QIAGEN N.V.

2020

20-F ANNUAL REPORT

Sample to Insight

QIAGEN

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

FORM 20-F

☐ REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR (g) OF THE SECURITIES EXCHANGE ACT OF 1934

or

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 For the fiscal year ended December 31, 2020

or

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 For the transition period from to

or

☐ SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 Date of event requiring this shell company report

Commission File Number 001-38332

QIAGEN N.V.
(Exact name of Registrant as specified in its charter)

n/a
(Translation of Registrant's name in English)

The Netherlands
(Jurisdiction of incorporation or organization)

Hulsterweg 82
5912 PL Venlo
The Netherlands
011-31-77-355-6600
(Address of principal executive offices)

Roland Sackers, Tel: 011-31-77-355-6600, Fax: 011-31-77-355-6658

QIAGEN N.V., Hulsterweg 82, 5912 PL Venlo, The Netherlands
(Name, Telephone, E-mail and/or Facsimile number and Address of Company Contact Person)

Securities registered or to be registered pursuant to Section 12(b) of the Act:

Title of class:	Trading Symbol	Name of each exchange on which registered:
Common Shares, par value EUR 0.01 per share	QGEN	New York Stock Exchange

Securities registered or to be registered pursuant to Section 12(g) of the Act:
None

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act:
None

The number of outstanding Common Shares as of December 31, 2020 was 227,985,334.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. ☒ Yes ☐ No

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934. ☐ Yes ☒ No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. ☒ Yes ☐ No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). ☒ Yes ☐ No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or an emerging growth company. See definition of "large accelerated filer," "accelerated filer," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☒ Accelerated filer ☐ Non-accelerated filer ☐ Emerging Growth Company ☐

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards* provided pursuant to Section 13(a) of the Exchange Act. ☐

* The term "new or revised financial accounting standard" refers to any update issued by the Financial Accounting Standards Board to its Accounting Standards Codification after April 5, 2012.

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effective of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

- ☒ U.S. GAAP
- ☐ International Financial Reporting Standards as issued by the International Accounting Standards Board
- ☐ Other

If “Other” has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow: ☐ Item 17 ☐ Item 18

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). ☐ Yes ☒ No

Unless the context otherwise requires, references herein to "we," "us," "our," the "Company" or to "QIAGEN" are to QIAGEN N.V. and its consolidated subsidiaries. Totals within tables presented in U.S. dollar millions may contain rounding differences.

EXCHANGE RATES

QIAGEN publishes its financial statements in U.S. dollars. In this Annual Report on Form 20-F, references to "dollars" or "$" are to U.S. dollars, and references to "EUR" or the "euro" are to the European Monetary Union euro. Except as otherwise stated herein, all monetary amounts in this Annual Report on Form 20-F have been presented in U.S. dollars.

The exchange rate used for the euro was obtained from the European Central Bank and is based on a regular daily concentration procedure between central banks across Europe and worldwide, which normally takes place at 2:15 P.M. Central European Time. This rate at February 26, 2021, was $1.2121 per €1.

For information regarding the effects of currency fluctuations on our results, see Item 5 "Operating and Financial Review and Prospects."

TABLE OF CONTENTS

PART I

PART II

PART III

PART I

Item 1. Identity of Directors, Senior Management and Advisors

Not applicable.

Item 2. Offer Statistics and Expected Timetable

Not applicable.

Item 3. Key Information

QIAGEN N.V. is registered under its commercial and legal name with the trade register (*kamer van koophandel*) of the Dutch region Limburg Noord under file number 12036979. QIAGEN N.V. is incorporated under Dutch law as a public limited liability company (*naamloze vennootschap*) and is organized as a holding company.

The selected consolidated financial data below should be read in conjunction with "Operating and Financial Review and Prospects" and the Consolidated Financial Statements, including the notes and other financial information included in this Annual Report on Form 20-F. The selected financial data below is derived from the consolidated statements of income (loss) for the years ended December 31, 2020, 2019 and 2018 and the consolidated balance sheets at December 31, 2020 and 2019 of QIAGEN that have been audited by an independent registered public accounting firm, and are included in this Annual Report. The selected data from the consolidated statements of income (loss) presented for the years ended December 31, 2017 and 2016, and the consolidated balance sheets as of December 31, 2018, 2017 and 2016, is derived from audited consolidated financial statements not included in this Annual Report.

Selected Financial Data

The information below should be read in conjunction with the Consolidated Financial Statements (and accompanying notes) and "Operating and Financial Review and Prospects."

Consolidated Statements of Income (Loss) Data: (amounts in millions, except per share data)	Years ended December 31,				
	2020	2019	2018	2017	2016
Net sales	**$ 1,870.3**	$ 1,526.4	$ 1,501.8	$ 1,417.5	$ 1,338.0
Cost of sales	**637.6**	521.2	500.9	495.0	493.3
Gross profit	**1,232.7**	1,005.3	1,001.0	922.6	844.7
Operating expenses:					
Research and development	**149.1**	157.4	161.9	154.1	149.8
Sales and marketing	**413.7**	391.9	392.3	375.6	376.3
General and administrative, restructuring, integration, long-lived asset impairments and other	**262.7**	452.1	141.2	200.1	180.6
Acquisition-related intangible amortization	**20.8**	30.0	39.0	39.4	39.1
Total operating expenses	**846.3**	1,031.4	734.4	769.1	745.8
Income (loss) from operations	**386.4**	(26.1)	266.6	153.4	98.8
Other income (expense)	**53.0**	(51.6)	(40.8)	(39.0)	(41.9)
Income (loss) before income taxes	**439.5**	(77.8)	225.7	114.4	56.9
Income taxes	**80.3**	(36.3)	35.4	74.0	(23.4)
Net income (loss)	**359.2**	(41.5)	190.4	40.4	80.3
Net loss attributable to noncontrolling interest	**—**	—	—	—	(0.1)
Net income (loss) attributable to QIAGEN N.V.	**$ 359.2**	$ (41.5)	$ 190.4	$ 40.4	$ 80.4
Basic net income (loss) per common share attributable to the owners of QIAGEN N.V. [(1)]	**$ 1.57**	$ (0.18)	$ 0.84	$ 0.18	$ 0.34
Diluted net income (loss) per common share attributable to the owners of QIAGEN N.V. [(1)]	**$ 1.53**	$ (0.18)	$ 0.82	$ 0.17	$ 0.34
Weighted-average common shares outstanding					
Basic	**228.4**	226.8	226.6	228.1	234.8
Diluted	**234.2**	226.8	233.5	233.0	239.0

(1) See Note 19 "Earnings per Common Share" of the "Notes to Consolidated Financial Statements" for the computation of the weighted average number of Common Shares.

Consolidated Balance Sheet Data: (amounts in millions)	As of December 31,				
	2020	2019	2018	2017	2016
Cash and cash equivalents	**$ 598.0**	$ 623.6	$ 1,159.1	$ 657.7	$ 439.2
Working capital [(1)]	**$ 1,052.2**	$ 618.9	$ 1,182.9	$ 1,323.2	$ 729.1
Total assets	**$ 5,912.5**	$ 5,235.6	$ 5,748.3	$ 5,038.5	$ 4,308.2
Total long-term liabilities, including current portion of long-term debt	**$ 2,542.1**	$ 2,032.9	$ 2,644.4	$ 2,174.1	$ 1,393.7
Total equity	**$ 2,797.8**	$ 2,536.6	$ 2,635.0	$ 2,541.0	$ 2,607.1
Common shares, par value	**$ 2.7**	$ 2.7	$ 2.7	$ 2.7	$ 2.8
Common shares issued	**230.8**	230.8	230.8	230.8	239.7
Common shares outstanding	**228.0**	227.8	225.5	226.6	234.6

(1) Working capital is current assets less current liabilities.

