

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 6-K

**Report of Foreign Private Issuer
Pursuant to Rule 13a-16 or 15d-16 under
the Securities Exchange Act of 1934**

For the quarterly period ended March 31, 2024

Commission File Number 001-38332

QIAGEN N.V.

(Translation of registrant's name into English)

**Hulsterweg 82
5912 PL Venlo
The Netherlands**

(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F.

Form 20-F

Form 40-F

QIAGEN N.V.

Form 6-K

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OTHER INFORMATION

For the three months ended March 31, 2024, QIAGEN N.V. prepared its quarterly report under United States generally accepted accounting principles (U.S. GAAP). This quarterly report is furnished herewith as Exhibit 99.1 and incorporated by reference herein.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

QIAGEN N.V.

By: /s/ Roland Sackers

Roland Sackers

Chief Financial Officer

Date: April 30, 2024

EXHIBIT INDEX

Exhibit
No.
[99.1](#)

Exhibit
U.S. GAAP Quarterly Report for the Period Ended March 31, 2024

QIAGEN N.V. and Subsidiaries

U.S. GAAP Quarterly Report for the Period Ended March 31, 2024

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Condensed Consolidated Financial Statements

QIAGEN N.V. and Subsidiaries Condensed Consolidated Balance Sheets

(in thousands)	Notes	March 31, 2024	December 31, 2023
		(unaudited)	
Assets			
Current assets:			
Cash and cash equivalents		\$513,670	\$668,084
Short-term investments		379,463	389,698
Accounts receivable, net of allowance for credit losses of \$16,315 and \$17,296, respectively		343,892	381,877
Inventories, net	(5)	401,745	398,385
Prepaid expenses and other current assets	(9)	251,992	309,516
Total current assets		1,890,762	2,147,560
Long-term assets:			
Property, plant and equipment, net of accumulated depreciation of \$529,234 and \$516,765, respectively		762,530	765,037
Goodwill	(6)	2,448,916	2,475,732
Intangible assets, net of accumulated amortization of \$762,357 and \$748,590, respectively	(6)	502,006	526,821
Fair value of derivative instruments - long-term	(9)	7,187	3,083
Other long-term assets	(7)	194,528	196,957
Total long-term assets		3,915,167	3,967,630
Total assets		\$5,805,929	\$6,115,190

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

QIAGEN N.V. and Subsidiaries Condensed Consolidated Balance Sheets

(in thousands, except par value)	Notes	March 31, 2024	December 31, 2023
		(unaudited)	
Liabilities and equity			
Current liabilities:			
Current portion of long-term debt	(8)	\$590,523	\$587,970
Accrued and other current liabilities	(4, 9, 10)	359,314	407,168
Accounts payable		75,329	84,155
Total current liabilities		1,025,166	1,079,293
Long-term liabilities:			
Long-term debt, net of current portion	(8)	912,814	921,824
Fair value of derivative instruments - long-term	(9)	55,677	98,908
Other long-term liabilities		212,643	207,401
Total long-term liabilities		1,181,134	1,228,133
Commitments and contingencies	(15)		
Equity:			
Preference shares, 0.01 EUR par value, authorized—450,000 shares, no shares issued and outstanding		—	—
Financing preference shares, 0.01 EUR par value, authorized—40,000 shares, no shares issued and outstanding		—	—
Common shares, 0.01 EUR par value, authorized—410,000 shares, issued—223,904 and 230,829 shares, respectively	(13)	2,601	2,702
Additional paid-in capital	(13)	1,636,154	1,915,115
Retained earnings		2,486,139	2,456,800
Accumulated other comprehensive loss	(13)	(424,156)	(433,830)
Less treasury shares, at cost—2,057 and 2,627 shares, respectively		(101,109)	(133,023)
Total equity		3,599,629	3,807,764
Total liabilities and equity		\$5,805,929	\$6,115,190

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

QIAGEN N.V. and Subsidiaries Condensed Consolidated Statements of Income (Unaudited)

(in thousands, except per share data)	Notes	2024	Three Months Ended March 31, 2023
Net sales	(4)	\$458,796	\$485,398
Cost of sales:			
Cost of sales		151,734	161,906
Acquisition-related intangible amortization		16,073	16,016
Total cost of sales		167,807	177,922
Gross profit		290,989	307,476
Operating expenses:			
Sales and marketing		111,121	114,641
Research and development		51,333	54,718
General and administrative		27,568	32,939
Acquisition-related intangible amortization		2,722	2,657
Restructuring, acquisition, integration and other, net		3,298	5,811
Total operating expenses		196,042	210,766
Income from operations		94,947	96,710
Other income (expense):			
Interest income		17,758	18,008
Interest expense		(10,292)	(14,454)
Other (expense) income, net		(123)	8,523
Total other income, net		7,343	12,077
Income before income tax expense		102,290	108,787
Income tax expense	(11)	21,617	23,752
Net income		\$80,673	\$85,035
Basic earnings per common share		\$0.36	\$0.37
Diluted earnings per common share		\$0.36	\$0.37
Weighted-average common shares outstanding:			
Basic		223,835	227,894
Diluted		226,572	230,602

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

QIAGEN N.V. and Subsidiaries Condensed Consolidated Statements of Comprehensive Income (Unaudited)

(in thousands)	Notes	2024	Three Months Ended March 31, 2023
Net income		\$80,673	\$85,035
Other comprehensive income (loss) to be reclassified to profit or loss in subsequent periods:			
Gains (losses) on cash flow hedges, net of \$12,212 tax expense and \$511 tax benefit, respectively	(9)	35,122	(1,470)
Reclassification adjustments on cash flow hedges, net of \$13,177 tax benefit and \$2,063 tax expense, respectively	(9)	(37,898)	5,933
Cash flow hedges, net of tax		(2,776)	4,463
Net investment hedge	(9)	11,458	(10,015)
Foreign currency translation adjustments, net of \$0 tax and \$0 tax, respectively		992	13,382
Other comprehensive income		9,674	7,830
Comprehensive income		\$90,347	\$92,865

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

QIAGEN N.V. and Subsidiaries Condensed Consolidated Statements of Changes in Equity (Unaudited)

(in thousands)	Notes	Common shares		Additional paid-in capital	Retained earnings	Accumulated other comprehensive loss	Treasury shares		Total equity
		Shares	Amount				Shares	Amount	
Balance at December 31, 2023		230,829	\$2,702	\$1,915,115	\$2,456,800	(\$433,830)	(2,627)	(\$133,023)	\$3,807,764
Capital repayment	(13)	(6,925)	(101)	(292,792)	—	—	79	—	(292,893)
Net income		—	—	—	80,673	—	—	—	80,673
Unrealized gain, net on hedging contracts	(9)	—	—	—	—	46,580	—	—	46,580
Realized gain, net on hedging contracts	(9)	—	—	—	—	(37,898)	—	—	(37,898)
Translation adjustment, net	(13)	—	—	—	—	992	—	—	992
Issuance of common shares in connection with stock plan		—	—	—	(51,334)	—	941	51,334	—
Tax withholding related to vesting of stock awards	(12)	—	—	—	—	—	(450)	(19,420)	(19,420)
Share-based compensation	(12)	—	—	13,831	—	—	—	—	13,831
Balance at March 31, 2024		223,904	\$2,601	\$1,636,154	\$2,486,139	(\$424,156)	(2,057)	(\$101,109)	\$3,599,629
Balance at December 31, 2022		230,829	\$2,702	\$1,868,015	\$2,160,173	(\$404,091)	(3,113)	(\$160,188)	\$3,466,611
Net income		—	—	—	85,035	—	—	—	85,035
Unrealized loss, net on hedging contracts	(9)	—	—	—	—	(11,485)	—	—	(11,485)
Realized loss, net on hedging contracts	(9)	—	—	—	—	5,933	—	—	5,933
Translation adjustment, net	(13)	—	—	—	—	13,382	—	—	13,382
Issuance of common shares in connection with stock plan		—	—	—	(29,781)	—	589	29,857	76
Tax withholding related to vesting of stock awards	(12)	—	—	—	—	—	(270)	(12,524)	(12,524)
Share-based compensation	(12)	—	—	14,148	—	—	—	—	14,148
Balance at March 31, 2023		230,829	\$2,702	\$1,882,163	\$2,215,427	(\$396,261)	(2,794)	(\$142,855)	\$3,561,176

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

QIAGEN N.V. and Subsidiaries Condensed Consolidated Statements of Cash Flows (Unaudited)

(in thousands)	Notes	2024	Three Months Ended March 31, 2023
Cash flows from operating activities:			
Net income		\$80,673	\$85,035
Adjustments to reconcile net income to net cash provided by operating activities, net of effects of businesses acquired:			
Depreciation and amortization		54,330	52,061
Amortization of debt discount and issuance costs	(8)	5,055	8,537
Share-based compensation expense	(12)	13,831	14,148
Deferred tax benefit		(383)	(4,341)
Loss on marketable securities	(7)	106	—
Other items, net including fair value changes in derivatives		(2,195)	(9,362)
Net changes in operating assets and liabilities:			
Accounts receivable		31,478	7,882
Inventories		(15,495)	(22,671)
Prepaid expenses and other current assets		(12,157)	(2,349)
Other long-term assets		(2,517)	1,860
Accounts payable		1,157	(13,409)
Accrued and other current liabilities		(45,816)	(53,964)
Income taxes		23,823	6,620
Other long-term liabilities		1,188	1,879
Net cash provided by operating activities		133,078	71,926

QIAGEN N.V. and Subsidiaries Condensed Consolidated Statements of Cash Flows (Unaudited)

(in thousands)	Notes	2024	Three Months Ended March 31, 2023
Cash flows from investing activities:			
Purchases of property, plant and equipment		(36,541)	(33,220)
Purchases of intangible assets	(6)	(1,819)	(5,189)
Purchases of short-term investments		(184,027)	(534,488)
Proceeds from redemptions of short-term investments		192,631	295,816
Cash paid for acquisitions, net of cash acquired	(3)	—	(148,382)
Cash received (paid) for collateral asset	(9)	37,695	(6,980)
Purchases of investments, net	(7)	(1,508)	(1,404)
Net cash provided by (used in) investing activities		6,431	(433,847)
Cash flows from financing activities:			
Capital repayment	(13)	(292,099)	—
Proceeds from issuance of common shares		—	75
Cash received (paid) for collateral liability	(9)	805	(9,903)
Other financing activities		(794)	—
Net cash used in financing activities		(292,088)	(9,828)
Effect of exchange rate changes on cash and cash equivalents		(1,835)	260
Net decrease in cash and cash equivalents		(154,414)	(371,489)
Cash and cash equivalents, beginning of period		668,084	730,669
Cash and cash equivalents, end of period		\$513,670	\$359,180

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

Notes to the Condensed Consolidated Financial Statements (unaudited)

March 31, 2024

1. Corporate Information

QIAGEN N.V. (QIAGEN) is a public limited liability company (naamloze vennootschap) under Dutch law with a registered office at Hulsterweg 82, 5912 PL Venlo, The Netherlands. QIAGEN N.V., a Netherlands holding company, and subsidiaries (we, our or the Company) is a leading global provider of Sample to Insight solutions that enable customers to gain valuable molecular insights from any biological sample. Our sample technologies isolate and process deoxyribonucleic acid (DNA), ribonucleic acid (RNA) and proteins – the building blocks of life – from blood, tissue and other materials. Assay technologies make these biomolecules visible and ready for analysis using a range of technologies. Bioinformatics software and knowledge bases are used to interpret complex genomic data sets to provide relevant, actionable insights. Instruments and automation solutions are used to tie together these products into seamless and cost-effective workflows. We provide solutions to more than 500,000 customers around the world in Molecular Diagnostics (human healthcare) and Life Sciences (academic research, pharma and biotech companies, and applied applications such as human identification/forensics and food safety). As of March 31, 2024, we employed more than 5,900 people in over 35 locations worldwide.

