaty*, and seeking monetary relief, which is not specified in their filings. We filed a counterclaim to become party to the Alnylam proceeding, and in June 2022, Alnylam added to its claims allegations that we induced infringement of the '933 Patent. Additionally, in July 2022, Alnylam filed a lawsuit against us, our wholly owned subsidiary, BioNTech Manufacturing GmbH, Pfizer and Pharmacia & Upjohn Co. LLC in the U.S. District Court for the District of Delaware alleging that we also induced infringement of a newly issued patent, U.S. Patent No. 11,382,979, or the '979 Patent, which is a continuation of the '933 Patent. The two lawsuits were consolidated on July 28, 2022 and are currently pending.

We believe we have strong defenses against the allegations claimed relative to each of the patents and intend to vigorously defend ourselves in the proceedings mentioned above. However, our analysis of Alnylam's claims is ongoing and complex, and we believe the outcome of the suit remains substantially uncertain. Taking into account discussions with our external lawyers, we do not consider the probability of an outflow of resources to be sufficient to recognize a provision at the balance sheet date. In our opinion, these matters constitute contingent liabilities as of the balance sheet date. However, it is currently impractical for us to estimate with sufficient reliability the respective contingent liabilities.

CureVac Proceedings

In July 2022, CureVac AG, or CureVac, filed a lawsuit against us and our wholly owned subsidiaries, BioNTech Manufacturing GmbH and BioNTech Manufacturing Marburg GmbH, in the Düsseldorf Regional Court, alleging *Comirnaty*'s infringement of one European patent, EP1857122B1, or the EP'122 Patent, and three Utility Models DE202015009961U1, DE202015009974U1, and DE202021003575U1. Later in July 2022, we and Pfizer filed a complaint for a declaratory judgment in the U.S. District Court for the District of Massachusetts, seeking a judgment of non-infringement by *Comirnaty* of U.S. Patent Nos. 11,135,312, 11,149,278 and 11,241,493. In August 2022, CureVac added European Patent EP3708668B1, or the EP'668 Patent, to its German lawsuit. In September 2022, we and Pfizer filed a declaration of non-infringement and revocation action against the EP'122 Patent and the EP'668 Patent in the Business and Property Courts of England and Wales. In addition, we filed a nullity action in the Federal Patent Court of Germany seeking a declaration that the EP'122 Patent is invalid. Lastly, on November 11, 2022, we filed cancellation actions seeking the cancellation of the three German Utility Models in the German Patent and Trademark Office. All of the proceedings are currently pending.

We believe we have strong defenses against the allegations claimed relative to each of the patents and utility models and intend to vigorously defend ourselves in the proceedings mentioned above. However, our analysis of CureVac's claims is ongoing and complex, and we believe the outcome of the suit remains substantially uncertain. Taking into account discussions with our external lawyers, we do not consider the probability of an outflow of resources to be sufficient to recognize a provision at the balance sheet date. In our opinion, these matters constitute contingent liabilities as of the balance sheet date. However, it is currently impractical for us to estimate with sufficient reliability the respective contingent liabilities.

Moderna Proceedings

In August 2022, ModernaTX, Inc., or Moderna, filed three patent infringement lawsuits against us and Pfizer related to *Comirnaty*. Moderna filed a lawsuit against us and Pfizer and our wholly owned subsidiaries, BioNTech Manufacturing GmbH, BioNTech Europe GmbH and BioNTech Manufacturing Marburg GmbH, Pfizer Manufacturing Belgium NV, Pfizer Ireland Pharmaceuticals and Pfizer Inc. in the Düsseldorf Regional Court alleging *Comirnaty*'s infringement of two European Patents, 3590949B1, or the EP'949 Patent and 3718565B1, or the EP'565 Patent. Moderna filed a second lawsuit asserting infringement of the EP'949 Patent and EP'565 Patent against us and our wholly owned subsidiaries, BioNTech Manufacturing GmbH, BioNTech Europe GmbH and BioNTech Manufacturing Marburg GmbH, Pfizer Limited, Pfizer Manufacturing Belgium NV and Pfizer Inc. in the Business and Property Courts of England and Wales. Additionally, Moderna filed a lawsuit in the United States District Court for the District of Massachusetts against us and our wholly owned subsidiaries BioNTech Manufacturing GmbH and BioNTech US Inc. and Pfizer Inc. alleging infringement of U.S. Patent Nos. 10,898,574, 10,702,600 and 10,933,127 and seeking monetary relief, which was not specified in the filings. In September 2022, we and Pfizer filed a revocation action in the Business and Property Courts of England and Wales requesting revocation of the EP'949 Patent and EP'565 Patent. Later in September 2022, Moderna filed a lawsuit against us and our wholly owned subsidiary BioNTech Manufacturing GmbH and Pfizer B.V., Pfizer Export B.V., C.P.

Pharmaceuticals International C.V. and Pfizer Inc. in the District Court of The Hague alleging *Comirnaty*'s infringement of the EP '949 Patent and EP'565 Patent. All of the proceedings are currently pending.

We believe we have strong defenses against the allegations claimed relative to each of the patents and intend to vigorously defend ourselves in the proceedings mentioned above. However, our analysis of Moderna's claims is ongoing and complex, and we believe the outcome of the suit remains substantially uncertain. Taking into account discussions with our external lawyers, we do not consider the probability of an outflow of resources to be sufficient to recognize a provision at the balance sheet date. In our opinion, these matters constitute contingent liabilities as of the balance sheet date. However, it is currently impractical for us to estimate with sufficient reliability the respective contingent liabilities.

18 Other Non-Financial Liabilities

(in millions)	**December 31, 2022**	**December 31, 2021**
Liabilities from wage taxes and social securities expenses	€761.8	€3.8
Liabilities to employees	50.6	30.2
Liabilities from share-based payment arrangements	36.2	20.6
Other	29.2	4.3
Total	**€877.8**	**€58.9**
Total current	860.8	46.1
Total non-current	17.0	12.8

Liabilities from wage taxes and social security expenses mainly include obligations that became due upon settlement of our share-based payment arrangements for the respective employees and members of the Management Board as further described in Note 16.

19 Leases

19.1 Amounts Recognized in the Consolidated Statements of Financial Position

Right-of-Use Assets

The following amounts are presented as right-of-use assets within the consolidated statements of financial position as of the dates indicated:

(in millions)	December 31, 2022	December 31, 2021
Buildings	€206.5	€175.0
Production facilities	3.0	19.4
Other operating equipment	2.4	3.5
Total	**€211.9**	**€197.9**

Additions to the right-of-use assets during the year ended December 31, 2022, were €118.3 million (during the year ended December 31, 2021: €126.5 million).

Lease Liability

The following amounts are included in loans and borrowings as of the dates indicated:

(in millions)	December 31, 2022	December 31, 2021
Current	€36.0	€27.9
Non-current	174.1	153.7
Total	**€210.1**	**€181.6**

19.2 Amounts Recognized in the Consolidated Statements of Profit or Loss

Depreciation Charge of Right-of-Use Assets

	Years ended December 31,		
(in millions)	2022	2021	2020
Buildings	€35.2	€14.7	€4.7
Production facilities	23.1	14.0	1.6
Other operating equipment	0.5	0.3	—
Total depreciation charge	**€58.8**	**€29.0**	**€6.3**
Interest on lease liabilities	5.1	2.9	2.0
Expense related to short-term leases and leases of low-value assets	27.1	9.5	1.2
Total amounts recognized in profit or loss	**€91.0**	**€41.4**	**€9.5**

19.3 Amounts Recognized in the Consolidated Statements of Cash Flows

During the year ended December 31, 2022, the total cash outflow for leases amounted to €46.2 million (during the year ended December 31, 2021: €17.0 million; during the year ended December 31, 2020: €14.7 million).

19.4 Extension Options

The Group has several lease contracts that include extension options. These options are negotiated by management to provide flexibility in managing the leased-asset portfolio and align with the Group's business needs. Management exercises

judgement in determining whether these extension options are reasonably certain to be exercised. The undiscounted potential future lease payments, which relate to periods after the exercise date of renewal options and are not included in lease liabilities, amount to up to €163.1 million as of December 31, 2022, considering terms up until 2049 (as of December 31, 2021: €82.8 million considering terms up until 2049).

20 Related Party Disclosures

20.1 Parent and Ultimate Controlling Party

ATHOS KG, Holzkirchen, Germany is the sole shareholder of AT Impf GmbH, Munich, Germany and beneficial owner of our ordinary shares. ATHOS KG via AT Impf GmbH has de facto control over BioNTech based on its substantial shareholding, which practically enabled it to exercise the majority of voting rights to pass resolutions at our Annual General Meeting, or AGM. Entities controlled by ATHOS KG mainly provide rental and property management activities and sell property, plant and equipment to us.

20.2 Transactions with Key Management Personnel

In June 2022, at the Annual General Meeting, our shareholders voted to reappoint Helmut Jeggle as a member of the Supervisory Board and appointed two additional Supervisory Board members, Prof. Dr. Anja Morawietz and Prof. Dr. Rudolf Staudigl. In a meeting following the AGM, the Supervisory Board re-elected Helmut Jeggle as its Chair. All three members will serve in their roles until the 2026 AGM.

Key Management Personnel Compensation

Our key management personnel has been defined as the members of the Management Board and the Supervisory Board. Key management personnel compensation is comprised of the following:

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Management Board	**€15.0**	**€20.4**	**€23.7**
Fixed compensation	2.9	2.2	1.9
Short-term incentive – first installment	0.6	0.6	0.5
Short-term incentive – second installment[(1)]	0.7	1.2	0.6
Other performance-related variable compensation[(2)]	0.1	—	—
Share-based payments (incl. long-term incentive)[(3)]	10.7	16.4	20.7
Supervisory Board	**0.5**	**0.4**	**0.4**
Total compensation paid to key management personnel	**€15.5**	**€20.8**	**€24.1**

(1) The fair value of the second installment of the short-term incentive compensation which has been classified as cash-settled share-based payment arrangement was determined pursuant to the regulations of IFRS 2 “Share-based Payments.” This table shows the pro-rata share of personnel expenses for the respective financial year that are recognized over the award’s vesting period beginning as of the service commencement date (date when entering or renewing service agreements) until each separate determination date and are remeasured until settlement date.

(2) Includes a one-time signing and retention cash payment agreed when renewing the service agreement agreed with Sean Marett.

(3) The fair value of the share-based payments was determined pursuant to the regulations of IFRS 2 “Share-based Payments.” This table shows the pro-rata share of personnel expenses resulting from stock-based compensation for the respective financial year. During the years ended December 31, 2022, and 2021, the amounts included expenses derived from a one-time signing bonus of €800,000 granted to Jens Holstein as of his appointment to the Management Board by awarding 4,246 phantom shares. The phantom shares vest in four equal installments on July 1 of 2022, 2023, 2024, and June 30, 2025 but will only be settled in cash on July 1, 2025. The cash payment is subject to an effective settlement closing price cap. This means that the settlement closing price shall effectively be adjusted to ensure that the current price of an ADS as of the settlement date does not exceed 800% of the closing price applied when the award was initially granted. In addition, the total cash payment under the award shall not exceed €6.4 million. During the year ended December 31, 2020, the amount included expenses from a bonus arrangement agreed with Ryan Richardson in advance of his appointment to the Management Board. During the year ended December 31, 2020, the arrangement was modified from an all-equity share-based payment arrangement into a partly cash- and partly equity-settled share-based payment arrangement including 4,534 ordinary shares which were issued during the year ended December 31, 2021. Management Board members participate in our ESOP program (see Note 16).

During the year ended December 31, 2022, 5,152,410 option rights granted to our Management Board under the ESOP 2018 program vested and became exercisable (option rights allocated to Ryan Richardson and Özlem Türeci had already vested in 2019 but continued to be subject to performance and waiting requirements; Jens Holstein did not participate in the ESOP 2018 program as he had not joined our company at the time it was allocated). Of such vested option rights, 4,921,630 options were exercised during the year ended December 31, 2022 by paying the option exercise price of €19.78 weighted over the Management Board members (for all Management Board members, apart from Ryan Richardson who was not a Management Board member at the time the option rights were allocated, exercise prices are subject the effective exercise price cap and the maximum cap mechanism as described in Note 16.5). As of December 31, 2022, Sean Marett still holds 230,780 option rights which can only be exercised during the exercise windows as defined by our ESOP and if certain performance conditions are fulfilled as of the date the relevant option rights are exercised. The average closing price of an American Depositary Share of BioNTech on Nasdaq weighted over the Management Board's settlement dates converted from USD to Euro using the exchange rate published by the German Central Bank (Deutsche Bundesbank) on the same days was €160.65.

Key Management Personnel Transactions

A number of key management personnel, or their related parties, hold positions in other companies that result in them having control or significant influence over these companies. A number of these companies have entered into transactions with us during the year.

We purchased various goods and services from Translationale Onkologie an der Universitätsmedizin der Johannes Gutenberg-Universität Mainz gemeinnützige GmbH, or TRON.

The aggregate value of transactions related to key management personnel was as follows for the periods indicated:

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Purchases of various goods and services from TRON[(1)]	€—	€—	€10.1
Total	**€—**	**€—**	**€10.1**

(1) We purchased various goods and services from TRON, an institute where Prof. Ugur Sahin, M.D., served as Managing Director. TRON is no longer considered to be a related party for the years ended December 31, 2022, and 2021, as the criteria for such classification are no longer fulfilled.

20.3 Related Party Transactions

The total amount of transactions with ATHOS KG or entities controlled by it was as follows for the periods indicated:

	Years ended December 31,		
(in millions)	**2022**	**2021**	**2020**
Purchases of various goods and services from entities controlled by ATHOS KG	€0.3	€0.9	€2.3
Purchases of property and other assets from entities controlled by ATHOS KG	62.5	—	2.3
Total	**€62.8**	**€0.9**	**€4.6**

On December 22, 2022, we entered into a purchase agreement with Santo Service GmbH, pursuant to which we acquired the real estate property An der Goldgrube 12 and the existing laboratory and office building including any movable assets for a total consideration of €62.5 million. The purchase price was paid during the year ended December 31, 2022. Santo Service GmbH is wholly owned by AT Impf GmbH, that is controlled by ATHOS KG.

The outstanding balances of transactions with ATHOS KG or entities controlled by them were as follows as of the periods indicated:

(in millions)	December 31, 2022	December 31, 2021
ATHOS KG	€—	€0.3
Total	**€—**	**€0.3**

None of the balances are secured and no bad debt expense has been recognized in respect of amounts owed by related parties.

22 Number of employees

The average number of employees is:

	Years ended December 31,		
Quarterly average number of employees by function	**2022**	**2021**	**2020**
Clinical Research & Development	243	137	113
Scientific Research & Development	1.302	875	586
Operations	1.240	863	490
Quality	383	322	184
Support Functions	828	431	218
Commercial & Business Development	108	66	33
Total	**4.104**	**2.694**	**1.624**

The number of employees as of the balance sheet date is:

	Years ended December 31,		
Number of employees by function as of the reporting date	**2022**	**2021**	**2020**
Clinical Research & Development	274	153	128
Scientific Research & Development	1.512	1.026	661
Operations	1.365	1.036	699
Quality	413	301	234
Support Functions	983	539	276
Commercial & Business Development	145	83	49
Total	**4.692**	**3.138**	**2.047**

23 Fees for Auditors

The following fees were recognized for the services provided by Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft for the fiscal years ended December 31, 2022 and December 31, 2021:

	Years ended December 31,	
(in millions)	**2022**	**2021**
Audit fees	€2.9	€1.9
Audit-related fees	0.4	0.7
Tax fees	0.2	0.5
All other fees	0.2	0.1
Total fees for professional audit services and other services	**€3.7**	**€3.2**

23 Corporate Governance

The declaration of conformity pursuant to Section 161 para. 1 of the German Stock Corporation Act (*Aktiengesetz*) is issued in accordance with the Corporate Governance Code in connection with the corporate governance declaration pursuant to Section 315d in conjunction with Section 289f HGB and can be found in the combined management report of BioNTech SE.

24 Events After the Reporting Period

Acquisition of InstaDeep Ltd.

On January 10, 2023, we and InstaDeep Ltd., or InstaDeep, a leading global technology company in the field of artificial intelligence ("AI") and machine learning ("ML"), announced that we have entered a share purchase agreement, or SPA, under which we will acquire 100% of the remaining shares in InstaDeep, excluding the shares already owned by us (see Note 12.2). InstaDeep will operate as our UK-based global subsidiary and will continue to provide its services to clients around the world in diverse industries, including in the Technology, Transport & Logistics, Industrial and Financial Services sectors. Additionally, the acquisition is planned to enable the creation of a fully integrated, enterprise-wide capability that leverages AI and machine learning technologies across our therapeutic platforms and operations.

The completion of the acquisition is conditional on the satisfaction of several customary closing conditions and regulatory approvals as defined in the SPA. The acquisition of InstaDeep is expected to close in the first half of 2023 and will be accounted for as a business combination using the acquisition method of accounting.

The transaction includes a total upfront consideration of approximately £362 million (€413.4 million) in cash and our shares to acquire 100% of the remaining InstaDeep shares. Therefore, the final upfront consideration at the closing date will depend e.g., on the final proportion of cash payments and shares and on the development of our share price. In addition, InstaDeep shareholders will be eligible to receive additional performance-based future milestone payments up to approximately £200 million (€228.4 million, both amounts in British pound translated into Euro, using the foreign exchange rate as published by the German Central Bank (*Deutsche Bundesbank*) as of March 20, 2023).

Strategic collaboration with OncoC4, Inc.

On March 20, 2023, we and OncoC4, Inc., or OncoC4, a clinical-stage biopharmaceutical company dedicated to the discovery and development of novel biologicals for cancer treatment, announced a strategic collaboration to co-develop and commercialize novel checkpoint antibody for the treatment of cancer. Under the terms of the agreement, we receive an exclusive worldwide license for development and commercialization of OncoC4's anti-CTLA-4 monoclonal antibody candidate, ONC-392. OncoC4 will receive a $200 million (€186.6 million, the amount in U.S. dollar is translated into Euro using the foreign exchange rate as published by the German Central Bank (*Deutsche Bundesbank*) as of March 20, 2023) upfront payment and is eligible to receive development, regulatory and commercial milestone payments as well as tiered royalties. Together with OncoC4 we will jointly develop ONC-392 as monotherapy and in combination therapy with anti-PD1 in various solid tumor indications and will equally share development costs for such studies. We additionally plan to combine ONC-392 with our proprietary oncology product candidates. The transaction is expected to be closed in the first half of 2023, subject to customary closing conditions and regulatory clearances.