Risk Factors

Risk Management:

Our risk management approach embodies the key elements of a sound risk management system including (1) active Supervisory Board and senior management involvement; (2) adequate policies and procedures; (3) adequate risk management; monitoring and information systems; and (4) comprehensive internal controls.

QIAGEN is managed by a Managing Board and an independent Supervisory Board appointed by the General Meeting of Shareholders. One of the Managing Board's responsibilities is the oversight of the risk management system. The Managing Board has developed and implemented strategies, controls and mitigation measures to identify current and developing risks as part of the risk management system. These policies and procedures are embodied in our corporate governance, code of ethics and financial reporting controls and procedures. A variety of functional experts evaluate these business risks, attempting to mitigate and manage these risks on an ongoing basis.

Identified risks are subdivided into three types:

- A base business risk that is specific to us or our industry and threatens our existing business;
- A business growth risk that is specific to us or our industry and threatens our future business growth; and
- An underlying business risk that is not specific to us or our industry, but applies to a larger number of public companies.

All identified risks are evaluated based on their likelihood of occurring and their potential impact (estimated in monetary terms) in disrupting our progress in achieving our business objectives. The overall risk management goal is to identify risks that could significantly threaten our success and to allow management on a timely basis the opportunity to successfully implement mitigation actions. The results of the risk assessment, and any updates, are reported to the Audit Committee of the Supervisory Board on a regular basis. A detailed risk reporting update is provided each quarter to the Audit Committee for specific risks that have been newly identified or have changed since the previous assessment. At least once on an annual basis, the Supervisory Board discusses the corporate strategy and business risks as well as the results of an assessment by the Managing Board and the Audit Committee of the structure and operations of the internal risk management and control systems, including any significant changes.

Our corporate governance structure is based on a strong framework that outlines the responsibilities of our Managing and Supervisory Boards (discussed in more detail in Item 10 of this Annual Report) and the function of the Audit Committee of the Supervisory Board (discussed in more detail in Item 6 of this Annual Report). We maintain adequate internal controls over financial reporting to ensure the integrity of financial reporting, which is described further in Item 15 of this Annual Report. Additionally, we have a Compliance Committee that consists of senior executives from various functional areas who are responsible for ensuring compliance with legal and regulatory requirements, as well as overseeing the communication of corporate policies, including our Code of Ethics as described further in Item 16B of this Annual Report.

Risk Types	
Base Business Risk	• Identification and monitoring of competitive business threats • Monitoring complexity of product portfolio • Monitoring dependence on key customers for single product groups • Reviewing dependence on individual production sites or suppliers • Evaluating purchasing initiatives, price controls and changes to reimbursements • Monitoring production risks, including contamination prevention, high-quality product assurance • Ensuring ability to defend against intellectual property infringements and maintain competitive advantage after expiration
Business Growth Risk	• Managing development and success of key R&D projects • Managing successful integration of acquisitions to achieve anticipated benefits
Underlying Business Risk	• Evaluating financial risks, including economic risks and currency rate fluctuations • Monitoring financial reporting risks, including multi-jurisdiction tax compliance • Reviewing possible asset impairment events • Assessing compliance and legal risks, including safety in operations and environmental hazard risks, compliance with various regulatory bodies and pending product approvals • Monitoring risks of FCPA (Foreign Corrupt Practices Act) or antitrust concerns arising from a network of subsidiaries and distributors in foreign countries

The risks described below are listed in the order of our current view of their expected significance. Describing the risk factors in order of significance does not imply that a lower listed risk factor may not have a material adverse impact on our results of operations, liquidity or capital resources.

Our continued growth is dependent on the development and success of new products.

Rapid technological change and frequent new product introductions are typical in the markets we serve. Our success will depend in part on continuous, timely development and introduction of new products that address evolving market requirements, for example products in response to SARS-CoV-2. We believe successful new product introductions provide a significant competitive advantage because customers make an investment of time in selecting and learning to use a new product and are reluctant to switch after these efforts. To the extent that we fail to introduce new and innovative products, or such products suffer significant delays in development or are not accepted in the market, we may lose market share to our competitors that would be difficult or impossible to regain. An inability to successfully develop and introduce new products, for technological or other reasons, could reduce our growth rate or otherwise have an adverse effect on our business. In the past, we have experienced delays in the development and introduction of products, including regulatory approvals, or decisions to stop development of projects, and we may experience delays or make decisions to stop certain products in the future.

As a result, we cannot assure you that we will keep pace with the rapid rate of change in our markets or that our new products will adequately meet the requirements of the marketplace, achieve market acceptance or regulatory approval, or compete successfully with companies offering similar or new technologies. Some of the factors affecting market acceptance of new products include:

- availability, quality and price relative to existing competitor products;
- the timing of introduction of the new product relative to competitive products;
- opinions of the new product's utility;
- citation of the new product in published research;
- regulatory trends and approvals; and
- general trends in life sciences research, applied markets and molecular diagnostics.

In the development of new products we may make significant investments in intellectual property, software solutions and manufacturing capacity. These investments increase our fixed costs, resulting in higher operational costs in the short term that will negatively impact our gross profit and operating income until products potentially reach a minimum level of market acceptance. The expenses or losses associated with unsuccessful product development activities or lack of market acceptance of our new products could materially adversely affect our business, financial condition and results of operations.

Our continued growth depends significantly on the success of new products in the molecular testing markets we serve and our ability to scale manufacturing capacities to meet customer demands. Important product programs include our modular medium-throughput QIAsymphony automation platform, QIAstat-Dx system for one-step, fully integrated molecular analysis of hard-to-diagnose syndromes, the high-throughput NeuMoDx 288 and mid-throughput NeuMoDx 96 fully integrated PCR automation systems, sample and assay technologies designed for use with QIAGEN instruments or with "universal" automation systems and instruments, and bioinformatics solutions to analyze and interpret complex genomic data. In addition, in 2020 we launched the QIAcuity digital PCR series of platforms with fully-integrated solutions that simplify digital PCR workflows.

The speed and level of adoption of our new automation platforms will affect sales not only of instrumentation but also of consumables – sample and assay kits – designed to run on the systems. The rollouts of new automation platforms are intended to drive the dissemination and increasing sales of consumables for these systems. We are developing or co-developing new kits for each of these platforms and seeking regulatory approvals for a number of these new products. In turn, the availability and regulatory approval of more tests for processing on QIAsymphony, QIAstat-Dx and NeuMoDx systems, especially molecular assays for specific diseases or companion diagnostics paired with new drugs, will influence the value of the instruments to prospective buyers. Slower adoption of QIAsymphony, including the complete QIAsymphony RGQ system, the QIAstat-Dx, NeuMoDx and QIAcuity systems, could significantly affect sales of products designed to run on these platforms.

An inability to manage our growth, manage the expansion of our operations, or successfully integrate acquired businesses could adversely affect our business.