2. Basis of Presentation and Accounting Policies

Basis of Presentation

The condensed consolidated financial statements include the accounts of QIAGEN and its wholly-owned subsidiaries. All significant intercompany accounts and transactions have been eliminated in consolidation. All amounts are presented in U.S. dollars, unless otherwise indicated. Investments in either common stock or in-substance common stock of companies where we exercise significant influence over the operations but do not have control, and where we are not the primary beneficiary, are accounted for using the equity method. All other investments are accounted for at our initial cost, minus any impairment, plus or minus changes from observable price changes in orderly transactions for the identical or a similar investment of the same issuer.

The accompanying unaudited condensed consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles (U.S. GAAP) for interim financial information and generally in accordance with the instructions to Form 10-Q and Article 10 of Regulation S-X. Certain information and footnote disclosures normally included in financial statements prepared in accordance with U.S. GAAP have been condensed or omitted pursuant to the Securities and Exchange Commission (SEC) rules and regulations. In the opinion of management, all adjustments (which include only normal recurring adjustments) necessary for a fair presentation have been included.

On January 3, 2023, we acquired Verogen, Inc., a leader in the use of next-generation sequencing (NGS) technologies to drive the future of human identification (HID) and forensic investigation. Verogen, a privately held company founded in 2017 and based in San Diego, California, supports the global human identification community with NGS tools and professional services to help resolve criminal and missing-persons cases. The acquisition is not significant to the overall condensed consolidated financial statements.

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities and disclosure of contingencies at the date of the financial statements as well as the reported amounts of revenues and expenses during the reporting period. While changing conditions in our global environment present additional uncertainty, we continue to use the best information available to form our estimates. Actual results could differ from those estimates.

We operate as one operating segment in accordance with the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) Topic 280, Segment Reporting. We have a common basis of organization and our products and services are offered globally. Our chief operating decision maker (CODM) makes decisions based on the Company as a whole. Accordingly, we operate and make decisions as one reporting unit.

The results of operations for an interim period are not necessarily indicative of results that may be expected for any other interim period or for the full year. These unaudited condensed consolidated financial statements should be read in conjunction with the audited consolidated financial statements and notes thereto included in the Company's Annual Report on Form 20-F for the year ended December 31, 2023.

Summary of Significant Accounting Policies

The interim condensed consolidated financial statements were prepared based on the same accounting policies as those applied and described in the consolidated financial statements as of December 31, 2023.

Adoption of New Accounting Standards in 2024

As of March 31, 2024, there has been no adoption of new accounting standards in 2024.

New Accounting Standards Not Yet Adopted

As of March 31, 2024, the following recently issued but not yet adopted accounting pronouncements are expected to impact our consolidated financial statements:

ASU 2023-07, Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures was issued in response to stakeholder requests for more decision-useful information about reportable segments. The amendments in ASU 2023-07 improve reportable segment disclosure requirements through enhanced disclosures. This ASU does not change how a public entity identifies its operating segments, aggregates those operating segments or applies the quantitative thresholds to determine reportable segments. This ASU is effective for fiscal years beginning after December 15, 2023, and early adoption is permitted. We will adopt the new disclosures retrospectively to all prior periods presented in the financial statements beginning with the annual reporting for the year ended December 31, 2024.

ASU 2023-09, Income Taxes (Topic 740): Improvements to Income Tax Disclosures enhances annual income tax disclosures to address investor requests for more information about the tax risks and opportunities present in an entity's worldwide operations. The two primary enhancements disaggregate existing income tax disclosures related to the effective tax rate reconciliation and income taxes paid. This ASU is effective for annual periods beginning after December 15, 2024, and early adoption is permitted. We will adopt the new disclosures prospectively beginning with the annual reporting for the year ended December 31, 2025.

3. Acquisitions

We undertake acquisitions to complement our own internal product development activities. Our acquisitions have historically been made at prices above the fair value of the acquired net assets, resulting in goodwill, due to expectations of synergies of combining the businesses. These synergies include use of our existing infrastructure, such as sales force, business service centers, distribution channels and customer relations, to expand sales of an acquired business' products; use of the infrastructure of the acquired businesses to cost-effectively expand sales of our products; and elimination of duplicative facilities, functions and staffing.

2023 Business Combination

On January 3, 2023, we acquired 100% of the shares of Verogen, Inc., a leader in the use of next-generation sequencing (NGS) technologies to drive the future of human identification (HID) and forensic investigation. Verogen, a privately held company founded in 2017 and based in San Diego, California, supports the global human identification community with NGS tools and professional services to help resolve criminal and missing-persons cases. The cash consideration, net of cash acquired was \$149.5 million. The acquisition is not significant to the overall condensed consolidated financial statements and as of September 30, 2023, the allocation of the purchase price was final. At the acquisition date, all the assets acquired and liabilities assumed were recorded at their respective fair values and our condensed consolidated results of operations include the operating results from the acquired company from the acquisition date. The acquisition did not have a material impact to net sales, net income or earnings per common share and therefore no pro forma information has been provided herein.

4. Revenue

Contract Estimates

The majority of our revenue is derived from contracts (i) with an original expected length of one year or less and (ii) contracts for which we recognize revenue at the amount in which we have the right to invoice as product is delivered. We have elected, as a practical expedient, not to disclose the value of remaining performance obligations associated with these types of contracts.

However, we have certain companion diagnostic co-development contracts to provide research and development activities in which our performance obligations extend over multiple years. As of March 31, 2024, we had \$61.1 million of remaining performance obligations for which the transaction price is not constrained related to these contracts which we expect to recognize over the next 12 to 18 months.

Revenue expected to be recognized in any future year related to remaining performance obligations, excluding revenue pertaining to contracts that have an original expected duration of one year or less, contracts where revenue is recognized as invoiced and contracts with variable consideration related to undelivered performance obligations, is not material.

Contract Balances

The timing of revenue recognition, billings and cash collections can result in billed accounts receivable, unbilled receivables (contract assets), and customer advances and deposits (contract liabilities) in the condensed consolidated balance sheet.

Contract assets as of March 31, 2024 and December 31, 2023 totaled \$14.1 million and \$15.0 million, respectively, and are included in prepaid expenses and other current assets in the accompanying condensed consolidated balance sheets and relate to the companion diagnostic co-development contracts discussed above.

Contract liabilities primarily relate to non-cancellable advances or deposits received from customers before revenue is recognized and is primarily related to instrument service and Software as a Service (SaaS) arrangements. As of March 31, 2024 and December 31, 2023, contract liabilities totaled \$87.6 million and \$82.1 million, respectively, of which \$73.7 million and \$66.4 million, respectively, are included in accrued and other current liabilities and \$13.9 million and \$15.7 million, respectively, are included in other long-term liabilities. During the three months ended March 31, 2024 and 2023, we satisfied the associated performance obligations and recognized revenue of \$26.3 million and \$26.5 million, respectively, related to advance customer payments previously received.

Disaggregation of Revenue

We disaggregate our revenue based on product type and customer class, product category and geography as shown in the tables below for the three-month periods ended March 31, 2024 and 2023:

(in thousands)	Three Months Ended March 31,	
	2024	2023
Consumables and related revenues	\$225,007	\$231,224
Instruments	18,646	19,104
Molecular Diagnostics	243,653	250,328
Consumables and related revenues	184,267	199,411
Instruments	30,876	35,659
Life Sciences	215,143	235,070
Total net sales	\$458,796	\$485,398

(in thousands)	Three Months Ended March 31,	
	2024	2023
Sample technologies	\$154,634	\$173,242
Diagnostic solutions	170,386	162,704
PCR / Nucleic acid amplification	67,598	76,858
Genomics / NGS	54,871	55,182
Other	11,307	17,412
Total net sales	\$458,796	\$485,398

(in thousands)	Three Months Ended March 31,	
	2024	2023
Americas	\$233,755	\$246,679
Europe, Middle East and Africa	152,794	155,418
Asia Pacific, Japan and Rest of World	72,247	83,301
Total net sales	\$458,796	\$485,398

5. Inventories

The components of inventories consist of the following as of March 31, 2024 and December 31, 2023:

(in thousands)	March 31, 2024	December 31, 2023
Raw materials	\$88,243	\$91,204
Work in process	97,435	94,736
Finished goods	216,067	212,445
Total inventories, net	\$401,745	\$398,385

6. Intangible Assets

The following table sets forth the intangible assets by major asset class as of March 31, 2024 and December 31, 2023:

(in thousands)	March 31, 2024		December 31, 2023	
	Gross Carrying Amount	Accumulated Amortization	Gross Carrying Amount	Accumulated Amortization
Amortized intangible assets:				
Patent and license rights	\$201,224	(\$129,673)	\$202,785	(\$127,163)
Developed technology	792,348	(459,240)	798,571	(447,989)
Customer base, non-compete agreements and trademarks	209,168	(173,444)	212,285	(173,438)
Total amortized intangible assets	\$1,202,740	(\$762,357)	\$1,213,641	(\$748,590)
Unamortized intangible assets:				
In-process research and development	\$61,623		\$61,770	
Goodwill	2,448,916		2,475,732	
Total unamortized intangible assets	\$2,510,539		\$2,537,502	

In-process research and development is from the acquisitions of NeuMoDx in 2020 and STAT-Dx in 2018. The estimated fair value of acquired in-process research and development projects which have not reached technological feasibility at the date of acquisition are capitalized and subsequently tested for impairment through completion of the development process, at which point the capitalized amounts are amortized over their estimated useful life. If a project is abandoned rather than completed, all capitalized amounts are written-off immediately.

The changes in intangible assets in 2024 are summarized as follows:

(in thousands)	Goodwill	Intangibles
Balance at December 31, 2023	\$2,475,732	\$526,821
Additions	—	1,409
Amortization	—	(23,385)
Foreign currency translation adjustments	(26,816)	(2,839)
Balance at March 31, 2024	\$2,448,916	\$502,006

The changes in the carrying amount of goodwill for the three months ended March 31, 2024 resulted from foreign currency translation adjustments.

Cash paid for purchases of intangible assets in the accompanying condensed consolidated statement of cash flows during the three months ended March 31, 2024 totaled \$1.8 million, of which \$0.4 million is related to current year payments for assets that were accrued as of December 31, 2023 and \$1.4 million is related to current period cash payments for intangible assets.

For the three-month period ended March 31, 2024, amortization expense on intangible assets increased to \$23.4 million as compared to amortization expense of \$23.3 million in the same period of 2023. Amortization of intangibles for each of the next five years is expected to be approximately:

Year ending December 31, (in millions)	Annual Amortization
2025	\$79.7
2026	\$72.2
2027	\$66.8
2028	\$59.5
2029	\$29.9

7. Investments

The following discusses our non-marketable investments and the realized and unrealized gains and losses on these investments.

Non-Marketable Investments

We have made strategic investments in certain privately-held companies without readily determinable market values.

Non-Marketable Investments Accounted for Under the Equity Method

As of March 31, 2024 and December 31, 2023, we had total non-marketable investments that were accounted for as equity method investments of \$18.3 million and \$16.2 million, respectively, included in other long-term assets in the accompanying condensed consolidated balance sheets.