Second Tranche Share Repurchase Program

Between January 1, and up until March 17, 2023, the date when the trading plan for the second tranche of our share repurchase program expired, the following repurchases under the program have occurred:

Second Tranche ($0.5 billion)

Period	Number of ADSs purchased	Average price paid per ADS	Total number of ADSs purchased	Approximate value of ADSs that may yet be purchased (in millions)
December 2022[1]	—	$— (€—)	—	$500.0 (€500.0)
January 2023	618,355	$142.26 (€131.12)	618,355	$412.0 (€418.9)
February 2023	857,620	$138.05 (€129.06)	1,475,975	$293.6 (€308.2)
March 2023[2]	745,196	$128.49 (€121.08)	2,221,171	$197.9 (€218.0)
Total	**2,221,171**			

(1) Beginning December 7, 2022.

(2) Ending March 17, 2023.

New share buyback program

On March 27, 2023, it was decided to launch a new share repurchase program under which we may purchase ADSs, each representing one ordinary share, with a value of up to $0.5 billion for the period until the end of 2023.

Mainz, March 27, 2023

BioNTech SE

Prof. Dr. med. Ugur Sahin
Chief Executive Officer

Jens Holstein
Chief Financial Officer

Sean Marett
Chief Business Officer und Chief Commercial Officer

Dr. Sierk Poetting
Chief Operating Officer

Ryan Richardson
Chief Strategy Officer

Prof. Dr. med. Özlem Türeci
Chief Medical Officer

Combined Management Report for the 2022 Financial Year

1 General Information of the BioNTech Group

Pursuant to Section 315 para. 5 of the German Commercial Code (HGB) in conjunction with Section 298 para. 2 HGB, this combined management report comprises both the group management report of BioNTech SE and its group companies (together "BioNTech" or the "Group") and the management report of BioNTech SE (also "the Company"), hereinafter also referred to as "BioNTech", the "Group", "we" or "us". The combined management report has been prepared in accordance with the Regulation on the Statute for a European Company (SE) in conjunction with the German Stock Corporation Act (AktG). The comments on the Group have been prepared in accordance with the International Financial Reporting Standards (IFRS) as adopted by the European Union; the comments on BioNTech SE have been prepared in accordance with the German Commercial Code (HGB). Unless otherwise stated, the statements in the combined management report relate to both the Group and BioNTech SE. In addition to the reporting on the Group, the development of BioNTech SE is explained in chapter 3.

We prepare and publish our combined management report in Euros and round figures to the nearest thousand or million Euros. Accordingly, minor discrepancies may arise in some tables when totals are presented or percentages are calculated, and the figures given in the notes may not add up precisely to the totals provided. The rounding applied may differ from that published in previous years in other units.

1.1 Business model

BioNTech is a next-generation immunotherapy company pioneering the development of therapies for cancer and other serious diseases. We combine a variety of advanced therapeutic platforms and bioinformatics tools to rapidly advance the development of novel biopharmaceuticals. The diversified portfolio of oncology product candidates includes individualized therapies as well as mRNA-based "off-the-shelf" drugs, innovative chimeric antigen receptor (CAR) T cells, bispecific checkpoint immunomodulators, targeted cancer antibodies and small molecules. The breadth of immunotherapy technologies and expertise has led to the development of potential therapies for a range of rare diseases and infectious diseases, and the development of the COVID-19 vaccine, a first product to combat the COVID-19 pandemic.

A deep understanding of the human immune system is at the core of our innovations and has resulted in the discovery of four complementary drug classes:

- mRNA therapeutics
- Programmable cell therapies
- Next generation antibodies
- Small molecule immunomodulators

In addition to research and development, our expertise also encompasses the field of bioinformatics, which is crucial for the production of individualized therapies. Here, we have developed a validated patient-centric bioinformatics process that enables the application of complex algorithms to patient data in the context of drug manufacturing.

Last year, we further advanced our strategy to build world-leading capabilities in Artificial Intelligence (AI)-driven drug discovery and the development of next-generation immunotherapies and vaccines through sustained investments and the expansion of strategic partnerships. Our goal is to address diseases with high unmet medical need and enable individualized cancer treatment.

Using a novel approach, we have developed turnkey, mobile, modular mRNA production facilities based on a container solution, our so-called BioNTainers. These are designed to enable decentralized and scalable vaccine production that can be tailored to local needs. With this solution approach, we aim to improve vaccine supply, for example, together with the African Union, in Africa, for Africa.

Our business model is to develop, manufacture and market proprietary immunotherapies, either independently or in collaboration with partners, following regulatory approval. Under our COVID-19 vaccine program, we have entered into two strategic collaborations with major pharmaceutical companies, Pfizer Inc. of New York, United States ("Pfizer") and Fosun Pharmaceutical Industrial Development Co. Ltd. of Shanghai, China ("Fosun Pharma"), which we continued to advance in fiscal 2022. In selected cases, collaboration agreements are entered into with third parties for joint product development and joint product commercialization opportunities. This is an approach that may be applied to additional product candidates in the future. BioNTech maintains a culture of scientific excellence, publishes scientific

achievements, findings and results in peer-reviewed publications and owns a broad patent portfolio. BioNTech's intellectual property strategy also includes licenses from third parties in addition to its own patent portfolio.

Our consolidated revenues during the 2022 financial year includes commercial COVID-19 vaccine revenues in particular, in addition to research and development revenues from collaborations.

1.2 Legal and organizational structure

Legal structure

BioNTech SE was founded in 2008 as a spin-off from Johannes Gutenberg University Mainz. The underlying broad technology and patent portfolio was built up over a period of more than 20 years.

BioNTech SE is the parent company of the BioNTech Group and is responsible for the management and development of the Group. BioNTech SE has its registered office in Mainz, Germany (An der Goldgrube 12, 55131 Mainz). In addition, as of the end of the 2022 financial year, the BioNTech Group included 33 group companies at six different locations in Germany, two different locations in the United States and one location each in Australia, China, Austria, Rwanda, Singapore, Turkey and the United Kingdom.

The following changes in the Group structure occurred during the 2022 financial year:

- In February 2022, BioNTech Innovation GmbH, Mainz, Germany, a wholly owned subsidiary of BioNTech SE, was founded.
- In July 2022, BioNTech BioNTainer Holding GmbH, Mainz, Germany, a wholly owned subsidiary of BioNTech SE, was founded.
- In August 2022, BioNTech Rwanda Ltd, Kigali, Rwanda, a wholly owned subsidiary of BioNTech BioNTainer Holding GmbH, which in turn is a wholly owned subsidiary of BioNTech SE, was established.
- In September 2022, BioNTech Idar-Oberstein Services GmbH, Idar-Oberstein, Germany, a wholly owned subsidiary of BioNTech SE, was founded.
- NT Security and Services GmbH, Mainz, Germany, a wholly owned subsidiary of BioNTech SE, was founded in September 2022.
- In October 2022, BioNTech Australia Pty Ltd, Melbourne, Australia, a wholly owned subsidiary of BioNTech BioNTainer Holding GmbH, which in turn is a wholly owned subsidiary of BioNTech SE, was founded.
- In November 2022, BioNTech Individualized mRNA Manufacturing GmbH i.G., Mainz, Germany, a wholly owned subsidiary of BioNTech SE, was founded.

All of the above companies are included in the consolidated financial statements as of December 31, 2022.

The shares of BioNTech SE are publicly traded as American Depositary Shares (ADS) on the Nasdaq Global Select Market.

Organizational structure

As the parent company of the BioNTech Group, BioNTech SE has a dual management system: The Management Board, as the managing body, had six members as of December 31 and is appointed and monitored by the Supervisory Board. The Supervisory Board is elected by the Annual General Meeting. In fiscal year 2022, the Supervisory Board was expanded by the appointment of Prof. Anja Morawietz, Ph.D. and Prof. Rudolf Staudigl, Ph.D. on June 1, 2022. In addition, Helmut Jeggle was reappointed as a member of the Supervisory Board at the Annual General Meeting on June 1, 2022 and was again elected Chairman by the Supervisory Board. As a result, the Supervisory Board consisted of six members as of the reporting date December 31, 2022. As of the reporting date December 31, 2022, there were 4,692 employees, of which 2,304 were employed by BioNTech SE (December 31, 2021: 3,138, of which 1,378 were employed by BioNTech SE) and an annual average of 4,104 employees, of which 1,936 were employed by BioNTech SE (previous year: 2,694, of which 1,181 were employed by BioNTech SE).

1.3 Commercialization

Our COVID-19 vaccine, based on our proprietary mRNA technology, has been fully licensed, granted conditional marketing approval, or approved or licensed for emergency or temporary use in more than 100 countries and regions worldwide, resulting in a total of more than 4 billion doses of vaccine shipped globally as of December 2022.

The COVID-19 vaccine development program was launched in late January 2020 in response to the COVID-19 pandemic. Under this program, two strategic collaborations with major pharmaceutical companies, Pfizer and Fosun Pharma, were completed and led to the first market approvals in December 2020. Clinical development continued in fiscal 2022 to obtain approvals for a broad population across many age groups.

We hold marketing authorizations in the United States, the European Union, the United Kingdom, Canada and other countries, as well as emergency or equivalent marketing authorizations in the United States (together with Pfizer) and other countries. Pfizer holds marketing and distribution rights worldwide, except in Germany, China and Turkey. We hold the marketing and distribution rights in Germany and Turkey. Fosun Pharma holds the marketing and distribution rights in China, the Hong Kong Special Administrative Region, or SAR, Macau SAR and the Taiwan region. The mRNA-based COVID-19 vaccine is marketed under the brand name COMIRNATY® in the EU, where we have received full marketing authorization.

We and Pfizer continued to build global vaccine manufacturing capabilities, structures and networks during the 2022 financial year to produce and distribute large volumes of the vaccine in high quality in a timely manner. The expertise of both companies was also synergistically leveraged in 2022. With the continued expansion of our own manufacturing capabilities combined with our mRNA manufacturing expertise acquired over nearly a decade, we played a significant role in the joint manufacturing and distribution of the COVID-19 vaccine. Our manufacturing facility in Marburg, Germany, is now one of the largest mRNA vaccine production facilities in the world, with a capacity of three billion vaccine doses. During 2022 financial year, we continued to execute on plans with Pfizer for global market leadership of COVID-19 vaccine, launching new formulations, pediatric vaccines and two Omicron-adapted bivalent vaccines against BA.1 and BA.4/5 variants.

1.4 Research and development

The BioNTech approach

We are developing next-generation immunotherapies. Our diversified portfolio of oncology product candidates includes individualized therapies as well as off-the-shelf drugs based on four complementary drug classes:

- mRNA therapeutics
- Programmable cell therapies
- Next generation antibodies
- Small molecule immunomodulators

Based on our extensive expertise in mRNA vaccine development and in-house manufacturing capabilities, we are developing several mRNA vaccine candidates for a range of infectious diseases and other severe diseases, including with collaboration partners, in addition to our diverse oncology pipeline.

mRNA therapeutics

We use messenger ribonucleic acid (mRNA) to transport genetic information into cells, where it is used to express proteins for therapeutic effect. Currently, we are developing a portfolio of immunotherapy approaches consisting of four different mRNA formats and three different formulations to derive five different platforms for the treatment of cancer. All of these platforms are currently in clinical trials: (i) standard shared antigen immunotherapy (FixVac), (ii) individualized neoantigen-specific immunotherapy (iNeST) in collaboration with Genentech Inc. ("Genentech"), (iii) intratumoral immunotherapy, and (iv) mRNA encoded for specific cytokines (RiboCytokines). In addition, we are developing another platform using mRNA to express specific antibodies, RiboMabs, directly in the patient. Furthermore, the Company's proprietary mRNA technology is also used to treat COVID-19, influenza and other infectious diseases as well as rare diseases. The successful commercialization of our COVID-19 vaccine represents the world's first mRNA-based vaccine approved for the market.

Programmable cell therapies

We are developing a range of cell therapies to modify the patient's T cells to target cancer-specific antigens - including chimeric antigen receptor or CAR-T cells, neoantigen-based T cell therapies and T cell receptor or TCR therapies. In addition, the mRNA-based FixVac platform will be applied in combination with the first CAR-T product candidate to improve the persistence of CAR-T cells in vivo. The first CARVac product candidate and the first product candidate for neoantigen-based T cell therapies are both currently in clinical trials.

Next generation antibodies

In collaboration with Genmab A/S, Copenhagen, Denmark ("Genmab"), we are developing next-generation bispecific antibodies that target immune checkpoints and modulate the patient's immune response to cancer. The first four product candidates from this collaboration are in clinical trials. In addition, BioNTech is exploring further targeted approaches for cancer antibodies using its own patents and research focus.

Small molecule immunomodulators

We are researching small molecule drugs to induce specific immunomodulation profiles. The goal is to enhance the activity of other drug classes by inducing specific and discrete patterns of immunomodulation. We currently have a small molecule Toll-like receptor 7 or TLR7 immunomodulator in clinical trials for the treatment of solid tumors.

Pipeline of preclinical programs and clinical product candidates

Our diversified portfolio consists of product candidates from four classes of compounds focused on the treatment of cancer and infectious diseases. Currently, 25 product candidates are in more than 30 clinical trials and more than 30 research programs. Our oncology pipeline currently comprises more than 20 product candidates. In 2022, we have initiated four first-in-human clinical trials. Clinical data for key programs have been published in recent years and we have gained further important insights from clinical trial data in 2022. For example, results from the Phase 1 trial of BNT122, an iNeST product candidate, in the treatment of patients with pancreatic cancer showed a significant correlation between the immune response elicited by the cancer vaccine and delayed tumor recurrence. In addition, the results indicate a favorable safety profile. Follow-up data from the ongoing Phase 1/2 clinical trial of our product candidate BNT211, a novel CAR-T cell therapy approach, show encouraging signs of anti-tumor activity in the treatment of 22 patients with testicular cancer. And data from the Phase 1/2 clinical trial with our product candidate BNT312 (GEN1042), which we are developing with our collaboration partner Genmab, also show promising immune responses.

Collaborations

In addition to the strategic collaborations with Pfizer and Fosun Pharma entered into as part of the COVID-19 vaccine development program during the 2020 financial year and described above, as well as the ongoing academic collaboration with the University Hospital Mainz and Translational Oncology at the University Medical Center of the Johannes Gutenberg University Mainz gemeinnützige GmbH ("TRON"), we have further developed the following collaborations with pharmaceutical and technology companies.

- Genentech: Development of individualized neo-epitope-specific mRNA immunotherapies for the treatment of various cancers within our iNeST platform.
- Pfizer: development of an mRNA-based influenza vaccine and a combined mRNA-based influenza and COVID-19 vaccine, and an mRNA-based herpes zoster virus vaccine.
- Genmab: development of novel mono- and bispecific checkpoint immunomodulators.

Employees and research and development expenses

As of the reporting date December 31, 2022, 1,786 employees, thereof 1,259 at BioNTech SE (December 31, 2021: 1,179, thereof 870 at BioNTech SE), were working in research and development. The increase predominantly from new hires to advance basic scientific research and especially clinical research. Research and development costs in the Group amounted to €1,537.0 million during the 2022 financial year (previous year: €949.2 million). The increase was mainly due to increased costs in the context of adapting our COVID-19 vaccine to new variants as well as the progress of clinical trials for further product candidates from our pipeline. Other reasons for the increase were higher wages, salaries and social security contributions due to increased headcount as well as higher expenses from our share-based payments. Research and development expenses include the portion of costs attributable to us under the terms of the Pfizer collaboration agreement. Development costs are shared between us and Pfizer. The amount of shared development costs originally incurred by Pfizer and subsequently recharged to us was recorded in research and

development expenses as purchased services, and the reimbursement by Pfizer of the research and development costs originally incurred by us was recorded as a reduction of research and development expenses.

2 Economic report

2.1 Macroeconomic and industry-specific conditions

Despite difficult conditions, including sharp energy price increases and the consequences of the war in Ukraine, the German economy proved robust in 2022, growing by 1.8%[1] year-on-year in price-adjusted terms. In 2021 economic growth in Germany was still 2.6%.[1] For 2023, the German government expects only slight growth of 0.2%[2]. The global economy grew by around 3.2%[3] in 2022. The International Monetary Fund (IMF) does not expect a global recession in 2023. Although another difficult year with a persistently high inflation rate lies ahead, the labor markets are strong and private consumption is therefore also at a stable level. At 2.7%[3], global economic growth in 2023 is forecast to be slightly weaker than in 2022.

The German pharmaceutical industry expects more difficult conditions in 2023, as demand for COVID-19 vaccines and medicines is falling, higher costs are imminent due to regulations from politicians, and high prices for energy and precursors are to be expected. Compared to the previous year, sales are forecast to decrease by approximately 5%[4] and production by 1.8%[4] . In 2022, sales are still up 6.5%[4] and production up 3.6%[4] due in part to high demand for COVID-19 vaccines.

The ongoing, albeit subsiding, COVID-19 pandemic shaped the overall economic situation in Germany in 2022, as it did in 2021 and 2020.[5] In addition, the World Health Organization (WHO) continues to classify the COVID-19 pandemic as a global health emergency and continues to attach critical importance to COVID-19 vaccination, although the pandemic is approaching a turning point.[6]

With the development and advancement of the COVID-19 vaccine against diverse COVID-19 variants, as well as an early warning system designed to detect SARS-CoV2 risk variants more quickly, we are working with other companies, research institutes and governments to continue to contribute to the worldwide effort to overcome the global COVID-19 pandemic and protect against COVID-19. Our goal remains to make the vaccine available to a broad population worldwide.

Therapeutics in immunotherapy

The global market for mRNA therapeutics was estimated at $43 billion[7] in 2021 and is forecast by Precedence Research to grow at a compound annual growth rate of 13%[7] to approximately $128 billion[7] by 2030. To date, mRNA vaccines have only been approved for COVID-19 vaccines, but many others are in development, such as for cancer.[8]

[1] Source: https://www.destatis.de/DE/Themen/Wirtschaft/Volkswirtschaftliche-Gesamtrechnungen-Inlandsprodukt/Tabellen/bip-bubbles.html

[2] Source: https://www.bundesregierung.de/breg-de/aktuelles/jahreswirtschaftsbericht-2023-2160264#:~:text=In%20their%20annual%20economic%20report%2020expects,to%201%2C8%20grow%20percent.

