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 OF
THE SECURITIES EXCHANGE ACT OF 1934

For the quarterly period ended March 31, 2019

Commission File Number 001-38332

QIAGEN N.V.

Hulsterweg 82
5912 PL Venlo
The Netherlands

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 ☐

Indicate by check mark whether the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): ☐

Indicate by check mark whether the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): ☐

QIAGEN N.V.

Form 6-K

TABLE OF CONTENTS

OTHER INFORMATION

For the three months ended March 31, 2019, 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: May 7, 2019

EXHIBIT INDEX

Exhibit No.	Exhibit
99.1	U.S. GAAP Quarterly Report for the Period Ended March 31, 2019

Exhibit 99.1

QIAGEN N.V. AND SUBSIDIARIES

U.S. GAAP QUARTERLY REPORT FOR THE PERIOD ENDED MARCH 31, 2019

TABLE OF CONTENTS

QIAGEN N.V. AND SUBSIDIARIES

CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands)

	Note	March 31, 2019	December 31, 2018
		(unaudited)	
Assets			
Current assets:			
Cash and cash equivalents		**$ 552,857**	$ 1,159,079
Short-term investments		**227,534**	234,606
Accounts receivable, net of allowance for doubtful accounts of $9,179 and $9,270 in 2019 and 2018, respectively		**341,445**	351,612
Income taxes receivable		**43,339**	34,936
Inventories, net	**(11)**	**167,093**	162,912
Fair value of derivative instruments - current	**(8)**	**159,956**	102,754
Prepaid expenses and other current assets	**(8)**	**106,436**	109,161
Total current assets		**1,598,660**	2,155,060
Long-term assets:			
Property, plant and equipment, net of accumulated depreciation of $615,695 and $603,430 in 2019 and 2018, respectively		**511,438**	511,659
Goodwill	**(6)**	**2,114,251**	2,108,536
Intangible assets, net of accumulated amortization of $1,222,369 and $1,194,679 in 2019 and 2018, respectively	**(6)**	**709,361**	475,043
Deferred income taxes		**32,850**	42,896
Fair value of derivative instruments - long-term	**(8)**	**234,137**	295,363
Other long-term assets (of which $22,072 and $24,300 in 2019 and 2018 due from related parties, respectively)	**(5, 14)**	**219,667**	159,775
Total long-term assets		**3,821,704**	3,593,272
Total assets		**$ 5,420,364**	$ 5,748,332

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)

	Note	March 31, 2019	December 31, 2018
		(unaudited)	
Liabilities and equity			
Current liabilities:			
Current portion of long-term debt	(7)	$ 351,201	$ 503,116
Accrued and other current liabilities (of which $5,085 and $5,488 in 2019 and 2018 due to related parties, respectively)	(8, 9, 14)	341,604	263,017
Accounts payable		63,237	69,415
Fair value of derivative instruments - current	(8)	159,841	106,594
Income taxes payable		27,958	30,047
Total current liabilities		943,841	972,189
Long-term liabilities:			
Long-term debt	(7)	1,397,553	1,671,090
Deferred income taxes		49,800	63,411
Fair value of derivative instruments - long-term	(8)	248,542	317,393
Other long-term liabilities	(14)	174,572	89,279
Total long-term liabilities		1,870,467	2,141,173
Commitments and contingencies	(16)		
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—230,829 shares in 2019 and in 2018	(12)	2,702	2,702
Additional paid-in capital	(12)	1,722,185	1,742,191
Retained earnings		1,342,409	1,379,624
Accumulated other comprehensive loss	(12)	(318,604)	(310,644)
Less treasury shares at cost—3,863 and 5,320 shares in 2019 and 2018, respectively	(12)	(142,636)	(178,903)
Total equity		2,606,056	2,634,970
Total liabilities and equity		$ 5,420,364	$ 5,748,332

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

QIAGEN N.V. AND SUBSIDIARIES

CONDENSED CONSOLIDATED STATEMENTS OF INCOME
(in thousands, except share data)

	Note	Three months ended March 31, 2019	Three months ended March 31, 2018
		(unaudited)	
Net sales	**(4)**	**$ 348,654**	$ 343,568
Cost of sales		**123,814**	117,894
Gross profit		**224,840**	225,674
Operating expenses:			
Research and development		**40,788**	39,522
Sales and marketing		**95,886**	96,079
General and administrative, restructuring, integration and other, net		**37,688**	31,951
Acquisition-related intangible amortization		**9,326**	10,180
Total operating expenses		**183,688**	177,732
Income from operations		**41,152**	47,942
Other income (expense):			
Interest income		**8,088**	4,674
Interest expense		**(20,390)**	(15,020)
Other (expense) income, net		**(392)**	1,547
Total other expense, net		**(12,694)**	(8,799)
Income before income taxes		**28,458**	39,143
Income taxes		**(1,062)**	6,848
Net income		**$ 29,520**	$ 32,295
Basic earnings per common share		**$ 0.13**	$ 0.14
Diluted earnings per common share		**$ 0.13**	$ 0.14
Weighted-average shares outstanding			
Basic		**226,170**	226,920
Diluted		**233,607**	232,533

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

QIAGEN N.V. AND SUBSIDIARIES

CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(in thousands)

	Note	Three months ended March 31, 2019	Three months ended March 31, 2018
		(unaudited)	
Net income		**$ 29,520**	$ 32,295
Other comprehensive income (loss) to be reclassified to profit or loss in subsequent periods:			
Gains (losses) on cash flow hedges, before tax	**(8)**	**5,677**	(11,795)
Reclassification adjustments on cash flow hedges, before tax	**(8)**	**(3,870)**	5,904
Cash flow hedges, before tax		**1,807**	(5,891)
Net investment hedge	**(8)**	**5,479**	(8,364)
Foreign currency translation adjustments, before tax		**(15,048)**	26,969
Other comprehensive (loss) income, before tax		**(7,762)**	12,714
Income tax relating to components of other comprehensive income		**(198)**	1,538
Total other comprehensive (loss) income, after tax		**(7,960)**	14,252
Comprehensive income		**$ 21,560**	$ 46,547

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
(in thousands)

		Common Shares					Treasury Shares		
(unaudited)	Note	Shares	Amount	Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Shares	Amount	Total Equity
Balance at December 31, 2018		**230,829**	**$ 2,702**	**$ 1,742,191**	**$ 1,379,624**	**$ (310,644)**	**(5,320)**	**$ (178,903)**	**$ 2,634,970**
Balance at January 1, 2019, as previously reported		**230,829**	**$ 2,702**	**$ 1,742,191**	**$ 1,379,624**	**$ (310,644)**	**(5,320)**	**$ (178,903)**	**$ 2,634,970**
ASC 842 impact of change in accounting policy	**(14)**	**—**	**—**	**—**	**(316)**	**—**	**—**	**—**	**(316)**
Adjusted balance at January 1, 2019		**230,829**	**$ 2,702**	**$ 1,742,191**	**$ 1,379,308**	**$ (310,644)**	**(5,320)**	**$ (178,903)**	**$ 2,634,654**
Net income		**—**	**—**	**—**	**29,520**	**—**	**—**	**—**	**29,520**
Conversion of warrants	**(12)**	**—**	**—**	**(30,805)**	**(37,249)**	**—**	**2,037**	**68,050**	**(4)**
Unrealized gain, net on hedging contracts	**(8)**	**—**	**—**	**—**	**—**	**9,737**	**—**	**—**	**9,737**
Realized gain, net on hedging contracts	**(8)**	**—**	**—**	**—**	**—**	**(2,903)**	**—**	**—**	**(2,903)**
Translation adjustment, net	**(12)**	**—**	**—**	**—**	**—**	**(14,794)**	**—**	**—**	**(14,794)**
Purchase of treasury shares	**(12)**	**—**	**—**	**—**	**—**	**—**	**(1,196)**	**(44,373)**	**(44,373)**
Issuance of common shares in connection with stock plan		**—**	**—**	**—**	**(29,170)**	**—**	**1,057**	**29,741**	**571**
Tax withholding related to vesting of stock awards	**(17)**	**—**	**—**	**—**	**—**	**—**	**(441)**	**(17,151)**	**(17,151)**
Share-based compensation	**(17)**	**—**	**—**	**10,799**	**—**	**—**	**—**	**—**	**10,799**
Balance at March 31, 2019		**230,829**	**$ 2,702**	**$ 1,722,185**	**$ 1,342,409**	**$ (318,604)**	**(3,863)**	**$ (142,636)**	**$ 2,606,056**
Balance at December 31, 2017		230,829	$ 2,702	$ 1,630,095	$ 1,247,945	$ (220,759)	(4,272)	$ (118,987)	$ 2,540,996
Balance at January 1, 2018, as previously reported		230,829	2,702	1,630,095	1,247,945	(220,759)	(4,272)	(118,987)	2,540,996
ASU 2016-01 impact of change in accounting policy	(5)	—	—	—	(942)	942	—	—	—
ASU 2016-16 impact of change in accounting policy		—	—	—	(16,096)	—	—	—	(16,096)
ASC 606 impact of change in accounting policy		—	—	—	(1,306)	—	—	—	(1,306)
Adjusted balance at January 1, 2018		230,829	2,702	1,630,095	1,229,601	(219,817)	(4,272)	(118,987)	2,523,594
Net income		—	—	—	32,295	—	—	—	32,295
Unrealized loss, net on hedging contracts	(8)	—	—	—	—	(17,210)	—	—	(17,210)
Realized loss, net on hedging contracts	(8)	—	—	—	—	4,428	—	—	4,428
Translation adjustment, net	(12)	—	—	—	—	27,035	—	—	27,035
Purchase of treasury shares	(12)	—	—	—	—	—	—	—	—
Issuance of common shares in connection with stock plan		—	—	—	(18,393)	—	768	18,685	292
Share-based compensation	(17)	—	—	10,106	—	—	—	—	10,106
Balance at March 31, 2018		230,829	$ 2,702	$ 1,640,201	$ 1,243,503	$ (205,564)	(3,504)	$ (100,302)	$ 2,580,540

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

QIAGEN N.V. AND SUBSIDIARIES

CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Note	Three months ended March 31, 2019	Three months ended March 31, 2018
Cash flows from operating activities:		(unaudited)	
Net income		**$ 29,520**	$ 32,295
Adjustments to reconcile net income to net cash provided by operating activities, net of effects of businesses acquired:			
Depreciation and amortization		**59,260**	52,914
Non-cash impairments	**(5)**	**114**	—
Amortization of debt discount and issuance costs		**12,117**	8,448
Share-based compensation expense	**(17)**	**10,800**	10,106
Deferred income taxes		**(1,067)**	(1,308)
Loss (gain) on marketable securities		**855**	(3,030)
Other items, net including fair value changes in derivatives		**(1,268)**	1,722
Net changes in operating assets and liabilities:			
Accounts receivable		**6,983**	(269)
Inventories		**(10,391)**	(5,123)
Prepaid expenses and other current assets		**(3,512)**	11,191
Other long-term assets		**1,321**	(29,925)
Accounts payable		**(5,315)**	(17,492)
Accrued and other current liabilities		**(35,135)**	(5,401)
Income taxes		**(16,466)**	(4,405)
Other long-term liabilities		**(3,082)**	(1,508)
Net cash provided by operating activities		**44,734**	48,215
Cash flows from investing activities:			
Purchases of property, plant and equipment		**(23,409)**	(18,898)
Purchases of intangible assets	**(6)**	**(129,379)**	(15,200)
Purchases of investments, net		**(4,296)**	(3,091)
Cash paid for acquisitions, net of cash acquired	**(3)**	**(24,371)**	—
Purchases of short-term investments		—	(84,590)
Proceeds from redemptions of short-term investments		**5,239**	246,668
Cash received (paid) for collateral asset		**5,610**	(13,690)
Other investing activities	**(3)**	**10**	(2,671)
Net cash (used in) provided by investing activities		**(170,596)**	108,528
Cash flows from financing activities:			
Repayment of long-term debt	**(7)**	**(433,400)**	—
Principal payments on capital leases		—	(349)
Proceeds from issuance of common shares		**571**	292
Tax withholding related to vesting of stock awards	**(17)**	**(2,307)**	—
Purchase of treasury shares	**(12)**	**(44,373)**	—
Other financing activities	**(9)**	**(895)**	(2,136)
Net cash used in financing activities		**(480,404)**	(2,193)
Effect of exchange rate changes on cash and cash equivalents		**44**	2,659
Net (decrease) increase in cash and cash equivalents		**(606,222)**	157,209
Cash and cash equivalents, beginning of period		**1,159,079**	657,714
Cash and cash equivalents, end of period		**$ 552,857**	$ 814,923

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

QIAGEN N.V. AND SUBSIDIARIES

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(unaudited)

1. Corporate Information

QIAGEN N.V. is a public limited liability company ('naamloze vennootschap') under Dutch law with 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 the leading global provider of Sample to Insight solutions that are used by over 500,000 customers worldwide to transform biological samples into valuable molecular insights. Our sample technologies are used to isolate and process DNA, RNA and proteins - the building blocks of life - from blood, tissue and other materials. Assay technologies are used to make these biomolecules visible and ready for analysis. Bioinformatics software and knowledge bases are used to analyze and interpret complex genomic data to report relevant, actionable insights. Automation solutions are used to tie these technologies together in seamless and cost-effective workflows. We provide this portfolio to two major customer classes: Molecular Diagnostics (human healthcare) and Life Sciences comprised of Academia / Applied Testing (life sciences research, forensics and food safety) and Pharma. With approximately 5,100 employees in over 35 locations worldwide, we market our products in more than 130 countries.