Our business has grown in recent years, with total net sales increasing to $1.87 billion in 2020 from $1.34 billion in 2016. We have made a series of acquisitions in recent years, including the acquisitions of NeuMoDx Molecular, Inc. in 2020, N-of-One in January 2019, STAT-Dx Life, S.L. in 2018, and OmicSoft Corporation in 2017, to complement internal research and development activities. We intend to identify and acquire other businesses in the future that support our strategy to build on our global leadership position in Sample to Insight solutions focused on molecular testing. The successful integration of acquired businesses requires a significant effort and expense across all operational areas.

We continue to make investments to expand our existing business operations. These projects increase our fixed costs, resulting in higher operational costs in the short term that will negatively impact our gross profit and operating income until we more fully utilize the additional capacity of these facilities. In addition, we have invested in establishing and expanding shared service centers in Poland and the Philippines, opening new commercial operations in emerging markets to expand our

geographic footprint, and implementing digitization of business processes to increase sales growth while also enhancing operational efficiencies. The expansion of our business and the addition of new personnel may place a strain on our management and operational systems. As we continue to upgrade our operating and financial systems, as well as expand the geographic presence of our operations, we intend to continue to assess the need to reallocate existing resources or hire new employees, as well as increase responsibilities for both existing and new management personnel.

Our future operating results will depend on our ability to continue to implement and improve our research, product development, manufacturing, sales and marketing and customer support programs, enhance our operational and financial control systems, expand, train and manage our employee base, integrate acquired businesses, and effectively address new issues related to our growth as they arise. There can be no assurance that we will be able to manage our recent or any future expansion or acquisitions successfully, and any inability to do so could have a material adverse effect on our results of operations.

Our acquisitions expose us to new risks, and we may not achieve the anticipated benefits of acquisitions of technologies and businesses.

During the past several years, we have acquired and integrated a number of companies through which we have gained access to new technologies, products and businesses that complement our internally developed product lines. In the future, we expect to acquire additional technologies, products or businesses to expand our operations. Acquisitions expose us to new operating and financial risks, including risks associated with the:

- assimilation of new products, technologies, operations, sites and personnel;
- integration and retention of fundamental personnel and technical expertise;
- application for and achievement of regulatory approvals or other clearances;
- diversion of resources from our existing products, business and technologies;
- generation of sales;
- implementation and maintenance of uniform standards and effective controls and procedures;
- exposure to cyber security risks or compromise of acquired entities;
- maintenance of relationships with employees, customers and suppliers, and integration of new management personnel;
- issuance of dilutive equity securities;
- incurrence or assumption of debt and contingent liabilities;
- amortization or impairment of acquired intangible assets or potential businesses; and
- exposure to liabilities of and claims against acquired entities or personnel, including patent litigation.

Our failure to address the above risks successfully in the future may prevent us from achieving the anticipated benefits from any acquisition in a reasonable time frame, or at all.

Global economic conditions could adversely affect our business, results of operations and financial condition.

Our results of operations could be materially affected by adverse general conditions in the global economy and financial markets. Potentially adverse changes that may come from the United Kingdom's exit from the European Union ("Brexit") are not fully understood, as the actual impact from Brexit will depend on many factors, including the ability of both the United Kingdom and European Union authorities to provide a path forward with minimal disruption. In the near term we anticipate the largest potential exposures to be on supply chain with our United Kingdom-based suppliers and the local operations for our domestic United Kingdom business and pharma development activities. There also is a risk of loss of revenue, penalties due to delayed deliveries and currency losses, or other unforeseen costs which would negatively impact margins.

During challenging economic times, access to financing in the global financial markets has also been adversely affected for many businesses. The uncertainty surrounding the resolution of the economic and sovereign debt crisis in Europe continues to have a negative impact on financial markets and economic conditions more generally. Our customers may face internal financing pressures that adversely impact spending decisions or the ability to purchase our products, or that lead to a delay in collection of receivables and thus negatively impact our cash flow. A severe or prolonged economic downturn could result in a variety of risks to our business that would adversely impact our results of operations, including the reduction or delay in planned improvements to healthcare systems in various countries, the reduction of funding for life sciences research, and intensified efforts by governments and healthcare payors regarding cost-containment efforts.

Our results of operations could also be negatively impacted by any governmental actions or inaction resulting in automatic government spending cuts (sequestration) that may take effect, particularly in terms of federal government funding in the United States. These conditions may add uncertainty to the timing and budget for investment decisions by our customers, particularly researchers, universities, government laboratories and private foundations whose funding is dependent upon grants from government agencies, such as the U.S. National Institutes of Health (NIH) and similar bodies.

As is the case for many businesses, we face the following risks in regard to financial markets:

- severely limited access to financing over an extended period of time, which may affect our ability to fund our growth strategy and could result in delays to capital expenditures, acquisitions or research and development projects;
- failures of currently solvent financial institutions, which may cause losses from our short-term cash investments or our hedging transactions due to a counterparty's inability to fulfill its payment obligations;
- inability to refinance existing debt at competitive rates, reasonable terms or sufficient amounts; and
- increased volatility or adverse movements in foreign currency exchange rates.

Our global operations may be affected by actions of governments, global or regional economic or public health developments, weather or transportation delays, natural disasters or other force majeure events (collectively, unforeseen events) which may negatively impact our suppliers, our customers or us.

Our business involves operations around the world. Our primary consumable manufacturing facilities are located in Germany, the U.S. and China. We have established sales subsidiaries in numerous countries and our products are sold through independent distributors serving more than 40 additional countries. Our global footprint exposes us to unforeseen events, such as the December 2019 outbreak of the novel coronavirus (COVID-19) and the resulting global pandemic. Our facilities may be harmed by unforeseen events, and in the event that we or our customers are affected by a disaster, we may experience delays or reductions in sales or production, increased costs, or we may be required to identify alternate suppliers and/or rely on third-party manufacturers.

To the extent that our suppliers are impacted by a natural disaster or other disruption, we may experience periods of reduced production. Any unexpected interruptions in our production capabilities may lead to delayed or lost sales and may adversely affect our results of operations for the affected period.

In addition, to the extent we temporarily shut down any facility following such an unforeseen event, we may experience disruptions in our ability to manufacture or ship products to customers or otherwise operate our business. Many of our products are manufactured in a single location and we may experience adverse effects to the extent these manufacturing operations are disrupted. While our global operations give us the ability to ship product from alternative sites, we may not be able to do so because our customers' facilities are shut down or the local logistics infrastructure is not functioning, and our sales will suffer.

Damage to our property due to unforeseen events and the disruption of our business may be covered by insurance, but this insurance may not be sufficient to cover all of our potential losses, and such insurance may not continue to be available to us on acceptable terms, or at all. In addition, we may incur incremental costs following an unforeseen event, which will reduce profits and adversely affect our results of operations.

We depend on suppliers for materials used to manufacture our products, and if shipments from these suppliers are delayed or interrupted, we may be unable to manufacture our products.

We buy materials to create our products from a number of suppliers and are not dependent on any one supplier or group of suppliers for our business as a whole. However, key components of certain products, including certain instrumentation and chemicals, are available only from a single source. If supplies from these vendors are delayed or interrupted for any reason, we may not be able to obtain these materials in a timely manner or in sufficient quantities or qualities to produce certain products, and this could have an adverse impact on our results of operations.

We rely heavily on air cargo carriers and other overnight logistics services, and shipping delays or interruptions could harm our business.