[3] Source: https://www.tagesschau.de/wirtschaft/weltwirtschaft/iwf-prognose-weltwirtschaft-usa-101.html

[4] Source: https://www.aerzteblatt.de/nachrichten/140096/Pharmabranche-erwartet-Umsatzrueckgang

[5] Source: https://www.destatis.de/DE/Presse/Pressemitteilungen/2023/01/PD23_020_811.html

[6] Source: https://www.tagesschau.de/ausland/who-covid-19-notstand-101.html

[7] Source: https://www.precedenceresearch.com/mrna-therapeutics-market

[8] Source: https://www.vfa.de/de/arzneimittel-forschung/coronavirus/rna-basierte-impfstoffe-in-entwicklung-und-versorgung

Statista Health Market Outlook estimates global cancer drug sales in 2022 at €159 billion[9] with an 18%[9] share of the total pharmaceutical market. In 2025, sales are forecasted at €228 billion[9] with a market share of 22% . [9]

Marketing authorization, pricing and reimbursement are highly regulated in healthcare. On the one hand, it is the strategy of governments to provide patients with highly effective and safe medicines in a timely manner. On the other hand, cost pressure on global healthcare systems has been increasing for years. Therefore, drug manufacturers not only need to demonstrate the efficacy and safety of their products to gain approval, but also need to demonstrate the cost-effectiveness of their new drug against the respective standard of care to gain reimbursability. The rapid development of the COVID-19 vaccine, based on BioNTech's proprietary mRNA technology, has demonstrated the potential of immunotherapies. The rapid, efficient and safe development was driven by BioNTech's decades of expertise in the research and development of mRNA-based vaccines. BioNTech's mRNA vaccine technology allows for faster development as well as shorter production cycles than would be possible with more traditional methods of vaccine production. This is critical in bringing a COVID-19 vaccine to market and meeting urgent medical needs.

[9] Source: https://de.statista.com/infografik/26720/geschaetzter-umsatz-mit-krebsmedikamenten-und-marktanteil-an-allen-therapiegebieten-weltweit/

2.2 Presentation of business performance compared with the forecast

The following table shows the comparison between the BioNTech Group's forecast and earnings for 2022 financial year:

	Forecast for the 2022 financial year *(Published as part of Q4 2021 earnings presentation).*	**Updated guidance for the 2022 financial year** *(Published as part of Q3 2022 earnings presentation).*	**Results for the 2022 financial year**
Commercial COVID-19 vaccine revenues	€13 billion to €17 billion	€16 billion to €17 billion	€17,145.2 million
Research and development expenses	€1.4 billion to €1.5 billion	€1.4 billion to €1.5 billion	€1,537.0 million
Selling, general and administrative expenses	€450 million to €550 million	€450 million to €550 million	€544.2 million
Capital expenditures	€450 million to €550 million.	€450 million to €550 million.	€363.3 million
Effective annual tax rate of the BioNTech Group	28%	27%	27,2%

Due to positive currency effects and strong sales from our collaboration partners resulting in a higher share of gross profit, a total of €17.1 billion in commercial COVID-19 vaccine revenues was achieved during 2022 financial year. This exceeded the upper end of the forecast range by €0.1 billion.

Expected research and development expenses of €1.5 billion during 2022 financial year were at the upper end of the forecast range which was mainly due to expenses from the production of COVID-19 bivalent vaccines adapted to Omicron BA.1 and BA.4/BA.5 prior to the market authorization.

For the 2022 financial year, we expected selling, general and administrative expenses of between €450 million and €550 million. At €544.2 million, expenses for internal administrative and coordinating functional areas related to the expansion of research and development, such as finance, human resources or business development, were in line with the forecast costs for this purpose. Expenses were mainly driven by supporting our rapid and sustainable growth, including the acceleration of our internal operational activities.

Capital expenditure on property, plant and equipment and intangible assets amounted to €363.3 million in the past fiscal year. Expenditure on the expansion and improvement of our research and development and manufacturing facilities and investments in IT infrastructure was thus around €90 million below the lower end of the forecast range. This was mainly due to delays or standstills in construction projects as experienced overall in the construction industry, which was impacted by global supply problems.

We achieved an effective tax rate of 27.2% in fiscal 2022, meeting the guidance of 27% adjusted in November 2022.

2.3 Net assets, financial position and results of operations of the Group

2.3.1 Results of operations

Revenues

In addition to research and development revenues from collaborations, our revenues mainly include commercial COVID-19 vaccine sales. Revenues from contracts with customers decreased by €1,666.1 million year-on-year from €18,976.7 million to €17,310.6 million in fiscal 2022 as demand for our COVID-19 vaccine declined year-on-year, thus failing to match the strong revenue figures achieved in fiscal 2021. Our COVID-19 vaccine has been fully licensed, conditionally approved for marketing, or approved for emergency or temporary use in more than 100 countries and regions worldwide since December 2020, resulting in a total of more than 4 billion vaccine doses shipped globally by December 2022.

Accordingly, commercial revenues from the sale of our COVID-19 vaccine decreased by €1,661.6 million year-on-year from €18,806.8 million to €17,145.2 million in fiscal 2022.

Sales to collaboration partners represent sales of products manufactured by us and transferred to partners. When responsibilities for the manufacture and supply of COVID-19 vaccine change and COVID-19 vaccine is transferred between collaboration partners, a sale is made from one partner to the other. Revenues from our collaboration partner Pfizer are significantly impacted by the costs included therein for inventory write-downs and costs related to contracts with CMOs (Contract Manufacturing Organizations). The effects of this amounted to €850.0 million in fiscal 2022 and €31.0 million in the prior year. In fiscal 2022, revenue from products manufactured by us and sold to collaboration partners increased by a total of €253.4 million year-on-year from €970.9 million to €1,224.3 million.

In the allocation of marketing and distribution rights, territories were defined in which the collaboration partners each act as principals. Revenue from direct COVID-19 vaccine sales in our territories, Germany and Turkey, increased by €177.5 million year-over-year from €3,007.2 million to €3,184.7 million in fiscal 2022. The share of gross profit received by Pfizer as a collaboration partner based on our sales is recognized as cost of sales.

Based on Pfizer's and Fosun Pharma's COVID-19 vaccine sales in the collaboration partners' territories, we are entitled to a share of the respective gross profit from sales. This revenue is presented as a net amount in the statement of operations and is recognized as collaboration revenue during the commercial phase. Compared to the previous year, revenues in this context decreased by €2,092.5 million from €14,828.7 million to €12,736.2 million in fiscal 2022.

Research and development revenue from collaborations increased by €13.3 million year-on-year from €102.7 million to €116.0 million in fiscal 2022. The increase was mainly due to our collaborations with Pfizer (herpes zoster virus and influenza) and Sanofi S.A. (intratumoral mRNA-based therapies).

Cost of sales

Cost of sales increased by €83.5 million year-over-year from €2,911.5 million to €2,995.0 million during the 2022 financial year. The increase resulted primarily from the recognition of costs related to the sale of COVID-19 vaccines and includes Pfizer's share of our gross profit on sales from transactions in which we act as principal. Furthermore, the cost of sales included expenses due to inventory write-offs as well as expenses for production capacities derived from contracts with Contract Manufacturing Organizations (CMOs) that became redundant. These effects were driven by the launch of a new COVID-19 vaccine formulation, the transition from a monovalent vaccine to our Omicron-adapted bivalent COVID-19 vaccines, and the acceleration of internal manufacturing capacities during the 2022 financial year.

Research and development expenses

Research and development expenses increased by €587.8 million year-on-year from €949.2 million to €1,537.0 million during the 2022 financial year.

The increase mainly resulted from expenses in connection with the development and production of our Omicron-adapted bivalent COVID-19 vaccines. In addition, there was an increase in development expenses due to the progress of clinical trials for our pipeline candidates. Other reasons for the increase were higher wages, salaries and social security contributions due to increased headcount as well as higher expenses from our share-based payments.

Sales and marketing expenses

Sales and marketing expenses increased by €9.1 million year-on-year from €50.4 million to €59.5 million during the 2022 financial year.

The increase resulted in particular from increased costs for purchased services incurred in connection with the further development of our commercial activities for our COVID-19 vaccine. Furthermore, the increase was due to higher wages, salaries and social security contributions due to increased headcount.

General and administrative expenses

General and administrative expenses increased by €198.9 million year-on-year from €285.8 million to €484.7 million during the 2022 financial year.

The increase resulted in particular from higher purchased management, IT and legal consulting services as well as higher wages, salaries and social security contributions, mainly from increased employee numbers. Our transactions in

further business development, such as patent and license acquisitions, also contributed to the increase in administrative expenses.

Other operating result

Other operating income decreased by €95.7 million year-on-year from €504.0 million to €408.3 million during the 2022 financial year.

In other operating income, there was a significant increase in gains from foreign currency differences from the valuation of operating balance sheet items in fiscal 2022 (income of €727.4 million during the 2022 financial year compared to €446.3 million in the previous year). The increase reflects the change in the exchange rate and relates to our U.S.-dollar-denominated trade receivables mainly arising from our COVID-19 collaboration with Pfizer, U.S.-dollar-denominated trade payables and U.S.-dollar-denominated other financial liabilities mainly related to obligations incurred from our license agreements. In order to manage some of our transaction exposures, we again entered into forward foreign exchange contracts during the 2022 financial year, but these were not designated as hedging instruments. The increase in expenses from the recognition of changes in the fair value of these forward exchange contracts exceeded the increase from the aforementioned foreign currency differences from the measurement of operating balance sheet items (expenses of €385.5 million during the 2022 financial year compared with €86.3 million in the previous year).

Financial result

In contrast to the previous year, the financial result during the 2022 financial year represents net financial income of €311.4 million (€237.4 million net financial expenses in the previous year), an increase of €548.8 million.

Finance income during the 2022 financial year included €216.8 million fair value adjustments of the derivative embedded in the mandatory convertible bond (€277.8 million finance expense in the previous year). In February 2022, we notified Temasek (Ellington Investments Pte. Ltd.) ("Temasek") that we would exercise our early redemption option and fully redeemed the convertible note on March 1, 2022. The change in fair value was recognized up to the date of the early redemption and was primarily based on the change in our share price. In addition, €65.0 million of foreign exchange gains on financial items such as our U.S. dollar bank accounts and €48.5 million of interest income were recognized during the 2022 financial year compared to €66.2 million of foreign exchange gains and €1.5 million of interest income in the prior year.

Income taxes

Our tax expenses decreased by €1,234.2 million from €4,753.9 million in the previous year to €3,519.7 million during the 2022 financial year. Income taxes comprise actual taxes of €3,629.6 million (previous year: €4,535.0 million) and deferred tax income of €109.9 million (previous year: deferred tax expense of €218.9 million). Current income taxes include corporate income taxes and trade taxes of our German income tax group and are based on the calculated taxable income. Taxable income additionally takes into account deductible personnel expenses from our employee stock option programs. The Supervisory Board's decision on the settlement mechanism of the option rights at the end of September 2022 results in an actual tax saving of €406.1 million as of December 31, 2022. As the tax-deductible amount exceeds the amount of the related cumulative expense for share-based payments, the income tax of €374.1 million attributable to the excess is recognized directly in equity.

The deferred tax assets on tax losses relating to our German income tax group have already been fully utilized by fiscal 2021. During the 2022 financial year, the deferred tax income results from the recognition of deferred tax assets in connection with our employee stock option programs. In addition, we recognize deferred taxes on temporary differences. As of December 31, 2022, we do not recognize deferred tax assets on the losses of our U.S. tax group, our other companies outside Germany and the German companies that are not part of the tax group.

Annual result

During the 2022 financial year, a net profit of €9,434.4 million (previous year: €10,292.5 million) was generated.

2.3.2 Financial position

The goal of financial management is to ensure capital preservation as well as to provide liquidity for the growth of the companies. Proceeds from commercial sales of our COVID-19 vaccine have become our most important source

of liquidity and led to a significant increase in cash and cash equivalents in fiscal year 2022. Scenario and cash flow planning are used to determine liquidity needs.

Capital structure

As of December 31, 2022, our subscribed capital comprised 248,552,200 bearer shares with voting rights, of which 5,337,031 were held as treasury shares. The par value of our shares is €1.00 and evidences one voting right per share at the Annual General Meeting. The financing of ongoing clinical trials as well as the development, build-up of production capacity and commercialization of new formulations and Omicron-adapted bivalent COVID-19 vaccines was primarily funded from cash flow from operating activities.

In January 2022, we entered into a new research, development and commercialization collaboration with Pfizer to develop a potential first-of-its-kind mRNA-based vaccine for the prevention of shingles (herpes zoster virus or HZV). In connection with this collaboration, Pfizer agreed to make an equity investment in us and acquired 497,727 shares of our common stock for a total consideration of €110.6 million. The issuance of 497,727 ordinary shares with a par value of €0.5 million was entered into the commercial register on March 24, 2022.

In March 2022, we redeemed our mandatory convertible note by exercising our early redemption option, which was fulfilled in April 2022 - by issuing 1,744,392 ordinary shares. The nominal amount of €1.8 million was recognized in share capital and increased additional paid-in capital by €233.2 million as a result of the transaction. The declaratory entry in the commercial register was made on May 20, 2022.

In March 2022, the Management Board and Supervisory Board approved an American Depositary Shares (ADS) share repurchase program under which the Company may repurchase up to $1.5 billion worth of ADS over the next two years. On May 2, 2022, the first tranche of our ADS share repurchase program began with a value of up to $1.0 billion. In November 2022, the Management and Supervisory Boards approved the second tranche of our ADS share repurchase program, valued at up to $0.5 billion, which commenced on December 7, 2022. During the 2022 financial year, 6,945,513 ADSs were repurchased at an average price of $143.98 for a total amount of $1.0 billion (€986.4 million).

In June 2022, our shareholders approved the proposed special dividend of €2.00 per ordinary share (including shares held in the form of ADSs) at the Annual General Meeting, resulting in a total payment of €484.3 million.

No ADSs were sold during the 2022 financial year (prior year: 995,890 ADSs for gross proceeds of $200.0 million or €163.6 million) under the sales agreement (the "Sales Agreement") entered into in 2020 with Jefferies LLC and SVB Leerink LLC (now operating as SVB Securities LLC), acting as sales agents. Through the At-the-Market Offering Program, we may sell ADSs embodying ordinary shares in due course for aggregate gross proceeds of up to $500.0 million. As of December 31, 2022, the capacity remaining under the Sale Agreement was $207.1 million. Under the at-the-market offering program, the ADSs will be sold through the stock exchange and, therefore, shareholder preemptive rights will not be affected.

Capital expenditures

During the 2022 financial year, investments were made in particular in property, plant and equipment such as land, plant facilities and equipment in the amount of €329.2 million (previous year: €127.5 million). The investments were mainly made in connection with new buildings in Germany, including our acquisition of the land and the laboratory and office building at our main site at An der Goldgrube 12 in Mainz, Germany, and the down payment for the planned acquisition of a manufacturing facility in Singapore. Investments in intangible assets amounted to €34.2 million during the 2022 financial year (previous year: €10.1 million). During the 2022 financial year, no investments in intangible assets were made in connection with business combinations (previous year: € 43.3 million in connection with the acquisition of the subsidiary BioNTech R&D (Austria) GmbH, Vienna).

Depreciation of property, plant and equipment, such as buildings, plant facilities and equipment, amounted to €42.4 million during the 2022 financial year (previous year: €29.4 million). Amortization of intangible assets amounted to € 22.0 million (previous year: € 16.8 million).

Liquidity

As of December 31, 2022, our cash and cash equivalents amounted to €13,875.1 million compared to €1,692.7 million as of December 31, 2021. Primarily, the significant increase on the cash inflow during the 2022 financial year was due to payments received from commercial sales of our COVID-19 vaccine and our share of gross profit from commercial sales of our partner Pfizer's COVID-19 vaccine included therein. We receive a large portion of these

payments in U.S. dollars through our partner Pfizer, exposing us to significant concentration and currency risks. Operating activities, which mainly include the share of gross profit received as well as payments in connection with research and development activities, generated a positive cash flow from operating activities of €13,577.4 million (previous year: positive cash flow of €889.7 million).

We spent €35.3 million on investing activities during the 2022 financial year (previous year: €566.1 million). In contrast to the investments described above, the decrease mainly results from the repayment of time deposits with a term of more than three months in the amount of €375.2 million (previous year: payment of €375.2 million for investment in time deposits with a term of more than three months).

2.3.3 Net assets

As of December 31, 2022, total assets amounted to €23,279.1 million compared to €15,830.8 million as of December 31, 2021. The increase mainly resulted from increased cash and cash equivalents from the sale of our COVID-19 vaccine as well as our COVID-19 collaboration with Pfizer and subsequent developments:

Current and non-current assets

Compared with December 31, 2021, non-current assets increased by €598.6 million from €758.5 million to €1,357.1 million as of December 31, 2022. The increase resulted mainly from investments in property, plant and equipment, rights of use and intangible assets, which were partly offset by depreciation and amortization, and the recognition of deferred tax assets.

The increase in current assets by €6,849.7 million from €15,072.3 million as of December 31, 2021 to €21,922.0 million as of December 31, 2022 was mainly the result of an increase in cash and cash equivalents, while receivables from our COVID-19 collaboration with Pfizer and receivables from customers we directly supply in our territory decreased due to lower demand at the end of the 2022 financial year.

Equity

Compared with December 31, 2021, shareholders' equity increased by €8,161.9 million from €11,893.7 million to €20,055.6 million as of December 31, 2022. The increase resulted mainly from the profit for the 2022 financial year, partially offset by the effects of the share repurchase program in the amount of €986.4 million and the distribution of the special dividend in the amount of €484.3 million, as well as the settlement of the employee stock option programs. The equity ratio increased by 11.1 %-points to 86.2% (previous year: 75.1%).

Current and non-current liabilities

Compared with December 31, 2021, liabilities decreased by €713.6 million from €3,937.1 million to €3,223.5 million as of December 31, 2022. The decrease resulted mainly from income tax liabilities and the early redemption of the convertible note. The decrease was partially offset by increased liabilities from payroll taxes and social security contributions in connection with the settlement of the employee stock option programs (ESOP 2018 and LTI-plus).

2.4 Performance Indicators of the Group and BioNTech SE

2.4.1 Non-financial performance indicators of the Group and BioNTech SE

Innovation was classified as a material non-financial performance indicator during the 2022 financial year in line with the materiality analysis on sustainability carried out in 2020 and the qualitative review of this analysis and the GAS 20 criteria, and is used for internal management.