2. Basis of Presentation and Accounting Policies

Basis of Presentation

The condensed consolidated financial statements include the accounts of QIAGEN N.V., its wholly-owned subsidiaries and any partially owned subsidiaries that the Company has the ability to control. 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.

We undertake acquisitions to complement our own internal product development activities. On January 4, 2019, we completed the acquisition of N-of-One, Inc, a privately-held U.S. molecular decision support company and pioneer in clinical interpretation services for complex genomic data located in Concord, Massachusetts. On January 31, 2019, we acquired the digital PCR assets of Formulatrix, Inc., a developer of laboratory automation solutions. On April 27, 2018, we acquired all shares in STAT-Dx Life, S.L. (STAT-Dx), a privately-held company located in Barcelona, Spain and on April 19, 2018, we acquired all remaining shares of a privately held entity in which we held a minority interest. Accordingly, at their respective acquisition dates, all the assets acquired and liabilities assumed were recorded at their respective fair values and our consolidated results of operations include the operating results from the acquired companies from the acquisition dates.

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, 2018.

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, 2018 except for the changes described below in connection with the adoption of new standards and interpretations as of January 1, 2019.

Adoption of New Accounting Standards

The following new FASB Accounting Standards Updates (ASU) were adopted in 2019:

The FASB issued guidance codified in Accounting Standards Codification (ASC) Topic 842, *Leases (Topic 842),* which supersedes the lease requirements in ASC Topic 840 and aims to increase transparency and comparability among organizations and requires disclosure of key information about leasing arrangements. The main principle of ASC 842 requires lessees to recognize the assets and liabilities that arise from nearly all leases on the consolidated balance sheet. Lessor accounting remains mainly consistent with the former guidance, with the majority of changes allowing for better alignment with the new lessee model and ASC Topic 606. We adopted these standards as per the effective date of January 1, 2019, using the modified retrospective approach and did not restate comparative periods. Under this approach, the cumulative effect of initially applying the standard was recognized as an adjustment to the opening balance of retained earnings on the date of initial application. As a lessee, the classification of our leases did not change, but we recognized a lease liability and corresponding right-of-use asset on our consolidated balance sheets for all our operating leases. We have elected the package of practical expedients which allows us to not reassess (1) whether existing contracts contain leases, (2) the lease classification for existing leases, and (3) whether existing initial direct costs meet the new definition. We also elected the hindsight practical expedient which permits entities to use hindsight in determining the lease term when transitioning to ASC 842. Our initial lease liabilities and right-of-use assets totaled $57.7 million and $57.4 million, respectively, as recorded in our condensed consolidated balance sheet as of January 1, 2019, primarily relating to leased office space. The difference between the additional lease assets and lease liabilities was recorded as a $0.3 million adjustment to retained earnings. Further disclosure is found in Note 14 "Leases".

ASU 2017-12, *Derivatives and Hedging (Topic 815): Targeted Improvements to Accounting for Hedging Activities*, makes more financial and nonfinancial hedging strategies eligible for hedge accounting. It also amends the presentation and disclosure requirements and changes how companies assess effectiveness. It is intended to more closely align hedge accounting with companies' risk management strategies, simplify the application of hedge accounting, and increase transparency as to the scope and results of hedging programs. The new guidance became effective for public entities beginning on January 1, 2019 by applying a modified retrospective approach to existing hedging relationships as of the adoption date. Under the modified retrospective approach, entities with cash flow or net investment hedges will make (1) a cumulative-effect adjustment to accumulated other comprehensive income so that the adjusted amount represents the cumulative change in the hedging instruments' fair value since hedge inception (less any amounts that should have been recognized in earnings under the new accounting model) and (2) a corresponding adjustment to opening retained earnings as of the most recent period presented on the date of adoption. We adopted ASU 2017-12 on January 1, 2019 without any cumulative effect.

ASU 2017-04, *Intangibles—Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*, removes Step 2 of the goodwill impairment test. A goodwill impairment will now be the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. ASU 2017-04 is effective for public entities for annual periods beginning January 1, 2020 and early adoption is permitted. The new guidance is required to be applied on a prospective basis. We adopted ASU 2017-04 on January 1, 2019 and will apply the new guidance prospectively as required.

ASU 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework,* provides guidance that eliminates, adds and modifies certain disclosure requirements for fair value measurements. ASU 2018-13 is effective for public entities for annual periods beginning January 1, 2020. Entities are permitted to early adopt either the entire standard or only the provisions that eliminate or modify the requirements. We adopted ASU 2018-13 on January 1, 2019 and will apply the entire standard to disclosures as required beginning in 2019.

ASU 2018-15, *Intangibles--Goodwill and Other--Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract,* provides guidance on a customer's accounting for implementation, set-up, and other upfront costs incurred in a cloud computing arrangement that is hosted by the vendor, i.e. a service contract. Under the new guidance, customers will apply the same criteria for capitalizing implementation costs as they would for an arrangement that has a software license. ASU 2018-15 is effective for public entities for annual periods beginning January 1, 2020, and early adoption is permitted and should be applied either retrospectively or prospectively to all implementation costs incurred after the date of adoption. We adopted ASU 2018-15 on January 1, 2019 and will apply the guidance to all implementation costs prospectively.

ASU 2018-17, *Consolidation (Topic 810): Targeted Improvements to Related Party Guidance for Variable Interest Entities,* amends how a decision maker or service provider determines whether its fee is a variable interest entity (VIE) when a related party under common control also has an interest in the VIE. We adopted ASU 2018-17 on January 1, 2019, on a prospective basis.

New Accounting Standards Not Yet Adopted

The following new FASB Accounting Standards Updates, which are not yet adopted, have been grouped by their required effective dates:

First Quarter of 2020

ASU 2016-13, *Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments,* provides financial statement users with more decision-useful information about the expected credit losses on financial instruments and other commitments to extend credit held by a reporting entity at each reporting date. To achieve this objective, the amendments in ASU 2016-13 replace the incurred loss impairment methodology in current GAAP with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to inform credit loss estimates. The FASB has continued to issue accounting standard updates to clarify and provide implementation guidance including ASU 2018-19, *Codification Improvements to Topic 326, Financial Instruments - Credit Losses.* The new guidance will become effective for us by applying the standard's provisions as a cumulative-effect adjustment to retained earnings beginning on January 1, 2020. We are currently evaluating the potential impact Topic 326 may have on our consolidated financial statements and disclosures.

ASU 2018-18, *Collaborative Arrangements (Topic 808): Clarifying the Interaction between Topic 808 and Topic 606,* precludes an entity from presenting consideration from a transaction in a collaborative arrangement as revenue from contracts with customers if the counterparty is not a customer of that transaction. The guidance amends ASC 808 to refer to unit-of-account guidance in ASC 606 and requires it to be used only when assessing whether a transaction is in the scope of ASC 606. ASU 2018-18 is effective for us for annual periods beginning on January 1, 2020. Early adoption is permitted for entities that have adopted ASC 606. Entities are required to apply the amendments retrospectively to the date they initially applied ASC 606. We are currently evaluating the potential impact ASU 2018-18 may have on our consolidated financial statements.

3. Acquisitions and Divestitures

Asset Acquisition

2019 Asset Acquisition

On January 31, 2019, we acquired the digital PCR asset of Formulatrix, Inc., a developer of laboratory automation solutions. We paid Formulatrix $125.0 million in cash upon closing and will pay future milestone payments of $135.9 million in 2020. As of March 31, 2019, $78.9 million is included in accrued and other current liabilities and $53.2 million is included in other long-term liabilities in the accompanying condensed consolidated balance sheet for the present value of the future expected payments.

Business Combinations

For acquisitions which have been accounted for as business combinations, the acquired companies' results have been included in the accompanying consolidated statements of income from their respective dates of acquisition. 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, shared 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.

Other 2019 Acquisition

In January 2019, we completed the acquisition of N-of-One, Inc, a privately-held U.S. molecular decision support company and pioneer in clinical interpretation services for complex genomic data located in Concord, Massachusetts. The cash consideration, net of cash acquired totaled $24.4 million. The allocation of the purchase price is preliminary and is based upon preliminary estimates which used information that was available to management at the time the financial statements were prepared and these estimates and assumptions are subject to change within the measurement period, up to one year from the acquisition date. Accordingly, the allocation may change. We continue to gather information about the assets and liabilities acquired, including the tax balance. This acquisition was not significant to the overall consolidated financial statements and the acquisition did not have a material impact to net sales, net income or earnings per share and therefore no pro forma information has been provided herein.

2018 Acquisitions

In April 2018, we acquired all shares in STAT-Dx Life, S.L. (STAT-Dx), a privately-held company located in Barcelona, Spain, which is developing the next generation of multiplex diagnostics for one-step, fully integrated molecular analysis of common syndromes using a novel system based on real-time PCR technology and proven QIAGEN chemistries.

The cash consideration totaled $148.8 million. The acquisition included contingent consideration which is recorded as part of the purchase price based on the acquisition date fair value. Under the purchase agreement, potential contingent payments through 2023 total $44.3 million, of which the fair value of $37.4 million was recorded as purchase price using a probability-weighted analysis of the future milestones applying discount rates between 6.5% and 6.9%. Direct acquisition costs totaled $2.0 million.

The final purchase price allocation differed from the initial preliminary purchase price allocation as follows:

(in thousands)	Final	Preliminary as of April 27, 2018	Difference
Purchase Price:			
Cash consideration	$ 148,780	$ 148,780	$ —
Fair value of contingent consideration	37,377	36,751	626
	$ 186,157	$ 185,531	$ 626
Final Allocation:			
Cash and cash equivalents	$ 7,357	$ 7,357	$ —
Prepaid expenses and other current assets	1,432	1,432	—
Inventories	1,868	1,868	—
Income tax receivables	2,213	2,213	—
Accounts payable	(1,412)	(1,412)	—
Accruals and other current liabilities	(1,785)	(560)	(1,225)
Fixed and other long-term assets	6,306	6,434	(128)
Developed technology	31,300	80,100	(48,800)
In-process research and development	24,300	—	24,300
Goodwill	117,621	97,268	20,353
Deferred tax liability on fair value of identifiable intangible assets acquired	(3,043)	(9,169)	6,126
Total	$ 186,157	$ 185,531	$ 626

The in-process research and development recognized relates to technologies that remain in development and have not yet obtained regulatory approval. The technologies within in-process research and development are expected to be completed within the next two years.

The changes in the values of in-process research and development assets and developed technology relate to new information obtained, that existed at the acquisition date, regarding key assumptions in the valuation model since the initial purchase price allocation. The weighted average amortization period for the developed technology is 10 years. The goodwill acquired is not deductible for tax purposes.

Revenue and earnings in the reporting periods since the acquisition date have not been significant. No pro forma financial information has been provided herein as the acquisition of STAT-Dx did not have a material impact to net sales, net income or earnings per share on a pro forma basis.

Other 2018 Acquisition

In April 2018, we acquired all remaining shares of a privately held entity in which we held a minority interest. The value of the minority interest investment was revalued in connection with the acquisition by $4.8 million and a corresponding gain was recorded in general and administrative, restructuring, integration and other, net in the consolidated statement of income for the year ended December 31, 2018. This acquisition was not significant to the overall consolidated financial statements and as of March 31, 2019, the allocation of the purchase price was final. The acquisition did not have a material impact to net sales, net income or earnings per share and therefore no pro forma information has been provided herein.

Divestitures

2018 Divestitures

In April 2018, we sold a portfolio of veterinary testing products for a total of €15.1 million ($18.5 million), of which $16.4 million was received in cash and the balance due in April 2020. An $8.0 million gain was recorded on the sale to other income (expense), net in the consolidated statements of income for the year-ended December 31, 2018.