Our customers in the scientific research markets typically keep only a modest inventory of our products on hand, and consequently require overnight delivery of purchases. As a result, we rely heavily on air cargo carriers and logistic suppliers. If overnight services are suspended or delayed, and other delivery carriers and logistic suppliers cannot provide satisfactory services, customers may suspend a significant amount of their work. The lack of adequate delivery alternatives would have a serious adverse impact on our results of operations.

Changes in tax laws or their application or the termination or reduction of certain government tax incentives, could adversely impact our overall effective tax rate, results of operations or financial flexibility.

Our effective tax rate reflects the benefit of some income being partially exempt from income taxes due to various intercompany operating and financing activities. The benefit also derives from our global operations, where income or loss in some jurisdictions is taxed at rates higher or lower than The Netherlands' statutory rate of 25%. Changes in tax laws or their application with respect to matters such as changes in tax rates, transfer pricing and income allocation, utilization of tax loss carryforwards, intercompany dividends, controlled corporations, and limitations on the deductibility of interest and foreign related-party expenses, and changes to tax credit mechanisms, could increase our effective tax rate and adversely affect our

results of operations and limit our ability to repurchase our Common Shares without experiencing adverse tax consequences. The increased tax burden as a result of changes in law may adversely affect our results of operations. Additionally, if our tax positions are challenged by tax authorities or other governmental bodies, such as the European Commission, we could incur additional tax liabilities, which could have an adverse effect on our results of operations, financial flexibility or cash flow.

We rely on secure communication and information systems and are subject to privacy and data security laws which, in the event of a disruption, breach, violation or failure, could adversely affect our business.

We rely heavily on communications and information systems to conduct our business. In the ordinary course of business, we collect and store sensitive data, including our own intellectual property and other proprietary business information and that of our customers, suppliers and business partners, as well as personally identifiable information of our customers and employees, in our data centers and on our networks or in the cloud. Our operations rely on the secure processing, storage and transmission of confidential and other information on both our own, or cloud-based, computer systems and networks. We have made significant investments to ensure our employees are aware of cyber security risks facing our company and how to prevent data breaches. We have modernized our cyber security tools, and are continually modernizing our cyber security processes, in an attempt to keep pace with evolving cyber security risks. In spite of our efforts, we are unable to completely eliminate these risks and occasionally experience minor cyber security incidents. External phishing emails (occurring outside of our computer services) are a growing threat our customers are facing. These emails could lead to the disclosing of intellectual property or personally identifiable information, which could lead to financial harm or reputational damage. While our cyber security team works diligently with our employees around the world, as well as with our customers, to mitigate these threats by helping to identify and analyze phishing emails, we cannot guarantee that sensitive data will not be lost or stolen.

A breach in cyber security due to unauthorized access to our computer systems or misuse could include the misappropriation of assets or sensitive information, the corruption data or other operational disruption. Failures to our computer systems and networks could be caused by internal or external events, such as incursions by intruders or hackers, computer viruses, failures in hardware or software, or cyber terrorists. If we do experience a breach or failure of our systems, we could experience potentially significant operational delays resulting from the disruption of systems, loss due to theft or misappropriation of assets or data, or negative impacts from the loss of confidential data or intellectual property. We may face significant liability in the event personal information we maintain is lost or otherwise subject to misuse or other wrongful use, access or disclosure. Further, we could experience negative publicity resulting in reputation or brand damage with customers or partners.

Additionally, we are subject to privacy and data security laws across multiple jurisdictions, including those relating to the storage of health information, which are complex, overlapping and rapidly evolving. In the U.S., individual states regulate requirements and have authority over privacy and personal data protection. For example, the California Consumer Privacy Act of 2018, which took effect on January 1, 2020, imposes expansive new requirements and protections upon the processing of personal data, aimed at giving California consumers more visibility into and control over their personal information There are also European privacy laws, such as the General Data Protection Regulation (GDPR) of the European Union, that impose restrictions on the transfer, access, use and disclosure of health and other personal information. We have implemented the requirements set forth by the GDPR, which took effect on May 25, 2018. As our activities continue to evolve and expand, we may be subject to additional laws that impose further restrictions on the transfer, access, use and disclosure of health and other personal information, which may impact our business either directly or indirectly. A failure to comply with applicable privacy or security laws or significant changes in these laws could subject us to costly regulatory action or lawsuits and could adversely impact our reputation, business and future business plans. For example, we may be subject to regulatory action or lawsuits in the event we fail to comply with applicable privacy laws.

We may encounter delays in receipt, or limits in the amount, of reimbursement approvals and public health funding, which may impact our ability to grow revenues in the healthcare market or negatively impact our profitability.

Changes in the availability or reimbursement of our diagnostic testing products by insurance providers and health maintenance organizations could also have a significant adverse impact on our results of operations. Third-party payors are often reluctant to reimburse healthcare providers for the use of medical tests that involve new technologies or provide novel diagnostic information. In addition, third-party payors are increasingly limiting reimbursement coverage for medical diagnostic products and, in many instances, are exerting pressure on suppliers to reduce their prices. Since each third-party payor often makes reimbursement decisions on an individual patient basis, obtaining such approvals is a time-consuming and costly process that requires us to provide scientific and clinical data supporting the clinical benefits of each of our products. As a result, there can be no assurance that reimbursement approvals will be obtained, and the process can delay the broad market introduction of new products. If third-party reimbursement is not consistent or financially adequate to cover the cost of our products, this could limit our ability to sell our products or cause us to reduce prices, which would adversely affect our results of operations.

Further, the ability of many of our customers to successfully market their products depends in part on the extent to which reimbursement for the costs of these products is available from governmental health administrations, private health insurers and other organizations. Governmental and other third-party payors are increasingly seeking to contain healthcare costs and to reduce the price of medical products and services. With evolving political realities in the United States, certain sections of the

Patient Protection and Affordable Care Act of 2010 (ACA) have not been fully implemented and the direction of healthcare policy is unpredictable. Uncertainty around the future of the ACA, and in particular the impact to reimbursement levels, may lead to uncertainty or delay in the purchasing decisions of our customers, which may in turn negatively impact our product sales. In accordance with the Protecting Access to Medicare Act of 2014 (PAMA), the Centers for Medicare & Medicaid Services calculate Medicare reimbursement rates for certain clinical diagnostic tests using weighted median private payor rates, which are based on rate information reported by applicable laboratories. This new rate methodology means the lower reimbursement rates previously experienced in the field of molecular pathology testing now extend to additional diagnostic testing codes on the Clinical Laboratory Fee Schedule (CLFS). If there are not adequate reimbursement levels, our business and results of operations could be adversely affected.

Reduction in research and development budgets and government funding may result in reduced sales.

Our customers include researchers at pharmaceutical and biotechnology companies, academic institutions, and government and private laboratories. Fluctuations in the research and development budgets of these organizations could have a significant adverse effect on demand for our products. Research and development budgets are affected by changes in available resources, the mergers of pharmaceutical and biotechnology companies, changes in spending priorities and institutional budgetary policies. Our results of operations could be adversely affected by any significant decrease in expenditures for life sciences research and development by pharmaceutical and biotechnology companies, academic institutions, and government and private laboratories. In addition, short-term changes in administrative, regulatory or purchasing-related procedures can create uncertainties or other impediments that can have an adverse impact on our results of operations.

In recent years, the pharmaceutical and biotechnology industries have undergone substantial restructuring and consolidation. Additional mergers or consolidation within the pharmaceutical and biotechnology industries could cause us to lose existing customers and potential future customers, which could have a material adverse impact on our results of operations.