We use state-of-the-art technologies to develop individualized immunotherapies in the fight against cancer, infectious diseases and rare diseases. We support the United Nations Sustainable Development Goals (SDGs). In doing so, research makes a relevant contribution to supporting the third United Nations Sustainable Development Goal (SDG 3): ensuring healthy lives for all at all ages and promoting well-being.

Progress in research achievements, such as the further development and expansion of commercialization of the COVID-19 vaccine, is a key performance indicator. We are working to clinically demonstrate the benefit of additional treatment approaches, further develop additional product candidates in the form of pivotal studies, and continuously expand collaborations and manufacturing capabilities to offer innovative treatments to patients around the world.

2.4.2 Financial performance indicators of the Group and BioNTech SE

The following financial performance indicators are the focus of our management of operational business development. We use the indicators on the basis of current exchange rates (not currency-adjusted) and take into account effects from potential M&A activities or collaborations insofar as they have been published.

Commercial COVID-19 vaccine revenues

These revenues include expected revenues related to our share of gross profit from sales by our collaboration partners in the territories allocated to them based on marketing and distribution rights, expected revenues from direct COVID-19 vaccine sales to customers in our territories, and expected revenues from sales to our collaboration partners of products manufactured by us.

Revenue is strongly influenced by the volumes available under the collaboration and the agreed upon purchase quantities and serves as a performance indicator of our current commercial profitability.

For further information regarding the composition of commercial COVID-19 vaccine revenues and the components included therein, see the discussion of sales revenue in 2.3.1 Results of Operations.

Research and development expenses

Research and development expenses are an indicator of our future earnings potential, as this is highly dependent on the development of the clinical pipeline and the responsible use of the financial resources generated.

Selling, general and administrative expenses

These expenses include sales and marketing expenses as well as general and administrative expenses. We use this measure to manage the costs associated with the expansion of the sales and marketing organization to ensure the infrastructure and digital capacity necessary for future market-ready products, and to manage the internal administrative and coordinative functional areas associated with the expansion of research and development, such as finance, human resources, or business development, with regard to the associated cost development.

Investments in property, plant and equipment and intangible assets

Capital expenditures for property, plant and equipment and intangible assets comprise expenditures for the acquisition of property, plant and equipment as well as expenditures for the acquisition of intangible assets and rights of use, unless they are made as part of business combinations. These mainly include expenditures for the expansion and improvement of our research and development and manufacturing facilities and investments in a state-of-the-art IT infrastructure to support the company in all digitalization projects.

Effective annual tax rate of the BioNTech Group

The effective income tax rate is an important parameter in profitability and liquidity planning.

2.5 Overall statement on the business performance and position of the Group and BioNTech SE

Through our basic research and our work in developing immunotherapies, we aim to improve the health of people worldwide by harnessing the full potential of the immune system to fight cancer, infectious diseases and other serious illnesses. At this stage, these activities still require high investments. In addition to financial metrics, we continue to measure our business success primarily by our research performance, and in particular by the achievement of set targets. Together with collaboration partners, we have developed a solid and diversified pipeline of product candidates in oncology and infectious diseases. Currently, more than 25 product candidates are in more than 30 clinical trials and more than 30 research programs. In this respect, we have further developed collaborations and made positive pipeline progress during the 2022 financial year in line with expectations and plans. We are therefore well equipped to continue our positive development in 2022 in 2023 in a further challenging market environment.

3. Management Report of BioNTech SE

3.1 Supplementary notes to the separate financial statements according to HGB

BioNTech SE is the parent company of the BioNTech Group and is headquartered in Mainz, Germany. In addition, at the end of the 2022 financial year, the BioNTech Group included 33 group companies at six different locations in Germany, two different locations in the United States and one location each in Australia, China, Austria,

Rwanda, Singapore, Turkey and the United Kingdom. Key management functions for the Group such as corporate strategy, risk management, investment management tasks, executive and financial management as well as communication with important target groups of the Group are the responsibility of the Management Board of BioNTech SE. With its operating activities, in particular in connection with the two collaboration agreements with Pfizer and Fosun Pharma, which were concluded by BioNTech SE in the context of the COVID-19 vaccine program, BioNTech SE generated the major part of the Group's revenues.

BioNTech SE is not managed separately using its own performance indicators, as the company is integrated into the Group's management system. The explanations given for the group apply. The economic framework conditions of BioNTech SE essentially correspond to those of the BioNTech Group and are described in detail in Section 2.

3.2 Net Assets, Financial Position and Results of Operations of BioNTech SE

3.2.1 Results of operations

	Years ended December 31,	
(in millions)	**2022**	**2021**
Revenues	12,514.5 €	14,933.8 €
Cost of sales	(1,615.7)	(1,642.0)
Gross profit	**10,898.8 €**	**13,291.8 €**
Research and development expenses	(1,519.7)	(816.2)
Selling expenses	(29.1)	(12.8)
General administrative expenses	(475.4)	(226.4)
Other operating income	1,041.3	638.9
Other operating expenses	(717.1)	(118.0)
Operating result	**9,198.8 €**	**12,757.3 €**
Income from profit transfer	2,863.3	2,691.6
Other interest and similar income	51.8	6.0
Interest and similar expenses	(30.9)	(19.1)
Expenses from loss transfer	(86.9)	(52.2)
Profit before taxes	**11,996.1 €**	**15,383.6 €**
Income taxes	(3,370.1)	(4,606.0)
Net income	**8,626.0 €**	**10,777.6 €**

Revenues

Revenue decreased by €2,419.3 million year-over-year from €14,933.8 million to €12,514.5 million during the 2022 financial year. Commercial revenue decreased due to lower demand for our COVID-19 vaccine and is largely attributable to revenue recognition under the collaboration agreement with Pfizer, to which BioNTech SE is a party.

Cost of goods sold and services rendered to generate revenues

Cost of sales decreased by €26.3 million year-over-year from €1,642.0 million to €1,615.7 million during the 2022 financial year. Cost of sales primarily includes the share of our gross profit that Pfizer receives as a collaboration partner based on our sales. In addition, sales-related licensing costs for third-party intellectual property contribute to the cost of sales.

Research and development expenses

Research and development expenses increased by €703.5 million year-on-year from €816.2 million to €1,519.7 million during the 2022 financial year. The increase resulted mainly from expenses from the payment of payroll taxes and social security contributions in connection with the exercise of our share-based payments. Other reasons for the

increase were higher expenses from the progress of clinical trials for our pipeline candidates as well as higher wages, salaries and social security contributions due to increased headcount.

General administrative expenses

General and administrative expenses increased by €249.0 million year-on-year from €226.4 million to €475.4 million during the 2022 financial year. The increase resulted in particular from expenses from the payment of payroll taxes and social security contributions in connection with the exercise of our share-based payments, higher purchased management, IT, and legal consulting services, and higher wages, salaries, and social security contributions, mainly from increased headcount. Our transactions in further business development, such as patent and license acquisitions, also contributed to the increase in administrative expenses.

Other operating result

Other operating income decreased by €196.7 million year-on-year from €520.9 million to €324.2 million during the 2022 financial year. The income included here mainly comprised foreign currency gains from the translation of our trade receivables denominated in U.S. dollars, which mainly arose in connection with our COVID-19 collaboration with Pfizer. The offsetting effects mainly include expenses from forward exchange contracts.

Financial result

The financial result, consisting of the effects of profit/loss transfer and interest income/expense, increased by €171.0 million year-on-year from €2,626.3 million to €2,797.3 million in the financial year 2022. The increase resulted in particular from the higher income from the profit transfer from affiliated companies (net profit transfer of €2,776.4 million; previous year: net profit transfer of €2,639.4 million). The net interest expense included in the financial result improved by €34.0 million compared with the previous year, from €13.1 million in interest expense to €20.9 million in interest income in the financial year 2022.

Taxes on income and earnings

Taxes on income amounted to €3,370.1 million during the 2022 financial year (previous year: €4,606 million). Income taxes comprise actual taxes of €3,442.3 million (previous year: €4,533.7 million) and deferred tax income of €72.3 million (previous year: deferred tax expense of € 72.3 million). The decrease is due to a reduced tax rate, lower revenues and income recognition related to our COVID-19 vaccine sales and includes corporate income taxes and trade taxes of our German income tax group and is based on the calculated taxable income. Taxable income additionally takes into account deductible personnel expenses from our equity compensation programs. The Supervisory Board resolution on the ESOP 2018 resulted in a current cash settlement obligation in HGB accounting with regard to the payroll tax resulting from the exercise. Thus, in HGB, the difference between the value of the payroll tax payout and the fair value corresponding to the pro-rata rights at the grant date was recognized as an additional expense. Our stock compensation programs resulted in a total actual tax saving of €406.1 million. Against the background of the additional expense for the ESOP 2018 in the HGB, only the income tax of €187.0 million for the excess deductible amount for tax purposes was recognized directly in equity.

Annual result

Net income of €8,626.0 million (previous year: €10,777.6 million) was reported during the 2022 financial year.

3.2.2 Financial position

The objective of the financial management of BioNTech SE is essentially identical to that of the Group and involves providing liquidity for the growth of the Group companies.

Capital structure

As of December 31, 2022, our subscribed capital comprised 248,552,200 voting bearer shares, of which 5,337,031. were held as treasury shares. Additional paid-in capital decreased by €578.4 million mainly in connection with the exercise of our share-based payments. The change also includes the recharges from commitments in connection with the exercise of share-based payments for employees of subsidiaries, which are fulfilled by BioNTech SE.

Investments

Total investments of €703.5 million (previous year: €352.9 million) were made in the financial year 2022. This amount comprised investments in property, plant and equipment of €75.7 million (previous year: €26.9 million) and investments in intangible assets of €31.8 million (previous year: €6.7 million), as well as investments in shares, loans to

affiliated companies and shareholdings of €596.0 million (previous year: €319.3 million), driven by financing for the subsidiaries.

Depreciation of buildings, other equipment, office furniture and equipment amounted to €14.4 million in 2022 (previous year: €10.6 million). Amortization of intangible assets amounted to €12.0 million (previous year: €9.7 million).

Liquidity

As of December 31, 2022, BioNTech SE had cash and cash equivalents of €13,798.0 million compared to €1,396.8 million as of December 31, 2021. Primarily, the significant increase to the cash inflow during the 2022 financial year was due to payments received from commercial sales of the COVID-19 vaccine under the collaboration agreement with Pfizer and from COVID-19 vaccine sales by our subsidiary in our territories received by BioNTech SE through the profit and loss transfer agreements. We receive a large portion of these payments in U.S. dollars through our partner Pfizer, which exposes us to significant concentration and currency risks. Operating activities, which mainly include the share of gross profit received as well as payments in the context of research and development activities, generated a positive cash flow from operating activities of €13,148.0 million (previous year: positive cash flow of €854.8 million).

3.2.3 Net assets

(in millions)	December 31 2022	December 31 2021
Assets		
Fixed assets		
Intangible assets	71.9 €	52.8 €
Property, plant and equipment	99.9	47.0
Financial assets	1,279.7	755.6
Total fixed assets	**1,451.5 €**	**855.4 €**
Current assets		
Inventories	0.7	1.6
Receivables and other assets	7,273.3	13,114.9
Cash on hand and bank balances	13,798.0	1,396.8
Total current assets	**21,072.0 €**	**14,513.3 €**
Prepaid expenses	63.5	24.5
Total assets	**22,587.0 €**	**15,393.2 €**
Liabilities and shareholders' equity		
Equity		
Subscribed capital	248.6	246.3
Capital reserve	1,295.4	1,883.8
Treasury shares	(5.3)	(3.8)
Retained earnings	9,445.4	5,132.4
Accumulated profit	8,961.2	5,132.3
Total equity	**19,945.3 €**	**12,391.0 €**
Provisions		
Tax provisions	606.1	1,573.3
Other provisions	923.3	1,096.2
Total provisions	**1,529.4 €**	**2,669.5 €**
Liabilities		
Bonds	-	100.4
Trade accounts payable	57.2	55.1
Liabilities to affiliated companies	389.6	71.6
Other liabilities	651.6	13.4
Total liabilities	**1,098.4 €**	**240.5 €**
Deferred income	13.9	19.9
Deferred tax liabilities	-	72.3
Total liabilities and shareholders' equity	**22,587.0 €**	**15,393.2 €**

As of December 31, 2022, total assets amounted to €22,587.0 million compared to €15,393.2 million as of December 31, 2021. The increase was mainly due to increased cash and cash equivalents from our COVID-19 collaboration with Pfizer and payments received from COVID-19 vaccine sales by our subsidiaries through the profit and loss transfer agreements, as well as the following developments:

Fixed assets and current assets

Compared with December 31, 2021, non-current assets increased by €596.1 million from €855.4 million to €1,451.5 million as of December 31, 2022. In addition to additions to intangible assets and property, plant and equipment, the increase in financial assets is attributable to further financing transactions of subsidiaries.

Compared to December 31, 2021, current assets increased by €6,558.7 million from €14,513.3 million as of December 31, 2021 to €21,072.0 million as of December 31, 2022, primarily as a result of increased cash and cash equivalents from our COVID-19 collaboration with Pfizer and payments received from our subsidiaries' COVID-19 vaccine sales through profit and loss transfer agreements.

Equity

Compared with December 31, 2021, shareholders' equity increased by €7,554.3 million from €12,391.0 million to €19,945.3 million as of December 31, 2022. The increase resulted primarily from the net income generated during the 2022 financial year. The equity ratio increased by 7.8 %-points to 88.3% (2021: 80.5%).

Provisions and liabilities

Compared with December 31, 2021, provisions and liabilities decreased by €282.2 million from €2,910.0 million to €2,627.8 million as of December 31, 2022. The decrease mainly resulted from income tax provisions. The decrease was partly offset by increased liabilities from payroll taxes and social security contributions in connection with the settlement of the employee stock option programs (ESOP 2018 and LTI-plus).

3.3 Forecast, risk and opportunity report

The business development of BioNTech SE is essentially subject to the same risks and opportunities as the BioNTech Group, as BioNTech SE participates in the risks of the group companies via its investments. As a result of the central financial management of the BioNTech Group, all financing transactions are essentially conducted via BioNTech SE. As the parent company of the BioNTech Group, BioNTech SE is integrated into our Group-wide risk management.

3.4 Relationships with affiliated companies

Final Declaration of the Management Board of BioNTech SE on the Report on Relationships with Affiliated Companies for the 2022 Financial Year (Dependent Company Report pursuant to Section 312 para. 3 sentence 3 AktG):

"According to the circumstances known to us at the time when the legal transactions were carried out, BioNTech SE received appropriate consideration for each legal transaction listed and has not been disadvantaged as a result. In the reporting year, no measures were taken or omitted at the instigation of or in the interest of ATHOS KG or its affiliated companies in the period from January 1 to December 31, 2022."

4 Forecast, risk and opportunity report

4.1 Forecast report

We are part of the pharmaceutical and biotechnology industry, which is characterized nationally and internationally by its innovative strength. Global demographic change and medical progress offer the industry solid growth prospects. Based on our proprietary mRNA technology, we were the first company in the world to develop a highly effective and safe vaccine against COVID-19 in compliance with scientific standards and to successfully market it globally within one year. This demonstrates our ability to develop and commercialize medicines and therapies based on innovative technologies that add significant value for patients and society.

We expect commercial COVID-19 vaccine revenues of approximately €5.0 billion during the 2023 financial year.

This revenue guidance is based on various assumptions including but not limited to the expected transition from an advanced purchase agreement environment to commercial market ordering starting in 2023 and a regulatory recommendation to adapt the COVID-19 vaccines to address newly circulating variants or sublineages of SARS-CoV-2. Our estimated COVID-19 vaccine revenues reflect expected deliveries under existing or committed supply contracts and anticipated sales through traditional commercial orders. A re-negotiation of the existing supply contract with the European Commission is ongoing, with the potential for a rephasing of deliveries of doses across multiple years and/or a volume reduction. While we expect an increased demand from a vaccine adaptation, fewer primary vaccinations and lowered population-wide levels of boosting are anticipated. We assume a seasonal demand, moving expected revenue generation significantly to the second half of the year 2023.

Revenue is strongly influenced by the volumes available under the collaboration and the agreed upon purchase quantities, to which we have adjusted our production capacities accordingly. In addition to the further expansion of our mRNA production facilities in Marburg, Germany, we plan to further build our own fully integrated mRNA production sites in Asia and Africa, and furthermore to deploy turnkey mRNA production facilities based on our container solution "BioNTainer" in additional countries.

We aim to generate long-term and sustainable revenue from the COVID-19 vaccine program by expanding access to the vaccine through supply expansion, broader distribution with a well-known brand, and continuous optimization of the vaccine. In addition to the vaccine already released and adapted to Omicron, we are working with Pfizer to create the conditions to flexibly adapt the vaccine to other potential future mutations if necessary, to optimize the formulations, and to make the product available to additional patient groups through indication extensions.

With the successful production and commercialization of our COVID-19 vaccine, we have built up a lot of expertise and a global network to develop, produce and commercialize future products worldwide. Our future earnings potential is highly dependent on the development of the clinical pipeline and the responsible use of the financial resources generated. We intend to reinvest the proceeds from the sale of our COVID-19 vaccine in our advanced clinical candidates as well as in the further expansion of our therapeutic platforms across all four drug classes. During the 2023 financial year, we expect to make significant progress in several clinical trials as well as data updates in numerous development programs. In connection with the expansion of our product pipeline in oncology and infectious diseases and the expansion into new areas such as autoimmune diseases, regenerative medicine and allergies, we expect our research and development costs to continue to increase. In this context, we expect expenses of between €2.4 billion and €2.6 billion during the 2023 financial year.

For the internal administrative and coordinative functional areas related to the expansion of research and development, such as finance, human resources or business development, costs are also expected to increase. During the 2023 financial year, we expect selling, general and administrative expenses of between €650 million and €750 million.

Last but not least, investments in property, plant and equipment and intangible assets will also increase. During the 2023 financial year, we expect investments in property, plant and equipment and intangible assets of €500 million to €600 million. This includes expenditures for the expansion and improvement of our research and development and the manufacturing facilities described above, as well as investments in a state-of-the-art IT infrastructure to support the company in all digitalization projects.

We expect an estimated cash-effective tax rate of 27% for the 2023 financial year.

The extent to which the COVID-19 pandemic continues to impact our operations and what protective measures remain necessary depends on future developments regarding new variants, which are highly uncertain and cannot be predicted with certainty. We will continue to evaluate potential impacts and announce appropriate updates.