Some of our equity method investments are variable interest entities. We are not considered the primary beneficiary of these investments as we do not hold the power to direct the activities that most significantly impact the economic performance of these entities, and therefore, these investments are not consolidated. As of March 31, 2024, these

investments had a total net carrying value of \$11.3 million, of which \$11.5 million, representing our maximum exposure to loss, is included in other long-term assets and \$0.2 million, where we are committed to fund losses, is included in other long-term liabilities in the accompanying condensed consolidated balance sheet. As of December 31, 2023, these investments totaled a net \$9.9 million, of which \$10.2 million is included in other long-term assets and \$0.3 million is included in other long-term liabilities in the accompanying condensed consolidated balance sheet.

One of our investments, TVM Life Science Ventures III (TVM), is a limited partnership, and we account for our 3.1% investment under the equity method as we have the ability to exercise significant influence over the limited partnership. This investment is valued at net asset value (NAV) reported by the counterparty. During 2024 and 2023, we made additional cash payments of \$1.4 million and \$2.4 million, respectively, to TVM. As of March 31, 2024, we have \$5.5 million of unfunded commitments through 2029 related to this investment. We do not have the right to redeem these funds under the normal course of operations of this partnership.

Non-Marketable Investments Not Accounted for Under the Equity Method

At March 31, 2024 and December 31, 2023, we had investments in non-publicly traded companies that do not have readily determinable fair values with carrying amounts that totaled \$4.5 million and \$4.4 million, respectively, which are included in other long-term assets in the accompanying condensed consolidated balance sheets. These investments are measured at cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer. Changes resulting from impairment and observable price changes are recognized in the statements of income during the period the change is identified.

The changes in non-marketable investments not accounted for under the equity method during the three months ended March 31, 2024 and 2023 are as follows:

(in thousands)	2024	2023
Balance at beginning of year	\$4,435	\$5,329
Cash investments in equity securities, net	144	223
Shares received in exchange for services performed	—	1,285
Foreign currency translation adjustments	(83)	128
Balance at end of period	\$4,496	\$6,965

8. Debt

At March 31, 2024 and December 31, 2023, total long-term debt, net of debt issuance costs, consists of the following:

(in thousands)	March 31, 2024	December 31, 2023
1.000% Senior Unsecured Cash Convertible Notes due 2024	\$487,830	\$483,019
0.000% Senior Unsecured Convertible Notes due 2027	498,002	497,869
German Private Placement (2017 Schuldschein)	118,353	120,956
German Private Placement (2022 Schuldschein)	399,152	407,950
Total long-term debt	1,503,337	1,509,794
Less: Current portion	590,523	587,970
Long-term portion	\$912,814	\$921,824

The notes are all unsecured obligations that rank pari passu. No Contingent Conversion Conditions were triggered as of March 31, 2024.

The principal amount, carrying amount and fair values of long-term debt instruments are summarized below:

(in thousands)	Principal Amount	Unamortized debt discount and issuance costs	Carrying Amount	As of March 31, 2024	
				Amount	Fair Value Leveling
Cash Convertible Notes due 2024	\$500,000	(\$12,170)	\$487,830	\$509,610	Level 1
Convertible Notes due 2027	500,000	(1,998)	498,002	464,395	Level 1
German Private Placement (2017 Schuldschein)	118,394	(41)	118,353	116,877	Level 2
German Private Placement (2022 Schuldschein)	400,004	(852)	399,152	391,471	Level 2
	\$1,518,398	(\$15,061)	\$1,503,337	\$1,482,353	

(in thousands)	Principal Amount	Unamortized debt discount and issuance costs	Carrying Amount	As of December 31, 2023	
				Amount	Fair Value Leveling
Cash Convertible Notes due 2024	\$500,000	(\$16,981)	\$483,019	\$513,500	Level 1
Convertible Notes due 2027	500,000	(2,131)	497,869	453,185	Level 1
German Private Placement (2017 Schuldschein)	121,009	(53)	120,956	118,978	Level 2
German Private Placement (2022 Schuldschein)	408,846	(896)	407,950	401,684	Level 2
	\$1,529,855	(\$20,061)	\$1,509,794	\$1,487,347	

Interest expense related to the convertible notes for the three months ended March 31, 2024 and 2023 was comprised of the following:

(in thousands)	Three Months Ended March 31,	
	2024	2023
Coupon interest	\$1,250	\$1,750
Amortization of original issuance discount	4,554	7,754
Amortization of debt issuance costs	391	660
Total interest expense related to the convertible notes	\$6,195	\$10,164

Convertible Notes due 2027

On December 17, 2020, we issued zero coupon convertible notes in an aggregate principal amount of \$500.0 million with a maturity date of December 17, 2027 (2027 Notes). The 2027 Notes carry no coupon interest. The net proceeds of the 2027 Notes totaled \$497.6 million, after payment of debt issuance costs of \$3.7 million.

The effective interest rate of the 2027 Notes is 1.65%, which is imputed based on the amortization of the fair value of the embedded conversion option over the remaining term of the 2027 Notes.

The 2027 Notes are convertible into common shares based on a conversion rate, subject to adjustment, of 2,475.26 shares per \$200,000 principal amount of notes (which represents a conversion price of \$80.7996 per share, or 6.2 million underlying shares). At conversion, we will settle the 2027 Notes by repaying the principal portion in cash and any excess of the conversion value over the principal amount in common shares.

The 2027 Notes may be redeemed at the option of each noteholder at their principal amount on December 17, 2025 or in connection with a change of control or delisting event (as further described in the 2027 Notes).

The 2027 Notes are convertible in whole, but not in part, at the option of the noteholders on a net share settlement basis, at the prevailing conversion price, in the following circumstances beginning after January 27, 2021 through June 16, 2027:

- if the last reported sale price of our common shares for at least 20-consecutive trading days during a period of 30-consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day; or
- if we undergo certain fundamental changes, including a change of control, as defined in the agreement; or

- if parity event or trading price unavailability event, as the case may be, occurs during the period of 10 days, including the first business day following the relevant trading price notification date; or
- if we distribute assets or property to all or substantially all of the holders of our common shares and those assets or other property have a value of more than 25% of the average daily volume-weighted average trading price of our common shares for the prior 20 consecutive trading days; or
- in case of early redemption in respect of the outstanding notes at our option, where the conversion date falls in the period from (and including) the date on which the call notice is published to (and including) the 45th business day prior to the redemption date; or
- if we experience certain customary events of default, including defaults under certain other indebtedness, until such event of default has been cured or waived.

The noteholders may convert their notes at any time, without condition, on or after June 17, 2027 until the 45th business day prior to December 17, 2027.

No Contingent Conversion Conditions were triggered for the 2027 Notes as of March 31, 2024 or December 31, 2023.

Cash Convertible Notes due 2024

On November 13, 2018, we issued \$500.0 million aggregate principal amount of Cash Convertible Senior Notes due in 2024 (2024 Notes). The net proceeds of the 2024 Notes were \$468.9 million, after payment of transaction costs and the net cost of the Call Spread Overlay described below.

We refer to the 2024 Notes as the “Cash Convertible Notes.”

Interest on the Cash Convertible Notes is payable semi-annually in arrears and will mature on the respective maturity dates unless repurchased or converted with their terms prior to such dates. The interest rate and corresponding maturity of each Cash Convertible Note are summarized in the table below. The Cash Convertible Notes are solely convertible into cash in whole, but not in part, at the option of noteholders under the circumstances described below and during the contingent conversion period as shown in the table below.

Cash Convertible Notes	Annual Interest Rate	Date of Interest Payments	Maturity Date	Contingent Conversion Period	Conversion Rate per \$200,000 Principal Amount
2024 Notes	1.000 %	May 13 and November 13	November 13, 2024	December 24, 2018 to August 2, 2024	4,356.8531

Additionally, conversion may occur at any time following a Contingent Conversion Period through the fifth business day immediately preceding the applicable maturity date.

Upon conversion, noteholders will receive an amount in cash equal to the Cash Settlement Amount, calculated as described below. The Cash Convertible Notes are not convertible into shares of our common stock or any other securities.

Noteholders may convert the Cash Convertible Notes into cash at their option at any time during the Contingent Conversion Period described above only under the following circumstances (Contingent Conversion Conditions):

- if the last reported sale price of our common shares for at least 20-consecutive trading days during a period of 30-consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day; or
- if we undergo certain fundamental changes, including a change of control, as defined in the agreement; or

- if parity event or trading price unavailability event, as the case may be, occurs during the period of 10 days, including the first business day following the relevant trading price notification date; or
- if we elect to distribute assets or property to all or substantially all the holders of our common shares and those assets or other property have a value of more than 25% of the average daily volume-weighted average trading price of our common shares for the prior 20-consecutive trading days; or
- if we elect to redeem the Cash Convertible Notes; or
- if we experience certain customary events of default, including defaults under certain other indebtedness until such event has been cured or waived or the payment of the Cash Convertible Notes have been accelerated.

No Contingent Conversion Conditions were triggered for the 2024 Notes as of March 31, 2024 or December 31, 2023.

The Contingent Conversion Conditions in the 2024 Notes noted above have been analyzed under ASC 815, Derivatives and Hedging, and, based on our analysis, we determined that each of the embedded features listed above are clearly and closely related to the 2024 Notes (i.e., the host contracts). As a result, pursuant to the accounting provisions of ASC 815, Derivatives and Hedging, these features noted above are not required to be bifurcated as separate instruments.

Upon conversion, holders are entitled to a cash payment (Cash Settlement Amount) equal to the average of the conversion rate multiplied by the daily volume-weighted average trading price for our common shares over a 50-day period. The conversion rate is subject to adjustment in certain instances but will not be adjusted for any accrued and unpaid interest. In addition, following the occurrence of certain corporate events that may occur prior to the applicable maturity date, we may be required to pay a cash make-whole premium by increasing the conversion rate for any holder who elects to convert Cash Convertible Notes in connection with the occurrence of such a corporate event.

We may redeem the Cash Convertible Notes in their entirety at a price equal to 100% of the principal amount of the applicable Cash Convertible Notes plus accrued interest at any time when 20% or less of the aggregate principal amount of the applicable Cash Convertible Notes originally issued remain outstanding.

Because the Cash Convertible Notes contain an embedded cash conversion option, we have determined that the embedded cash conversion option is a derivative financial instrument, which is required to be separated from the Cash Convertible Notes and accounted for separately as a derivative liability, with changes in fair value reported in our condensed consolidated statements of income until the cash conversion option transaction settles or expires. The initial fair value liability of the embedded cash conversion options was \$98.5 million for the 2024 Notes, which simultaneously reduced the carrying value of the Cash Convertible Notes (effectively serving as an original issuance discount). For further discussion of the derivative financial instruments relating to the Cash Convertible Notes, refer to Note 9 "Derivatives and Hedging."

As noted above, the reduced carrying value on the Cash Convertible Notes resulted in a debt discount that is amortized to the principal amount through the recognition of non-cash interest expense using the effective interest method over the expected life of the debt of six years for the 2024 Notes. This resulted in our recognition of interest expense on the Cash Convertible Notes at an effective rate approximating what we would have incurred had nonconvertible debt with otherwise similar terms been issued. The effective interest rate is 4.782% for the 2024 Notes, which is imputed based on the amortization of the fair value of the embedded cash conversion option over the remaining term of the Cash Convertible Notes.

We incurred approximately \$5.7 million of transaction costs in connection with the issuance of the 2024 Notes. Such costs have been allocated to the Cash Convertible Notes and deferred and are being amortized to interest expense over the terms of the Cash Convertible Notes using the effective interest method.