Approximately 26% of our sales are generated by demand for use of our products at universities, government laboratories and private foundations, whose funding is dependent on grants from government agencies, such as the NIH (National Institutes of Health) in the United States. Although the level of research funding has been increasing in recent years, we cannot ensure that this trend will continue given federal and state budget constraints. Government funding of research and development is subject to the political process, which is inherently unpredictable. Future sales may be adversely affected if our customers delay purchases as a result of uncertainties regarding the approval of government or industrial budget proposals. Also, government proposals to reduce or eliminate budgetary deficits have sometimes included reduced allocations to the NIH and government agencies in other countries that fund life sciences research and development activities. A reduction in government funding for the NIH or government research agencies in other countries could have a serious adverse impact on our results of operations.

Competition could reduce our sales.

The markets for most of our products are very competitive. Competitors may have significant advantages in financial, operational, sales and marketing resources as well as experience in research and development. These competitors may have developed, or could develop in the future, new technologies that compete with our products or even render our products obsolete. Some competitors may obtain regulatory approval from the FDA or similar non-U.S. authorities and market-approved products. Our competitors' development of alternative products offering superior technology, greater cost-effectiveness or regulatory approval could have a material adverse effect on our sales and results of operations.

The growth of our business depends in part on the continued conversion of users from competitive products to our sample and assay technologies and other solutions. Lack of conversion could have a material adverse effect on our sales and results of operations.

It can be difficult for users of our products to switch from their current supplier of a particular product, primarily due to the time and expense required to properly integrate new products into their operations. As a result, if we are unable to be the first to develop and supply new products, our competitive position may suffer, resulting in a material adverse effect on our sales and results of operations.

For our commercial clinical assays, we often compete with solutions developed by our laboratory customers, and driving conversion from such laboratory-developed tests (LDTs) to commercial diagnostics assays can be challenging.

The time and expense needed to obtain regulatory approval and respond to changes in regulatory requirements could adversely affect our ability to commercially distribute our products and generate sales.

We and our customers operate in a highly regulated environment characterized by frequent changes in the governing regulatory framework. Genetic research activities and products commonly referred to as "genetically engineered" (such as certain food and therapeutic products) are subject to extensive governmental regulation in most developed countries, especially in the major markets for pharmaceutical and diagnostic products such as the European Union, the U.S., China and Japan. In recent years, several highly publicized scientific events (notably in genomic research, gene editing and cloning)

have prompted intense public debates on the ethical, philosophical and religious implications of an unlimited expansion in genetic research and the use of products emerging from this research. As a result of this debate, some key countries may increase or establish regulatory barriers, which could adversely affect demand for our products and prevent us from fulfilling our growth expectations. Furthermore, there can be no assurance that any future changes in applicable regulations will not require further expenditures or an alteration, suspension or liquidation of our operations in certain areas, or even in their entirety.

Changes in the existing regulations or adoption of new requirements or policies could adversely affect our ability to sell our approved or cleared products or to seek approvals for new products in other countries around the world. Sales of certain products now in development may be dependent upon us successfully conducting pre-clinical studies, clinical trials and other tasks required to gain regulatory approvals and meet other requirements from the FDA in the U.S. and regulatory agencies in other countries. If we are not able to meet the applicable requirements, we will not be able to commercialize our products and tests, which will have a material adverse effect on our business.

Several of our key products and programs are medical devices that are subject to extensive regulation by the FDA under the U.S. Food, Drug and Cosmetic Act. We plan to apply for FDA clearance or approval of additional products in the future. Regulatory agencies in other countries also have medical device and IVD approval requirements that are becoming more extensive. These regulations govern most commercial activities associated with medical devices, including indications for the use of these products as well as other aspects that include product development, testing, manufacturing, labeling, storage, record-keeping, advertising and promotion. Compliance with these regulations is expensive and time-consuming.

Our cleared or approved devices, including diagnostic tests and related equipment, are subject to numerous post-approval requirements. We are subject to inspection and marketing surveillance by the FDA to determine our compliance with regulatory requirements. If the FDA determines that we have failed to comply, it can institute a wide variety of enforcement actions, ranging from warning letters to more severe sanctions such as fines, injunctions and civil penalties, recalls or seizures of our products, operating restrictions, partial suspension or total shutdown of production, denial of our requests for 510(k) clearance or pre-market approval of product candidates, withdrawal of 510(k) clearance or pre-market approval already granted and civil or criminal prosecution. Any enforcement action by the FDA may affect our ability to commercially distribute these products in the U.S.

Some of our products are sold for research purposes in the U.S. We do not promote these products for clinical diagnostic use, and they are labeled “For Research Use Only” (RUO) or “for molecular biology applications.” If the FDA were to disagree with our designation of a product as having RUO status, we could be forced to stop selling it until appropriate regulatory clearance or approval has been obtained.

We are subject to risks associated with patent litigation.

The biotechnology industry has been characterized by extensive litigation regarding patents and other intellectual property rights, particularly since industry competitors gravitate around common technology platforms. We are aware that patents have been applied for and/or issued to third parties claiming technologies for sample and assay technologies that are closely related to those we use. From time to time, we receive inquiries requesting confirmation that we do not infringe patents of third parties. We endeavor to follow developments in this field, and we do not believe that our technologies or products infringe any proprietary rights of third parties. However, there can be no assurance that third parties will not challenge our activities or, if so challenged, that we will prevail. In addition, the patent and proprietary rights of others could require that we alter our products or processes, pay licensing fees or cease certain activities, and there can be no assurance that we will be able to license any technologies that we may require on acceptable terms. In addition, litigation, including proceedings that may be declared by the U.S. Patent and Trademark Office or the International Trade Commission, may be necessary to respond to any assertions of infringement, enforce our patent rights and/or determine the scope and validity of our proprietary rights or those of third parties. Litigation, or threatened litigation, could involve substantial cost, and there can be no assurance that we would prevail in any proceedings.

We rely on collaborative commercial relationships to develop and/or market some of our products.

Our long-term business strategy involves entering into strategic alliances as well as marketing and distribution arrangements with academic, corporate and other partners relating to the development, commercialization, marketing and distribution of certain of our existing and potential products. We may be unable to continue to negotiate these collaborative arrangements on acceptable terms, and these relationships also may not be scientifically or commercially successful. In addition, we may be unable to maintain these relationships, and our collaborative partners may pursue or develop competing products or technologies, either on their own or in collaboration with others.

Our Precision Medicine business includes projects with pharmaceutical and biotechnology companies to co-develop companion diagnostics paired with drugs that those companies either market currently or are developing for future use. The success of these co-development programs, including regulatory approvals for the companion diagnostics, depends upon the continued

commitment of our partners to the development of their drugs, the outcome of clinical trials for the drugs and diagnostics, and regulatory approvals of the tests and drugs. In addition, the future level of sales for companion diagnostics depends to a high degree on the commercial success of the related medicines for which the tests have been designed. More companion diagnostics would be sold in combination with a widely prescribed drug than one with limited use.

The successful marketing of QIAGEN products, in some cases, depends on commercial relationships such as joint ventures or distributorships, particularly in emerging markets where we partner with local companies to augment our less-established commercial relationships and infrastructure. The continued commitment of our partners to these ventures, as well as the management of the commercial efforts, could influence QIAGEN's sales and profitability in these markets.

We have made investments in and are expanding our business into emerging markets, which exposes us to risks.