4. Restructuring

2017 Restructuring

We initiated restructuring initiatives in 2017 to mitigate the negative impacts stemming from the U.S. tax reform. Total pre-tax costs for the initiatives, which were concluded in 2018, were $25 million and no additional costs will be incurred related to this program. Cumulative costs for this program were as follows:

(in thousands)	Personnel Related	Contract and Other Costs	Inventory Write-offs & Asset Impairments	Total
Cost of sales	$ —	$ —	$ 3,039	$ 3,039
General and administrative, restructuring, integration and other, net	6,174	4,583	—	10,757
Total 2017 costs	6,174	4,583	3,039	13,796
Cost of sales	424	1,193	—	1,617
General and administrative, restructuring, integration and other, net	4,207	4,232	1,610	10,049
Total 2018 costs	4,631	5,425	1,610	11,666
General and administrative, restructuring, integration and other, net	**(59)**	**—**	**—**	**(59)**
Total 2019 releases	**(59)**	**—**	**—**	**(59)**
Total cumulative costs	**$ 10,746**	**$ 10,008**	**$ 4,649**	**$ 25,403**

The following table summarizes the cash components of the restructuring activity.

(in thousands)	Personnel Related	Contract and Other Costs	Total
Liability at December 31, 2017	6,222	4,585	10,807
Additional costs in 2018	6,468	5,554	12,022
Release of excess accrual	(1,837)	(129)	(1,966)
Payments	(6,892)	(7,149)	(14,041)
Foreign currency translation adjustment	(141)	(17)	(158)
Liability at December 31, 2018	$ 3,820	$ 2,844	$ 6,664
Release of excess accrual	**(59)**	**—**	**(59)**
Payments	**(1,563)**	**(2,785)**	**(4,348)**
Foreign currency translation adjustment	**(22)**	**(14)**	**(36)**
Liability at March 31, 2019	**$ 2,176**	**$ 45**	**$ 2,221**

During 2018, fixed asset impairments of $1.6 million were recorded in connection with these initiatives and were included within general and administration, restructuring, integration and other in the condensed consolidated statement of income. As of March 31, 2019 and December 31, 2018, liabilities of $2.2 million and $6.7 million, respectively, are included in accrued and other current liabilities in the accompanying condensed consolidated balance sheets.

2016 Restructuring

During 2016, we initiated a series of targeted actions to support faster sales momentum and improve efficiency and accountability. The objective with these actions is to ensure that we grow sustainably and consistently. Measures included simplifying our geographic presence with site reductions, focusing resources to shared service centers, and streamlining selected organizational structures. No additional costs will be incurred related to this program. At March 31, 2019 and December 31, 2018, the remaining liability of $0.1 million and $0.3 million, respectively, is included in accrued and other current liabilities in the accompanying condensed consolidated balance sheets.

5. Investments

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

Marketable Equity Securities

A summary of our investments in marketable equity securities that have readily determinable fair values that are classified as available-for-sale follows below. These investments are reported at fair value with realized and unrealized gains and losses recorded in earnings beginning in January 2018 upon adoption of ASU 2016-01. Prior to adoption, these investments were reported at fair value with unrealized gains and losses recognized in accumulated other comprehensive income on the balance sheet. Accordingly, upon adoption, we recorded a cumulative effect adjustment to decrease opening retained earnings at January 1, 2018 by a net of tax amount of $0.9 million (pre-tax $1.1 million) for unrealized losses as of the adoption date.

(in thousands, except shares held)	As of March 31, 2019		
	Oncimmune Holdings plc (Oncimmune)	**HTG Molecular Diagnostics, Inc (HTGM)**	**Curetis N.V. (Curetis)**
Shares held	**560,416**	**833,333**	**204,000**
Cost basis	**$ —**	**$ 2,000**	**$ 1,444**
Fair value	**$ 631**	**$ 2,083**	**$ 284**
Total cumulative unrealized gain (loss)	**$ 631**	**$ 83**	**$ (1,160)**

	As of December 31, 2018	
	HTGM	**Curetis**
Shares held	833,333	204,000
Cost basis	$ 2,000	$ 1,444
Fair value	$ 2,117	$ 350
Total cumulative unrealized gain (loss)	$ 117	$ (1,094)

In the first quarter of 2019, we received shares in Oncimmune in settlement of a zero-book value financial instrument held with a third party. On the date of receipt, these shares had a fair value of $0.7 million which was recorded as a gain in other expense, net. During the three months ended March 31, 2018, we sold 96,424 shares of Curetis and recognized a gain of $0.3 million in other income, net in the accompanying condensed statement of income.

During the three months ended March 31, 2019 and 2018, total gains/losses recognized for the change in fair market value of all marketable equity securities totaled a loss of $0.1 million and a gain of $1.8 million, respectively, recognized in other (expense) income, net in the accompanying condensed consolidated statements of income.

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, 2019 and December 31, 2018, we had total non-marketable investments accounted for as equity method investments of $15.3 million and $14.8 million, respectively, which are included in other long-term assets in the accompanying condensed consolidated balance sheets. Two of our equity method investments are variable interest entities and we are not the primary beneficiary as we do not hold the power to direct the activities that most significantly impact the economic performance. Therefore, these investments are not consolidated. As of both March 31, 2019 and December 31, 2018, these investments had a total carrying value of $1.1 million which is included in other long-term assets in the consolidated balance sheets, representing our maximum exposure to loss.

Non-Marketable Investments Not Accounted for Under the Equity Method

At March 31, 2019 and December 31, 2018, we had investments in non-publicly traded companies that do not have readily determinable fair values with carrying amounts that totaled $63.7 million and $59.5 million, respectively. 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 prices changes are recognized in the statement of income during the period the change is identified.

The changes in non-marketable investments not accounted for under the equity method during 2019 are as follows:

(in thousands)	**2019**
Balance at beginning of year	**$ 59,484**
Cash investments in equity securities	**4,296**
Foreign currency translation adjustments	**(54)**
Balance at end of period	**$ 63,726**

During the three months ended March 31, 2019, we made additional investments of $4.3 million in non-marketable investments not accounted for under the equity method. Of these investments, $4.2 million was made in a variable interest entity that we are not the primary beneficiary of as we do not hold the power to direct the activities that most significantly impact the economic performance. Therefore, this investment is not consolidated. As of March 31, 2019 and December 31, 2018, investments in variable interest entities had a total carrying value of $45.2 million and $41.0 million, respectively, which is included in other long-term assets in the consolidated balance sheets, representing our maximum exposure to loss.

Since adoption of ASU 2016-01, upward adjustments in the carrying value of these investments have been recognized for observable price changes totaling $13.1 million, of which no observable price changes have occurred in 2019 and $0.8 million was recognized during the three months ended March 31, 2018 as further discussed below.

During the three months ended March 31, 2018, we converted a note receivable from a non-publicly traded company, considered a related party, into an equity interest in that company. This note held a balance of $11.4 million including principal balance and accrued interest at conversion which was a non-cash investing activity and is therefore not included in the consolidated statement of cash flows. Following an orderly transaction for a similar investment of the same issuer, this investment was adjusted by $0.8 million during the three months ended March 31, 2018 and a corresponding gain was recorded in other income, net in the accompanying condensed statement of income.

6. Intangible Assets

The following sets forth the intangible assets by major asset class as of March 31, 2019 and December 31, 2018:

	March 31, 2019		December 31, 2018	
(in thousands)	**Gross Carrying Amount**	**Accumulated Amortization**	**Gross Carrying Amount**	**Accumulated Amortization**
Amortized Intangible Assets:				
Patent and license rights	**$ 445,519**	**$ (316,561)**	$ 448,220	$ (310,040)
Developed technology	**1,031,537**	**(573,667)**	770,955	(561,615)
Customer base, non-compete agreements and trademarks	**432,019**	**(332,141)**	427,512	(323,024)
	$ 1,909,075	**$ (1,222,369)**	$ 1,646,687	$ (1,194,679)
Unamortized Intangible Assets:				
In-process research and development	**$ 22,655**		$ 23,035	
Goodwill	**2,114,251**		2,108,536	
	$ 2,136,906		$ 2,131,571	

The in-process research and development is associated to the acquisition of STAT-Dx as further discussed in Note 3 "Acquisitions and Divestitures". 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.

Developed technology includes the digital PCR asset from Formulatrix as discussed in Note 3 "Acquisitions and Divestitures" which is being amortized over 10 years.

The changes in intangible assets in 2019 are summarized as follows:

(in thousands)	**Intangibles**	**Goodwill**
Balance at December 31, 2018	**$ 475,043**	**$ 2,108,536**
Business combinations	**10,828**	**11,378**
Purchase adjustments	**—**	**(236)**
Additions	**259,030**	**—**
Amortization	**(32,556)**	**—**
Foreign currency translation adjustments	**(2,984)**	**(5,427)**
Balance at March 31, 2019	**$ 709,361**	**$ 2,114,251**

Cash paid for purchases of intangible assets during the three months ended March 31, 2019 totaled $129.4 million, of which $2.9 million is related to current year payments for licenses that were accrued as of December 31, 2018 and $0.1 million is related to prepayments recorded in other long-term assets in the accompanying condensed consolidated balance sheet. Intangible asset additions of $259.0 million includes $126.4 million of cash paid during the three months ended March 31, 2019, together with $131.6 million of additions that were accrued as of March 31, 2019 and $1.0 million of additions which were previously recorded as prepayments.

The changes in the carrying amount of goodwill for the three months ended March 31, 2019 resulted from acquisitions as discussed in Note 3 and changes in foreign currency translation.

For the three month periods ended March 31, 2019 and 2018, amortization expense on intangible assets totaled approximately $32.6 million and $30.4 million, respectively. Amortization of intangibles for the next five years is shown in the table below:

Year	Annual Amortization (in millions)
2020	$ 97.6
2021	$ 88.9
2022	$ 75.0
2023	$ 71.7
2024	$ 66.0

7. Debt

Our credit facilities available and undrawn at March 31, 2019 total €426.6 million (approximately $479.3 million). This includes a €400.0 million syndicated multi-currency revolving credit facility expiring December 2021 of which no amounts were utilized at March 31, 2019 or at December 31, 2018, and three other lines of credit amounting to €26.6 million with no expiration date, none of which were utilized as of March 31, 2019 or as of December 31, 2018. The €400.0 million facility can be utilized in Euro, British pounds sterling, Swiss franc or U.S. dollar and bears interest of 0.4% to 1.2% above three months EURIBOR, or LIBOR in relation to any loan not in euro, and is offered with interest periods of one, two, 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, 2019. The credit facilities are for general corporate purposes.

During the first quarter of 2019, we repaid $433.4 million of long-term debt including $430.0 million for the amount due for the 2019 Cash Convertible Notes and $3.4 million for a portion of the 2021 Cash Convertible Notes which was converted during the contingent conversion period as discussed further below.

At March 31, 2019 and December 31, 2018, total current long-term debt, net of debt issuance costs of $13.1 million and $14.2 million, respectively, consists of the following:

(in thousands)	March 31, 2019	March 31, 2018
0.375% Senior Unsecured Cash Convertible Notes due 2019	**$ —**	$ 427,445
0.875% Senior Unsecured Cash Convertible Notes due 2021	**278,509**	279,492
0.500% Senior Unsecured Cash Convertible Notes due 2023	**338,352**	335,201
1.000% Senior Unsecured Cash Convertible Notes due 2024	**401,595**	397,793
3.19% Series A Senior Notes due October 16, 2019	**72,692**	72,483
3.75% Series B Senior Notes due October 16, 2022	**299,939**	298,691
3.90% Series C Senior Notes due October 16, 2024	**26,936**	26,933
German Private Placement (Schuldschein)	**330,731**	336,168
Total long-term debt	**$ 1,748,754**	$ 2,174,206
Less current portion	**351,201**	503,116
Long-term portion	**$ 1,397,553**	$ 1,671,090

At March 31, 2019, the $351.2 million current portion of the debt includes the $278.5 million Cash Convertible Notes due in 2021 which became convertible pursuant to the indenture as further discussed below, together with the $72.7 million of Senior Notes due October 19, 2019.

The notes are all unsecured obligations that rank pari passu.

Cash Convertible Notes due 2019, 2021, 2023 and 2024

On March 19, 2014, we issued $730.0 million aggregate principal amount of Cash Convertible Senior Notes in two tranches consisting of $430.0 million due in 2019 (2019 Notes) and $300.0 million due in 2021 (2021 Notes). The aggregate net proceeds of the 2019 Notes and 2021 Notes were $680.7 million, after payment of the net cost of the Call Spread Overlay described below and transaction costs. Additionally, we used $372.5 million of the net proceeds to repay other debt. During the first quarter of 2019, $430.0 million was paid at maturity (2019 Notes) and $3.4 million of the 2021 Notes was redeemed.

On September 13, 2017, we issued $400.0 million aggregate principal amount of Cash Convertible Senior Notes which is due in 2023 (2023 Notes). The net proceeds of the 2023 Notes were $365.6 million, after payment of the net cost of the Call Spread Overlay described below and transaction costs paid through March 31, 2019.

On November 13, 2018, we issued $500.0 million aggregate principal amount of Cash Convertible Senior Notes which is due in 2024 (2024 Notes). The net proceeds of the 2024 Notes were $470.0 million, after payment of the net cost of the Call Spread Overlay described below and transaction costs paid through March 31, 2019.