Cash Convertible Notes Call Spread Overlay

Concurrent with the issuance of the Cash Convertible Notes, we entered into privately negotiated hedge transactions (Call Options) with, and issued warrants to purchase shares of our common stock (Warrants) to, certain financial institutions. We refer to the Call Options and Warrants collectively as the "Call Spread Overlay." The Call Options are

intended to offset any cash payments payable by us in excess of the principal amount due upon any conversion of the Cash Convertible Notes. The Call Options are derivative financial instruments and are discussed further in Note 9 "Derivatives and Hedging." The Warrants are equity instruments and are further discussed in Note 13 "Equity."

Aside from the initial payment of a premium, we will not be required to make any cash payments under the Call Options, and will be entitled to receive an amount of cash, generally equal to the amount by which the market price per common share exceeds the exercise price of the Call Options during the relevant valuation period. The exercise price under the Call Options is initially equal to the conversion price of the Cash Convertible Notes.

The Warrants that were issued with our Cash Convertible Notes could have a dilutive effect to the extent that the price of our common shares exceeds the applicable strike price of the Warrants. For each Warrant that is exercised, we will deliver to the holder a number of common shares equal to the amount by which the settlement price exceeds the exercise price, plus cash in lieu of any fractional shares. We will not receive any proceeds if the Warrants are exercised.

German Private Placement (2017 Schuldschein)

In 2017, we completed a German private placement bond (2017 Schuldschein) which was issued in several tranches totaling \$331.1 million due in various periods through 2027. In the first quarter of 2021, we repaid \$41.1 million for two tranches that matured. In October 2022, we repaid \$153.0 million for the four tranches that matured. The 2017 Schuldschein consists of one U.S. dollar and several euro-denominated tranches. The euro tranches are designated as a foreign currency non-derivative hedging instrument that qualifies as a net investment hedge as described in Note 9 "Derivatives and Hedging." Based on the spot rate method, the change in the carrying value of the euro-denominated tranches attributed to the net investment hedge as of March 31, 2024 totaled \$3.6 million of unrealized gain and is recorded in equity. We paid \$1.2 million in debt issuance costs which are being amortized through interest expense using the effective interest method over the lifetime of the notes.

A summary of the tranches as of March 31, 2024 and December 31, 2023 is as follows:

Currency	Notional Amount	Interest Rate	Maturity	Carrying Value (in thousands) as of	
				March 31, 2024	December 31, 2023
EUR	€64.0 million	Fixed 1.09%	June 2024	\$69,184	\$70,704
EUR	€31.0 million	Floating EURIBOR + 0.7%	June 2024	33,509	34,247
EUR	€14.5 million	Fixed 1.61%	June 2027	15,660	16,005
				\$118,353	\$120,956

German Private Placement (2022 Schuldschein)

In July and August 2022, we completed another German private placement bond (2022 Schuldschein) which was issued in several tranches totaling €370.0 million due in various periods through 2035. The 2022 Schuldschein consists of only euro-denominated tranches which have either a fixed or floating rate. All tranches except for the €70.0 million fixed 3.04% tranche due August 2035 are ESG-linked wherein the interest rate is subject to adjustment of +/- 0.025% if our ESG rating changes. The euro tranches are designated as a foreign currency non-derivative hedging instrument that qualifies as a net investment hedge as described in Note 9 "Derivatives and Hedging." Based on the spot rate method, the change in the carrying value of the euro-denominated tranches attributed to the net investment hedge as of March 31, 2024 totaled \$27.4 million of unrealized loss and is recorded in equity. We paid \$1.2 million in debt issuance costs which are being amortized through interest expense using the effective interest method over the lifetime of the notes.

A summary of the tranches issued is as follows:

Currency	Notional Amount	Interest Rate	Maturity	Carrying Value (in thousands) as of	
				March 31, 2024	December 31, 2023
EUR	€51.5 million	Floating 6M EURIBOR + 0.55%	July 2025	\$55,617	\$56,836
EUR	€62.0 million	Fixed 2.741%	July 2027	66,914	68,388
EUR	€29.5 million	Floating 6M EURIBOR + 0.70%	July 2027	31,838	32,539
EUR	€37.0 million	Fixed 3.044%	July 2029	39,922	40,803
EUR	€103.0 million	Floating 6M EURIBOR + 0.85%	July 2029	111,135	113,586
EUR	€9.5 million	Fixed 3.386%	July 2032	10,248	10,475
EUR	€7.5 million	Floating 6M EURIBOR + 1.0%	July 2032	8,091	8,269
EUR	€70.0 million	Fixed 3.04%	August 2035	75,387	77,054
				\$399,152	\$407,950

Revolving Credit Facility

Our credit facilities available and undrawn at March 31, 2024 total €413.0 million (approximately \$446.5 million). This includes a €400.0 million syndicated ESG-linked revolving credit facility expiring December 2025 and two other lines of credit amounting to €13.0 million with no expiration date. The €400.0 million facility can be utilized in euro and bears interest of 0.550% to 1.500% above EURIBOR and is offered with interest periods of one, three or six months. The commitment fee is calculated based on 35% of the applicable margin. The revolving facility agreement contains certain financial and non-financial covenants, including but not limited to, restrictions on the encumbrance of assets and the maintenance of certain financial ratios. We were in compliance with these covenants at March 31, 2024. The credit facilities are for general corporate purposes and no amounts were utilized at March 31, 2024.

9. Derivatives and Hedging

Objective and Strategy

In the ordinary course of business, we use derivative instruments, including swaps, forwards and/or options, to manage potential losses from foreign currency exposures and interest-bearing assets or liabilities. The principal objective of such derivative instruments is to minimize the risks and/or costs associated with our global financial and operating activities. We do not utilize derivative or other financial instruments for trading or other speculative purposes. We recognize all derivatives as either assets or liabilities on the balance sheet on a gross basis, measure those instruments at fair value and recognize the change in fair value in earnings in the period of change, unless the derivative qualifies as an effective hedge that offsets certain exposures. We have agreed with almost all of our counterparties with whom we had entered into cross-currency swaps, interest rate swaps or foreign exchange contracts, to enter into bilateral collateralization contracts under which we will receive or provide cash collateral, as the case may be, for the net position with each of these counterparties. As of March 31, 2024, cash collateral positions consisted of \$6.2 million recorded in accrued and other current liabilities and \$50.0 million recorded in prepaid expenses and other current assets in the accompanying condensed consolidated balance sheet. As of December 31, 2023, we had cash collateral positions consisting of \$5.4 million recorded in accrued and other current liabilities and \$87.7 million recorded in prepaid expenses and other current assets in the accompanying condensed consolidated balance sheet.

Non-Derivative Hedging Instrument

Net Investment Hedge

We are party to a foreign currency non-derivative hedging instrument that is designated and qualifies as a net investment hedge. The objective of the hedge is to protect part of the net investment in foreign operations against adverse changes in the exchange rate between the euro and the U.S. dollar. The non-derivative hedging instrument is the German private corporate bond (2017 Schuldschein) which was issued in 2017 in the total amount of \$331.1 million as described in Note 8 "Debt." Of the \$331.1 million, which is held in both U.S. dollars and euros, €255.0 million was designated as the hedging instrument against a portion of our euro net investments in our foreign operations. As further described in Note 8 "Debt," four tranches of the 2017 Schuldschein matured and were paid in October 2022 and two tranches of the 2017 Schuldschein matured and were paid during 2021. As a result, €109.5 million remained designated as a hedging instrument as of March 31, 2024. In July 2022, we issued an additional €370.0 million German private corporate bond (2022 Schuldschein) as described in Note 8 "Debt" and it is designated in its entirety as the hedging instrument against a portion of our euro net investments in our foreign operations. The relative changes in both the hedged item and hedging instrument are calculated by applying the change in spot rate between two assessment dates against the respective notional amount. The effective portion of the hedge is recorded in the cumulative translation adjustment account within accumulated other comprehensive loss. Based on the spot rate method, the unrealized loss recorded in equity as of March 31, 2024 and December 31, 2023 is \$23.8 million and \$35.2 million, respectively. Since we are using the debt as the hedging instrument, which is also remeasured based on the spot rate method, there is no hedge ineffectiveness related to the net investment hedge as of March 31, 2024 and December 31, 2023.

Derivatives Designated as Hedging Instruments

Cash Flow Hedges

As of March 31, 2024 and December 31, 2023, we held derivative instruments that are designated and qualify as cash flow hedges, where the effective portion of the gain or loss on the derivative is reported as a component of other comprehensive loss and reclassified into earnings in the same period or periods during which the hedged transaction affects earnings. Gains and losses on the derivative representing either hedge ineffectiveness or hedge components excluded from the assessment of effectiveness are recognized in current earnings. To date, we have not recorded any hedge ineffectiveness related to any cash flow hedges in earnings. Based on their valuation as of March 31, 2024, we expect approximately \$4.9 million of derivative gains included in accumulated other comprehensive loss will be reclassified into income during the next 12 months. The cash flows derived from derivatives are classified in the condensed consolidated statements of cash flows in the same category as the hedged item.

We use interest rate derivative contracts to align our portfolio of interest-bearing assets and liabilities with our risk management objectives. Since 2015, we have been a party to five cross-currency interest rate swaps through 2025 for a total notional amount of €180.0 million which qualify for hedge accounting as cash flow hedges. In September 2022, we entered into five new cross-currency interest rate swaps through 2025 for a total notional amount of CHF 542.0 million which qualify for hedge accounting as cash flow hedges. We determined that no ineffectiveness exists related to these swaps. As of March 31, 2024 and December 31, 2023, interest receivables of \$4.1 million and \$8.4 million, respectively, are recorded in prepaid expenses and other current assets in the accompanying condensed consolidated balance sheets.

Derivatives Not Designated as Hedging Instruments

Call Options

We entered into Call Options which, along with the sale of the Warrants, represent the Call Spread Overlay entered into in connection with the Cash Convertible Notes and which are more fully described in Note 8 "Debt." In these transactions, the Call Options are intended to address the equity price risk inherent in the cash conversion feature of each instrument by offsetting cash payments in excess of the principal amount due upon any conversion of the Cash Convertible Notes. Accordingly, the derivative is presented as either current or long-term based upon the classification of the related debt.

Aside from the initial payment of premiums for the Call Options, we will not be required to make any cash payments under the Call Options. We will, however, be entitled to receive under the terms of the Call Options, an amount of cash generally equal to the amount by which the market price per common share exceeds the exercise price of the Call Options during the relevant valuation period. The exercise price under the Call Options is equal to the conversion price of the Cash Convertible Notes.

The Call Options, for which our common shares are the underlying security, are derivative assets that require mark-to-market accounting treatment. The Call Options are measured and reported at fair value on a recurring basis within Level 2 of the fair value hierarchy. The change in fair value is recognized immediately in our condensed consolidated statements of income in other (expense) income, net.

Cash Convertible Notes Embedded Cash Conversion Option

The embedded cash conversion option within the Cash Convertible Notes discussed in Note 8 "Debt" is required to be separated from the Cash Convertible Notes and accounted for separately as a derivative liability, with changes in fair value reported in our condensed consolidated statements of income in other (expense) income, net until the cash conversion option settles or expires. The embedded cash conversion option is measured and reported at fair value on a recurring basis, within Level 2 of the fair value hierarchy.

Because the terms of the Cash Convertible Notes' embedded cash conversion option are substantially similar to those of the Call Options, discussed above, we expect the effect on earnings from these two derivative instruments to mostly offset each other.

Foreign Exchange Contracts

As a globally active enterprise, we are subject to risks associated with fluctuations in foreign currencies in our ordinary operations. This includes foreign currency-denominated receivables, payables, debt, and other balance sheet positions including intercompany items. We manage balance sheet exposure on a group-wide basis using foreign exchange forward contracts, foreign exchange options and cross-currency swaps.