During the 2022 financial year, we strengthened our technology platforms, digital capabilities and infrastructure through sustained investments, selected strategic partnerships and acquisitions to create long-term value for patients, shareholders and society. The 2023 financial year will seamlessly build on this with the goal of establishing ourselves as a leader in 21st century immunotherapies with a multi-platform strategy and diversified product pipeline.

4.2 Risk report

4.2.1 Risk governance framework and risk management system

Risk Governance Framework

As a next-generation immunotherapy company, we are exposed to numerous uncertainties and changes resulting, for example, from the fundamentally new research approach. The governance structure within BioNTech is based on the "Three Lines Model" to systematically manage risks. Our aim is to anticipate possible developments at an early stage and to systematically record, assess and manage any resulting risks. It is equally important to identify and exploit opportunities. In operational terms, the *first line* is concerned with ensuring compliance with the requirements defined in the second line and implementing controls as part of our day-to-day activities. In addition to risk management, the *second line* also includes our internal control system (see 4.2.2 Internal Control System and Internal Audit) and our Compliance & Ethics Program (see 5.4 Integrity and Ethics). This line identifies risks, defines the control framework and provides guidelines, among other things. The *third* line is Internal Audit, which was newly implemented in the 2022 financial year (see 4.2.2 Internal control system and Internal Audit).

Risk management system

For us, a functioning risk management system (RMS) is a central element of value-based corporate management as part of our risk governance framework.

Our enterprise-wide risk management system covers strategic, operational, financial, legal and reputational risks as well as the corresponding opportunities.

Risk Reporting

The aim is to identify, monitor and manage these risks at an early stage. Risks and their impact on the company are presented transparently to enable effective management of these risks. To this end, we use internal and external sources of information.

Central Risk Management prepares an overall risk report for the Board of Management twice a year. The Management Board also informs the Audit Committee twice a year. The Audit Committee deals with this report in its meetings. If - in addition to the regular reporting of major risks - unexpected risks arise, these are reported directly to the Management Board. The Audit Committee of our Supervisory Board reviews the effectiveness and appropriateness of the risk management system and also uses the newly created Internal Audit department for this purpose.

The further development of the risk management system was again the focus of the Management Board and Supervisory Board in fiscal year 2022, and methods and processes are being continuously refined.

Risk identification

Based on the risks recorded in the previous period, these were reassessed in the 2022 financial year. New risks were recorded and analyzed in the same way as in the previous year. Existing risks were reviewed and sharpened with regard to their content and assessment, and adjusted where necessary.

The individual risks are assigned to so-called risk owners who are responsible for managing these risks and who have the necessary competencies and responsibility to do so. The risk owners assess the individual risks quantitatively by determining the probability of occurrence and the expected impact on the enterprise value. In addition, the risks are expanded to include the dimensions "reputational damage" and "legal relevance" and assessed qualitatively.

The risk survey process is generally carried out twice a year (in the first and third quarters). Ad hoc risks are continuously recorded and assessed.

Since the 2021 financial year, the risk survey has been supported by a risk management tool. Within the tool, risks are aggregated using a Monte Carlo simulation, evaluated using a value-at-risk approach and then managed according to the defined risk-bearing capacity.

We continuously monitor identified risks and counter them in various ways. For each risk, we make an individual decision as to whether to accept the risk or not. Alternatively, we consider whether the risk can be covered (or transferred) by insurance, for example, or mitigated by other measures.

Risk assessment

Risks are assessed in monetary terms according to "probability of occurrence" and "damage potential". The probability of occurrence is assessed in the range between "very unlikely" and "very likely”. The damage potential is assessed in the range between "low" and "critical". Depending on the combination of the characteristics, risks are classified in three categories: high, medium and low.

However, risks with a currently low estimated loss potential may have a greater impact in the future than currently assessed and are therefore continuously monitored by central risk management.

4.2.2 Internal control system and internal audit

Internal control system

Our internal control system (ICS) aims to provide reasonable assurance regarding the reliability of financial reporting and the preparation of our financial statements for external reporting purposes in accordance with International Financial Reporting Standards (IFRS) or the German Commercial Code (HGB). By listing our share on the Nasdaq Global Select Market, we have established our internal control system based on SOX regulations (Sarbanes-Oxley Act Section 404).

The ICS control process is depicted in an ICS lifecycle. This consists of the six successive or parallel steps shown below:

- Scoping phase

- Effectiveness test
- Reconciliation of audit results
- Activity monitoring
- Quality assurance of the self-assessments
- ICS reporting

The audit results are regularly communicated to the Management Board and Supervisory Board and released as part of the annual financial statements. The scope of the ICS is defined across all processes. These audit results include not only financial reporting topics, but also more extensive processes and topics from general areas, such as treasury, taxes, IT, compliance, and operational topics.

Based on the COSO model (Committee of Sponsoring Organizations of the Treadway Commission), our internal control system for financial reporting is divided into five components: control environment, risk assessment, control activities, information and communication, and monitoring of the internal control system.

The effectiveness of internal control over financial reporting is regularly reviewed and assessed against the COSO components in accordance with Section 404 SOX. As of December 31, 2022, the control system over financial reporting was assessed as effective by our Management Board.

Systemic limitations may arise in the design of internal control over financial reporting and in relation to the thoroughness of the control process, so there can be no absolute assurance that financial reporting objectives will be achieved and misstatements will always be prevented or detected.

Internal Audit

The Internal Audit function was newly implemented in the 2022 financial year. As an independent auditing and advisory body without operational responsibility, Internal Audit audits organizational units, processes, corporate functions and projects on behalf of the Board of Management and the Audit Committee following a risk-based selection process. In 2022, among other things, the risk management system was audited. Audit findings result in agreed measures that are monitored by Internal Audit until they are fully implemented.

4.2.3 Risks

Sustainability risks

Through cooperation between the areas of responsibility Risk Performance and Corporate Social Responsibility (CSR), material sustainability risks have been identified and integrated into the company-wide risk management system since the 2022 fiscal year. The focus of the analyses in 2022 was on climate risks in accordance with the Task Force on Climate Related Financial Disclosures (TCFD) and human rights risks in accordance with the Supply Chain Due Diligence Act (LkSG), which has been in force for BioNTech since January 1, 2023.

We continuously plan to integrate climate-related topics (climate risks according to TCFD and targets according to the Science Based Targets Initiative, SBTi) into risk management. In 2023, we will include potentially material financial and physical impacts of climate change in a separate category within corporate risk management. An overview of identified climate risks for us, as well as governance and strategy related to climate risks, can be found in the Sustainability Report for fiscal 2022. Metrics and targets for assessing and managing relevant climate-related risks are published without external review in the Sustainability Report 2022 and on the website at www.biontech.de. The climate targets for 2030 according to SBTi have been submitted to SBTi for validation in 2022.

In 2022, we launched a gap analysis to review the measures taken to date to deal with human rights risks, focusing on the risks specified in section 2 para. 2 of the LkSG. This review, in preparation for a comprehensive risk analysis in accordance with section 5 of the LkSG, covered our own business operations and our direct suppliers. The implementation of a proactive risk analysis for the early identification of potential and timely mitigation of actual human rights and environmental risks and incidents in accordance with the LkSG is a high priority for us. It will be conducted in coordination between the Human Rights Officer, CSR team, Risk Management as well as with the support of Internal Audit. Risk analysis is used both globally and in each country in which we operate and is updated annually or on an ad hoc basis to assess potential risks in the event of significant changes to the company's operations or business relationships. We conduct ad hoc risk assessments based on human rights and environmental risks as required.

Risks with the greatest impact

Risks from strategic transformation and integration

We are in a constant process of strategic adjustments. If we are unable to implement our plans as planned, we are exposed to certain risks. For example, the benefits of the measures could be lower than originally estimated, they could have an impact later than anticipated, or they could fail to have any effect at all. Any of these factors - alone or in combination - could have a negative impact on our business, net assets, financial position and results of operations. The transformation is being addressed through various strategic initiatives; these include in particular the expansion of existing departments and cross-functional teams as well as the expansion of our tool support and the underlying process landscape. The risk is assessed as high.

Employees

Our workforce plays a crucial role in our transformation. The skills of our employees are an important factor for our business success. If we are unable to recruit or retain sufficient numbers of experts, this could have a negative impact on our business in the future. New processes and capacities are being developed and built up to counteract the bottleneck caused by the generally high market demand for the recruitment of new employees and relevant specialist personnel. The risk is assessed as medium.

Legal, IP and Insurance

The legal risks currently relevant to us can be grouped into two categories: contractual risks on the one hand and patent-related risks on the other.

On the contractual side, we are confronted with possible breaches of contract. Different interpretations of the contracts, the claims regulated therein, and the allocation of sales and costs could lead to disputes. To counter the risk, provisions are recognized - provided the recognition criteria are met. A medium residual risk remains.

In addition, in the course of our normal business activities, we may from time to time unintentionally infringe the protected intellectual property of others. These patent-related risks are countered by continuous monitoring of patent applications. In addition, in such cases we continuously review whether the related circumstances change in the future, including whether the recognition of a provision might be necessary and whether potential compensation claims exist against such claims. The risk is assessed as medium.

The intentional or unintentional infringement of our intellectual property by third parties is currently classified as a low risk, but would primarily have long-term effects.

Due to rapid growth in recent years, there is a looming gap in insurance management. Not all events or different events may be fully insured. Constant growth makes it difficult for insurance service providers to evaluate, coverage amounts and related premiums may be set too high or too low. We are in continuous exchange with insurance companies to find an acceptable solution regarding conditions and costs, a central insurance management has been established and several insurance brokers are already engaged. Until the measures taken are fully implemented, management classifies the risk as medium.

Commercial products

With our COVID-19 vaccine, we have launched our first commercial product and at the same time represent an effective component in the fight against the COVID-19 pandemic. Sales forecasted by assumptions are subject to fluctuations and may thus fall short of our own expectations. These fluctuations can be triggered, for example, by an incorrect assessment of market size or unforeseen changes in market demand. This includes the pandemic status declared by the WHO for 2023, on which the adjustment of our vaccine doses as well as distribution channels and the guarantee of regular supply depend. Changes in the requirements for our vaccine, missed or delayed adaptation to new virus variants, or even superior products from competitors could also have an aggravating effect here. Internal capacities are being built and expanded to address the complex landscape of emergency approvals, temporary approvals or conditional approvals. We continuously monitor and analyze market and industry events in order to identify market entry barriers, growing competition or changes in healthcare legislation at an early stage. In addition, we are in active exchange with government representatives, health insurers or other payers. The risk is classified as high.

The various contracts with our collaboration partners and the associated profit share are subject to certain expectations on our side. Despite various reconciliations and our own assessment, actual results may fall short of our expectations, e.g., due to lower sales or market shares in our partners' regions as well as increased costs on our partners'

side. In order to be able to better assess developments, we are in intensive and constant exchange with our partners. The risk is classified as high.

Research & Development

Currently, more than 25 product candidates are in more than 30 clinical trials and more than 30 research programs; thus, our main activity continues to be research and development as well as the support of clinical trials. Naturally, this also involves the greatest risks. For scientific, procedural or regulatory reasons, product candidates may not be developed to market maturity, or may be developed only with delays. Similarly, despite optimal preparation, unforeseeable complications or side effects may arise in the course of clinical trials, which in the worst case could lead to legal disputes and compensation payments.

The increasing number of candidates in our product pipeline also creates growing impacts on the company's risk position. We constantly monitor the development of our industry and the market in order to address uncertain factors during the research and development of our oncology and infectious disease candidates (e.g. clinical care costs, the number of treatable patients, potential additional costs due to delays in clinical trials, a more difficult patient search due to the pandemic or an additional study to collect further data) accordingly. The risk is considered to be high.

In connection with the continuation of clinical trials, we are in close contact with the clinical centers located in the countries affected by the COVID-19 pandemic and are continuously assessing the impact of the COVID-19 pandemic on clinical trials, expected timelines and costs. As a result, there have been delays in the relevant studies. We are constantly monitoring the development of our industry and the market in order to be able to counteract accordingly. The availability and performance of suppliers, licensors and Contract Research Organizations (CROs) due to the impact of COVID-19 were only marginally affected.

Physical and IT security

The company's continued visibility and growing international presence lead to a diversification of security risks. Physical security risks include criminal threats against BioNTech's assets, harassment of employees, unauthorized access, and other unwanted acts against BioNTech's business operations. Through a security transformation program and the implementation of appropriate physical security standards, BioNTech seeks to achieve and maintain a consistent level of protection for all BioNTech agents and assets worldwide.

The protection of our data and the security of our information also includes unauthorized external or internal access to our supply chain, infrastructure, or intellectual property, as well as blackmail or denial-of-service attacks, fraud, and phishing. We take various measures to counter these risks; for example, we continuously improve our security policies and guidelines, carry out IT risk and application security assessments, and have set up a vulnerability scanner and incident management system. The remaining risk is classified as medium.

Compliance and regulation

The rapid growth of recent years favors the risk for a delay in quarterly or annual financial statements. Increased media attention and regulatory requirements also have an impact on timelines, as does the interaction between internal departments and external collaboration partners as sources of information. Processes and systems required for this are being established. The remaining risk is classified as high.

In order to avoid unintentionally incorrectly issued customs declarations, the internal customs department is currently being further expanded. The risk is considered to be low.

The withholding and deduction of taxes on remuneration for the transfer of the use or the right to use rights, in particular copyrights and industrial property rights, is actively monitored by our tax department. The risk is considered to be low.

In the area of compliance, the focus is on combating corruption, bribery and money laundering. In addition, collaboration with healthcare experts, conflicts of interest, unfair promotion of medical products, insider trading, as well as discrimination and occupational health and safety are actively addressed through established processes and various training, guidance and guidelines available to our employees. The risk from this misconduct is considered to be low.

Another focus is placed on avoiding bribery and corruption. Due to established processes and training, the risk is classified as low.

Processes and responsibilities must grow and adapt with rapid growth. It may not be possible to adequately meet the requirements of the Sarbanes-Oxley Act (U.S. federal law designed to improve reporting by companies using the U.S. public capital market). The confidence of the market or individual investors could be damaged. To counter this, the internal control system is constantly being expanded and further developed. There is a low risk.

Finance

A large proportion of the payments received are in US dollars. Consequently, we incur an exchange rate risk for the funds required in euros. With the aim of preserving capital, surplus liquidity is invested with various banks and money market funds with investment grade ratings, subject to limits defined in a risk guideline. Any interest rate risks in this context may also lead to opportunities as a result of rising interest rates in the short term. With regard to foreign currency investments, we also identify exchange rate risks. Exchange rate and interest rate fluctuations can reduce the value of our financial positions. We limit the effects of the identified risks with the aid of a coordinated and consistently implemented risk strategy. As a matter of principle, forward exchange contracts are concluded as hedging instruments. In addition, our risk strategy takes into account natural hedging relationships. In addition, developments on the financial markets are continuously monitored to enable us to respond to exceptional events at short notice. The risk is assessed as low.

External/global risks

In times of ever new and rapidly successive crises as well as global events, climate change and extreme weather events such as floods or droughts, the pandemic or the current inflation are increasingly moving into the focus of strategic considerations. This also includes current conflicts such as the Russia-Ukraine war and a possible further escalation and expansion of this conflict as well as possible trade wars or impending local conflicts in various regions worldwide.

The consequences of this, such as interrupted supply chains (for example due to import restrictions, supply bottlenecks or low water in the Rhine) and resource shortages (for example the gas shortage) are continuously monitored and assessed by our business continuity management. The risk is assessed as low.

4.2.4 Assessment of the internal control system and risk management system by the Management Board

The company-wide risk situation is evaluated at the half-yearly Management Board meetings. The results of the internal control process are presented to the Audit Committee on a quarterly basis and an overall statement is made on the adequacy and effectiveness of the ICS and RMS. Based on this, the Management Board has no indication that our ICS and RMS were not adequate or effective in their entirety as of December 31, 2022.

We are convinced that we can continue to master challenges and exploit opportunities in the future without taking unacceptably high risks. In doing so, we strive for a balanced relationship between opportunities and risks. Our aim is to increase added value for our stakeholders by analyzing and seizing new opportunities.

4.2.5 Assessment of the overall risk situation by the Management Board

The assessment of the overall risk situation is the result of the consolidated consideration of all significant risk categories or individual risks.

At the time of preparation of the report based on the above-mentioned risks, there are no developments that pose a threat to the continued existence of BioNTech SE and its affiliated subsidiaries.

4.3 Opportunity report

In pursuit of our vision, we are focused on transforming the treatment of cancer and infectious diseases and creating long-term value for patients, society and our shareholders through innovative and personalized medicines and therapies that harness the full potential of the human immune system. Based on the key building blocks listed below, we believe we are well positioned to provide people around the world with access to our therapies and medicines and to ensure that they benefit from them.

Pipeline of preclinical programs and clinical product candidates

Underpinning our vision is our understanding and longstanding experience in mRNA, synthetic biology and other innovative technologies. We work with a broad range of tools across multiple technology platforms, including a wide

spectrum of potentially first-in-class therapeutic approaches, to provide individually tailored therapies for diverse disease forms and manifestations. To this end, we also employ bioinformatics processes and algorithms. Our platform is composed of proprietary technologies in the drug classes of mRNA therapeutics, programmable cell therapies, next-generation antibodies and small molecule immunomodulators.

Our diversified product portfolio represents a large repertoire of potential future market-ready products, which at the same time enables us to reduce the impact of product candidates that do not make it to market on the overall development of the Company. Currently, 25 product candidates are in more than 30 clinical trials and more than 30 research programs. In late 2022, we initiated two Phase 1 clinical trials in infectious diseases: one for a product candidate against malaria and another for a product candidate against herpes simplex virus. A first clinical trial for a product candidate against tuberculosis is expected to start within the first half of 2023.

The rapid development, successful commercialization and delivery of our COVID-19 vaccine based on our proprietary mRNA technology has demonstrated the potential of immunotherapies. The speed and success of the development of a vaccine based on mRNA technology has also demonstrated that not only highly effective and safe vaccines can be produced based on this technology, but that mRNA technology also enables faster product development and shorter production cycles than conventional vaccine technologies. In the fall of 2022, we were able to successfully bring a bivalent vaccine adapted to Omicron variants BA.4 and BA.5 to regulatory approval. The lessons learned, including how to rapidly manufacture and adapt our vaccine to new viral variants, will now be leveraged for additional disease areas and product candidates. Currently, we have three commercial products: our COVID-19 vaccine COMIRNATY (BNT162b2) and the two Omicron-adapted vaccines BA.1 and BA.4/5. The ongoing further development of the COVID-19 vaccine with respect to the Omicron variant and potential future viral variants offers us the opportunity to continue to be the leading provider of COVID-19 vaccines in the future, together with our partner Pfizer. In late 2022, we also initiated a Phase 1 clinical trial with Pfizer of our combination influenza and COVID-19 vaccine, also based on mRNA technology. The combination vaccine offers the possibility to treat two severe respiratory diseases with only one vaccine.