We refer to the 2019 Notes, 2021 Notes 2023 Notes and 2024 Notes, collectively as the "Cash Convertible Notes."

Interest on the Cash Convertible Notes is payable semi-annually in arrears and will mature on the maturity date unless repurchased or converted with their terms prior to such date. The interest rate and corresponding maturity of each 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 periods 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
2021 Notes	0.875%	March 19 and September 19	March 19, 2021	April 29, 2014 to September 18, 2020	7,063.1647
2023 Notes	0.500%	March 13 and September 13	September 13, 2023	October 24, 2017 to March 13, 2023	4,829.7279
2024 Notes	1.000%	May 13 and November 13	November 13, 2024	December 24, 2018 to August 2, 2024	4,360.3098

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

- if the last reported sale price of our common stock 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;
- if we undergo certain fundamental changes as defined in the agreement;
- during the five-business day period immediately after any 10-consecutive trading day period in which the quoted price for the 2021 Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of our common stock and the conversion rate on each such trading day;
- if parity event or trading price unavailability event, as the case maybe occurs for the 2023 Notes and 2024 Notes during the period of 10 days, including the first business day following the relevant trading price notification date.
- if we elect to distribute assets or property to all or substantially all the holders of our common stock 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 stock for the prior 20-consecutive trading days;
- 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 Notes have been accelerated.

The Contingent Conversion Conditions in the 2021 Notes, 2023 Notes and 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 2021 Notes, 2023 Notes and 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.

Beginning on April 1, 2019 and ending at the close of business on June 30, 2019, the 2021 Notes became convertible pursuant to the indenture. The 2021 Notes became convertible pursuant to Section 12.01(b)(iv) of the indenture because the arithmetic mean of the last reported sale prices of our common stock, in each trading day in at least one 20-consecutive trading day period during the 30-

consecutive trading day period ending on the last trading day of the preceding fiscal quarter, was greater than 130% of the conversion price in effect on such last trading day.

No Contingent Conversion Conditions were triggered for the 2023 Notes and 2024 Notes as of March 31, 2019.

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 stock 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 consolidated statements of income until the cash conversion option transaction settles or expires. The initial fair value liability of the embedded cash conversion options for the 2019 Notes and 2021 Notes was $51.2 million and $54.0 million, respectively, $74.5 million for the 2023 Notes, and $98.5 million for the 2024 Notes, which simultaneously reduced the carrying value of the Cash Convertible Notes (effectively an original issuance discount). For further discussion of the derivative financial instruments relating to the Cash Convertible Notes, refer to Note 8 "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, which is five and seven for the 2019 Notes and 2021 Notes, and six years for the 2023 Notes and 2024 Notes, respectively. 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 of the 2019 Notes, 2021 Notes, 2023 Notes and 2024 Notes is 2.937%, 3.809%, 3.997% and 4.782% respectively, 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.

In connection with the issuance of the 2019 Notes and 2021 Notes, we incurred approximately $13.1 million in transaction costs. We incurred approximately $6.2 million in transaction costs for the 2023 Notes. For the 2024 Notes, we incurred $5.7 million transaction costs of which $0.3 million was accrued as of March 31, 2019. 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.

Interest expense related to the Cash Convertible Notes for the three months ended March 31, 2019 and 2018 was comprised of the following:

	Three months ended March 31,	
(in thousands)	**2019**	**2018**
Coupon interest	**$ 2,760**	$ 1,559
Amortization of original issuance discount	**10,909**	7,411
Amortization of debt issuance costs	**1,015**	829
Total interest expense related to the Cash Convertible Notes	**$ 14,684**	$ 9,799

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. During 2014, we used $105.2 million of the proceeds from the issuance of the 2019 Notes and 2021 Notes to pay for the Call Options, and simultaneously received $69.4 million from the sale of the Warrants, for a net cash outlay of $35.8 million for the Call Spread Overlay.

During 2017, we used $73.7 million of the proceeds from the from the issuance of the 2023 Notes to pay for the premium for the Call Option, and simultaneously received $45.3 million from the sale of Warrants, for a net cash outlay of $28.3 million for the Call Spread Overlay. Issuance costs incurred in connection with the Warrant and the Call Option were $0.3 million and $0.1 million respectively.

In November 2018, we used $97.3 million of the proceeds from the from the issuance of the 2024 Notes to pay for the premium for the Call Option, and simultaneously received $72.4 million from the sale of Warrants, for a net cash outlay of $24.9 million for the Call Spread Overlay. Issuance costs incurred in connection with the Warrant and the Call Option were $0.5 million and $0.5 million respectively, of which $0.3 million was accrued as of March 31, 2019.

The Call Options are derivative financial instruments and are discussed further in Note 8 "Derivatives and Hedging". The Warrants are equity instruments and are further discussed in Note 12 "Equity".

Aside from the initial payment of a premium of $105.2 million (2019 Notes and 2021 Notes), $73.7 million (2023 Notes), and $97.3 million (2024 Notes) for the Call Options, 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 share of our common stock 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.

During the first quarter of 2019, we received $133.2 million in cash upon the exercise of the call options in connection with the repayment of the 2019 Notes. In the same transaction, we paid $132.7 million for the intrinsic value of the 2019 Notes' embedded cash conversion option. Not all of the 2019 Note holders tendered the required conversion notice, and as a result the net effect of the cash paid and received of $0.5 million was recognized as a gain in other (expense) income, net.

In connection with the early conversion of a portion of the 2021 Notes during the first quarter of 2019, we received $0.4 million in million in cash and recorded an other receivable of $0.7 million upon the exercise of the related call options. In the same transaction, we paid $1.1 million for the intrinsic value of the 2021 Notes' embedded cash conversion option.

The Warrants that were issued with our Cash Convertible Notes, could have a dilutive effect to the extent that the price of our common stock exceeds the applicable strike price of the Warrants. For each Warrant that is exercised, we will deliver to the holder a number of shares of our common stock 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.

Private Placement

In October 2012, we completed a private placement through the issuance of new senior unsecured notes at a total amount of $400.0 million with a weighted average interest rate of 3.66% (settled on October 16, 2012). The notes were issued in three series: (1) $73.0 million 7-year term due in 2019 (3.19%); (2) $300.0 million 10-year term due in 2022 (3.75%); and (3) $27.0 million 12-year term due in 2024 (3.90%). We paid $2.1 million in debt issuance costs which will be amortized through interest expense using the effective interest method over the lifetime of the notes. The note purchase agreement contains certain financial and non-financial covenants, including but not limited to, restrictions on priority indebtedness and the maintenance of certain financial ratios. We were in compliance with these covenants at March 31, 2019. During 2014, we entered into interest rate swaps, which effectively fixed the fair value of $200.0 million of this debt and qualify for hedge accounting as fair value hedges as described in Note 8 "Derivatives and Hedging".

German Private Placement (Schuldschein)

In 2017, we completed a German private placement bond ("Schuldschein") which was issued in several tranches totaling $331.1 million due in various periods through 2027. The Schuldschein consists of U.S. dollar and 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 8 "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, 2019 totaled $5.5 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 over the lifetime of the notes. A summary of the tranches as of March 31, 2019 and December 31, 2018 is as follows:

Currency	Notional Amount	Interest Rate	Maturity	Carrying Value (in thousands) as of March 31, 2019	Carrying Value (in thousands) as of December 31, 2018
EUR	€11.5 million	Fixed 0.4%	March 2021	**$ 12,898**	$ 13,143
EUR	€23.0 million	Floating EURIBOR + 0.4%	March 2021	**25,796**	26,286
EUR	€21.5 million	Fixed 0.68%	October 2022	**24,103**	24,561
EUR	€64.5 million	Floating EURIBOR + 0.5%	October 2022	**72,307**	73,684
USD	$45.0 million	Floating LIBOR + 1.2%	October 2022	**44,898**	44,891
EUR	€25.0 million	Floating EURIBOR + 0.5%	October 2022	**28,011**	28,543
EUR	€64.0 million	Fixed 1.09%	June 2024	**71,728**	73,097
EUR	€31.0 million	Floating EURIBOR + 0.7%	June 2024	**34,743**	35,406
EUR	€14.5 million	Fixed 1.61%	June 2027	**16,247**	16,557
				$ 330,731	$ 336,168

The financial markets regulators in the United Kingdom and the Eurozone have passed regulations that will become effective in 2021 under which LIBOR and EURIBOR in their current form will not be compliant. Market participants and regulators are working on establishing new interest rate benchmarks. While the outcome of this work is not clear yet, the Schuldschein our syndicated loan facility, and our interest rate swaps continue to make reference to the current LIBOR and EURIBOR benchmark rates. These agreements contain language for the determination of interest rates in case the benchmark rate is not available. However, it appears likely that the agreements will need to be adjusted in line with still to be developed market practice once new benchmark rates become available.

8. Derivatives and Hedging

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, 2019, cash collateral positions consisted of $1.1 million recorded in accrued and other current liabilities and $19.8 million recorded in prepaid expenses and other assets in the accompanying condensed consolidated balance sheet. As of December 31, 2018, we had cash collateral positions consisting of $1.0 million recorded in accrued and other current liabilities and $25.4 million recorded in prepaid expenses and other current assets in the accompanying condensed consolidated balance sheets.

In 2017, we entered into a foreign currency non-derivative hedging instrument that is designated and qualifies as 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 functional currency of the U.S. dollar. The non-derivative hedging instrument is the German private corporate bond ("Schuldschein") which was issued in the total amount of $331.1 million as described in Note 7 "Debt". Of the $331.1 million, which is held in both U.S. dollars and Euros, €255.0 million is designated 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 other accumulated comprehensive income. Based on the spot rate method, the unrealized loss recorded in equity was $0.4 million and $5.9 million as of March 31, 2019 and December 31, 2018, 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, 2019 and December 31, 2018.

As of March 31, 2019 and December 31, 2018, 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. In 2019 and in 2018, we did not record any hedge ineffectiveness related to any cash-flow hedges in earnings. Based on their valuation as of March 31, 2019, we expect approximately $8.2 million of derivative losses 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 condensed consolidated balance sheets account of the underlying item.

As of March 31, 2019 and December 31, 2018, we held derivative instruments that qualify for hedge accounting as fair value hedges. For derivative instruments that are designated and qualify as a fair value hedge, the effective portion of the gain or loss on the derivative is reflected in earnings. This effect on earnings is offset by the change in the fair value of the hedged item attributable to the risk being hedged that is also recorded in earnings. In 2019 and in 2018, there was no ineffectiveness. The cash flows derived from derivatives are classified in the condensed consolidated statements of cash flows in the same category as the condensed consolidated balance sheets account of the underlying item.

Interest Rate Derivatives

We use interest rate derivative contracts to align our portfolio of interest bearing assets and liabilities with our risk management objectives. During 2015, we entered into 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. We determined that no ineffectiveness exists related to these swaps. As of March 31, 2019, the €180.0 million notional swap amount had a fair value of $11.9 million recorded in fair value of derivative instruments - long-term liability and a related interest receivable of $0.5 million which is recorded in prepaid expenses and other current assets in the accompanying condensed consolidated balance sheets. As of December 31, 2018, these swaps had a fair value of $17.6 million and related interest receivable of $1.4 million which are recorded in fair value of derivative instruments - long-term liability and prepaid expenses and other current assets, respectively, in the accompanying condensed consolidated balance sheets.

We hold interest rate swaps which effectively fix the fair value of $200.0 million of our fixed rate private placement debt and qualify for hedge accounting as fair value hedges. We determined that no ineffectiveness exists related to these swaps. As of March 31, 2019, the $200.0 million notional swap amount had a net fair value of $0.2 million, of which $0.5 million is recorded in fair value of derivative instruments - long-term asset and $0.3 million is recorded in fair value of derivative instruments - current liability and accrued and unpaid interest of $0.9 million recorded in prepaid expenses and other current assets, respectively, in the accompanying condensed consolidated balance sheet. As of December 31, 2018, these swaps had a fair value of $1.2 million, of which $0.5 million is recorded in fair value of derivative instruments - current liability and $0.7 million is recorded in fair value of derivative instruments - long-term liability and accrued and unpaid interest of $0.1 million recorded in prepaid expenses and other current assets in the accompanying condensed consolidated balance sheet.

Call Options

We entered into Call Options in 2014 which, along with the sale of the Warrants, represent the Call Spread Overlay entered into in connection with the 2019 and 2021 Cash Convertible Notes and which are more fully described in Note 7 "Debt". We used $105.2 million of the proceeds from the issuance of the 2019 and 2021 Cash Convertible Notes to pay the premium for the Call Options, and simultaneously received $68.9 million, (net of issuance costs) from the sale of the Warrants, for a net cash outlay of $36.3 million for the Call Spread Overlay.

During 2017, we used $73.7 million of the proceeds from the issuance of the 2023 Cash Convertible Notes to pay the premium for the Call Option, and simultaneously received $45.3 million from the sale of the Warrants, for a net cash outlay of $28.3 million for the Call Spread Overlay. Issuance costs in connection with the Warrant and the Call Option were $0.3 million and $0.1 million respectively.