We are party to various foreign exchange forward, option and swap arrangements which had an aggregate notional value of \$459.6 million at March 31, 2024, which expire at various dates through January 2025. At December 31, 2023, these arrangements had an aggregate notional value of \$590.9 million, which expired at various dates through September 2024. The transactions have been entered into to offset the effects from short-term balance sheet exposure to foreign currency exchange risk. Changes in the fair value of these arrangements have been recognized in other (expense) income, net.

Fair Values of Derivative Instruments

The following table summarizes the fair value amounts of derivative instruments as of March 31, 2024 and December 31, 2023. The current assets are included in prepaid expenses and other current assets and the current liabilities are included in accrued and other current liabilities in the accompanying condensed consolidated balance sheets.

(in thousands)	As of March 31, 2024		As of December 31, 2023	
	Current asset	Long-term Asset	Current asset	Long-term Asset
Assets:				
Derivative instruments designated as hedges				
Interest rate contracts - cash flow hedge ⁽¹⁾	\$—	\$7,187	\$—	\$3,083
Total derivative instruments designated as hedges	\$—	\$7,187	\$—	\$3,083
Undesignated derivative instruments				
Equity options	\$38,381	\$—	\$39,759	\$—
Foreign exchange forwards and options	2,622	—	3,471	—
Total undesignated derivative instruments	\$41,003	\$—	\$43,230	\$—
Total derivative assets	\$41,003	\$7,187	\$43,230	\$3,083

(in thousands)	As of March 31, 2024		As of December 31, 2023	
	Current liability	Long-term liability	Current liability	Long-term liability
Liabilities:				
Derivative instruments designated as hedges				
Interest rate contracts - cash flow hedge ⁽¹⁾	\$—	(\$55,677)	\$—	(\$98,908)
Total derivative instruments designated as hedges	\$—	(\$55,677)	\$—	(\$98,908)
Undesignated derivative instruments				
Cash convertible notes embedded conversion option	(\$38,424)	\$—	(\$39,830)	\$—
Foreign exchange forwards and options	(3,049)	—	(9,944)	—
Total undesignated derivative instruments	(\$41,473)	\$—	(\$49,774)	\$—
Total derivative liabilities	(\$41,473)	(\$55,677)	(\$49,774)	(\$98,908)

⁽¹⁾ The fair value amounts for the interest rate contracts do not include accrued interest.

Gains and Losses on Derivative Instruments

The following tables summarize the gains and losses on derivative instruments for the three-month periods ended March 31, 2024 and 2023:

(in thousands)	Three Months Ended March 31,	
	2024	2023
	Other (expense) income, net	Other (expense) income, net
Total amounts presented in the Condensed Consolidated Statements of Income in which the effects of cash flow and fair value hedges are recorded	(\$123)	\$8,523
Gains (Losses) on Derivatives in Cash Flow Hedges		
Interest rate contracts		
Amount of (loss) gain reclassified from accumulated other comprehensive loss	(\$51,075)	\$7,996
Amounts excluded from effectiveness testing	—	—
Gains (Losses) Derivatives Not Designated as Hedging Instruments		
Equity options	(1,377)	(77,683)
Cash convertible notes embedded cash conversion option	1,406	78,026
Foreign exchange forwards and options	3,196	3,346
Total (losses) gains	(\$47,850)	\$11,685

10. Financial Instruments and Fair Value Measurements

Assets and liabilities are measured at fair value according to a three-tier fair value hierarchy which prioritizes the inputs used in measuring fair value as follows:

- *Level 1.* Observable inputs, such as quoted prices in active markets;
- *Level 2.* Inputs, other than the quoted price in active markets, that are observable either directly or indirectly; and
- *Level 3.* Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

The following table presents our fair value hierarchy for our financial assets and liabilities measured at fair value on a recurring basis as of March 31, 2024 and December 31, 2023.

(in thousands)	As of March 31, 2024				As of December 31, 2023			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Assets:								
Cash equivalents	\$320,568	\$19,864	\$—	\$340,432	\$481,360	\$9,982	\$—	\$491,342
Short-term investments	—	80,408	—	80,408	—	81,023	—	81,023
Non-marketable equity securities	—	—	4,496	4,496	—	—	4,435	4,435
Equity options	—	38,381	—	38,381	—	39,759	—	39,759
Foreign exchange forwards and options	—	2,622	—	2,622	—	3,471	—	3,471
Interest rate contracts - cash flow hedge	—	7,187	—	7,187	—	3,083	—	3,083
Total financial assets	\$320,568	\$148,462	\$4,496	\$473,526	\$481,360	\$137,318	\$4,435	\$623,113
Liabilities:								
Cash convertible notes embedded cash conversion option	\$—	(\$38,424)	\$—	(\$38,424)	\$—	(\$39,830)	\$—	(\$39,830)
Foreign exchange forwards and options	—	(3,049)	—	(3,049)	—	(9,944)	—	(9,944)
Interest rate contracts - cash flow hedge	—	(55,677)	—	(55,677)	—	(98,908)	—	(98,908)
Contingent consideration	—	—	(17,971)	(17,971)	—	—	(18,359)	(18,359)
Total financial liabilities	\$—	(\$97,150)	(\$17,971)	(\$115,121)	\$—	(\$148,682)	(\$18,359)	(\$167,041)

The carrying values of financial instruments, including accounts receivable, accounts payable and other accrued liabilities, approximate their fair values due to their short-term maturities.

Our assets and liabilities measured at fair value on a recurring basis consist of cash equivalents and short-term investments, which are classified in Level 1 and Level 2 of the fair value hierarchy; derivative contracts used to hedge currency and interest rate risk and derivative financial instruments entered into in connection with the Cash Convertible Notes discussed in Note 8 "Debt," which are classified in Level 2 of the fair value hierarchy; contingent consideration accruals, which are classified in Level 3 of the fair value hierarchy; and non-marketable equity securities remeasured as of March 31, 2024 and December 31, 2023 within Level 3 in the fair value hierarchy. There were no transfers between levels during the three months ended March 31, 2024.

In determining fair value for Level 2 instruments, we apply a market approach, using quoted active market prices relevant to the particular instrument under valuation, giving consideration to the credit risk of both the respective counterparty to the contract and the Company. To determine our credit risk, we estimated our credit rating by benchmarking the price of outstanding debt to publicly-available comparable data from rated companies. Using the estimated rating, our credit risk was quantified by reference to publicly-traded debt with a corresponding rating. The Level 2 derivative financial instruments include the Call Options asset and the embedded cash conversion option liability. See Note 8 "Debt" and Note 9 "Derivatives and Hedging" for further information. The derivatives are not actively traded and are valued based on an option pricing model that uses observable market data for inputs. Significant market data inputs used to determine fair values included our common share price, the risk-free interest rate, and the implied volatility of our common shares. The Call Options asset and the embedded cash conversion option liability were designed with the intent that changes in their fair values would substantially offset, with limited net impact to our earnings. Therefore, the sensitivity of changes in the unobservable inputs to the option pricing model for such instruments is substantially mitigated.

Our Level 3 instruments include non-marketable equity security investments. Under the measurement alternative, the carrying value is measured at cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for identical or similar investments of the same issuer. Adjustments are determined primarily based on a market approach as of the transaction date.

Our Level 3 instruments also include contingent consideration liabilities. We value contingent consideration liabilities using unobservable inputs, applying the income approach, such as the discounted cash flow technique, or the probability-weighted scenario method. Contingent consideration arrangements obligate us to pay the sellers of an acquired entity if specified future events occur or conditions are met such as the achievement of technological or revenue milestones. We use various key assumptions, such as the probability of achievement of the milestones (0% to 100%) and the discount rate (between 6.5% and 6.6%), to represent the non-performing risk factors and time value when applying the income approach. We regularly review the fair value of the contingent consideration, and reflect any change in the accrual in the condensed consolidated statements of income in the line items commensurate with the underlying nature of milestone arrangements.

Refer to Note 7 "Investments" for the change in non-marketable equity securities with Level 3 inputs during the three-month periods ended March 31, 2024 and 2023. For contingent consideration liabilities with Level 3 inputs, the following table summarizes the activity for the three-month periods ended March 31, 2024 and 2023, all of which is related to the 2018 acquisition of STAT-Dx:

(in thousands)	2024	2023
Balance at beginning of year	(\$18,359)	(\$18,088)
Changes in fair value	388	16
Balance at end of period	(\$17,971)	(\$18,072)

As of March 31, 2024, \$18.0 million was accrued for contingent consideration, of which \$8.3 million is included in accrued and other current liabilities and \$9.7 million is included in other long-term liabilities in the accompanying condensed consolidated balance sheet.

The estimated fair value of long-term debt as disclosed in Note 8 "Debt" was based on current interest rates for similar types of borrowings. The estimated fair values may not represent actual values of the financial instruments that could be realized as of the balance sheet date or that will be realized in the future.

The fair values of the financial instruments are presented in Note 8 "Debt" and were determined as follows:

Cash Convertible Notes and Convertible Notes: Fair value is based on an estimation using available over-the-counter market information on the Cash Convertible Notes due in 2024 as well as the Convertible Notes due in 2027.

German Private Placements: Fair value is based on an estimation using changes in the euro swap rates.

There were no adjustments in the three-month periods ended March 31, 2024 and 2023 for nonfinancial assets or liabilities required to be measured at fair value on a nonrecurring basis.

11. Income Taxes

The quarterly provision for income taxes is based upon the estimated annual effective tax rate for the year, applied to the current period ordinary income before tax plus the tax effect of any discrete items. Our operating subsidiaries are exposed to statutory tax rates ranging from zero to 35%. Fluctuations in the distribution of pre-tax loss or income among our operating subsidiaries can lead to fluctuations of the effective tax rate in the condensed consolidated financial statements. In the first quarters of 2024 and 2023, our effective tax rates were 21.1% and 21.8%, respectively. We record partial tax exemptions on foreign income primarily derived from operations in Germany. These foreign tax benefits are due to a combination of favorable tax laws and exemptions in these jurisdictions, including intercompany foreign royalty income in Germany which is statutorily exempt from trade tax. Further, we have intercompany financing arrangements in which the intercompany interest income is nontaxable in Poland, beginning the first quarter of 2024, and in Dubai.

We assess uncertain tax positions in accordance with ASC 740 (ASC 740-10 Accounting for Uncertainties in Tax). At March 31, 2024, our gross unrecognized tax benefits totaled approximately \$96.4 million which, if recognized, would favorably impact our effective tax rate in the periods in which they are recognized. We estimate that approximately \$25.7 million of the unrecognized tax benefits may be released during the next 12 months due to lapse of statutes of limitations or settlements with taxing authorities. However, various events could cause our current expectations to change in the future. While we believe our income tax contingencies are adequate, the final resolution of these issues, if unfavorable, could have a material impact on the consolidated financial statements. We cannot reasonably estimate the range of the potential outcomes of these matters.

We conduct business globally and, as a result, file numerous consolidated and separate income tax returns in the Netherlands, Germany, and the U.S. federal jurisdiction, as well as in various other state and foreign jurisdictions. In the normal course of business, we are subject to examination by taxing authorities throughout the world. Tax years in the Netherlands are potentially open back to 2011 for income tax examinations by taxing authorities. Our subsidiaries, with few exceptions, are no longer open to income tax examinations by taxing authorities for years before 2019. Since 2022, the German group has been under audit for the 2017-2019 tax years and beginning in late 2023, the U.S. group is under audit for the 2014-2020 tax years.