Our top seven emerging markets are Brazil, China, India, South Korea, Mexico, Russia and Turkey, which together accounted for approximately 15% of total sales in 2020. We expect to continue to focus on expanding our business in these or other fast-growing markets, including those in the Middle East and Asia. In addition to the currency and operating risks described above, our international operations are subject to a variety of risks arising from the economy, political outlook, language and cultural barriers in countries where we have operations or do business. In many of these emerging markets, we may face several risks that are more significant than in other countries in which we have a history of doing business. These risks include economies that may be dependent on only a few products and are therefore subject to significant fluctuations, weak legal systems that may affect our ability to enforce contractual rights, exchange controls, unstable governments, and privatization or other government actions affecting the flow of goods and currency. In conducting our business, we move products from one country to another and may provide services in one country from a subsidiary located in another country. Accordingly, we are vulnerable to abrupt changes in customs and tax regimes that could have significant negative impacts on our results of operations.

Some of our customers are requiring us to change our sales arrangements to lower their costs, and this may limit our pricing flexibility and harm our business.

Some of our customers have developed purchasing initiatives to reduce the number of vendors from which they purchase products in order to lower their supply costs. In some cases, these customers have established agreements with large distributors, which include discounts and direct involvement in the distributor’s purchasing process. These activities may force us to supply large distributors with our products at discounts in order to continue providing products to some customers. For similar reasons, many larger customers, including the U.S. government, have requested, and may request in the future, special pricing arrangements, which can include blanket purchase agreements. These agreements may limit our pricing flexibility, which could harm our business and affect our results of operations. For a limited number of customers, and at the customers' request, we have conducted sales transactions through distribution and other value-added partners. If sales grow through these intermediaries, this could adversely impact our results of operations, in particular our gross profit.

Exchange rate fluctuations may adversely affect our business and operating results.

Given that we currently market our products throughout the world, a significant portion of our business is conducted in currencies other than the U.S. dollar, our reporting currency. As a result, fluctuations in value relative to the U.S. dollar of the currencies in which we conduct our business have caused and will continue to cause foreign currency transaction gains and losses. Foreign currency transaction gains and losses arising from normal business operations are charged against earnings in the period when incurred. Due to the number of currencies involved, the variability of currency exposures and the potential volatility of currency exchange rates, we cannot predict the effects of future exchange rate fluctuations. While we may engage in foreign exchange hedging transactions to manage our foreign currency exposure, there can be no assurance that our hedging strategy will adequately protect our operating results from the effects of future exchange rate fluctuations.

Our success depends on the continued employment of qualified personnel, any of whom we may lose at any time.

Although we have not experienced any difficulties attracting or retaining management and scientific staff, our ability to recruit and retain qualified, skilled employees will continue to be critical to our success. Given the intense competition for experienced scientists and managers among pharmaceutical and biotechnology companies, as well as academic and other research institutions, there can be no assurance that we will be able to attract and retain employees critical to our success on acceptable terms. Initiatives to expand QIAGEN will also require additional employees, including management with expertise in areas such as research and development, manufacturing, digitization, sales and marketing, and the development of existing managers to lead a growing organization. The failure to recruit and retain qualified employees, or develop existing employees, could have a material adverse impact on our results of operations.

Our ability to accurately forecast our results during each quarter may be negatively impacted by the fact that a substantial percentage of our sales may be recorded in the final weeks or days of the quarter.

In the markets we serve, a high percentage of purchase orders are typically received in the final few weeks or days of each quarter. Although this varies from quarter to quarter, many customers make a large portion of their purchase decisions late in

each quarter, in particular because they receive new information during this period on their budgets and requirements. Additionally, volatility in the timing of revenue from companion diagnostic partnerships can be difficult to predict. As a result, even late in each quarter, we cannot predict with certainty whether our sales forecasts for the quarter will be achieved.

Historically, we have been able to rely on the overall pattern of customer purchase orders during prior periods to project with reasonable accuracy our anticipated sales for the current or coming quarters. However, if customer purchasing trends during a quarter vary from historical patterns, as may occur with changes in market and economic conditions, our quarterly financial results could deviate significantly from our projections. As a result, our sales forecasts for any given quarter may prove not to be accurate. We also may not have sufficient, timely information to confirm or revise our sales projections for a specific quarter. If we fail to achieve our forecasted sales for a particular quarter, the value of our Common Shares could be significantly affected.

We have a significant amount of debt that may adversely affect our financial condition and flexibility.

We have a significant amount of debt and debt service obligations and restrictive covenants imposed by our lenders. A high level of indebtedness increases the risk that we may default on our debt obligations, and restrictive covenants may prevent us from borrowing additional funds. There is no assurance that we will be able to generate sufficient cash flow to pay the interest on our debt and comply with our debt covenants or that future working capital, borrowings or equity financing will be available to repay or refinance our debt. If we are unable to generate sufficient cash flow to pay the interest on our debt and comply with our debt covenants, we may have to delay or curtail our research and development programs. The level of our indebtedness could, among other things:

- make it difficult for us to make required payments on our debt;
- make it difficult for us to obtain financing in the future necessary for working capital, capital expenditures, debt service requirements or other purposes;
- limit our flexibility in planning for, or reacting to, changes in our business and the industry in which we compete; and
- make us more vulnerable in the event of a downturn in our business.

The Financial Conduct Authority of the United Kingdom plans to phase out the London Interbank Offered Rate (LIBOR) by the end of 2021. Presently, we do hold debt and derivative instruments that use LIBOR. While certain agreements do contain language for the determination of interest rates in the event the LIBOR rate is not available, changes to these agreements may be required, and we could be negatively impacted by any newly determined alternative benchmark.

Our business may require substantial additional capital, which we may not be able to obtain on terms acceptable to us, if at all.

Our future capital requirements and level of expenses will depend on numerous factors, including the costs associated with:

- marketing, sales and customer support efforts;
- research and development activities;
- expansion of our facilities;
- consummation of possible future acquisitions of technologies, products or businesses;
- demand for our products and services;
- repayment or refinancing of debt; and
- payments in connection with our hedging activities and/or taxes.

We currently anticipate that our short-term capital requirements will be satisfied by cash flow from our operations and/or cash on hand. As of December 31, 2020, we had outstanding long-term debt of $1.9 billion, of which $42.5 million was current. We may need to refinance these liabilities.

If at some point in time our existing resources should be insufficient to fund our activities, we may need to raise funds through public or private debt or equity financings. The funds for the refinancing of existing liabilities or for the ongoing funding of our business may not be available or, if available, not on terms acceptable to us. If adequate funds are not available, we may be required to reduce or delay expenditures for research and development, production, marketing, capital expenditures and/or acquisitions, which could have a material adverse effect on our business and results of operations. To the extent that additional capital is raised through the sale of equity or convertible securities, the issuance of any securities could result in dilution to our shareholders.

The accounting for the cash convertible notes we have issued will result in recognition of interest expense significantly greater than the stated interest rate of the notes and may result in volatility to our Consolidated Statements of Income (Loss).