In oncology, we explore and exploit novel targets and target combinations. Our goal is to extend the benefits of cancer immunotherapies to patient populations that currently cannot benefit from effective therapies. To increase the potential efficacy of our immunotherapies, we develop drug candidates that are precisely targeted. By combining agents with synergistic mechanisms of action, such as the combination of our FixVac immunotherapy (CARVac) with our novel CAR-T therapies, we aim to increase drug activity and counteract resistance mechanisms.

We believe we are well positioned to develop the next generation of immunotherapies that have the potential to transform treatment paradigms for therapies against cancer, infectious diseases and other serious conditions, and to significantly improve clinical outcomes for patients.

Production

For the production of the COVID-19 vaccine, we have established a global supply chain and production network in the years 2020 to 2022 in addition to the expansion of internal production capacities, in particular through the acquisition of the plant in Marburg. In 2023 and subsequent years, we will work at full speed to build or lease the laboratories, production facilities and office space needed for the company's further expansion, as well as to further expand the partner network.

Since the beginning of 2023, another production facility has been in operation in Marburg. In this facility, we produce plasmids for our clinical trials. In addition, the commissioning of a commercial production facility for plasmid DNA is planned for the end of 2023. With the establishment of our own plasmid DNA production, we have the opportunity to manufacture starting materials for mRNA- and cell-based drugs more flexibly and autonomously. In Mainz, the semi-automation of processes within the iNeST (individualized neoantigen-specific immunotherapy) program led to faster production of individualized mRNA cancer vaccines for clinical use.

We also plan to build our own fully integrated mRNA manufacturing sites in Asia and Africa, with capacities to produce hundreds of millions of doses of various mRNA-based vaccines. Our plans in Asia include the construction of a fully integrated mRNA manufacturing facility in Singapore and our first regional headquarters for Southeast Asia. The state-of-the-art manufacturing facility is expected to be fully operational by mid-2024. The facility will be integrated into the company's global manufacturing network and is an important building block for supplying the Asian region with our COVID-19 vaccine and other future products in oncology and infectious diseases. Using a novel approach, we have also developed turnkey mRNA production facilities based on a containerized solution called "BioNTainer", enabling scalable vaccine production. Our first BioNTainers have already been completed in Europe in the form of

several shipping containers, subjected to quality testing, prepared for onward transport and arrived in Kigali, Rwanda in March. The production facility under construction there will be the centerpiece in a decentralized and robust end-to-end production network in Africa. Plans call for additional BioNTainers to be shipped to Senegal and possibly South Africa. Vaccines produced in Africa in the future will be destined for people in African Union countries.

Our steadily growing global production capacities and our global COVID-19 vaccine supply chain and manufacturing network open up opportunities for us to provide people around the world with fast and easy access to state-of-the-art medicines and therapies. In addition, the increasing digitalization and automation of business processes, supported by effective process management, creates opportunities for us to create additional value and increase efficiency.

Commercialization

In the past year, we transformed ourselves from a pharmaceutical start-up into a globally operating, profitable and fully integrated biotechnology company thanks to the successful production and commercialization of our COVID-19 vaccine. The financial resources gained in 2022 put us in a good position to accelerate the expansion of our portfolio in the field of oncology and to develop further therapeutic areas and sales markets. In this way, we aim to become a leader in the fast-growing immunotherapies market in the coming years. With the commercial team created in 2020 and the establishment of two sales companies in Germany and Turkey, we are creating the necessary conditions to be able to independently market future products worldwide and thus significantly reduce our dependence on partners.

We are also building a digital commercial ecosystem to enable even better interaction with the company's stakeholders, including a personalized customer journey, a sales performance program, and a smart learning platform.

In the future, we will continue to seize the opportunity to expand our own expertise with promising complementary technologies, such as those in the context of artificial intelligence (AI) or machine learning (ML), and to strengthen production capacities through targeted acquisitions and investments in other companies. The planned acquisition of InstaDeep Ltd, headquartered in London, UK, announced in January 2023, is expected to strengthen our pioneering role in the field of AI-based drug discovery, design and development. In this context, the increased attention on our company due to the successful development and production of a COVID-19 vaccine, as well as its commercialization, also provides an opportunity to enter into new partnerships with leading global companies, foundations and academic research institutions for the development and commercialization of additional products. In early 2023, we announced a planned strategic partnership with the United Kingdom government with the aim of making mRNA-based personalized cancer therapies available to patients in clinical trials or as approved treatments in the future. Among other things, a research and development center is to be established in Cambridge for this purpose.

Team and corporate culture

Behind the great successes of the past three years are our employees, who now number over 4,600. Added to this is a management team consisting of renowned scientists, experienced entrepreneurs and the biotechnology investors who support us. In order to continue our successful development, it is of great importance for us to attract the best minds to the company in the future.

Both the Management Board and the Supervisory Board see the maintenance of our corporate culture, exemplified by "Project Lightspeed", which has led to the rapid and successful development of our COVID-19 vaccine, as a fundamental part of our strategy to manage our expected future organizational growth. A "Culture Campus" we created brings together employees from a wide range of disciplines to work together to further develop the culture based on the founding team's vision.

Based on a data-driven process, the Group has identified key factors in our corporate culture: a strong sense of purpose, a focus on fostering contributions, and responsiveness. Scientific rigor, innovation and passion drive us. We foster self-confidence in our employees, give them the ambition they need to be pioneers and push boundaries, and also take the time to celebrate our own successes. Cohesion is an important part of our culture, which focuses on collaboration, teamwork and a learning culture that views both successes and failures as opportunities for growth. Despite our significant growth, we strive to remain adaptable, which is critical to innovation, efficiency and identifying opportunities and possibilities. Finally, we remain responsible, acting with integrity and making decisions based on sustainability, our values and scientific data.

The Culture Campus also addresses the leadership principles that have made us successful and anchors them in our corporate culture for continued successful development. An onboarding concept, consisting among other things of a company-wide buddy program and introductory events, was launched for new employees with the aim of remaining a close-knit and networked community despite strong growth. Furthermore, cultural ambassadors have been established to support and promote the development of our corporate culture and to form and act as cross-functional networks. In 2022, a company-wide Culture Campus dialog focused on the shared vision and mission was held for the first time. This involved reflecting on roles at both the individual and team level and identifying potential for improvement.

Thanks to our high profile in Germany and a corporate culture developed in close exchange with employees from all disciplines, we have the opportunity to become a globally attractive employer for the best talent in both the scientific and administrative fields.

5 Corporate governance statement pursuant to section 315d in conjunction with section 289f HGB

5.1 Declaration on the Corporate Governance Code pursuant to section 161 of the German Stock Corporation Act (AktG)

The German Stock Corporation Act (AktG) requires the Management Board and Supervisory Board of German companies listed on a stock exchange regulated and supervised by a state-recognized body to issue an annual declaration either (i) stating that the recommendations of the Corporate Governance Code ("Code") have been complied with or (ii) listing the recommendations with which the Company has not complied and explaining the reasons for the deviation from the recommendations of the Corporate Governance Code (Declaration of Conformity). There is no obligation to comply with the recommendations or suggestions of the Corporate Governance Code. A company listed in this sense is also obliged to state in this annual declaration whether it intends to comply with the recommendations or to list the recommendations with which it does not intend to comply in the future. This declaration is to be made publicly available online.

If the company changes its policy with regard to certain recommendations between these annual statements, it must disclose this fact and explain the reasons for the deviation from the recommendations. Non-compliance with the suggestions also contained in the Corporate Governance Code in addition to the recommendations does not have to be disclosed.

Our Board of Management and Supervisory Board have dealt in detail with the recommendations of the Corporate Governance Code and on March 20, 2023 adopted the following Declaration of Conformity pursuant to Section 161 para. 1 of the German Stock Corporation Act (AktG), which is issued in accordance with the Code in conjunction with the Corporate Governance Declaration pursuant to section 315d in conjunction with section 289f of the German Commercial Code (HGB)

BioNTech SE has complied and will continue to comply with all recommendations of the German Corporate Governance Code ("Code") as amended on April 28, 2022, with the exception of the points mentioned below.

- According to Section B.1 of the Code, the Supervisory Board shall pay attention to diversity in the composition of the Management Board. On May 4, 2020, the Supervisory Board of the Company set the target for the proportion of women on the Management Board at 25%. Mr. Jens Holstein was appointed to the Management Board as Chief Financial Officer effective July 1, 2021. In the run-up to Mr. Holstein's appointment, extensive selection processes took place with several female and male candidates. As a result, Mr. Holstein was appointed on the basis of his expertise, his many years of experience and his profile as Chief Financial Officer, as he was the most suitable candidate for the position of Chief Financial Officer compared with all the other male and female candidates and was the best fit for the Company. In the past year, individual contracts of Management Board members were renewed without appointing a new Management Board member. This was done after careful consideration and discussion and, in the view of the Supervisory Board, was in the best interests of the Company. On March 8, 2023, the Supervisory Board again dealt with the proportion of women on the Management Board and set the target at 25%. The deadline by which this target figure is to be achieved was set at December 31, 2025. The Supervisory Board is working on the newly set targets regarding diversity on the Management Board and will continue to take these into account in the future.
- According to Section C.1 of the Code, the Supervisory Board shall pay attention to diversity in its composition, among other things. The Supervisory Board was expanded in fiscal year 2022. Prof. Anja Morawietz, Ph.D. and Prof. Rudolf Staudigl, Ph.D. were elected to the Supervisory Board by the Annual General Meeting. As a result, the targeted quota of women on the Supervisory Board, which was to be 25%

by December 31, 2022, was not achieved. In preparation for the election proposals for the 2022 Annual General Meeting, a large number of female and male candidates were interviewed. By the time the invitation to the Annual General Meeting was published, two female candidates had been shortlisted. In order to cover the required competence profile as well as possible, the Supervisory Board decided, after intensive deliberations and taking into account the interests of the Company, to propose Prof. Rudolf Staudigl, Ph.D. for election as a further member of the Supervisory Board in addition to Prof. Anja Morawietz, Ph.D. On March 8, 2023, the Supervisory Board again addressed the proportion of women on the Supervisory Board and set the target at 25%. The deadline by which this target is to be achieved was set at December 31, 2025. The issue of diversity is of central importance to the Supervisory Board and the Company and is to be given particular consideration in the upcoming Supervisory Board elections.

- According to Section C.7 of the Code, it is recommended that more than half of the members of the Supervisory Board should be independent of the Company and its Management Board. Accordingly, a Supervisory Board member is independent of the Company and its Management Board if he or she has no personal or business relationship with the Company or its Management Board that could give rise to a material conflict of interest that is not merely temporary. In assessing independence, the length of service on the Supervisory Board is to be taken into account, among other factors. Despite the fact that three of the six members of the Supervisory Board have been on the Supervisory Board for longer than the period recommended by the Code, all members of the Supervisory Board are considered to be independent. The Supervisory Board considers it advantageous and essential for the company to maintain the knowledge and experience currently available on the Board. This includes many years of knowledge of the Company and its industry, as well as extensive specialist knowledge in the fields of finance, economics, science and the capital market, which is particularly important in view of the Company's current steady global growth and transformation. Due to their long-standing relationship with the Company and their existing economic independence from the Company, as well as the absence of other concerns that could give rise to potential conflicts of interest, the length of service of the three Supervisory Board members Mr. Helmut Jeggle, Mr. Michael Motschmann and Prof. Christoph Huber, M.D. does not conflict with their respective independence. (cf. Section C.8 of the Code)

5.2 Composition and Working Procedures of the Management Board, Supervisory Board and Committees

Dual organ structure

We are a European stock corporation with limited liability (Societas Europaea or SE), which has its registered office in Germany. We have opted for a two-tier SE structure. Our corporate bodies are therefore the Management Board, the Supervisory Board and the Annual General Meeting. The Management Board and Supervisory Board are completely separate from each other and no member of the Management Board can also be a member of the Supervisory Board.

Our Management Board manages the day-to-day business of the Company on its own responsibility in accordance with applicable laws, the Articles of Association and the Rules of Procedure adopted by the Supervisory Board, and represents us in transactions with third parties.

The main task of the Supervisory Board is to supervise the Management Board. The Supervisory Board is also responsible for appointing and dismissing members of the Management Board, representing us in transactions between a current or former Management Board member, and granting approvals for significant matters.

Our Management Board and Supervisory Board manage their areas of responsibility (separation of powers) and are solely responsible for them; therefore, neither body may make decisions that fall under the responsibility of the other body according to applicable law, the Articles of Association or the Rules of Procedure. The members of both bodies are bound to loyalty and diligence. In performing their duties, they are obliged to observe the duties of care of a prudent and conscientious businessman. If they fail to comply with the relevant duties of care, they may be held liable to us.

In performing their duties, the members of both boards must take into account a wide range of considerations in their decisions, including the interests of shareholders, employees, creditors and - to a limited extent - the public, while safeguarding the rights of our shareholders to equal treatment. In addition, the Board of Management is responsible for implementing an internal monitoring system for risk management.

Our Supervisory Board has extensive monitoring duties. To ensure that the Supervisory Board is able to perform these functions properly, our Management Board must, among other things, report regularly to our Supervisory Board on current business activities and future business planning (including financial, investment and personnel planning). In addition, our Supervisory Board or one of its members is entitled to request special reports from the Management Board at any time on all matters concerning the Company, our legal and business relationships with affiliated companies, and all business transactions and matters at these affiliated companies that may have a material effect on the situation.

Under German law, our shareholders generally have no direct recourse against the members of our Management Board or the members of our Supervisory Board if they have breached their duty of loyalty and care towards us. Apart from cases where we are unable to fulfill our obligations to third parties, tortious conduct towards board members or other special circumstances, only we have the right to assert claims for damages against the members of our two boards.

We may only waive these claims for damages or settle these claims if at least three years have passed since a claim arose in connection with a breach of duty and if our shareholders approve the waiver or settlement at a shareholders' meeting by a simple majority of the votes cast, provided that no shareholders holding a total of one-tenth or more of our share capital object to the waiver or settlement and have their objection formally entered in the minutes of the meeting.

5.2.1 Supervisory Board

Under German law, the Supervisory Board must consist of at least three members, although a company's Articles of Association may provide for a higher number. The Supervisory Board currently consists of six members. As BioNTech is not subject to co-determination, the members of the Supervisory Board are elected by the Annual General Meeting in accordance with the provisions of the SE Regulation and the German Stock Corporation Act.

The following table contains the names and functions of the current members of the Supervisory Board, their age as of December 31, 2022, their term of office (which expires on the day of the Annual General Meeting of the relevant year), their main occupation and other relevant supervisory board mandates outside BioNTech:

Name (function)	Age	Expiration of the mandate	Principal occupation (other relevant supervisory board mandates)
Helmut Jeggle (Chairman of the Supervisory Board)	52	2026	Managing Partner of Salvia GmbH and entrepreneurial venture capital investor (Supervisory Board member 4SC AG, AiCuris AG, AFFiRiS AG, APK AG and Tonies SE)
Ulrich Wandschneider, Ph.D. (Vice Chairman of the Supervisory Board)	61	2023	Managing Director of beebusy capital GmbH and independent consultant for companies in the life science and healthcare sector
Prof. Christoph Huber, M.D. (Member of the Supervisory Board)	78	2023	Professor Emeritus of the Johannes Gutenberg University Mainz (Vice Chairman of the Supervisory Board Tirol Kliniken GmbH)
Prof. Anja Morawietz, Ph.D. (Supervisory Board member since June 2022)	45	2026	Certified Public Accountant and Management Consultant, Professor of External Accounting and General Business Administration at the Nuremberg University of Applied Sciences Georg Simon Ohm
Michael Motschmann (Member of the Supervisory Board)	65	2023	Member of the Management Board and Head of Investments of MIG Capital AG (Member of the Supervisory Boards of AFFiRiS AG, APK AG, HMW-Emissionshaus AG and HMW-Innovations AG)
Prof. Rudolf Staudigl, Ph.D. (Supervisory Board member since June 2022)	68	2026	Independent consultant (member of the Supervisory Board of TÜV Süd Aktiengesellschaft, member of the Supervisory Board of Groz-Beckert KG (Deputy Chairman))

The business address of the members of the Supervisory Board is the same as the business address of BioNTech: An der Goldgrube 12, D-55131 Mainz, Germany.

The competence profile of the Supervisory Board members is as follows:

Qualification/ Name (Function)	Helmut Jeggle (Chairman of the Supervisory Board)	Ulrich Wand-schneider, Ph.D. (Vice Chairman of the Supervisory Board)	Prof. Christoph Huber. M.D.(Member of the Supervisory Board)	Prof. Anja Morawietz, Ph.D. (Member of the Supervisory Board since June 2022)	Michael Motschmann (Member of the Supervisory Board)	Prof. Rudolf Staudigl, Ph.D. (Member of the Supervisory Board since June 2022)
(Biotech) industry experience	x	x	x		x	x
(Biotech) industry Sales and marketing	x	x				
Management		x				
Innovation, research and development		x	x			
Accounting, auditing and controlling (including sustainability reporting)	x	x		x	x	x
Compliance, Internal Controls and Risk Management		x		x	x	x
Human Resources		x	x		x	x
Digitalization	x	x		x	x	
International experience / relevant markets	x	x	x	x	x	x
CSR/ Sustainability		x		x		
Elected to the Supervisory Board of the Company for the first time	2008	2018	2008	2022	2008	2022
End of term	2026	2023	2023	2026	2023	2026
Independence	x	x	x	x	x	x
Year of birth	1970	1961	1944	1977	1957	1954
Gender	m	m	m	w	m	m

German law does not require that the majority of Supervisory Board members be independent, and neither the Articles of Association nor the Rules of Procedure of the Supervisory Board provide otherwise. In the opinion of the Supervisory Board, an appropriate number of shareholder representatives on the Supervisory Board (i.e., the entire Supervisory Board) are independent if the Supervisory Board has two independent members. In addition to Ulrich Wandschneider, Ph.D., Prof. Anja Morawietz, Ph.D. and Prof. Rudolf Staudigl, Ph.D., the Supervisory Board considers Helmut Jeggle, Michael Motschmann and Prof. Christoph Huber, M.D. to be independent notwithstanding the fact that they will soon have served on the Supervisory Board for a period of more than 14 years. As stated in the Declaration of Conformity published by the Company on March 20, 2023, pursuant to Section 161 para. 1 of the German Stock Corporation Act (AktG), which is issued in accordance with the Code in connection with the declaration on corporate governance pursuant to Section 315d in conjunction with Section 289f of the German Commercial Code (HGB). §

Section 289f of the German Commercial Code (HGB), the length of service of the three named Supervisory Board members does not prevent them from being independent. The Rules of Procedure of our Supervisory Board stipulate that the Supervisory Board should include an independent member with expertise in the fields of accounting, internal control processes and auditing. Ulrich Wandschneider, Ph.D., Prof. Anja Morawietz, Ph.D. and Prof. Rudolf Staudigl, Ph.D. fulfill this role.