As of March 31, 2024, residual Netherlands income taxes have not been provided on the undistributed earnings of the majority of our foreign subsidiaries as these earnings are considered to be either permanently reinvested or can be repatriated tax free under the Dutch participation exemption.

12. Share-Based Compensation

Stock Units

Stock units represent rights to receive our common shares at a future date and include restricted stock units which are subject to time-based vesting only and performance stock units which include performance conditions in addition to time-based vesting. Shares are issued on the vesting dates net of the applicable statutory tax withholding to be paid by us on behalf of our employees. As a result, fewer shares are issued than the number of stock units outstanding. We record a liability for the tax withholding to be paid by us as a reduction to treasury shares.

At March 31, 2024, there was \$63.2 million remaining in unrecognized compensation expense, less estimated forfeitures, related to stock awards which will be recognized over a weighted-average period of 1.55 years.

Share-Based Compensation Expense

For the three-month periods ended March 31, 2024 and 2023, share-based compensation expense was as follows:

(in thousands)	Three Months Ended March 31,	
	2024	2023
Cost of sales	\$1,042	\$867
Research and development	2,717	2,006
Sales and marketing	3,448	3,811
General and administrative	6,624	7,464
Share-based compensation expense before taxes	13,831	14,148
Less: Income tax benefit	3,169	3,159
Share-based compensation expense, after tax	\$10,662	\$10,989

13. Equity

Issuance and Conversion of Warrants

In connection with the issuance of the Cash Convertible Notes as described in Note 8 "Debt," we issued Warrants as summarized in the table below. The number of warrants and exercise prices are subject to customary adjustments under certain circumstances. The proceeds, net of issuance costs, from the sale of the Warrants are included as additional paid-in capital in the accompanying condensed consolidated balance sheets.

The Warrants are exercisable only upon expiration. For each Warrant that is exercised, we will deliver to the holder a number of common shares equal to the amount by which the settlement price exceeds the exercise price, divided by the settlement price, plus cash in lieu of any fractional shares. The Warrants could separately have a dilutive effect on common shares to the extent that the market value per common share exceeds the applicable exercise price of the Warrants (as measured under the terms of the Warrants).

Cash convertible notes	Issued on	Number of share warrants issued (in millions)	Weighted Average Exercise price per share	Proceeds from issuance of warrants, net of issuance costs (in millions)	Warrants expire over a period of 50 trading days beginning on
2023	September 13, 2017	9.7	\$ 49.9775	\$ 45.3	June 26, 2023
2024	November 13, 2018	10.9	\$ 50.3346	\$ 72.4	August 27, 2024

All Warrants related to the 2023 Notes that matured in September 2023 expired unexercised.

Synthetic Share Repurchase Program

In January 2024, we completed a capital repayment program through a synthetic share repurchase that combined a direct capital repayment with a reverse stock split. The synthetic share repurchase was implemented through a series of amendments to our Articles of Association which were approved by our shareholders. The first amendment involved an increase in share capital by an increase in the nominal value per common share from EUR 0.01 to EUR 1.18 and a corresponding reduction in additional paid in capital. The second amendment involved a reduction in common shares whereby 25 existing common shares with a nominal value of EUR 1.18 each were consolidated into 24.25 new common shares with a nominal value of EUR 1.22 each. The third amendment was a reduction of the nominal value per common share from EUR 1.22 to EUR 0.01.

As a result of these amendments, which in substance constitute a synthetic share buyback, \$292.1 million was repaid to our shareholders and the outstanding number of common shares was reduced by 6.8 million, or 3%. Expenses incurred related to the capital repayment and share consolidation amounted to \$0.8 million and were charged to equity.

Accumulated Other Comprehensive Loss

The following table is a summary of the components of accumulated other comprehensive loss as of March 31, 2024 and December 31, 2023:

(in thousands)	March 31, 2024	December 31, 2023
Net unrealized loss on hedging contracts, net of tax	(\$28,690)	(\$37,372)
Net unrealized gain on pension, net of tax	812	812
Foreign currency effects from intercompany long-term investment transactions, net of tax benefits of \$13.2 million in 2023 and 2022	(33,631)	(33,648)
Foreign currency translation adjustments	(362,647)	(363,622)
Accumulated other comprehensive loss	(\$424,156)	(\$433,830)

14. Earnings per Common Share

We present basic and diluted earnings per common share. Basic earnings per common share is calculated by dividing the net income by the weighted average number of common shares outstanding. Diluted earnings per common share reflect the potential dilution of earnings that would occur if all "in the money" securities to issue common shares were exercised.

The following table for the three-month periods ended March 31, 2024 and 2023 summarizes the information used to compute earnings per common share:

(in thousands, except per share data)	Three Months Ended March 31, 2024	2023
Net income	\$80,673	\$85,035
Weighted average number of common shares used to compute basic earnings per common share	223,835	227,894
Dilutive effect of outstanding stock options and restricted stock units	2,737	2,708
Weighted average number of common shares used to compute diluted earnings per common share	226,572	230,602
Outstanding warrants having no dilutive effect, not included in above calculation	10,892	20,560
Basic earnings per common share	\$0.36	\$0.37
Diluted earnings per common share	\$0.36	\$0.37

For purposes of considering the 2027 Notes, as discussed further in Note 8 "Debt," in determining diluted earnings per common share, only an excess of the conversion value over the principal amount would have a dilutive impact using the treasury stock method. Since the 2027 Notes were out of the money and anti-dilutive during the period from January 1, 2023 through March 31, 2024, they were excluded from the diluted earnings per common share calculations in 2023 and 2024.

15. Commitments and Contingencies

Contingent Consideration Commitments

Pursuant to the purchase agreements for certain acquisitions, we could be required to make additional contingent cash payments for a previous business combination based on the achievement of certain FDA approval milestones. Potential milestone payments total \$20.7 million, of which \$8.9 million may be triggered by the end of 2024 and \$11.8 million by the end of 2025. Based on the current estimate of potential milestone payments, \$8.3 million is included in accrued and other current liabilities and \$9.7 million is included in other long-term liabilities in the accompanying condensed consolidated balance sheet as of March 31, 2024.

Contingencies

In the ordinary course of business, we provide a warranty to customers that our products are free of defects and will conform to published specifications. Generally, the applicable product warranty period is one year from the date of delivery of the product to the customer or of site acceptance, if required. Additionally, we typically provide limited warranties with respect to our services. We provide for estimated warranty costs at the time of the product sale. At the time product revenue is recognized, a provision for estimated future warranty costs is recorded in cost of sales based on historical experience. We periodically review the provision and adjust, if necessary, based on actual experience and estimated costs to be incurred. We believe our warranty reserves, which totaled \$3.9 million as of March 31, 2024 and December 31, 2023, appropriately reflect the estimated cost of such warranty obligations.

Litigation

From time to time, we may be party to legal proceedings incidental to our business which may arise in the ordinary course and conduct of business, as well as through acquisition. As of March 31, 2024, certain claims, lawsuits or legal proceedings arising out of the normal course of business have been filed or were pending against QIAGEN or our subsidiaries. Although it is not possible to predict the outcome of such litigation, we assess the degree of probability and evaluate the reasonably possible losses that we could incur as a result of these matters. We accrue for any estimated loss when it is probable that a liability has been incurred and the amount of probable loss can be estimated. We are not party to any material legal proceeding as of the date of this report except for the matters listed below.

Patent Litigation

Archer DX

In 2018, ArcherDX (a company which spun out as an independent company in conjunction with QIAGEN's acquisition of Enzymatics in 2015 and was later acquired by Invitae in 2021) and Massachusetts General Hospital (MGH) sued QIAGEN for patent infringement. In August 2021, a federal jury ruled that QIAGEN infringed two patents owned by ArcherDX and awarded damages of \$4.7 million which were accrued in 2021 and remain accrued as of March 31, 2024 in other long-term liabilities in the accompanying condensed consolidated balance sheet. We filed an appeal in August 2023 after the verdict was entered.

Other litigation matters

For all other matters, management's best estimate of the potential liability amounts to \$0.8 million and \$4.8 million as accrued as of March 31, 2024 and December 31, 2023, respectively, in accrued and other current liabilities. The estimated range of possible losses for these other matters as of March 31, 2024 is between zero and \$6.0 million.

Based on the facts known to QIAGEN and after consultation with legal counsel, management believes that such litigation will not have a material adverse effect on our financial position or results of operations above the amounts accrued. However, the outcome of these matters is ultimately uncertain. Any settlements or judgments against us in excess of management's expectations could have a material adverse effect on our financial position, results of operations or cash flows.

Operating and Financial Review and Prospects

This section contains a number of forward-looking statements. These statements are based on current management expectations, and actual results may differ materially. Among the factors that could cause actual results to differ from management's expectations are those described in "Risk Factors" and "Forward-looking and Cautionary Statements" below.

Forward-looking and Cautionary Statements

This report contains forward-looking statements that are subject to risks and uncertainties. These statements can be identified by the use of forward-looking terminology, such as "believe," "hope," "plan," "intend," "seek," "may," "will," "could," "should," "would," "expect," "anticipate," "estimate," "continue" or other similar words. Such statements are based on management's current expectations and are subject to a number of factors and uncertainties that could cause actual results to differ materially from those described in the forward-looking statements. We caution investors that there can be no assurance that actual results or business conditions will not differ materially from those projected or suggested in such forward-looking statements as a result of various factors, including, but not limited to, the following: risks associated with our expansion of operations, including the acquisition of new businesses; variability in our operating results from quarter to quarter; management of growth, international operations, and dependence on key personnel; intense competition; technological change; our ability to develop and protect proprietary products and technologies and to enter into and maintain collaborative commercial relationships; our future capital requirements; general economic conditions and capital market fluctuations; and uncertainties as to the extent of future government regulation of our business. As a result, our future success involves a high degree of risk. For further information, refer to the more specific risks and uncertainties discussed under "Risks and Risk Management" in our Annual Report on Form 20-F for the year ended December 31, 2023 and under the heading "[Risk Factors](#)" below.

Results of Operations

Selected Operating Performance

- Total net sales declined 5% in the first quarter of 2024 over the year-ago period as Q1 2024 results absorbed challenging macro demand trends. Results for Q1 2024 included about four percentage points of pressure from reduced COVID-19 product group sales compared to Q1 2023. Although instrument sales declined due to cautious capital investments, instrument placements under multi-year reagent rental agreements continued at a solid pace.
- Operating income margin increased to 20.7% in the first three months of 2024 from 19.9% in the year-ago period. The increased operating income margin reflects lower operating expenses compared to the first quarter of 2023 as efficiency initiatives more than offset the lower level of sales in the 2024 period while gross margin remained stable against prior year.
- Net cash provided by operating activities increased 85% to \$133.1 million in the first three months of 2024 from \$71.9 million in the year-ago period. Cash flow results for the first three months of 2024 reflected a decrease in working capital requirements, particularly higher collections of accounts receivables.

Three-Month Period Ended March 31, 2024 compared to Three-Month Period Ended March 31, 2023

Net Sales

In the tables presented below, results may not sum and percentages may not recalculate due to rounding.