During 2018, we used $97.3 million of the proceeds from the from the issuance of the 2024 Cash Convertible Notes to pay for the premium for the Call Option, and simultaneously received $72.4 million from the sale of Warrants, for a net cash outlay of $24.9 million for the Call Spread Overlay. Issuance costs incurred in connection with the Warrant and the Call Option were $0.5 million and $0.5 million respectively, of which $0.3 million was accrued as of March 31, 2019.

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.

Aside from the initial payment of a premium of $105.2 million (2019 and 2021 Notes), $73.6 million (2023 Notes) and $97.3 million (2024 Notes) 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 share of our common stock 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.

In connection with the repayment of the 2019 Notes during the first quarter of 2019, we received $133.2 million in cash upon the exercise of the related call options. In the same transaction, we paid $132.7 million for the intrinsic value of the 2019 Notes' embedded cash conversion option. Not all of the 2019 Note holders tendered the required conversion notice, and as a result the net effect of the cash paid and received of $0.5 million was recognized as a gain in other (expense) income, net.

In connection with the early conversion of a portion of the 2021 Notes during the first quarter of 2019, we received $0.4 million in million in cash and recorded an other receivable of $0.7 million upon the exercise of the related call options. In the same transaction, we paid $1.1 million for the intrinsic value of the 2021 Notes' embedded cash conversion option.

The Call Options, for which our common stock is the underlying security, are derivative assets that requires mark-to-market accounting treatment due to the cash settlement features until the Call Options settle or expire. The Call Options are measured and reported at fair value on a recurring basis, within Level 2 of the fair value hierarchy. For further discussion of the inputs used to determine the fair value of the Call Options, refer to Note 9 "Financial Instruments and Fair Value Measurements". The fair value of the Call Options at March 31, 2019 was approximately $388.7 million, of which $155.1 million is recorded in fair value of derivative instruments - current asset and $233.6 million is recorded in fair value of derivative instruments - long-term asset in the accompanying condensed consolidated balance sheet. As of December 31, 2018, the fair value of the Call Options was approximately $395.1 million of which $100.1 million is recorded in fair value of derivative instruments - current asset and $295.0 million is recorded in fair value of derivative instruments - long-term asset in the accompanying consolidated balance sheet.

The Call Options do not qualify for hedge accounting treatment. Therefore, the change in fair value of these instruments is recognized immediately in our condensed consolidated statements of income in other income (expense), net. For the three-month periods ended March 31, 2019 and March 31, 2018, the change in the fair value of the Call Options resulted in losses of $6.4 million and gains of $13.2 million, respectively. Because the terms of the Call Options are substantially similar to those of the Cash Convertible Notes' embedded cash conversion option, discussed below, we expect the effect on earnings from the two derivative instruments to mostly offset each other.

Cash Convertible Notes Embedded Cash Conversion Option

The embedded cash conversion option within the Cash Convertible Notes 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 income (expense), net until the cash conversion option settles or expires. For further discussion of the Cash Convertible Notes, refer to Note 7 "Debt". The initial fair value liability of the embedded cash conversion options for the 2019 Notes and 2021 Notes was $51.2 million and $54.0 million, respectively, for the 2023 Notes was $74.5 million and for the 2024 Notes was $98.5 million, which simultaneously reduced the carrying value of the Cash Convertible Notes (effectively an original issuance discount). The embedded cash conversion option is measured and reported at fair value on a recurring basis, within Level 2 of the fair value hierarchy. For further discussion of the inputs used to determine the fair value of the embedded cash conversion option, refer to Note 9 "Financial Instruments and Fair Value Measurements". The fair value of the embedded cash conversion options at March 31, 2019 was approximately $392.6 million, of which $155.9 million is recorded in fair value derivative instruments - current liability and $236.6 million is recorded in fair value of derivative instruments - long-term liability. As of December 31, 2018, the fair value of the embedded cash conversion options was approximately $399.3 million of which $100.2 million is recorded in fair value derivative instruments - current liability and $299.1 million is recorded in fair value of derivative instruments - long-term liability. For the three-month periods ended March 31, 2019 and March 31, 2018, the change in the fair value of the embedded cash conversion option resulted in gains of $6.7 million and losses of $13.6 million, respectively, recognized in our condensed consolidated statements of income in other income (expense), net.

Embedded Conversion Option

During 2017, we purchased a convertible note for $3.0 million from a publicly listed company considered a related party. The embedded derivative, that is bifurcated and measured at fair value, associated with a convertible feature of this note had a fair value of $0.1 million and $0.3 million as of March 31, 2019 and December 31, 2018, respectively, included in fair value of derivative instruments - long-term asset. For the three-month periods ended March 31, 2019 and March 31, 2018, the change in the fair value of the embedded cash conversion option resulted in loss of $0.3 million and gain of $0.6 million, respectively, recognized in our condensed consolidated statements of income in other income (expense), net.

Foreign Currency Derivatives

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.

Undesignated Derivative Instruments

We are party to various foreign exchange forward, option and swap arrangements which had, at March 31, 2019, an aggregate notional value of $616.0 million and fair value of $4.8 million included in fair value of derivative instruments - current asset and $3.6 million included in fair value of derivative instruments - current liability, which expire at various dates through November 2019. We were party to various foreign exchange forward and swap arrangements which had, at December 31, 2018, an aggregate notional value of $792.7 million and fair values of $2.7 million and $6.0 million included fair value of derivative instruments - current asset and fair value of derivative instruments - current liability, respectively, which expire at various dates through November 2019. 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 income (expense), net.

Fair Values of Derivative Instruments

The following table summarizes the fair value amounts of derivative instruments reported in the condensed consolidated balance sheets as of March 31, 2019 and December 31, 2018:

(in thousands)	Derivatives in Asset Positions Fair value March 31, 2019	Derivatives in Asset Positions Fair value December 31, 2018	Derivatives in Liability Positions Fair value March 31, 2019	Derivatives in Liability Positions Fair value December 31, 2018
Derivative instruments designated as hedges				
Interest rate contracts[(1)]	**$ 488**	$ —	**$ (12,174)**	$ (18,768)
Total derivative instruments designated as hedges	**$ 488**	$ —	**$ (12,174)**	$ (18,768)
Undesignated derivative instruments				
Embedded conversion option	**$ 91**	$ 349	**$ —**	$ —
Call options	**388,669**	395,095	**—**	—
Cash convertible notes embedded conversion option	**—**	—	**(392,583)**	(399,262)
Foreign exchange contracts	**4,845**	2,673	**(3,626)**	(5,957)
Total undesignated derivative instruments	**$ 393,605**	$ 398,117	**$ (396,209)**	$ (405,219)

(1) The fair value amounts for the interest rate contracts do not include accrued interest of $1.4 million and $1.4 million included in prepaid expenses and other current assets in the condensed consolidated balance sheets as of March 31, 2019 and December 31, 2018, respectively.

Gains and Losses on Derivative Instruments

The following tables summarize the gains and losses on derivative instruments for the three months ended March 31, 2019 and 2018:

(in thousands)	Three months ended March 31, 2019 Other income (expense), net	Three months ended March 31, 2018 Other income (expense), net
Total amounts presented in the Condensed Consolidated Statements of Income in which the effects of cash flow and fair value hedges are recorded	**$ (392)**	$ 1,547
Gains (Losses) on Derivatives in Cash Flow Hedges		
Interest rate contracts		
Amount of (loss) gain reclassified from accumulated other comprehensive income	**$ (3,870)**	$ 5,904
Amounts excluded from effectiveness testing	**—**	—
Gains (Losses) on Derivatives in Fair Value Hedges		
Interest rate contracts		
Hedged item	**(1,406)**	2,996
Derivatives designated as hedging instruments	**1,406**	(2,996)
Gains (Losses) Derivatives Not Designated as Hedging Instruments		
Embedded conversion option	**(258)**	575
Call options	**(6,426)**	13,153
Cash convertible notes embedded cash conversion option	**6,679**	(13,608)
Foreign exchange contracts	**960**	2,477
Total (losses) gains	**$ (2,915)**	$ 8,501

Balance Sheet Line Items in which the Hedged Item is Included

The following tables summarizes the balance sheet line items in which the hedged item is included as of March 31, 2019 and December 31, 2018:

(in thousands)	Carrying Amount of the Hedged Assets (Liabilities) March 31, 2019	Carrying Amount of the Hedged Assets (Liabilities) December 31, 2018	Cumulative Amount of Fair Value Hedging Adjustment Included in the Carrying Amount of Hedged Assets (Liabilities) March 31, 2019	Cumulative Amount of Fair Value Hedging Adjustment Included in the Carrying Amount of Hedged Assets (Liabilities) December 31, 2018
Balance Sheet Line Items in which the Hedged Item is Included				
Current portion of long-term debt	(72,693)	(72,483)	(276)	(473)
Long-term debt	(127,255)	(126,030)	488	(721)

9. 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.

Our assets and liabilities measured at fair value on a recurring basis consist of short-term investments, which are classified in Level 1 and Level 2 of the fair value hierarchy, marketable securities discussed in Note 5 "Investments", which are classified in Level 1, 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 7 "Debt", which are classified in Level 2 of the fair value hierarchy, and contingent consideration accruals which are classified in Level 3 of the fair value hierarchy, and are shown in the tables below. There were no transfers between levels during the period ending March 31, 2019.

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, considering 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 conversion option liability. See Note 7 "Debt", and Note 8 "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 stock price, the risk-free interest rate, and the implied volatility of our common stock. 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 for which we estimate the value based on valuation methods using the observable transaction price at the transaction date and other unobservable inputs. These investments are carried at fair value or under the measurement alternative. 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 2.4% and 17.2%), 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 consolidated statements of income in the line items commensurate with the underlying nature of milestone arrangements.

The following table presents our fair value hierarchy for our financial assets and liabilities measured at fair value on a recurring basis:

(in thousands)	As of March 31, 2019 Level 1	Level 2	Level 3	Total	As of December 31, 2018 Level 1	Level 2	Level 3	Total
Assets:								
Short-term investments	**$ 284**	**$ 227,250**	**$ —**	**$ 227,534**	$ 350	$ 234,256	$ —	$ 234,606
Marketable equity securities	**2,714**	**—**	**—**	**2,714**	2,117	—	—	2,117
Non-marketable equity securities	**—**	**—**	**63,726**	**63,726**	—	—	59,484	59,484
Call option	**—**	**388,669**	**—**	**388,669**	—	395,095	—	395,095
Foreign exchange contracts	**—**	**4,845**	**—**	**4,845**	—	2,673	—	2,673
Embedded conversion option	**—**	**91**	**—**	**91**	—	349	—	349
Interest rate contracts	**—**	**488**	**—**	**488**	—	—	—	—
	$ 2,998	**$ 621,343**	**$ 63,726**	**$ 688,067**	$ 2,467	$ 632,373	$ 59,484	$ 694,324
Liabilities:								
Foreign exchange contracts	**$ —**	**$ (3,626)**	**$ —**	**$ (3,626)**	$ —	$ (5,957)	$ —	$ (5,957)
Interest rate contracts	**—**	**(12,174)**	**—**	**(12,174)**	—	(18,768)	—	(18,768)
Cash conversion option	**—**	**(392,583)**	**—**	**(392,583)**	—	(399,262)	—	(399,262)
Contingent consideration	**—**	**—**	**(181,156)**	**(181,156)**	—	—	(48,971)	(48,971)
	$ —	**$(408,383)**	**$(181,156)**	**$(589,539)**	$ —	$(423,987)	$ (48,971)	$(472,958)

Refer to Note 5 "Investments" for the change in non-marketable equity securities with Level 3 inputs during the three-month period ended March 31, 2019. For contingent consideration liabilities with Level 3 inputs, the following table summarizes the activity for the three-month periods ended March 31, 2019:

(in thousands)	2019
Balance at beginning of year	**$ (48,971)**
Additions from acquisitions	**(132,185)**
Balance at end of period	**$ (181,156)**

As of March 31, 2019, of the total $181.2 million accrued for contingent consideration, $106.6 million is included in accrued and other current liabilities and $74.6 million is included in other long-term liabilities in the accompanying condensed consolidated balance sheet. For the three-month period ended March 31, 2019, the $132.2 million of additions is primarily related to the asset acquisition of Formulatrix discussed in Note 3 "Acquisitions and Divestitures."

The carrying values of financial instruments, including cash and cash equivalents, accounts receivable, accounts payable and other accrued liabilities, approximate their fair values due to their short-term maturities. The estimated fair value of long-term debt as disclosed in Note 7 "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 table below presents the carrying values and the estimated fair values of financial instruments not presented in the tables above.