Under European law, a member of the Supervisory Board of a SE may be elected for a maximum term to be specified in the Articles of Association, which may not exceed six years. A re-election, including a repeated re-election, is permissible. The general meeting of shareholders may determine a shorter than normal term of office for individual or all members of the supervisory board and, subject to statutory restrictions, determine different start and end dates for the term of office of the members of the supervisory board. Our Articles of Association provide for a term of office of approximately five years, depending on the date of the Annual General Meeting of Shareholders in the year in which the term of office of the member concerned expires.

The Annual General Meeting may elect one or more substitute members at the same time as electing the members of the Supervisory Board. The substitute members replace members who leave the Supervisory Board and take their place for the remainder of the respective term of office. Currently, no substitute members have been elected or proposed for election.

Members of our Supervisory Board may be removed at any time during their term of office by a resolution of the Annual General Meeting adopted by at least a simple majority of the votes cast. In addition, any member of our Supervisory Board may resign from office at any time by giving one month's notice to the Management Board - or with immediate effect if there is good cause.

Our Supervisory Board elects a Chairman and a Vice Chairman from among its members. The Deputy Chairman exercises the rights and duties of the Chairman if the Chairman is unable to do so. The members of the Supervisory Board elected Helmut Jeggle as Chairman and Ulrich Wandschneider, Ph.D. as Deputy Chairman, each for the duration of their membership of the Supervisory Board.

The Supervisory Board meets at least twice per calendar half-year. Our Articles of Association provide that the Supervisory Board constitutes a quorum if at least three of its members participate in the vote. Members of the Supervisory Board are deemed to be present if they participate in the meeting by telephone or via other (electronic) means of communication (including video conferencing) or if their written vote is cast by another member. In addition, the Articles of Association allow resolutions to be adopted by telephone or by other (electronic) means of communication (including video conferencing).

The resolutions of our Supervisory Board are adopted by a simple majority of the votes cast, unless otherwise required by law, the Articles of Association or the Rules of Procedure of our Supervisory Board. In the event of a tie, the Chairman of the Supervisory Board has the casting vote. Our Supervisory Board may not make management decisions, but in accordance with European and German law and in addition to its responsibilities under the Articles of Association, it has determined that certain matters require its prior consent, including:

- entering into certain large transactions;
- establishing or holding interests in companies (other than wholly-owned subsidiaries) or disposing of interests in companies (other than a sale of JPT);
- the issue of shares from authorized capital, unless the shares are issued as part of a redemption of stock appreciation rights; and
- the acquisition of treasury shares for consideration.

The compensation of the members of the Supervisory Board is described in the Remuneration Report, which will be prepared for the financial year 2022 in accordance with the requirements of Section 162 AktG and published on the website.

Each member of the Supervisory Board shall disclose to the Supervisory Board any conflicts of interest, in particular those that may arise as a result of a consultancy or board function with customers, suppliers, lenders or other third parties. Material and not merely temporary conflicts of interest in the person of a Supervisory Board member shall result in that member resigning from office. Our Supervisory Board also takes appropriate measures to limit, prevent or

resolve conflicts of interest in accordance with applicable legal provisions and the Company's Conflicts of Interest Policy.

Our Supervisory Board carried out a self-assessment for the fiscal year 2022. It covered all key aspects of the Supervisory Board's work, including its committees, its composition, its competence profile, its main topics, and its relationship with the Management Board. The results of the self-assessment have already been evaluated and will subsequently be presented to the Supervisory Board. According to the self-assessment, the Supervisory Board, its committees and the Management Board continue to work professionally and cooperatively. No fundamental need for change was identified.

Functioning of the Supervisory Board

Decisions are generally made by our full Supervisory Board, but decisions on specific matters may be delegated to committees of our Supervisory Board to the extent permitted by law. The Chairman, or in his absence the Vice Chairman, chairs the meetings of the Supervisory Board and determines the order in which agenda items are dealt with, the type and order of voting, and any adjournment of discussion and resolution on individual agenda items after due consideration of the circumstances. Our Supervisory Board may designate other types of measures as requiring its approval.

In addition, each member of the Supervisory Board is obliged to fulfill his duties and responsibilities personally, and these duties and responsibilities cannot be generally and permanently delegated to third parties. However, the Supervisory Board and its committees have the right to appoint independent experts to review and analyze specific matters as part of its control and monitoring duties under applicable European and German law. We would bear the costs of such independent experts appointed by the Supervisory Board or one of its committees.

Pursuant to Section 107 para. 3 of the German Stock Corporation Act (AktG), the Supervisory Board may form committees from among its members and entrust them with the performance of specific tasks. The tasks, powers and procedures of the committees are determined by the Supervisory Board. To the extent permitted by law, important powers of the Supervisory Board may also be delegated to committees.

By resolution, the Supervisory Board has established an Audit Committee, a Compensation, Nomination and Corporate Governance Committee and a Capital Markets Committee. The table below shows the members of the Audit Committee, the Compensation, Nomination and Corporate Governance Committee and the Capital Markets Committee appointed until the end of the 2022 financial year.

Committee name	Members until December 31, 2022
Audit Committee	Ulrich Wandschneider, Ph.D. (Chairman), Prof. Christoph Huber, M.D. and Michael Motschmann
Compensation, Nominating and Corporate Governance Committee	Michael Motschmann (Chairman), Prof. Christoph Huber, M.D. and Ulrich Wandschneider, Ph.D.
Capital Markets Committee	Helmut Jeggle (Chairman) and Michael Motschmann

As of January 1, 2023, the members of the Audit Committee, the Compensation, Nomination and Corporate Governance Committee and the Capital Markets Committee have been reassigned as shown in the table below.

Committee name	Members since January 01, 2023
Audit Committee	Prof. Anja Morawietz, Ph.D. (Chair), Ulrich Wandschneider, Ph.D. and Prof. Rudolf Staudigl, Ph.D.
Compensation, Nominating and Corporate Governance Committee	Michael Motschmann (Chairman), Prof. Christoph Huber, M.D. and Prof. Rudolf Staudigl, Ph.D.
Capital Markets Committee	Helmut Jeggle (Chairman), Prof. Anja Morawietz, Ph.D. and Michael Motschmann

Audit Committee

In fiscal 2022, our Audit Committee consisted of Ulrich Wandschneider, Ph.D. (Chairman), Prof. Christoph Huber, M.D. and Michael Motschmann. Since January 1, 2023, our Audit Committee has consisted of Prof. Anja Morawietz, Ph.D. (Chair), Ulrich Wandschneider, Ph.D. and Prof. Rudolf Staudigl, Ph.D. The Audit Committee assists the Supervisory Board in monitoring the accuracy and integrity of the financial statements, the accounting and financial

reporting processes and audits, the effective functioning of the internal control system, the risk management system, compliance with legal and regulatory requirements, the qualification and independence of the independent auditor, the performance of the independent auditor and the effective functioning of the internal audit functions and, subject to certain limitations, makes and implements appropriate decisions on behalf of the Supervisory Board. The duties and responsibilities of the Audit Committee in fulfilling its purpose include:

- Issuance of a recommendation by the Audit Committee to the Supervisory Board regarding the nomination of the auditor;
- Engagement of the audit engagement and the compensation, retention and oversight of the independent auditor;
- Assessment of the independent auditor's qualifications, independence and quality of performance;
- Review and pre-approve audit and non-audit services to be provided by the independent auditor;
- Review and discuss with the independent auditor and management the annual audit plan and applicable critical accounting policies and practices;
- Discussion and, if necessary, determination of further focal points of the audit;
- Review and discuss with the independent auditor and management the adequacy and effectiveness of internal accounting controls and critical accounting policies;
- Review and discuss the results of the annual audit with the independent auditor and management;
- Audit of non-financial reporting;
- Reviewing the effectiveness of the compliance management system;
- Review and discuss all quarterly or annual earnings releases with the independent auditor and management;
- Review of all related party transactions and ongoing review and monitoring of potential conflict of interest situations for compliance with policies and procedures; and
- Oversee procedures for the receipt, retention, and treatment of complaints received regarding accounting, internal accounting controls, or auditing matters.

Within the limits of applicable European and German law, the Audit Committee shall have such means and authority as are appropriate to fulfill its duties and responsibilities, including the authority to select, retain, terminate and approve fees and other terms of engagement for special or independent consultants, auditors or other experts and advisors as it deems necessary or appropriate to fulfill its duties and responsibilities, without seeking the approval of the Management Board or the Supervisory Board.

In addition, Prof. Anja Morawietz, Ph.D. as Chairwoman of the Audit Committee, Prof. Rudolf Staudigl, Ph.D. and Ulrich Wandschneider, Ph.D. have the special knowledge and experience required by the German Corporate Governance Code in the field of accounting and expertise in the field of auditing. In the area of accounting, this includes in particular knowledge and experience in the application of accounting principles and internal control and risk management systems, and in the area of auditing, special knowledge and experience in the auditing of financial statements. These skills are also possessed by Michael Motschmann, who, along with Ulrich Wandschneider, Ph.D. and Prof. Christoph Huber, M.D., was a member of the Audit Committee until December 31, 2022. In addition, Ulrich Wandschneider, Ph.D. and Prof. Anja Morawietz, Ph.D. have knowledge of sustainability reporting and its auditing.

Compensation, Nominating and Corporate Governance Committee

In fiscal year 2022, our Compensation, Nomination and Corporate Governance Committee consisted of Michael Motschmann (Chairman), Prof. Christoph Huber, M.D., and Ulrich Wandschneider, Ph.D.. Since January 1, 2023, our Compensation, Nomination and Corporate Governance Committee has consisted of Michael Motschmann (Chairman), Prof. Christoph Huber, M.D., and Prof. Rudolf Staudigl, Ph.D. To fulfill its mission, the Compensation, Nomination and Corporate Governance Committee has, among others, the following duties and responsibilities:

- Preparation and discussion of guidelines in connection with the compensation of the members of the Board of Management;

- Reviewing and monitoring corporate goals and objectives for Management Board compensation, including evaluating the performance of Management Board members against these objectives and proposing compensation to the Supervisory Board based on these evaluations;
- Review all equity-based compensation plans and arrangements and make recommendations to the Supervisory Board regarding such plans;
- Support in the identification and recruitment of candidates to fill positions on the Management Board and Supervisory Board;
- Consideration of all corporate governance issues and development of appropriate recommendations for the Supervisory Board and
- Monitoring the evaluation of the Supervisory Board and reporting on its performance and effectiveness.

Capital Markets Committee

In fiscal year 2022, our Capital Markets Committee consisted of Helmut Jeggle (Chairman) and Michael Motschmann. Since January 1, 2023, our Capital Markets Committee has consisted of Helmut Jeggle (Chairman), Michael Motschmann and Prof. Anja Morawietz, Ph.D. The Capital Markets Committee advises the Supervisory Board and makes recommendations on matters relating to capital measures and takeover, merger and acquisition activities. Responsibilities include the following:

- Overseeing the Company's capital structure and fundraising activities, including the preparation and execution of initial public offerings and equity offerings; and
- Monitoring the company's activities in connection with takeovers, mergers and acquisitions.

5.2.2 Management Board

Our Management Board consists of at least two members. Our Supervisory Board determines the exact number of members of the Management Board. According to the Articles of Association, the Supervisory Board may also appoint a Chairman or a Spokesperson of the Management Board. Prof. Ugur Sahin, M.D., has been appointed Chairman of the Management Board.

Name	Age	Expiration of the mandate	Position (main responsibilities)
Prof. Ugur Sahin, M.D.	57	2026	Chief Executive Officer (Research and Development, Scientific Collaborations, Patent Filing, Quality Assurance, and Project Management)
Jens Holstein	59	2025	Chief Financial Officer (Finance, Human Resources, Risk Management and Purchasing)
Sean Marett	57	2024	Chief Business Officer and Chief Commercial Officer (Business Development, Alliance Management, Marketing and Sales, Legal and Intellectual Property)
Sierk Poetting, Ph.D.	49	2026	Chief Operating Officer (Production, IT, Laboratories and Infrastructure, and Internal Communications)
Ryan Richardson	43	2026	Chief Strategy Officer (Corporate Strategy, Capital Market Responsibility and Investor Relations)
Prof. Özlem Türeci, M.D.	55	2025	Chief Medical Officer (Clinical Development, Regulatory and Medical Affairs)

The members of our Management Board are appointed by the Supervisory Board for a term of up to five years. Upon expiry of their term of office, they are entitled to reappointment or renewal, including repeated reappointment and renewal, in each case for up to a further five years. Under certain circumstances, such as a serious breach of duty or a vote of no confidence by shareholders at an Annual General Meeting, a member of the Management Board may be removed by our Supervisory Board before the end of his or her term of office.

The members of our Management Board conduct the day-to-day business in accordance with applicable laws, the Articles of Association and the Rules of Procedure for the Management Board adopted by the Supervisory Board. They are generally responsible for the management of the company and for handling day-to-day business relations with third parties, the internal organization of the business, and communication with shareholders.

A member of the Management Board of an SE governed by German law may not deal with or vote on matters relating to proposals, agreements or contractual arrangements between him or her and the Company, and a member of our management board may be liable to us if he or she has a material interest in a contractual arrangement between us and a third party that is not disclosed to and approved by our Supervisory Board.

The Rules of Procedure for our Management Board provide that certain matters require a resolution by the entire Management Board, in addition to those transactions for which a resolution by the entire Management Board is required by law or by the Articles of Association. In particular, the entire Management Board decides on, among other things:

- the budget for the following year, which must be submitted to the Supervisory Board by the Management Board by December 20 of each year;
- reporting to the Supervisory Board;
- all measures and transactions requiring the approval of the Supervisory Board;
- all measures and transactions relating to a business area that is of extraordinary importance or involves an extraordinary economic risk;
- the addition of new business units or the discontinuation of existing ones;
- the acquisition or sale of investments or holdings, and
- certain large transactions.

The compensation of the members of the Management Board is described in the remuneration report, which will be prepared for the financial year 2022 in accordance with the requirements of Section 162 AktG and published on the website.

5.3 Targets for the composition of the Management Board pursuant to Section 76 para. 4 AktG and the Supervisory Board pursuant to Section 111 para. 5 AktG and diversity concept

Our social aspirations in our core business are complemented by good corporate governance. In this context, the composition of the Management Board and Supervisory Board as well as long-term succession planning must be appropriately adapted to the needs of the company. In addition to the professional and personal qualifications of the members of the Management Board and Supervisory Board, we take diversity and the appropriate participation of women into account in the composition of both bodies. We also pay attention to a balanced age structure to ensure long-term succession planning and have set the maximum age of Management Board members at 70 and Supervisory Board members at 80. The Management Board and Supervisory Board are of the opinion that the current composition takes full account of the objectives thus defined for the composition of these bodies.

On May 4, 2020, the Supervisory Board set the target for the proportion of women on the Management Board at 25% and on the Supervisory Board at 25% in accordance with Section 111 para. 5 AktG. The deadline by which this target is to be achieved was set at December 31, 2022. On March 8, 2023, the Supervisory Board again addressed the proportion of women on the Board of Management and the Supervisory Board and set the target at 25% in each case. The deadline by which this target is to be achieved was set at December 31, 2025.

In addition, the Supervisory Board has developed a competence profile for the entire Board. The competence profile takes into account, among others, the following areas: general (biotech) industry experience, experience in sales and marketing, management, innovation, research and development, accounting, auditing and controlling (including sustainability reporting), compliance, internal controls and risk management, human resources, digitalization, international experience/relevant markets, and CSR/sustainability. When making appointments to the full Board, the Supervisory Board always strives to fill out this competence profile.

In our Management Board, which currently consists of six members, Prof. Özlem Türeci, M.D. holds the position of Chief Medical Officer. Thus, the current female quota of the Management Board remains at 17%. The composition of our Management Board has remained unchanged since the appointment of Jens Holstein as Chief Financial Officer during the 2021 financial year. During the 2022 financial year, several Management Board contracts were newly

concluded with the current Management Board members in order to maintain a stable structure and expertise on the Management Board. The reappointment of the individual Management Board members was made after considering all aspects relevant to the Company and is in the best interests of the Company in terms of continuity and a sustainable and long-term focus. There was no addition of a further female member by the end of the period on December 31, 2022, which is why the target set of achieving a 25% share of women on the Management Board by December 31, 2022 was missed. The topic of diversity on the Management Board is nevertheless a focus and is to be given greater consideration in the future.

Prof. Anja Morawietz, Ph.D. has been a member of our Supervisory Board, which also currently consists of six members, since 2022. This means that the current female quota of the Supervisory Board is 17%, which means that the target of 25% was not achieved. The Supervisory Board endeavored to achieve the target figure by expanding the Supervisory Board by two members. Up to the end, two female candidates were shortlisted. In order to cover the required competence profile as well as possible, the Supervisory Board decided after intensive deliberations to propose Prof. Rudolf Staudigl, Ph.D. for election as an additional member of the Supervisory Board alongside Prof. Anja Morawietz, Ph.D. The issue of diversity is of central importance to us and is to be given particular consideration in the Supervisory Board elections due next year.

In accordance with Section 76 para. 4 of the German Stock Corporation Act (AktG), the Management Board also resolved on April 29, 2020 to set a target for women in management positions. The share of women in the top management level below the Board of Management and the second top management level below the Board of Management is to be at least 30% in each case. The respective target figure is to be achieved by December 31, 2022 at the latest. On March 8, 2023, the Management Board again addressed the issue and set the target figure for women in management positions in the top and second-tier management levels below the Management Board at 30%. The deadline by which this target is to be achieved in both management levels was set at December 31, 2025.