(in millions)	2024	Three Months Ended March 31, 2023	% change
Product type			
Consumables and related revenues	\$409.3	\$430.6	-5%
Instruments	49.5	54.8	-10%
Net sales	\$458.8	\$485.4	-5%
Customer class			
Molecular Diagnostics	\$243.7	\$250.3	-3%
Life Sciences	215.1	235.1	-8%
Net sales	\$458.8	\$485.4	-5%

Product group (in millions)	2024	Three Months Ended March 31, 2023	% change
Sample technologies	\$154.6	\$173.2	-11%
Diagnostic solutions	170.4	162.7	+5%
PCR / Nucleic acid amplification	67.6	76.9	-12%
Genomics / NGS	54.9	55.2	-1%
Other	11.3	17.4	-35%
Net sales	\$458.8	\$485.4	-5%

Sample technologies involve the sale of consumable kits and instruments for use in obtaining DNA, RNA and proteins from biological samples. While this product group showed higher consumable sales for automated kits used in QIA Symphony, QIAcube Connect and EZ2 instruments, overall sales for the three months ended March 31, 2024 declined 11% compared to the year-ago period, primarily due to cautious capital investments among customers into new instruments, as well as the adverse impact of COVID pandemic demand in the year-ago period. Sales of sample technologies were adversely impacted by unfavorable currency movements against the U.S. dollar by one percentage point in the first quarter of 2024.

Diagnostic solutions involve the sale of regulated consumable kits and instruments for use in clinical healthcare, as well as revenues from our Precision Diagnostics portfolio and companion diagnostic co-development projects with pharmaceutical companies. Sales in this product group grew 5% for the three months ended March 31, 2024 compared to the year-ago period, driven by the solid growth in consumables. QuantiFERON TB test sales rose 11% for another consecutive quarter above \$100 million, supported by solid demand trends in all regions amid conversion from TB skin test that still represents the majority of worldwide testing. QIAstat-Dx system sales were up 19% to \$25 million on ongoing instrument placement trends and significant growth in consumables for both respiratory and non-respiratory panels.

PCR / Nucleic acid amplification involves consumable kits used in non-regulated applications. Sales in this product group fell 12% for the three months ended March 31, 2024 compared to the year-ago period, due mainly to volatile trends in the OEM business, with lower underlying sales compared to the year-ago period.

Genomics / NGS involves our portfolio of universal solutions as well as the full QIAGEN Digital Insights portfolio. Sales in Genomics / NGS fell 1% in the three months ended March 31, 2024 and included an unfavorable currency impact of one percentage point in the first quarter of 2023.

Geographic region (in millions)	Three Months Ended March 31,		
	2024	2023	% change
Americas	\$233.8	\$246.7	-5%
Europe, Middle East and Africa	152.8	155.4	-2%
Asia Pacific, Japan and Rest of World	72.2	83.3	-13%
Net sales	\$458.8	\$485.4	-5%

The 5% decrease in the **Americas** region during the first quarter of 2024 reflected lower sales of instruments and consumables. Results benefited from improving demand for QuantiFERON, QIAstat-Dx and QIAcuity consumables in the region.

Net sales in the **Europe, Middle East and Africa (EMEA)** region during the first quarter of 2024 were 2% lower than the year-ago period due to significant COVID-19 sales in 2023. Among the top countries were France, Switzerland and the United Kingdom, while results were unchanged in Italy and declined in Germany over the year-ago period.

Net sales in the **Asia Pacific, Japan and Rest of World** region declined 13% in the three months ended March 31, 2024 compared to the year-ago period, reflecting challenging macro demand trends in China over the year-ago period. Sales in this region were adversely impacted by four percentage points from unfavorable currency movements against the U.S. dollar in the three months ended March 31, 2024.

Gross Profit

(in millions)	Three Months Ended March 31,		
	2024	2023	% change
Gross profit	\$291.0	\$307.5	-5%
Gross margin	63.4%	63.3%	

The gross margin in the three months ended March 31, 2024 primarily reflects changes in individual product sales and mix. Generally, our consumables and related products have a higher gross margin than our instrumentation products and service arrangements. Fluctuations in the sales levels between periods can cause changes in gross profit between periods. In the three months ended March 31, 2024, gross margin was unchanged as we continue initiatives to improve production capacity utilization.

Sales and Marketing

(in millions)	Three Months Ended March 31,		
	2024	2023	% change
Sales and marketing	\$111.1	\$114.6	-3%
% of net sales	24.2%	23.6%	

Sales and marketing expenses decreased by 3% during the three months ended March 31, 2024 compared to the prior year period. The overall decrease in sales and marketing expenses primarily reflects lower freight and other supply chain costs while including favorable currency exchange impact of \$0.4 million in the three months ended March 31, 2024. Sales and marketing expenses are primarily associated with personnel, commissions, advertising, trade shows, publications, freight and logistics expenses, and other promotional expenses. The increased use of digital customer engagement continues to build on the new habits of customers and enhance customer engagement with a focus on greater efficiency and effectiveness.

Research and Development

(in millions)	Three Months Ended March 31,		
	2024	2023	% change
Research and development	\$51.3	\$54.7	-6%
% of net sales	11.2 %	11.3 %	

Research and development expense decreased by 6% during the three months ended March 31, 2024 compared to the prior year period. The overall change in research and development expense in the three months ended March 31, 2024 includes unfavorable currency exchange impacts of \$0.8 million. Research and development expense reflects our continued focus on investments targeted to drive sustainable post-pandemic expansion. As we continue to discover, develop and acquire new products and technologies, we expect to incur additional expenses related to facilities, licenses and employees engaged in research and development. Overall, research and development costs are expected to increase as a result of seeking regulatory approvals, including U.S. FDA Pre-Market Approval (PMA), U.S. FDA 510(k) clearance and EU CE approval of certain assays or instruments. Further, business combinations, along with the acquisition of new technologies, may increase our research and development costs in the future. We have a strong commitment to innovation and expect to continue to make investments in our research and development efforts.

General and Administrative

(in millions)	Three Months Ended March 31,		
	2024	2023	% change
General and administrative	\$27.6	\$32.9	-16%
% of net sales	6.0 %	6.8 %	

General and administrative expenses decreased by 16% during the three months ended March 31, 2024 compared to the prior year period. These results reflect lower share-based compensation expense together with efficiency gains across many administrative functions as well as investments into our information technology systems (including an upgrade of the SAP enterprise resource planning system) and into cyber security measures. General and administrative costs include unfavorable currency impacts of \$0.1 million in the three months ended March 31, 2024. We expect future costs to increase due to higher licensing and information technology costs as well as increased cyber security costs.

Acquisition-Related Intangible Amortization

(in millions)	Three Months Ended March 31,		
	2024	2023	% change
Acquisition-related intangible amortization	\$2.7	\$2.7	+2%
% of net sales	0.6 %	0.5 %	

Amortization expenses related to acquisition-related intangibles increased by 2% during the three months ended March 31, 2024 compared to the prior year period. Amortization expense related to developed technology and patent and license rights acquired in business combinations are included in cost of sales. Amortization of trademarks and customer base acquired in business combinations are recorded in operating expense under the caption "acquisition-related intangible amortization." Amortization expenses of intangible assets not acquired in business combinations are recorded within cost of sales, research and development, or sales and marketing line items based on the use of the asset. Our acquisition-related intangible amortization recorded in operating expenses may increase in the event of future acquisitions.

Restructuring, Acquisition, Integration and Other, net

(in millions)	Three Months Ended March 31,		
	2024	2023	% change
Restructuring, acquisition, integration and other, net	\$3.3	\$5.8	-43%
% of net sales	0.7 %	1.2 %	

Restructuring, acquisition, integration and other, net expenses included costs related to our acquisition of Verogen, Inc. in January 2023.

Other Income (Expense), net

(in millions)	Three Months Ended March 31,		
	2024	2023	% change
Interest income	\$17.8	\$18.0	-1 %
Interest expense	(10.3)	(14.5)	-29 %
Other (expense) income, net	(0.1)	8.5	
Total other income, net	\$7.3	\$12.1	-39%

Interest income includes interest earned on cash, cash equivalents and short-term investments, income related to certain interest rate derivatives as discussed in Note 9 "Derivatives and Hedging" and other components including the interest portion of operating lease transactions. The decrease in the three months ended March 31, 2024 compared to the year-ago period is attributable to changing interest rates and the duration and level of short-term investments held during the period.

Interest expense primarily relates to debt, discussed in Note 8 "Debt" in the accompanying notes to the condensed consolidated financial statements. The decrease in the three months ended March 31, 2024 compared to the prior year period is driven mainly by the repayment of the 2023 Notes that matured in September 2023 totaling \$400.0 million.

For the three months ended March 31, 2024, other (expense) income, net includes \$1.5 million loss on foreign currency transactions partially offset by \$1.1 million of income from equity method investments. For the three months ended March 31, 2023, other (expense) income, net includes \$7.1 million gain on foreign currency transactions and \$1.3 million of income from equity method investments.

Provision for Income Taxes

(in millions)	Three Months Ended March 31,		
	2024	2023	% change
Income before income tax expense	\$102.3	\$108.8	-6%
Income tax expense	21.6	23.8	-9%
Net income	\$80.7	\$85.0	
Effective tax rate	21.1 %	21.8 %	

Our effective tax rate differs from the Netherlands statutory tax rate of 25.8% due in part to our operating subsidiaries being exposed to statutory tax rates ranging from zero to 35%. Fluctuations in the distribution of pre-tax income or loss among our operating subsidiaries can lead to fluctuations of the effective tax rate in the consolidated financial statements. We record partial tax exemptions on foreign income primarily derived from operations in Germany. These foreign tax benefits are due to a combination of favorable tax laws and exemptions in these jurisdictions, including intercompany foreign royalty income in Germany which is statutorily exempt from trade tax. Further, we have intercompany financing arrangements in which the intercompany interest income is nontaxable in Poland, beginning the first quarter of 2024, and in Dubai.

The Organization for Economic Co-operation and Development (OECD) has a framework to implement a global minimum corporate tax of 15% for companies with global revenues and profits above certain thresholds (referred to as Pillar Two), with certain aspects of Pillar Two effective January 1, 2024 and other aspects effective January 1, 2025. The Netherlands formally enacted the Pillar Two legislation into domestic law. We expect to be subject to the top-up tax in relation to our operations in Dubai (United Arab Emirates) and Poland.

In future periods, our effective tax rate may fluctuate from similar or other factors as discussed in "Changes in tax laws or their application or the termination or reduction of certain government tax incentives, could adversely impact our overall effective tax rate, results of operations or financial flexibility" under "Risks and Risk Management" in the Annual Report on Form 20-F for the year ended December 31, 2023.

Liquidity and Capital Resources

To date, we have funded our business primarily through internally generated funds, debt and private and public sales of equity. Our primary use of cash has been to support continuing operations and our investing activities, including capital expenditure requirements and acquisitions.

(in millions)	December 31,	
	March 31, 2024	2023
Cash and cash equivalents	\$513.7	\$668.1
Short-term investments	379.5	389.7
Total cash and cash equivalents and short-term investments	\$893.1	\$1,057.8
Working capital	\$865.6	\$1,068.3

Cash and cash equivalents are primarily held in U.S. dollars and euros, other than those cash balances maintained in the local currency of subsidiaries to meet anticipated local working capital needs. At March 31, 2024, cash and cash equivalents had decreased by \$154.4 million from December 31, 2023, primarily as a result of net cash used in financing activities of \$292.1 million partially offset by net cash provided by operating activities of \$133.1 million and investing activities of \$6.4 million as discussed in the

Cash Flow Summary below. The decrease in total cash and cash equivalents and short-term investments from \$1.1 billion at December 31, 2023 to \$0.9 billion at March 31, 2024 reflects the net \$292.1 million capital repayment made as part of a synthetic share repurchase discussed in Note 13 "Equity" and the cash flow activities discussed below.