(in thousands)	As of March 31, 2019 Carrying Amount	Level 1	Level 2	As of December 31, 2018 Carrying Amount	Level 1	Level 2
Long-term debt including current portion:						
Cash convertible notes	**$ 1,018,456**	**$ 1,440,268**	**$ —**	$ 1,439,931	$ 1,794,000	$ —
U.S. Private placement	**399,567**	**—**	**395,572**	398,107	—	391,700
German private placement	**330,731**	**—**	**333,831**	336,168	—	337,768
	$ 1,748,754	**$ 1,440,268**	**$ 729,403**	$ 2,174,206	$ 1,794,000	$ 729,468

The fair values of the financial instruments presented in the tables above were determined as follows:

Cash Convertible Notes: Fair value is based on an estimation using available over-the-counter market information on the Cash Convertible Notes due in 2021, 2023 and 2024.

U.S. Private Placement: Fair value of the outstanding bonds is based on an estimation using the changes in the U.S. Treasury rates.

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

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. There were no adjustments in the three-month periods ended March 31, 2019 and 2018 for nonfinancial assets or liabilities required to be measured at fair value on a nonrecurring basis.

10. Income Taxes

The quarterly provision for income taxes is based upon the estimated annual effective tax rates 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 effective tax rates ranging from zero to more than 34%. Fluctuations in the distribution of pre-tax (loss) income among our operating subsidiaries can lead to fluctuations of the effective tax rate in the consolidated financial statements. In the first quarters of 2019 and 2018, our effective tax rates were (3.7)% and 17.5%, respectively. The effective tax rate for the first quarter of 2019 was lower compared to the first quarter of 2018 primarily due to a reassessment of uncertain tax positions. Additionally, in 2019 and 2018, tax expense on foreign operations was favorably impacted by lower income tax rates and partial tax exemptions on foreign income primarily derived from operations in Germany, Singapore, Luxembourg, Ireland and Switzerland. These foreign tax benefits are due to a combination of favorable tax laws, rules, rulings, and exemptions in these jurisdictions. In particular, we have pre-tax income in Germany which is statutorily exempt from trade tax on intercompany foreign royalty income. Further, we have intercompany financing arrangements through Luxembourg and Ireland in which the intercompany income is partially exempt.

We assess uncertain tax positions in accordance with ASC 740 (ASC 740-10 *Accounting for Uncertainties in Tax*). At March 31, 2019, our gross unrecognized tax benefits totaled approximately $52.7 million which, if recognized, would favorably impact our effective tax rate in the periods in which they are recognized. It is reasonably possible that approximately $17.0 million of the unrecognized tax benefits may be released during the next 12 months due to lapse of statutes of limitations or settlements with tax authorities. However, various events could cause our current expectations to change in the future. While we believe our allowance for all 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 2006 for income tax examinations by tax authorities. The U.S. consolidated group is subject to Federal and most state income tax examinations by tax authorities beginning with the year ending December 31, 2015 through the current period. Our subsidiaries, with few exceptions, are no longer subject to income tax examinations by tax authorities for years before 2014.

In February 2016, German tax authorities began the audit of the German tax returns for the 2010-2013 tax years and we expect the audit to close in the first half of 2019. The German tax authorities began the audit for the 2014-2016 tax years in February 2019.

As of March 31, 2019, 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.

11. Inventories

The components of inventories consist of the following as of March 31, 2019 and December 31, 2018:

(in thousands)	March 31, 2019	December 31, 2018
Raw materials	**$ 26,679**	$ 25,819
Work in process	**36,328**	38,659
Finished goods	**104,086**	98,434
Total inventories, net	**$ 167,093**	$ 162,912

12. Equity

Issuance and Conversion of Warrants

In connection with the issuance of the Cash Convertible Notes as described in Note 7 "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 consolidated balance sheets.

Cash convertible notes	Issued on	Number of share warrants (in millions)	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
2019	March 19, 2014	15.2	$32.0560	$40.6	December 27, 2018
2021	March 19, 2014	10.6	$32.0560	$28.3	December 29, 2020
2023	September 13, 2017	9.7	$50.9664	$45.3	June 26, 2023
2024	November 13, 2018	10.9	$52.1639	$72.4	August 27, 2024

The Warrants are exercisable only upon expiration. For each Warrant that is exercised, we will deliver to the holder a number of shares of our common stock 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 shares of our common stock to the extent that the market value per share of our common stock exceeds the applicable exercise price of the Warrants (as measured under the terms of the Warrants).

During the first quarter of 2019, 2.0 million common shares were issued in connection with the conversion of the 15.2 million warrants related to the 2019 Notes which resulted in a $30.8 million decrease to additional paid in capital, a $37.2 million decrease in retained earnings, a decrease of $68.1 million in treasury shares and an approximately $4.0 thousand cash payment for fractional shares.

Share Repurchase Programs

On January 31, 2018, we announced our fifth share repurchase program of up to $200 million of our common shares. During the first quarter of 2019, we repurchased 1.2 million QIAGEN shares for $44.4 million (including transaction costs), bringing the total shares repurchased under this program to 4.1 million for $149.1 million (including transaction costs).

The cost of repurchased shares is included in treasury stock and reported as a reduction in total equity when a repurchase occurs. Repurchased shares will be held in treasury in order to satisfy various obligations, which include exchangeable debt instruments, warrants and employee share-based remuneration plans.

Accumulated Other Comprehensive Loss

The following table is a summary of the components of accumulated other comprehensive loss as of March 31, 2019 and December 31, 2018:

(in thousands)	March 31, 2019	December 31, 2018
Net unrealized loss on hedging contracts, net of tax	**$ (8,619)**	$ (15,453)
Net unrealized loss on pension, net of tax	**(124)**	(124)
Foreign currency effects from intercompany long-term investment transactions, net of tax of $9.5 million and $9.3 million in 2019 and 2018, respectively	**(22,298)**	(21,662)
Foreign currency translation adjustments	**(287,563)**	(273,405)
Accumulated other comprehensive loss	**$ (318,604)**	$ (310,644)

13. 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 the 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, 2019, we had $27.2 million of remaining performance obligations for which the transaction price is not constrained related to these contracts of which we expect to recognize approximately 50% over the next 12 months and the remainder thereafter.

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, 2019 and December 31, 2018 totaled $7.8 million and $6.9 million, respectively, and are included in prepaid expenses and other current assets in the accompanying condensed consolidated balance sheet and relate to the companion diagnostic co-development contracts discussed above.

Contract liabilities primarily relate to advances or deposits received from customers before revenue is recognized and is primarily related to instrument service and software subscription revenue. As of March 31, 2019 and December 31, 2018, contract liabilities totaled $56.6 million and $54.3 million, respectively, of which $48.6 million and $45.4 million is included in accrued and other current liabilities, respectively, and $8.0 million and $9.0 million in included in other long-term liabilities, respectively. During the three months ended March 31, 2019 and 2018, we satisfied the associated performance obligations and recognized revenue of $19.1 million and $14.5 million, respectively, related to advance customer payments previously received.

Disaggregation of Revenue

We disaggregate our revenue based on product categories and customer class and geographically as shown in the tables below:

	Three Months Ended March 31, 2019			Three Months Ended March 31, 2018		
(in thousands)	**Consumables and related**	**Instruments**	**Total**	**Consumables and related**	**Instruments**	**Total**
Molecular Diagnostics	**$ 153,887**	**$ 14,162**	**$ 168,049**	$ 145,552	$ 15,794	$ 161,346
Life Sciences	**158,939**	**21,666**	**180,605**	161,072	21,150	182,222
Academia / Applied Testing	**94,618**	**14,985**	**109,603**	97,392	14,186	111,578
Pharma	**64,321**	**6,681**	**71,002**	63,680	6,964	70,644
Total	**$ 312,826**	**$ 35,828**	**$ 348,654**	$ 306,624	$ 36,944	$ 343,568

	Three Months Ended March 31,	
(in thousands)	**2019**	**2018**
Americas	**$ 169,581**	$ 159,045
Europe, Middle East and Africa	**109,366**	115,911
Asia Pacific and Rest of World	**69,707**	68,612
Total	**$ 348,654**	$ 343,568

14. Leases

In February 2016, the FASB issued ASU 2016-02, *Leases* (Topic 842) and additionally in July 2018, the ASU 2018-11, *Leases* (Topic 842) *Targeted Improvements*, which supersedes ASC Topic 840, *Leases*. The new standard increases transparency and comparability by requiring the recognition be lessees of right-of-use ("ROU") assets and lease liabilities on the balance sheet for those leases classified as operating leases. Under the standard, disclosures are required to meet the objective of enabling users of financial statements to assess the amount, timing and uncertainty of cash flows arising from leases.

Accounting Policies

We adopted Topic 842 *Leases* on its effective date in January 1, 2019 and the comparative information has not been adjusted and continues to be reported under ASC Topic 840 *Leases*. As a result, we changed our accounting policy for leases as detailed below.

We implemented the standard using the required modified retrospective approach and have also elected to utilize the package of practical expedients, which permits us to not reassess (1) whether any expired or existing contracts are or contain leases, (2) the lease classification for any expired or existing leases, and (3) any initial direct costs for any existing leases as of the effective date. We also elected the practical expedient to use hindsight in determining the appropriate lease term and in assessing impairment of its right-of-use assets. In using the modified retrospective approach, we are required to recognize and measure leases existing at, or entered into after, the beginning of the earliest comparative period presented.

Adoption of the new standard resulted in the recording of additional net lease assets and lease liabilities of approximately $57.4 million and $57.7 million, respectively as of January 1, 2019. The difference between the additional lease assets and lease liabilities was recorded as a $0.3 million adjustment to retained earnings. The standard did not materially impact our condensed consolidated income statements and had no impact on cash flows.

Nature of Existing Leases

We have operating and finance leases for equipment, cars, machinery, other equipment, office space and buildings. Our leases have remaining lease terms of one year to 10 years, some of which include options to extend or early renew the leases, and some of which include options to early terminate the leases. As of March 31, 2019, no such options have been recognized as part of the right-of-use assets and lease liabilities.

Operating leases can contain variable lease charges based on an index like consumer prices or rates. During the first three months 2019, amounts recorded as variable lease payments not included in the operating lease liability were not material.

As we regularly cannot readily determine the interest rate implicit in the operating lease contracts, we apply our incremental borrowing rate based on information available at the commencement date in determining the present value of lease payments. We use the implicit rate when readily determinable.

Supplemental balance sheet and other information related to leases was as follows:

(in thousands, except lease term and discount rate)	Location in balance sheet	March 31, 2019
Operating lease right-of-use assets	Other long-term assets	$ 56,316
Current operating lease liabilities	Accrued and other current liabilities	$ 18,454
Long-term operating lease liabilities	Other long-term liabilities	$ 38,258
Weighted Average Remaining Lease Term operating leases (in years)		5.69
Weighted Average Discount Rate operating leases		2.39%

The components of lease expense were as follows:

(in thousands)	For the Three Months Ended March 31, 2019
Operating lease cost	$ 5,843

Supplemental cash flow information related to leases was as follows:

(in thousands)	For the Three Months Ended March 31, 2019
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows from operating leases	$ (5,665)
Right-of-use assets obtained in exchange for lease obligations:	
Operating leases	$ 4,324

Maturities of lease liabilities were as follows:

(in thousands)	Operating Leases
2020	$ **19,469**
2021	**14,689**
2022	**10,678**
2023	**7,071**
2024	**4,339**
Thereafter	**3,349**
Total lease payments	**59,595**
Less imputed interest	**(2,883)**
Total	$ **56,712**

We did not hold any material finance leases as of March 31, 2019 or January 1, 2019.

As of March 31, 2019, we have additional operating leases that have not yet commenced, primarily for office and buildings, of $2.1 million. These operating leases will commence during 2019 with lease terms of less than one year up to three years.

15. Earnings per Common Share

We present basic and diluted earnings per share. Basic earnings per share is calculated by dividing the net income by the weighted average number of common shares outstanding. Diluted earnings per share reflect the potential dilution 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, 2019 and 2018 summarizes the information used to compute earnings per common share:

	Three months ended March 31,	
(in thousands, except per share data)	2019	2018
Net income	$ **29,520**	$ 32,295
Weighted average number of common shares used to compute basic net income per common share	**226,170**	226,920
Dilutive effect of stock options and restricted stock units	**4,593**	4,790
Dilutive effect of outstanding warrants	**2,844**	823
Weighted average number of common shares used to compute diluted net income per common share	**233,607**	232,533
Outstanding options and awards having no dilutive effect, not included in above calculation	**225**	271
Outstanding warrants having no dilutive effect, not included in above calculation	**42,346**	34,593
Basic earnings per common share	$ **0.13**	$ 0.14
Diluted earnings per common share	$ **0.13**	$ 0.14

16. Commitments and Contingencies

Contingent Consideration Commitments

Pursuant to the purchase agreements for certain acquisitions including business combinations and asset acquisitions as well as other contractual arrangements, we could be required to make additional contingent cash payments totaling up to $193.2 million based on the achievement of certain revenue and operating results milestones as follows: $20.7 million in 2019, $161.6 million in 2020, $5.9 million in 2023 and $5.0 million, payable in any 12-month period from now until 2028 based on the accomplishment of certain revenue or other milestones, regulatory approvals or clearances. Of the $161.6 million potentially due in 2020, $135.9 million is related to the asset acquisition of assets from Formulatrix, Inc. as discussed further in Note 3 "Acquisitions and Divestitures". The fair value of the contingent obligation at March 31, 2019 is $181.2 million, of which $106.6 million is included in accrued and other current liabilities and $74.6 million is included in other long-term liabilities in the accompanying consolidated balance sheet. This is further discussed in Note 9 "Financial Instruments and Fair Value Measurements".