We will settle any conversions of the Cash Convertible Notes described under the heading “Other Factors Affecting Liquidity and Capital Resources” elsewhere in this report, entirely in cash. Accordingly, the conversion option that is part of the Cash Convertible Notes will be accounted for as a derivative pursuant to accounting standards relating to derivative instruments and hedging activities. Refer to Note 14 "Derivatives and Hedging" and Note 16 "Debt", of the Notes to Consolidated Financial Statements. In general, this resulted in an initial valuation of the conversion option separate from the debt component of the Cash Convertible Notes, resulting in an original issue discount. The original issue discount will be accreted to interest expense over the term of the Cash Convertible Notes, which will result in an effective interest rate reported in our financial statements significantly in excess of the stated coupon rates of the Cash Convertible Notes. This accounting treatment will reduce our earnings. For each financial statement period after the issuance of the Cash Convertible Notes, a gain (or loss) will be reported in our financial statements to the extent the valuation of the conversion option changes from the previous period. The Call Options issued in connection with the Cash Convertible Notes will also be accounted for as derivative instruments, substantially offsetting the gain (or loss) associated with changes to the valuation of the conversion option. This may result in increased volatility to our results of operations.

The cash convertible note hedge and warrant transactions we entered into in connection with the issuance of our Cash Convertible Notes may not provide the benefits we anticipate, and may have a dilutive effect on our common stock.

Concurrently with the issuance of the Cash Convertible Notes, we entered into Call Options and issued Warrants. We entered into the Call Options with the expectation that they would offset potential cash payments by us in excess of the principal amount of the Cash Convertible Notes upon conversion of the Cash Convertible Notes. In the event that the hedge counterparties fail to deliver potential cash payments to us, as required under the Call Options, we would not receive the benefit of such transaction. Separately, we also issued Warrants. The Warrants could separately have a dilutive effect to the extent that the market price per share of our common stock, as measured under the terms of the Warrants, exceeds the strike price of the Warrants.

An impairment of goodwill and intangible assets could reduce our earnings.

At December 31, 2020, our consolidated balance sheet reflected $2.4 billion of goodwill and $726.2 million of intangible assets. Goodwill is recorded when the purchase price of a business exceeds the fair value of the tangible and separately measurable intangible net assets. U.S. generally accepted accounting principles (U.S. GAAP) require us to test goodwill for impairment on an annual basis or when events or circumstances occur indicating that goodwill might be impaired. Long-lived assets, such as intangible assets with finite useful lives, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. The impairment review often cannot be done at the level of the individual asset and it must instead be applied to a group of assets. For the purpose of our annual goodwill impairment testing based on the current circumstances of how we manage our business, this group of assets is the Company as a whole. If we determine that any of our goodwill or intangible assets were impaired, we will be required to take an immediate charge to earnings and our results of operations could be adversely affected.

Our strategic equity investments may result in losses.

We have made, and may continue to make, strategic investments in businesses as opportunities arise. We periodically review the carrying value of these investments for impairment, considering factors that include the most recent stock transactions, book values from the most recent financial statements, and forecasts and expectations of the investee. The results of these valuations may fluctuate due to market conditions and other conditions over which we have no control.

Estimating the fair value of non-marketable equity investments in life science companies is inherently subjective. If actual events differ from our assumptions and unfavorable fluctuations in the valuations of the investments are indicated, we could be required to write down the investment. This could result in future charges on our earnings that could materially adversely affect our results of operations. It is uncertain whether or not we will realize any long-term benefits from these strategic investments.

Doing business internationally creates certain risks.

Our business involves operations in several countries outside of the U.S. Our consumable manufacturing facilities are located in Germany, China and the U.S. We source raw materials and subcomponents to manufacture our products from different countries. We have established sales subsidiaries in many countries. In addition, our products are sold through independent distributors serving more than 40 other countries. Conducting and launching operations on an international scale requires close coordination of activities across multiple jurisdictions and time zones and consumes significant management resources. We have invested heavily in computerized information systems in order to manage more efficiently the widely dispersed components of our operations. If we fail to coordinate and manage these activities effectively, our business and results of operations will be adversely affected.

Our operations are subject to other risks inherent in international business activities, such as the general economic and public health conditions in the countries in which we operate, trade restrictions and changes in tariffs, longer accounts receivable payment cycles in certain countries, overlap of different tax structures, unexpected changes in regulatory requirements, and compliance with a variety of foreign laws and regulations. Other risks associated with international operations include import and export licensing requirements, exchange controls and changes in freight rates, as may occur as a result of rising energy costs. As a result of these conditions, an inability to successfully manage our international operations could have a material adverse impact on our business and results of operations.

Unethical behavior and non-compliance with laws by our sales representatives, other employees, consultants, commercial partners or distributors or employees could seriously harm our business.

Our business in countries with a history of corruption and transactions with foreign governments increases the risks associated with our international activities. Based on our international operations, we are subject to the U.S. Foreign Corrupt Practices Act (FCPA), the U.K. Bribery Act and other laws that prohibit improper payments or offers of payments to foreign governments and their officials and political parties by business entities for the purpose of obtaining or retaining business. We have operations, agreements with third parties and sales in countries known to experience corruption. Further international expansion may involve increased exposure to such practices. Our activities in these countries and others create risks of unauthorized payments or offers of payments, non-compliance with laws, or other unethical behavior by any of our employees, consultants, sales agents or distributors, that could be in violation of various laws, including the FCPA, even though these parties are not always subject to our control. Our policy is to implement safeguards to discourage these or other unethical practices by our employees and distributors including online and in-person employee trainings, periodic internal audits and standard reviews of our distributors. However, our existing safeguards and any future improvements may not prove to be effective, and our employees, consultants, sales agents or distributors may engage in conduct for which we might be held responsible. Violations of the FCPA and other laws may result in criminal or civil sanctions, which could be severe, and we may be subject to other liabilities, which could negatively affect our business, results of operations and financial condition.

We depend on patents and proprietary rights that may fail to protect our business.

Our success depends to a large extent on our ability to develop proprietary products and technologies and to establish and protect our patent and trademark rights in these products and technologies. As of December 31, 2020, we owned 368 issued patents in the United States, 284 issued patents in Germany and 1,813 issued patents in other major industrialized countries. In addition, at December 31, 2020, we had 546 pending patent applications, and we intend to file applications for additional patents as our products and technologies are developed. The patent positions of technology-based companies involve complex legal and factual questions and may be uncertain, and the laws governing the scope of patent coverage and the periods of enforceability of patent protection are subject to change. In addition, patent applications in the United States are maintained in secrecy until patents issue, and publication of discoveries in the scientific or patent literature tends to lag behind actual discoveries by several months. Therefore, no assurance can be given that patents will issue from any patent applications that we own or license, or if patents do issue, that the claims allowed will be sufficiently broad to protect our technology. In addition, no assurance can be given that any issued patents that we own or license will not be challenged, invalidated or circumvented, or that the rights granted thereunder will provide us competitive advantages. Further, as issued patents expire, we may lose some competitive advantage as others develop competing products and as a result, we may lose revenue.

Some of our products incorporate patents and technologies that are licensed from third parties and for certain products, these in-licensed patents together with other patents provide us with a competitive advantage. These licenses impose various commercialization, sublicensing and other obligations on us. Our failure to comply with these requirements could result in the conversion of the applicable license from being exclusive to non-exclusive or, in some cases, termination of the license, and as a result, we may lose some competitive advantage and experience a loss of revenue.

We also rely on trade secrets and proprietary know-how, which we seek to protect through confidentiality agreements with our employees and consultants. There can be no assurance that any confidentiality agreements that we have with our employees, consultants, outside scientific collaborators and sponsored researchers and other advisors will provide meaningful protection for our trade secrets or adequate remedies in the event of unauthorized use or disclosure of such information. There also can be no assurance that our trade secrets will not otherwise become known or be independently developed by competitors.