As of December 31, 2022, a total of 38% (previous year: 43%) of the members of the top management level below the BioNTech Management Board are women. At the second highest management level below the Management Board, 40% (previous year: 52%) of the positions at BioNTech are held by women as of December 31, 2022. Thus, the target figures were achieved in both the 2021 and 2022 financial years.

5.4 Integrity and ethics

Compliance & Business Ethics

BioNTech has implemented a fully-fledged Compliance & Ethics Program consisting of three typical compliance program elements: prevention, detection and response.

Prevention

The Compliance & Business Ethics department makes all applicable policies and guidelines as well as a number of relevant tools available to employees via the BioNTech Best Practices (BxP) Hub platform. The BxP Hub is also used for digital training (e-learnings, online videos, etc.). Furthermore, employees can register potential conflicts of interest and received as well as awarded gifts and invitations from external parties in this platform. Interactions with the healthcare system are also documented there. The Compliance & Business Ethics department ensures the prevention of compliance risks by proactively communicating with employees and providing advice on all risky business relationships.

Reveal

Continuous monitoring and audits enable risks to be identified at an early stage and addressed by the Compliance & Business Ethics department. Monitoring and audits therefore not only mean looking for errors and violations, but also holistically examining the areas in which compliance processes can be improved. Of course, the Compliance & Business Ethics department also offers employees the opportunity to report violations and risks of any kind through the "Contact Point for Ethics Protection" in the BxP Hub - anonymously and without negative consequences.

Reaction

In cases of suspicion, the Compliance & Business Ethics department conducts internal investigations. If breaches of the rules are identified, they are analyzed for any procedural weaknesses in order to rectify them. Disciplinary measures are initiated in the event of serious violations.

Resources for the further development and implementation of the compliance program were significantly increased in 2022. For example, the number of employees in the Compliance & Business Ethics team increased by five colleagues in 2022. In addition, three teams have been created. This is to ensure that the Compliance & Business Ethics department can cope with the growing organization and that potential new risks can be adequately addressed. Overall responsibility for the compliance program lies with the Management Board. The Audit Committee receives regular reports on the functioning of the compliance program.

In addition to the core tasks carried out by the Compliance & Business Ethics department, the company has established a Compliance Advisory Committee (CAC) composed of senior executives from various functions such as Quality Assurance, Legal, Finance, Controlling and Operations to address potential compliance risks in a concerted and cross-functional manner. The CAC reviews and discusses all new policies to ensure cross-functional alignment.

Code of Business Conduct & Ethics

The Code of Conduct applies to all members of the Supervisory Board, members of the Management Board, managing directors of group companies, and employees of BioNTech and is accessible online at www.biontech.de. It is considered the fundamental basis for conduct when performing activities for/on behalf of BioNTech. It provides an overview of the general requirements reflecting compliance with laws, regulations and BioNTech internal policies. It covers, among others, human rights, anti-discrimination, patient safety, data protection, occupational safety, anti-corruption and fair competition. The Code is communicated to all BioNTech employees and all employees are required to sign to understand and comply. If an employee violates the Code of Conduct, this may result in a range of disciplinary consequences up to and including termination of employment.

Conflict of interest policy

BioNTech has adopted a Conflicts of Interest Policy that sets forth the procedures by which the Company manages potential and actual conflicts of interest. According to the Conflicts of Interest Policy (Policy), which applies to all members of the Supervisory Board, members of the Management Board, managing directors of BioNTech's group companies and employees of the Company, any actual, potential or perceived conflict of interest must be disclosed in the BxP Hub mentioned above. If the conflict is of a transactional nature and involves a member of the Management Board, the Management Board or the Supervisory Board, as the case may be, decides whether to approve the transaction with the abstention of the conflicted member.

Anti-Bribery and Anti-Corruption (ABAC) Policy

BioNTech is committed to eliminating all forms of corruption, including extortion and bribery. By signing the UN Global Compact in March 2020, BioNTech has underlined these principles.

The company has an Anti-Bribery and Anti-Corruption Policy ABAC; employees are required to read and sign the ABAC policy. In addition, ABAC clauses are part of any contract entered into with high risk business partners (sales intermediaries, third parties acting on behalf of BioNTech). For BioNTech, bribery - no matter by whom, at what level, in what organization - is never acceptable.

In addition, the Company has implemented a third-party due diligence process that addresses potential ABAC risks. Based on certain criteria, high-risk third parties are screened for potential risks. Once the third-party due diligence process has been utilized, the Legal Department includes ABAC provisions in the relevant contracts as a standard measure to mitigate ABAC risk from third parties acting on behalf of BioNTech.

Donation Policy (Policy)

A donation strategy was developed by the Corporate Social Responsibility (CSR) team and approved directly by the Board of Directors. A Donation Policy (Policy) was approved and implemented by the Board of Directors on November 1, 2020. The Policy defines donations and the approval process for donations made by BioNTech. Donations must be within the scope of the defined donation strategy and policy and are individually reviewed and approved by the company's Corporate Social Responsibility (CSR) department and the Compliance Advisory Committee.

All donations will be reviewed against the following basic requirements:

- The donation is made to a charitable or non-profit organization and not to an individual or for-profit company. Donations are not made to health care organizations.

- Donations to public hospitals or polyclinics in developing countries or countries in a humanitarian crisis are permitted in exceptional cases after a prior compliance review.
- There are no parallel (business) relationships between BioNTech and the organization receiving the donation.
- BioNTech may not receive parallel services from the receiving organization, including affiliated organizations.
- The donation does not serve the personal interests of any individual.
- The donation does not directly/specifically serve BioNTech's commercial interests.
- The receiving organization is properly registered or accredited under applicable local laws to receive donations.

6 Remuneration report

The remuneration report for the 2022 financial year will be prepared in accordance with the requirements of section 162 of the German Stock Corporation Act (AktG) and published on the website at www.biontech.de.

7 Non-financial report

Since our founding, we have focused on our vision of harnessing the power of the immune system to combat human diseases and major health burdens for which no or inadequate medical therapies are currently available. This approach has led to a robust and diversified product pipeline in oncology and infectious diseases.

We support the United Nations Sustainable Development Goals (SDGs). Our research and development work makes an important contribution to the third United Nations Sustainable Development Goal (SDG 3): to ensure healthy lives and promote well-being at all ages. Subgoals 3.3 (infectious diseases) and 3.b (medicine and vaccines) are of particular importance to us. This is in line with our core commitment to global social responsibility. At the heart of our business practices is the goal of ensuring that people around the globe benefit from our research and innovations. As part of this effort, we continue to focus on urgent medical needs and on fair and equitable access to new medicines.

Climate strategy

We see climate protection as a core component of our sustainability commitment. If humanity does not succeed in limiting global warming to 1.5 °C compared to pre-industrial levels, serious consequences for people and nature around the world are to be expected. We therefore support the global agreement on climate change ("Paris Climate Agreement") adopted at the 21st United Nations Climate Change Conference ("COP 21") at the end of 2015 and the UN's 13th Sustainable Development Goal (SDG) to take immediate action to address the climate crisis and its impacts.

We are addressing the climate crisis by minimizing the impact of our business activities and reducing greenhouse gas (GHG) emissions in operations and throughout the value chain. Based on the requirements of the Science Based Targets Initiative (SBTi) and after consultation with the Supervisory Board, the Management Board set binding emission reduction targets in Q1 2022. For the company's Scope 1 & 2 greenhouse gas emissions, an absolute reduction of 42% by 2030 (target: 1.9 kt CO2e) was set compared to the baseline year 2021 (3.2 kt CO2e). For Scope 3 greenhouse gas emissions, a so-called "Supplier Engagement Target" was adopted: Accordingly, the most important suppliers covering at least two-thirds of BioNTech's Scope 3 greenhouse gas emissions will be obliged to set themselves science-based short- to medium-term climate targets in accordance with the requirements of the SBTi. This Scope 3 target is to be achieved by 2026 at the latest.

To achieve these short- to medium-term science-based climate targets, BioNTech will integrate greenhouse gas emissions reduction goals into growth and investment planning, supply chain management, and ongoing operations. We recognize that this will require additional capital, operational and personnel expenditures. In September 2022, the "Energy & Sustainability Projects" (ESP) department was established under the umbrella of BioNTech's BSS site service unit to, among other things, operationally realize the decarbonization goals.

We are aware of the impact of the climate crisis on our business and incorporate this risk perspective into our holistic climate strategy. To this end, we analyzed and identified climate-related risks in fiscal 2022 based on the recommendations of the Task Force on Climate Related Financial Disclosures (TCFD). The TCFD was established by the Financial Stability Board (FSB) in 2015 and developed recommendations for managing risks and opportunities arising from climate change. In 2022, we conducted a qualitative and quantitative scenario analysis covering our entire value chain, focusing on both transition risks and physical risks. Based on the results, we have started to integrate the findings into our risk management and processes, which we will consistently continue in 2023.

Further information on our climate strategy, the targets we have set and our specific reduction measures are presented in the Sustainability Report 2022 and published on our website at www.biontech.de.

Human rights obligations

Driven by the Guiding Principles on Business and Human Rights (UN Guiding Principles) adopted by the United Nations in 2011, many National Action Plans (NAPs) for corporate human rights due diligence have been developed globally. The German federal government adopted the German NAP in 2016. This was followed by the German Law on Corporate Due Diligence to Prevent Human Rights Violations in Supply Chains (Lieferkettensorgfaltspflichtengesetz, LkSG), which came into force on January 1, 2023. BioNTech monitors the dynamic regulatory developments on human rights issues in all countries where the company and strategic suppliers are operationally active.

Based on the Universal Declaration of Human Rights and the Fundamental Principles of the International Labor Organization (ILO), BioNTech committed itself to fundamental human rights values for the first time in 2016. In a new edition of the Code of Conduct 2020, the company committed to the Universal Declaration of Human Rights, the Fundamental Principles of the International Labor Organization (ILO), the United Nations Guiding Principles on Business and Human Rights (UNG) and the ten principles of the UN Global Compact, which was signed in 2020. In 2022, BioNTech launched a gap analysis to review the measures taken to date to deal with human rights risks with a focus on the risks specified in Section 2 (2) of the LkSG. Details on BioNTech's human rights risk management in accordance with the LkSG are published in the Risk Report (section 4.2) and in the Sustainability Report 2022.

ESG Ratings

Our efforts were recognized in 2021 by the responsible investment arm of the rating agency Institutional Shareholder Services, ISS ESG (Environmental, Social, Governance): ISS ESG awarded BioNTech a "Prime" ESG rating ("C+" rating, top 10% of the industry) following the publication of the first sustainability report for fiscal 2020. In the following year 2022, the rating was improved to a "B-" rating. The "Prime" rating and the benchmark "top 10% of the industry" were confirmed.

The S&P Global Corporate Sustainability Assessment (S&P CSA) gave us an overall score of 20 out of 100 as a non-participating company in 2021 (S&P Global ESG Score). These are companies that are assessed only on the basis of publicly available information and do not actively participate in the CSA. In 2022, the overall rating score - for the first time as an actively participating company - improved to 32 points compared to the previous year.

The rating agency Morningstar Sustainalytics published an ESG risk rating for BioNTech for the first time in November 2022. A score of 22.3 ("medium risk") was achieved. In an industry comparison (pharmaceuticals), BioNTech thus ranks in the top 11%; in the sub-sector "biotechnology" in the top 7% of the companies rated by Sustainalytics.

CSR Management

Our CSR management, including the fields of action and material CSR topics, will be presented in detail in a separate Sustainability Report 2022 and made available online at www.biontech.de.

By publishing relevant and material sustainability information, we address all stakeholders and, in particular, investors with high expectations regarding the environmental, social and governance (ESG) performance of companies.

8 Events after the reporting period

A detailed description of the events after the reporting period can be found in the notes to the consolidated financial statements and the annual financial statements of BioNTech SE.

Mainz, March 27, 2023

BioNTech SE

Prof. Ugur Sahin, M.D.
Chief Executive Officer

Jens Holstein
Chief Financial Officer

Sean Marett
Chief Business Officer and Chief Commercial Officer

Sierk Poetting, Ph.D.
Chief Operating Officer

Ryan Richardson
Chief Strategy Officer

Prof. Özlem Türeci, M.D.
Chief Medical Officer

Independent auditor's report

To BioNTech SE

Opinions

We have audited the consolidated financial statements of BioNTech SE, Mainz, and its subsidiaries (the Group), which comprise the consolidated balance sheet as at 31 December 2022, and the consolidated income statement, consolidated statement of other comprehensive income, consolidated statement of changes in equity and consolidated statement of cash flows for the fiscal year from 1 January to 31 December 2022, and notes to the financial statements, including a summary of significant accounting policies. In addition, we have audited the combined group management report of BioNTech SE for the fiscal year from 1 January to 31 December 2022. In accordance with the German legal requirements, we have not audited the group statement on Group corporate governance declaration pursuant to Secs. 315d HGB ["Handelsgesetzbuch": German Commercial Code] in section 5 of the combined group management report. In addition, we have not audited the content of the non-management report disclosures contained in sections 4.2.2 and 4.2.4 based on recommendation A.5 of the German Corporate Governance Code (GCGC 2022) and the non-financial report contained in section 7 of the combined group management report, which contains non-management report disclosures.

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

- the accompanying consolidated financial statements comply, in all material respects, with the IFRSs as adopted by the EU, and the additional requirements of German commercial law pursuant to Sec. 315e (3) in conjunction with (1) HGB and, in compliance with these requirements, give a true and fair view of the assets, liabilities and financial position of the Group as at 31 December 2022 and of its financial performance for the fiscal year from 1 January to 31 December 2022, and

- the accompanying group management report as a whole provides an appropriate view of the Group's position. In all material respects, this group management report is consistent with the consolidated financial statements, complies with German legal requirements and appropriately presents the opportunities and risks of future development. We do not express an opinion on the content of the statement on corporate governance or on the sections 4.2.2, 4.2.4 and 7 of the combined management report referred to above.

Pursuant to Sec. 322 (3) Sentence 1 HGB, we declare that our audit has not led to any reservations relating to the legal compliance of the consolidated financial statements and of the group management report.

Basis for the opinions

We conducted our audit of the consolidated financial statements and of the group management report in accordance with Sec. 317 HGB and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer [Institute of Public Auditors in Germany] (IDW). Our responsibilities under those requirements and principles are further described in the "Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report" section of our auditor's report. We are independent of the Group entities in accordance with the requirements of German commercial and professional law, and we have fulfilled our other German professional responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinions on the consolidated financial statements and on the group management report.

Other information

The Supervisory Board is responsible for the report of the Supervisory Board in the "Report of the Supervisory Board" section. The executive directors and the Supervisory Board are responsible for the declaration pursuant to Sec. 161 AktG ["Aktiengesetz": German Stock Corporation Act] on the German Corporate Governance Code, which is part of the Group corporate governance declaration. In all other respects, the executive directors are responsible for the other information. The other information comprises the aforementioned corporate governance declaration and the sections 4.2.2, 4.2.4 and 7 of the Group management report. The other information also comprises parts to be included in the annual report, of which we received a version prior to issuing this auditor's report, in particular:

- Non-financial report,
- Report of the Supervisory Board,
- Remuneration report,

but not the consolidated financial statements, not the management report disclosures whose content is audited and not our auditor's report thereon.

Furthermore, the other information includes other components intended for the annual report which are expected to be made available to us after the audit opinion has been issued, in particular:

- the letter from the Executive Board to the shareholders,

- the multi-year overview of business development.

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

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

- is materially inconsistent with the consolidated financial statements, with the group management report or our knowledge obtained in the audit, or

- otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

Responsibilities of the executive directors and the supervisory board for the consolidated financial statements and the group management report

The executive directors are responsible for the preparation of the consolidated financial statements that comply, in all material respects, with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec 315e (3) in conjunction with (1) HGB and that the consolidated financial statements, in compliance with these requirements, give a true and fair view of the assets, liabilities, financial position and financial performance of the Group. In addition, the executive directors are responsible for such internal control as they have determined necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud (i.e., fraudulent financial reporting and misappropriation of assets) or error.

In preparing the consolidated financial statements, the executive directors are responsible for assessing the Group's ability to continue as a going concern. They also have the responsibility for disclosing, as applicable, matters related to going concern. In addition, they are responsible for financial reporting based on the going concern basis of accounting, unless there is an intention to liquidate the Group or to cease operations, or there is no realistic alternative but to do so.

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

The supervisory board is responsible for overseeing the Group's financial reporting process for the preparation of the consolidated financial statements and of the group management report.

Auditor's responsibilities for the audit of the consolidated financial statements and of the group management report

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

Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Sec. 317 HGB and in compliance with German Generally Accepted Standards for Financial Statement Audits promulgated by the Institut der Wirtschaftsprüfer (IDW) will always detect a material misstatement. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated financial statements and this group management report.

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

- Identify and assess the risks of material misstatement of the consolidated financial statements and of the group management report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinions. The risk of not detecting a material misstatement resulting from fraud is higher than the risk of not detecting a material misstatement resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit of the consolidated financial statements and of arrangements and measures (systems) relevant to the audit of the group management report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of these systems.

- Evaluate the appropriateness of accounting policies used by the executive directors and the reasonableness of estimates made by the executive directors and related disclosures.

- Conclude on the appropriateness of the executive directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in the auditor's report to the related disclosures in the consolidated financial statements and in the group management report or, if such disclosures are inadequate, to modify our respective opinions. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Group to cease to be able to continue as a going concern.

- Evaluate the overall presentation, structure and content of the consolidated financial statements, including the disclosures, and whether the consolidated financial statements present the underlying transactions and events in a manner that the consolidated financial statements give a true and fair view of the assets, liabilities, financial position and financial performance of the Group in compliance with IFRSs as adopted by the EU and the additional requirements of German commercial law pursuant to Sec. 315e (3) in conjunction with (1) HGB.

- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express opinions on the consolidated financial statements and on the group management report. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our opinions.

- Evaluate the consistency of the group management report with the consolidated financial statements, its conformity with law, and the view of the Group's position it provides.

- Perform audit procedures on the prospective information presented by the executive directors in the group management report. On the basis of sufficient appropriate audit evidence we evaluate, in particular, the significant assumptions used by the executive directors as a basis for the prospective information, and evaluate the proper derivation of the prospective information from these assumptions. We do not express a separate opinion on the prospective information and on the assumptions used as a basis. There is a substantial unavoidable risk that future events will differ materially from the prospective information.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.