Cash Flow Summary

(in millions)	Three Months Ended March 31,	
	2024	2023
Net cash provided by operating activities	\$133.1	\$71.9
Net cash provided by (used in) investing activities	6.4	(433.8)
Net cash used in financing activities	(292.1)	(9.8)
Effect of exchange rate changes on cash and cash equivalents	(1.8)	0.3
Net decrease in cash and cash equivalents	(\$154.4)	(\$371.5)

Operating Activities

For the three months ended March 31, 2024 and March 31, 2023, we generated net cash from operating activities of \$133.1 million and \$71.9 million, respectively. While net income was \$80.7 million for the three months ended March 31, 2024, non-cash components in income included \$54.3 million of depreciation and amortization, \$13.8 million of share-based compensation expense, and \$5.1 million of amortization of debt discount. The increase in net cash provided by operating activities is primarily the result of higher collections of accounts receivable, lower purchases of inventory and lower payments of accrued and other liabilities. Because we rely heavily on cash generated from operating activities to fund our business, a decrease in demand for our products, longer collection cycles or significant technological advances of competitors would have a negative impact on our liquidity.

Investing Activities

\$6.4 million of cash was provided by investing activities during the three months ended March 31, 2024 compared to \$433.8 million of cash used for the same period in 2023. Cash provided by investing activities includes \$192.6 million from the sale of short-term investments and \$37.7 million returned to us from our derivative counterparties to collateralize our derivative liabilities with them, mostly offset by \$184.0 million in purchases of short-term investments, \$36.5 million paid for purchases of property, plant and equipment, and \$1.8 million paid for the purchases of intangible assets. Cash used in investing activities during the three months ended March 31, 2023 included \$534.5 million in purchases of short-term investments, \$148.3 million of net cash paid for the acquisition of Verogen, Inc., \$33.2 million paid for purchases of property, plant and equipment, \$5.2 million for the purchases of intangible assets and \$7.0 million paid to our derivative counterparties in connection with cash we had provided to collateralize our derivative liabilities with them. These payments were partially offset by \$295.8 million received from the sale of short-term investments.

Financing Activities

Net cash used in financing activities totaled \$292.1 million for the three months ended March 31, 2024 and includes a net \$292.1 million capital repayment made as part of a synthetic share repurchase discussed in Note 13 "Equity." Net cash used in financing activities was \$9.8 million for the three months ended March 31, 2023 including \$9.9 million paid to our derivative counterparties to collateralize derivative assets that we hold with them.

Other Factors Affecting Liquidity and Capital Resources

As of March 31, 2024, we carry a total of \$1.5 billion of long-term debt, of which \$0.6 billion is current and \$0.9 billion is long-term.

In January 2024, we completed a synthetic share repurchase that combined a direct capital repayment with a reverse stock split. The transaction was announced on January 7, 2024, and involved an approach used by various large, multinational Dutch companies to provide returns to all shareholders in a faster and more efficient manner than traditional open-market repurchases. \$295.2 million was returned to shareholders through the transaction, which reduced the total number of issued Common Shares by approximately 3%.

In July and August 2022, we completed another German private placement bond (2022 Schuldschein), which was issued in several tranches totaling €370.0 million due in various periods through 2032 as described more fully in Note 8 "Debt." The interest rate is linked to our environmental, social and governance (ESG) performance. As of March 31, 2024, a total of \$399.2 million is outstanding.

In December 2020, we issued \$500.0 million aggregate principal amount of zero coupon Convertible Notes due 2027 (2027 Notes). The 2027 Notes will mature on December 17, 2027 unless converted in accordance with their terms prior to such date as described more fully in Note 8 "Debt."

In November 2018, we issued \$500.0 million aggregate principal amount of Cash Convertible Senior Notes due 2024 (2024 Notes). Interest on the 2024 Notes is payable semiannually in arrears at a rate of 1.000% per annum. The 2024 Notes will mature on November 13, 2024 unless repurchased or converted in accordance with their terms prior to such date.

In September 2017, we issued \$400.0 million aggregate principal amount of Cash Convertible Senior Notes (2023 Notes) which were due and repaid in September 2023.

In 2017, we completed a German private placement (2017 Schuldschein) consisting of several tranches denominated in either U.S. dollars or euro at either floating or fixed rates and due at various dates through June 2027. As of March 31, 2024, a total of \$118.4 million is outstanding.

In December 2020, we obtained a €400 million syndicated revolving credit facility with a contractual life of three years with the ability to extend by one year two times. No amounts were utilized at March 31, 2024. The facility can be utilized in euro and bears interest of 0.550% to 1.500% above EURIBOR and is offered with interest periods of one, three or six months. The interest rate is linked to our ESG performance. We have additional credit lines totaling €13.0 million with no expiration date, none of which were utilized as of March 31, 2024.

In connection with certain acquisitions, we could be required to make additional contingent cash payments totaling up to \$20.7 million based on the achievement of certain revenue and operating results milestones as further discussed in Note 15 "Commitments and Contingencies."

We expect that cash from financing activities will continue to be impacted by issuances of our common shares in connection with our equity compensation plans and that the market performance of our stock will impact the timing and volume of the issuances. Additionally, we may make future acquisitions or investments requiring cash payments, the issuance of additional equity or debt financing.

We believe that funds from operations, existing cash and cash equivalents, together with the proceeds from any public and private sales of equity, and availability of financing facilities, will be sufficient to fund our planned operations and expansion during the coming year. However, any global economic downturn may have a greater impact on our business than currently expected, and we may experience a decrease in the sales of our products, which could impact our ability to generate cash. If our future cash flows from operations and other capital resources are not adequate to fund our liquidity needs, we may be required to obtain additional debt or equity financing or to reduce or delay our capital expenditures, acquisitions or research and development projects. If we could not obtain financing on a timely basis or at satisfactory terms, or implement timely reductions in our expenditures, our business could be adversely affected.

Quantitative and Qualitative Disclosures about Market Risk

Our market risk relates primarily to interest rate exposures on cash, marketable securities, and borrowings and foreign currency exposures on intercompany and third-party transactions. The overall objective of our risk management strategy is to reduce the potential negative earnings effects from changes in interest and foreign currency exchange rates. Exposures are managed through operational methods and financial instruments. We do not use financial instruments for trading or speculative purposes. Our exposure to market risk from changes in interest rates and currency exchange rates has not changed materially from our exposure discussed in "Quantitative and Qualitative Disclosures About Market Risk" in the Annual Report on Form 20-F for the year ended December 31, 2023.

Foreign Currency Risk

QIAGEN's functional currency is the U.S. dollar and most of our subsidiaries' functional currencies are the local currencies of the countries in which they are headquartered. All amounts in the financial statements of entities whose functional currency is not the U.S. dollar are translated into U.S. dollar equivalents at exchange rates as follows: (1) assets and liabilities at period-end rates, (2) income statement accounts at average exchange rates for the period, and (3) components of shareholders' equity at historical rates. Translation gains or losses are recorded in shareholders' equity, and transaction gains and losses are reflected in net income. Foreign currency transactions in the three-month period ended March 31, 2024 resulted in a net loss of \$1.5 million compared to a net gain of \$7.1 million in the same period of 2023 and are included in other (expense) income, net.

As a globally active enterprise, we are subject to risks associated with fluctuations in foreign currencies in our ordinary operations. This includes foreign currency-denominated receivables, payables, debt, and other balance sheet positions including intercompany items. We manage balance sheet exposure on a group-wide basis using foreign exchange forward contracts, foreign exchange options and cross-currency swaps. At March 31, 2024, we were party to various foreign exchange forward, option and swap arrangements which had an aggregate notional value of \$459.6 million which expire at various dates through January 2025. Additional information on our foreign exchange contracts is included in Note 9 "Derivatives and Hedging."

We are exposed to currency risks from foreign exchange contracts. If each of the respective currency pairs for derivatives which do not qualify for hedge accounting varied from the rates used for the preparation of the condensed consolidated financial statements, this would have had an effect which would have been almost fully off-set by corresponding valuation adjustments in the positions which economically had been hedged by these foreign exchange derivatives. Accordingly, the net effect of such variance in currency rates would not have been material.

Interest Rate Risk

We are exposed to interest rate risk on our short-term investments and our debt. This exposure is managed in the aggregate with a focus on immediate and intermediate liquidity needs.

Interest income earned on our cash investments is affected by changes in the relative levels of market interest rates. We only invest in high-grade investment instruments. A hypothetical adverse 10% movement in market interest rates would not have materially impacted our financial statements.

At March 31, 2024, we have \$1.5 billion in current and long-term debt, of which \$240.2 million is floating rate debt. We use interest rate derivative contracts to align our portfolio of interest-bearing assets and liabilities with our risk management objectives. At March 31, 2024, we are party to cross-currency interest rate swaps through 2025 for a total notional amount of €180.0 million under which we exchange, at specified intervals, the difference between the euro and USD interest amounts calculated on their respective fixed rates by reference to an agreed-upon euro and USD notional principal amounts. Also at March 31, 2024, we are party to cross-currency interest rate swaps through 2025 for a total notional amount of CHF 542.0 million under which we exchange, at specified intervals, the difference between the CHF and USD interest amounts calculated on their respective fixed rates by reference to an agreed-upon CHF and USD notional principal amounts. A hypothetical adverse 10% movement in market interest rates would not have materially impacted our financial statements.

We also make use of economic hedges. Further details of our derivative and hedging activities can be found in Note 9 "Derivatives and Hedging" to the accompanying condensed consolidated financial statements.

Recent Authoritative Pronouncements

For information on recent accounting pronouncements impacting our business, see Note 2 "Basis of Presentation and Accounting Policies" in the accompanying condensed consolidated financial statements.

Application of Critical Accounting Estimates

The preparation of our financial statements in accordance with accounting principles generally accepted in the United States requires management to make assumptions that affect the reported amounts of assets and liabilities and disclosure of contingencies as of the date of the financial statements, as well as the reported amounts of revenues and expenses during the reporting period. Critical accounting estimates are those that require the most complex or subjective judgments, often as a result of the need to make estimates about the effects of matters that are inherently uncertain. Thus, to the extent that actual events differ from management's estimates and assumptions, there could be a material impact on the financial statements. In applying our critical accounting estimates, at times we used accounting estimates that either required us to make assumptions about matters that were highly uncertain at the time the estimate was made or were reasonably likely to change from period to period, having a material impact on the presentation of our results of operations, financial position or cash flows. While changing conditions in our global environment present additional uncertainty, we continue to use the best information available to form our estimates. Our critical accounting estimates are those related to income taxes, share-based compensation, acquisitions, amortized intangible assets, and fair value measurements.

Our critical accounting estimates are discussed further in our Annual Report on Form 20-F for the year ended December 31, 2023. Actual results in these areas could differ from management's estimates.

Off-Balance Sheet Arrangements

We did not use special purpose entities and did not have off-balance-sheet financing arrangements as of March 31, 2024 and December 31, 2023.

Legal Proceedings

For information on legal proceedings, see Note 15 "Commitments and Contingencies" to the accompanying condensed consolidated financial statements.

While no assurances can be given regarding the outcome of the proceedings described in Note 15, based on information currently available, we believe that the resolution of these matters is unlikely to have a material adverse effect on our financial position or results of future operations for QIAGEN as a whole. However, because of the nature and inherent uncertainties of litigation, should the outcomes be unfavorable, certain aspects of our business, financial condition, and results of operations and cash flows could be materially adversely affected.

Risk Factors

Material risks that may affect our results of operations and financial position appear under "Risks and Risk Management" in our Annual Report on Form 20-F for the year ended December 31, 2023. There have been no material changes from the risk factors disclosed in our Form 20-F.