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. From time to time, we also make other warranties to customers, including warranties that our products are manufactured in accordance with applicable laws and not in violation of third-party rights. We provide for estimated warranty costs at the time of the product sale. We believe our warranty reserves of $3.0 million and 2.8 million as of March 31, 2019 and December 31, 2018, 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. As of March 31, 2019, certain claims, suits or legal proceedings arising out of the normal course of business have been filed or were pending against QIAGEN or our subsidiaries. These matters have arisen in the ordinary course and conduct of business, as well as through acquisition. 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.

Litigation accruals recorded in accrued and other current liabilities totaled $0.6 million as of March 31, 2019 and $6.0 million December 31, 2018. The estimated amount of a range of possible losses as of March 31, 2019, is between $0.3 million and $2.1 million. During the three-month period ended March 31, 2019, payments of $5.4 million related to previous matters were made. 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, thus 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.

17. 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 use as a reduction to treasury shares.

During the three-month period ended March 31, 2019, we granted 1.0 million stock awards compared to 0.8 million stock awards granted for the three-month period ended March 31, 2018.

At March 31, 2019, there was $119.7 million remaining in unrecognized compensation expense, less estimated forfeitures, related to these awards which will be recognized over a weighted-average period of 2.88 years.

Share-Based Compensation Expense

Total share-based compensation expense for the three-month periods ended March 31, 2019 and 2018 is comprised of the following:

	Three months ended March 31,	
Compensation Expense (in thousands)	**2019**	**2018**
Cost of sales	**$ 805**	$ 787
Research and development	**1,144**	1,359
Sales and marketing	**2,196**	2,536
General and administrative, restructuring, integration and other, net	**6,654**	5,424
Share-based compensation expense before taxes	**10,799**	10,106
Less: income tax benefit	**2,168**	2,140
Net share-based compensation expense	**$ 8,631**	$ 7,966

No compensation cost was capitalized at March 31, 2019 or March 31, 2018 as the amounts were not material.

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 in Part 1, Item 3 "Key Information" of our Annual Report on Form 20-F for the year ended December 31, 2018 and under the heading "Risk Factors" below.

Results of Operations

Overview

We are a leading global provider of Sample to Insight solutions to transform biological materials into valuable molecular insights. QIAGEN sample technologies isolate and process DNA, RNA and proteins from any biological sample, such as blood or tissue. Assay technologies make these biomolecules visible and ready for analysis, such as identifying the DNA of a virus or a mutation of a gene. Bioinformatics solutions integrate software and cloud-based resources to interpret increasing volumes of biological data and report relevant, actionable insights. Our automation solutions tie these together in seamless and cost-effective molecular testing workflows.

We sell our products - consumables, automated instrumentation systems using those technologies, and bioinformatics to analyze and interpret the data - to two major customer classes:

- **Molecular Diagnostics** - healthcare providers engaged in many aspects of patient care requiring accurate diagnosis and insights to guide treatment decisions in oncology, infectious diseases and immune monitoring. Includes Precision Medicine and companion diagnostics.
- **Life Sciences** - customers including government, biotechnology companies and researchers who utilize molecular testing and technologies who are generally served by public funding including areas such as medicine and clinical development efforts, forensics and exploring the secrets of life. Includes Pharma, Academia and Applied Testing customers.

We market products in more than 130 countries, mainly through subsidiaries in markets we believe have the greatest sales potential in Europe, Asia, the Americas and Australia. We also work with specialized independent distributors and importers. As of March 31, 2019, we employed approximately 5,100 people in more than 35 locations worldwide.

Advancing our Sample to Insight portfolio

QIAGEN is focused on growth opportunities for its Sample to Insight portfolio across the continuum of molecular testing from Life Sciences research to clinical healthcare using Molecular Diagnostics.

- **Precision Medicine** continued its strong momentum with new companion diagnostic partnerships with pharma companies as well as the U.S. regulatory approval and launch of a **new companion diagnostic** to help guide cancer treatment decisions. The *therascreen*® FGFR RGQ RT-PCR Kit was approved for use in selecting urothelial cancer patients eligible for treatment with the newly approved therapy BALVERSA™ (erdafitinib), developed by Janssen. The *therascreen*® FGFR companion diagnostic was made available under QIAGEN's Day-One Lab Readiness program that includes leading U.S. labs and allowed for testing availability immediately after the FDA approval in April 2019. This is the first FDA-approved companion diagnostic for the FGFR genetic biomarker, and QIAGEN is now commercializing in total five FDA approved molecular companion diagnostics. QIAGEN has more than 25 master collaboration agreements with pharmaceutical and biotech partners to develop and gain regulatory approvals for companion diagnostics based on PCR and NGS technologies.
- The **QuantiFERON-TB** for detection of latent tuberculosis (TB) infections achieved a milestone of 60 million tests administered worldwide, growing by more than 12 million tests annually on the strength of TB guideline expansions and new automation options to enhance the efficiency of screening with the fourth-generation QuantiFERON-TB Gold Plus (QFT-Plus). In March 2019, QIAGEN began offering a second preanalytical processing option for QFT-Plus using the Tecan

Group's liquid handling technologies in addition to the preanalytical automation option with Hamilton Robotics. In late 2018, QIAGEN and DiaSorin launched an automated, CE-marked workflow to provide QFT-Plus readouts with DiaSorin's widely used LIAISON systems for laboratories. Availability of this QFT-Plus readout on LIAISON is planned for 2019 commercialization in the U.S. followed by China in 2020. With QuantiFERON-TB Gold Plus, QIAGEN offers a best-in-class assay known for ease of use and highest clinical standards that can now be fully automated, and in particular embedded within a broad test menu on the LIAISON system.

- **Automation solutions** are enlarging QIAGEN's reach by addressing large market segments, especially in Molecular Diagnostics testing in clinical healthcare, with two disruptive, novel systems which address large market opportunities.
    - Clinical data presented at ECCMID 2019 for **QIAstat-Dx**, a next generation solution for multiplex syndromic testing, showed data which demonstrated that the new meningitis / encephalitis panel for QIAstat-Dx that is in late-stage clinical development, positively detected a panel of central nervous system pathogens with high analytical specificity, spanning the clinically relevant strains and subtypes. This new panel is planned to be launched in late 2019 as the third panel available for QIAstat-Dx in Europe, adding to the current menu with panels for detection of various respiratory and gastrointestinal diseases. As previously announced, QIAGEN anticipates U.S. regulatory approval for QIAstat-Dx in mid-2019 with the respiratory panel, with plans to gain approval for the gastrointestinal panel later in the year. A deep pipeline of additional panels for syndromic conditions is in development.
    - A goal has been set for a total of 11 CE-IVD tests to be offered in Europe by the end of 2019 on the PCR-based **NeuMoDx 288 and 96 systems**. Two new tests - HBV (hepatitis B) and HCV (hepatitis C) - were launched as CE-IVD versions at ECCMID 2019, adding to the current menu of CT / NG (chlamydia and gonorrhea) and GBS (Group B streptococcal infection). Also, the mid-throughput NeuMoDx 98 version is now available in Europe in addition to the high-throughput NeuMoDx 288 launched earlier in 2019. Both systems build on the scalable and proprietary microfluidic NeuMoDx technology and utilize the same consumables and assays. QIAGEN has European distribution rights to these fully integrated molecular testing platforms.
    - Strong placements of the modular **QIAsymphony** automation system were achieved in the first quarter of 2019 in line with the goal of over 2,500 cumulative placements by the end of 2019.
- **Differentiated technologies** for preparing and analyzing the molecular content of biological samples continue to support growth. At the American Association for Cancer Research (AACR) meeting in April, QIAGEN introduced two new workflows for liquid biopsies involving ribonucleic acid (RNA) that provide convenient, less risky alternatives to invasive tissue biopsies. The new exoRNeasy Midi and Maxi Kits were launched to enable isolation of RNA from exosomes and other extracellular vesicles in urine and other body fluids, while the miRNeasy 96 Advanced QIAcube HT Kit was introduced to provide automated purification of total RNA, including miRNA, from serum and plasma samples. QIAGEN also launched new solution bundles at AACR 2019 for all QIAseq and QIAact DNA panels used with NGS technologies, integrating the CLC Genomics Workbench and QIAGEN Clinical Insight-Interpret software with assays for seamless analysis and interpretation of genomic data. More than 30 studies presented at AACR 2019 cited QIAGEN solutions.

Three- Month Period Ended March 31, 2019 compared to Three- Month Period Ended March 31, 2018

Net Sales

In the first quarter of 2019, net sales grew 1.5% to $348.7 million compared to $343.6 million in the first quarter of 2018, and was negatively impacted by 4.6% percentage points from adverse currency movements against the U.S. dollar. We experienced increases across the consumables and related revenues portfolio (+2% / 90% of sales) due in part to sales of the QuantiFERON latent TB test and increased companion diagnostic co-development revenues. Instrument sales (-3% / 10% of sales) were impacted by the reduction of low-margin instrument service contracts compared to the same period in the prior year.

	First quarter 2019		
Net sales by product category and customer class (in millions)	**Sales**	**% change**	**% of sales**
Consumables and related revenues	$313	+2%	90%
Instruments	$36	-3%	10%
Molecular Diagnostics [(1)]	$168	+4%	48%
Life Sciences	$181	-1%	52%
Academia / Applied Testing	*$110*	*-2%*	*32%*
Pharma	*$71*	*+1%*	*20%*

(1) Includes companion diagnostic co-development revenues (Q1 2019: $12 million, +44%)

Molecular Diagnostics advanced at a 4% rate and represented 48% of sales in the first quarter of 2019. Growth was due, in part, to the strength of consumables and related revenues including the QuantiFERON latent TB sales, as well as consumables for the QIAsymphony system which more than offset the impacts of the reduction in instrument service contracts. In the first three months of 2019, Molecular Diagnostics sales were adversely affected by six percentage points from adverse currency movements compared to the same period in the prior year.

During the first quarter of 2019, Life Sciences fell by 1% reflecting in part the April 2018 divestment of the Applied Testing veterinary testing assay portfolio. In the first three months of 2019, Life Sciences sales were adversely affected by four percentage points from adverse currency movements compared to the same period in the prior year.

	First quarter 2019		
Net sales by geographic region (in millions)	**Sales**	**% change**	**% of sales**
Americas	$170	+7%	49%
Europe / Middle East / Africa	$109	-6%	31%
Asia-Pacific / Japan	$69	+2%	20%

Q1 2019: Rest of world represented less than 1% of net sales.

The Americas region led all geographic regions with 7% sales growth in the first quarter of 2019 due to gains in the United States and Brazil more than offsetting weaker trends in Mexico. Both Molecular Diagnostics and Life Sciences saw improved trends in the Americas. The Asia-Pacific / Japan region was led by a strong performance in China and experienced gains in both the underlying customer classes of Pharma and Academia / Applied Testing within Life Sciences while overcoming weaker performance in Australia, India and in South Korea due to tender timing. The EMEA region experienced 6% decline in the first quarter of 2019 with weaker results in Germany and Italy against improved trends in other countries including the United Kingdom, Turkey and some Middle East countries. EMEA was impacted by ten percentage points of adverse currency movements compared to the year ago period.

Gross Profit

Gross profit was $224.8 million (64% of net sales) for the three-month period ended March 31, 2019, as compared to $225.7 million (66% of net sales) in the same period in 2018. Generally, our consumables and related products have a higher gross margin than our instrumentation products and service arrangements. Fluctuations in the sales levels of these products and services can result in fluctuations in gross margin between periods. The slightly lower gross profit in 2019 reflects the net effect of lower material costs following the higher mix of consumables sales, which were offset by higher costs from our most recent acquisitions of StatDX in April 2018 and N-of-One in January 2019 together with the higher amortization expense as further discussed below.

Amortization expense related to developed technology and patent and license rights, which have been acquired in business combinations, is included in cost of sales. In the first quarter of 2019, the amortization expense on acquisition-related intangibles within cost of sales increased to $17.5 million compared to $14.6 million in the same period of 2018. The increase in amortization expense is due to the asset acquisition from Formulatrix as further discussed in Note 3 "Acquisitions and Divestitures" and contributed to the decrease in gross margin during the three-month period ended March 31, 2019. We expect that our acquisition-related intangible amortization will increase as a result of future acquisitions.

Research and Development

Research and development expenses increased by 3% to $40.8 million (12% of net sales) in the first quarter of 2019, compared to $39.5 million (12% of net sales) in the same period in 2018. The increase in research and development costs in 2019 reflects our investments in QIAstat-Dx, the planned launch of a digital PCR system and our life sciences portfolio, together with regulatory activity in support of new products. 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.

Sales and Marketing

Sales and marketing expenses remained steady at $95.9 million (28% of net sales) in the first quarter of 2019 from $96.1 million (28% of net sales) in the same period of 2018. We experienced efficiencies due to a lower cost base following the realignment of marketing activities as part of restructuring projects which were offset by higher personnel costs as well as initiatives for new product launches. Sales and marketing expenses are primarily associated with personnel, commissions, advertising, trade shows, publications, freight and logistics expenses, and other promotional expenses. We anticipate that absolute sales and marketing costs will increase along with new product introductions and growth in sales of our products, but decrease as a percentage of sales.

General and Administrative, Restructuring, Integration and Other, net

General and administrative, restructuring, integration and other costs, net were $37.7 million (11% of net sales) in the first quarter of 2019 as compared to $32.0 million (9% of net sales) in the first quarter of 2018. The increase in the three-month period ended March 31, 2019 compared to the same period of 2018 reflects costs from business integration and acquisition costs and restructuring related costs which were $9.1 million in the first quarter of 2019 as compared to $4.3 million in 2018, reflecting the continued integration of the 2018 and 2019 acquisitions. As we further integrate acquired companies and pursue opportunities to gain efficiencies, we expect to continue to incur additional business integration costs in 2019. Over time, we believe the integration activities will reduce expenses as we improve efficiency in the combined operations.

Acquisition-Related Intangible Amortization

Amortization expense related to developed technology and patent and license rights acquired in a business combination is included in cost of sales. Amortization of trademarks and customer base acquired in a business combination is recorded in operating expense under the caption "acquisition-related intangible amortization." Amortization expenses of intangible assets not acquired in a business combination are recorded within cost of sales, research and development, or sales and marketing based on the use of the asset.

We recorded amortization expense on acquisition-related intangibles within operating expense of $9.3 million during the quarter ended March 31, 2019 compared to $10.2 million for same period in 2018. We expect that our acquisition-related intangible amortization will increase as a result of future acquisitions.

Other (Expense) Income, net

Total other expense was $12.7 million in the three-month period ended March 31, 2019, respectively, compared to $8.8 million in the same period in 2018. Total other expense, net is primarily the result of interest expense, partially offset by interest income and includes the impacts of other income (expense), including impacts of foreign currency transactions.

Interest expense increased to $20.4 million during the quarter ended March 31, 2019 compared to $15.0 million in the same period of 2018. Interest costs primarily relate to debt, discussed in Note 7 "Debt" in the accompanying notes to the condensed consolidated financial statements and the increase in interest expense reflects the issuance of cash convertible notes in November 2018.

For the three-month periods ended March 31, 2019 and 2018, interest income was $8.1 million and $4.7 million, respectively. Interest income primarily includes interest earned on cash and cash equivalents, short term investments, and income related to certain interest rate derivatives as discussed in Note 8 "Derivatives and Hedging" in the accompanying condensed consolidated financial statements. Interest income earned in the first quarter of 2019 includes interest on higher cash balances following the issuance of cash convertible notes in November 2018.

Other expense, net was $0.4 million in the three-month period ended March 31, 2019, respectively, compared to other income, net of $1.5 million in the same period in 2018. Other expense in 2019 primarily reflects the $1.4 million of net losses on foreign currency transactions partially offset by the $0.7 million gain recognized from the receipt of shares in Oncimmune partially as further discussed in Note 5 "Investments". In the three months ended March 31, 2018, we recorded gains on marketable equity securities of $1.8 million, a gain of $0.8 million of upward adjustments resulting from observable price changes for non-marketable investments not accounted for under the equity method and $0.9 million of income from equity method investments, all of which are further discussed in Note 5 "Investments". These gains were partially offset by the $2.2 million net losses on foreign currency transactions recorded in the three-month period ended March 31, 2018.

Provision for Income Taxes

Our effective tax rates differ from The Netherlands statutory tax rate of 25% due in part to our operating subsidiaries being exposed to effective tax rates ranging from zero to more than 34%. Fluctuations in the distribution of pre-tax (loss) income among our operating subsidiaries can lead to fluctuations of the effective tax rate in the consolidated financial statements. In the first quarters of 2019 and 2018, our effective tax rates were (3.7)% and 17.5%, respectively. The effective tax rate for the first quarter of 2019 was lower compared to the first quarter of 2018 primarily due to a reassessment of uncertain tax positions. Additionally, in 2019 and 2018, tax expense on foreign operations was favorably impacted by lower income tax rates and partial tax exemptions on foreign income primarily derived from operations in Germany, Singapore, Luxembourg, Ireland and Switzerland. These foreign tax benefits are due to a combination of favorable tax laws, rules, rulings, and exemptions in these jurisdictions. In particular, we have pre-tax income in Germany which is statutorily exempt from trade tax on intercompany foreign royalty income. Further, we have intercompany financing arrangements through Luxembourg and Ireland in which the intercompany income is partially exempt.

In future periods, our effective tax rate may fluctuate from similar or other factors as discussed in "Changes in tax laws or their application and the termination or reduction of certain government incentives, could adversely impact our overall effective tax rate, results of operations or financial flexibility" in Item 3 Risk Factors of the Annual Report on Form 20-F for the year ended December 31, 2018.

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. As of March 31, 2019 and December 31, 2018, we had cash and cash equivalents of $552.9 million and $1.16 billion, respectively. 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 local working capital needs. At March 31, 2019, cash and cash equivalents had decreased by $606.2 million from December 31, 2018, primarily due to cash used in financing activities of $480.4 million and cash used in investing activities of $170.6 million partially offset by cash provided by operating activities of $44.7 million. As of March 31, 2019 and December 31, 2018, we had working capital of $654.8 million and $1.18 billion, respectively.

Operating Activities. For the three months ended March 31, 2019 and 2018, we generated net cash from operating activities of $44.7 million and $48.2 million, respectively. While net income was $29.5 million for the three months ended March 31, 2019, non-cash components in income included $59.3 million of depreciation and amortization, $12.1 million of amortization of debt discount and issuance costs and $10.8 million of share-based compensation expense. Operating cash flows include a net decrease in working capital of $63.8 million excluding changes in fair values of derivative instruments. The current period change in working capital is primarily due to increased inventories and decrease to accrued and other liabilities and taxes payable. 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. Approximately $170.6 million of cash was used in investing activities during the three months ended March 31, 2019 compared to cash provided by investing activities of $108.5 million for the same period in 2018. Cash used in investing activities during the three months ended March 31, 2019 includes $129.4 million paid for intangible assets primarily related to the asset acquisition from Formulatrix and $24.4 million cash paid for the acquisition of N-of-One, net of cash acquired as both further discussed in Note 3 "Acquisitions and Divestitures" as well as $23.4 million paid for purchases of property, plant and equipment. These activities were partially offset by $5.6 million cash received for collateral assets and $5.2 million from redemptions of short-term investments.

Financing Activities. Financing activities used $480.4 million of cash for the three months ended March 31, 2019, primarily of $433.4 million repayment of long-term debt as further discussed in Note 7 "Debt" and the purchase of treasury shares totaling $44.4 million as further discussed in Note 12 "Equity". This compares to cash used in financing activities of $2.2 million for the three months ended March 31, 2018.

Other Factors Affecting Liquidity and Capital Resources

In November 2018, we issued $500.0 million aggregate principal amount of Cash Convertible Senior Notes which is due in 2024 (2024 Notes). The net proceeds of the 2024 Notes were $470.0 million, after payment of the net cost of the Call Spread Overlay and transaction costs paid through March 31, 2019 as described more fully in Note 7 "Debt". 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 which are due in 2023 (2023 Notes), which are discussed fully in Note 7 "Debt". Interest on the 2023 Notes is payable semiannually in arrears at a rate of 0.500% per annum. The 2023 Notes will mature on September 13, 2023 unless repurchased or converted in accordance with their terms prior to such date.

Additionally in 2017, we completed a German private placement of $329.9 million, net of issuance costs, 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 described in Note 7 "Debt".

In October 2016, we extended the maturity of our €400 million syndicated revolving credit facility, which now has a contractual lifetime until December 2021 of which no amounts were utilized at March 31, 2019. The facility can be utilized in Euro, British pounds sterling, Swiss franc or U.S. dollar and bears interest of 0.40% to 1.20% above three months EURIBOR, or LIBOR in relation to any loan not in euro, and is offered with interest periods of one, two, three or six months. We have additional credit lines totaling €26.6 million with no expiration date, none of which were utilized as of March 31, 2019.

In March 2014, we issued $730.0 million aggregate principal amount of Cash Convertible Senior Notes of which $433.4 million was paid in the three months ended March 31, 2019 and $296.6 million is due in 2021 (2021 Notes). Interest on the 2021 Notes is payable semiannually in arrears on September 19 of each year, at a rate of 0.875% per annum commencing on September 19, 2014. The 2021 Notes will mature on March 19, 2021, unless repurchased or converted in accordance with their terms prior to such date.

In October 2012, we completed a U.S. private placement through the issuance of new senior unsecured notes at a total amount of $400 million with a weighted average interest rate of 3.66% (settled on October 16, 2012). The notes were issued in three series: (1) $73 million 7-year term due in 2019 (3.19%); (2) $300 million 10-year term due in 2022 (3.75%); and (3) $27 million 12-year term due in 2024 (3.90%).

As of March 31, 2019, we carry $1.7 billion of long-term debt, of which $351.2 million is current, and $56.7 million of operating lease liabilities, of which $18.5 million is current. We did not hold any material finance leases as of March 31, 2019.

In connection with certain acquisitions, we could be required to make additional contingent cash payments totaling up to $193.2 million based on the achievement of certain revenue and operating results milestones as further discussed in Note 16 "Commitments and Contingencies"."

In January 2018, we announced our fifth share repurchase program of up to $200 million of our common shares. During the first quarter of 2019, we repurchased 1.2 million QIAGEN shares for $44.4 million (including transaction costs), bringing the total shares repurchased under this program to 4.1 million for $149.1 million (including transaction costs). Repurchased shares will be held in treasury in order to satisfy various obligations, which include employee share-based remuneration plans.

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 our 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 as discussed in Item 11 of our Annual Report on Form 20-F for the year ended December 31, 2018.

Foreign Currency

QIAGEN N.V.'s functional currency is the U.S. dollar and our subsidiaries' functional currencies are generally the local currencies of the respective countries in which they are located. 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 resulted in net losses of $1.4 million in the three-month period ended March 31, 2019 and $2.2 million in the same period ended 2018 are included in other income (expense), net.

Derivatives and Hedging

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 variable rate debt. The principal objective of such derivative instruments is to minimize the risks and/or costs associated with global financial and operating activities. We do not utilize derivative or other financial instruments for trading or speculative purposes. We recognize all derivatives as either assets or liabilities on the balance sheet, 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. In determining fair value, we consider both the counterparty credit risk and our own creditworthiness. To determine our own credit risk, we estimated our own credit rating by benchmarking the price of our outstanding debt to publicly-available comparable data from rated companies. Using the estimated rating, we quantify our credit risk by reference to publicly-traded debt with a corresponding rating.

Foreign Currency Derivatives. 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. We manage our balance sheet exposure on a group-wide basis primarily using foreign exchange forward contracts, options and cross-currency swaps.

Interest Rate Derivatives. We are using interest rate derivatives to align our portfolio of interest bearing assets and liabilities with our risk management objectives. We have entered into interest rate swaps in which we agreed to exchange, at specified intervals, the difference between fixed and floating interest amounts calculated by reference to an agreed-upon notional principal amount.

We also make use of economic hedges. Further details of our derivative and hedging activities can be found in Note 8 "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 Policies, Judgments and 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 policies 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 policies, 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. Our critical accounting policies are those related to revenue recognition, income taxes, investments, goodwill and other intangible assets, acquisitions and fair value measurements.

Our critical accounting policies are discussed further in Item 5 of our Annual Report on Form 20-F for the year ended December 31, 2018. 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, 2019 and December 31, 2018.

Contractual Obligations

There were no material changes at March 31, 2019 from the contractual obligations disclosed in Item 5 of our Annual Report on Form 20-F for the year ended December 31, 2018.

Legal Proceedings

For information on legal proceedings, see Note 16 "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 16, 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 N.V. 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 in Part 1, Item 3 "Key Information" of the Annual Report on Form 20-F for the year ended December 31, 2018. There have been no material changes from the risk factors disclosed in Item 3 of our Form 20-F.