We currently engage in, and may continue to engage in, collaborations with academic researchers and institutions. There can be no assurance that under the terms of such collaborations, third parties will not acquire rights in certain inventions developed during the course of these collaborations.

Our business exposes us to potential product liability.

The marketing and sale of our products and services for certain applications entail a potential risk of product liability. Although we are not currently subject to any material product liability claims, product liability claims may be brought against us in the future. Further, there can be no assurance that our products will not be included in unethical, illegal or inappropriate research or

applications, which may in turn put us at risk of litigation. We carry product liability insurance coverage, which is limited in scope and amount. There can be no assurance that we will be able to maintain this insurance at a reasonable cost and on reasonable terms, or that this insurance will be adequate to protect us against any or all potential claims or losses.

We are subject to various laws and regulations generally applicable to businesses in the different jurisdictions in which we operate, including laws and regulations applicable to the handling and disposal of hazardous substances. The risk of accidental contamination or injury from these materials cannot be completely eliminated. In the event of such an accident, we could be held liable for any damages that result, and any such liability could have a material adverse impact on us.

Our operating results may vary significantly from period to period and this may affect the market price of our Common Shares.

Our operating results may vary significantly from quarter to quarter, and also year to year, since they are dependent upon a broad range of factors that include demand for our products, the level and timing of customer research budgets and commercialization efforts, the timing of government funding budgets of our customers, the timing of our research and development activities and related regulatory approvals, the impact of sales and marketing expenses, restructuring activities, introduction of new products by us or our competitors, competitive market conditions, exchange rate fluctuations and general economic conditions. Our expense levels are based in part on our expectations as to future sales trends. As a result, sales and earnings may vary significantly from quarter to quarter or from year to year, and actual sales and earnings results in any one period will not necessarily be indicative of results to be anticipated in subsequent periods. Our results may also fail to meet or exceed the expectations of securities analysts or investors, which could cause a decline in the market price of our Common Shares.

Our holding company structure makes us dependent on the operations of our subsidiaries.

QIAGEN N.V. is incorporated under Dutch law as a public limited liability company (*naamloze vennootschap*), and is organized as a holding company. Currently, the material assets are the outstanding shares of the QIAGEN subsidiaries, intercompany receivables and other financial assets such as cash, short-term investments and derivative instruments. As a result, QIAGEN N.V. is dependent upon payments, dividends and distributions from the subsidiaries for funds to pay operating and other expenses as well as to pay future cash dividends or distributions, if any, to holders of our Common Shares. Dividends or distributions by subsidiaries in a currency other than the U.S. dollar may result in a loss upon a subsequent conversion into U.S. dollars.

Our Common Shares may have a volatile public trading price.

The market price of our Common Shares since our initial public offering in September 1996 has increased significantly and been highly volatile. Since January 10, 2018, our shares have been listed on the New York Stock Exchange (NYSE). Before that, our shares were listed on the NASDAQ through January 9, 2018. In the last two years, the price of our Common Shares has ranged from a high of $55.27 to a low of $25.04. On the Frankfurt Stock Exchange our Common Shares have ranged from a high of €46.95 to a low of €22.54 during the last two years. In addition to overall stock market fluctuations, factors that may have a significant impact on the price of our Common Shares include:

- announcements of technological innovations or the introduction of new products by us or our competitors;
- developments in our relationships with collaborative partners;
- quarterly variations in our operating results or those of our peer companies;
- changes in government regulations, tax laws or patent laws;
- developments in patent or other intellectual property rights;
- developments in government spending budgets for life sciences-related research;
- general market conditions relating to the diagnostics, applied testing, pharmaceutical and biotechnology industries; and
- impact from foreign exchange rates.

The stock market has from time to time experienced extreme price and trading volume fluctuations that have particularly affected the market for technology-based companies. These fluctuations have not necessarily been related to the operating performance of these companies. These broad market fluctuations may adversely affect the market price of our Common Shares.

Holders of our Common Shares should not expect to receive dividend income.

QIAGEN has not paid an annual dividend since its inception, and does not intend to implement one at this time. At the same time, in January 2017 we completed a synthetic share repurchase that combined a direct capital repayment with a reverse stock split. Although we do not anticipate paying any cash dividends on a regular basis, the distribution of any cash dividends through

another synthetic share repurchase in a currency other than the U.S. dollar will be subject to the risk of foreign currency transaction losses. Investors should not invest in our Common Shares if they are seeking dividend income; the only return that may be realized through investing in our Common Shares would be through an appreciation in the share price.

Holders of our Common Shares may not benefit from future stock repurchase programs.

QIAGEN has conducted share repurchase programs in the past through open-market transactions. The purpose of our share repurchases has been to hold the shares in treasury in order to satisfy obligations from exchangeable debt instruments, warrants and/or employee share-based remuneration plans and thus to reduce dilution to existing holders of our Common Shares. In 2019, we began net share withholding on the vesting of stock-based awards and as a result, fewer shares are issued than the number of awards outstanding. We may decide not to continue such programs in the future, our covenants with lenders may limit our ability to use available cash to do so, or the market price of our Common Shares may make such repurchases less desirable. In any of these cases, holders of our Common Shares may suffer dilution from conversion of our indebtedness or issuance of shares pursuant to employee remuneration plans that would otherwise be at least partially offset by repurchased shares.

Future sales and issuances of our Common Shares could adversely affect our stock price.

Any future sale or issuance of a substantial number of our Common Shares in the public market, or any perception that a sale may occur, could adversely affect the market price of our Common Shares. Under Dutch law, a company can issue shares up to its authorized share capital provided for in its Articles of Association. Pursuant to our Articles of Association, our authorized share capital amounts to EUR 9.0 million, which is divided into 410.0 million common shares, 40.0 million financing preference shares and 450.0 million preference shares, with all shares having a EUR 0.01 par value. As of December 31, 2020, a total of approximately 228.0 million Common Shares were outstanding along with approximately 5.6 million additional shares reserved for issuance upon exercise or release of outstanding stock options and awards, of which 0.4 million were vested. A total of approximately 14.4 million Common Shares are reserved and available for issuances under our stock plans as of December 31, 2020, including the shares subject to outstanding stock options and awards. The majority of our outstanding Common Shares may be sold without restriction, except shares held by our affiliates, which are subject to certain limitations on resale. Additionally, convertible debt issued in 2020 and Warrants issued in connection with the Cash Convertible Notes cover an aggregate of 26.8 million underlying shares of common stock or up to a maximum of 42.5 million shares, subject to customary adjustments under certain circumstances.

Shareholders who are United States residents could be subject to unfavorable tax treatment.

We may be classified as a "passive foreign investment company," or a PFIC, for U.S. federal income tax purposes if certain tests are met. Our treatment as a PFIC could result in a reduction in the after-tax return to holders of Common Shares and would likely cause a reduction in the value of these shares. If we were determined to be a PFIC for U.S. federal income tax purposes, highly complex rules would apply to our U.S. shareholders. We would be considered a PFIC with respect to a U.S. shareholder if for any taxable year in which the U.S. shareholder held the Common Shares, either (i) 75% or more of our gross income for the taxable year is passive income; or (ii) the average value of our assets (during the taxable year) which produce or are held for the production of passive income is at least 50% of the average value of all assets for such year. Based on our income, assets and activities, we do not believe that we were a PFIC for U.S. federal income tax purposes for our taxable year ended December 31, 2020, and do not expect to be a PFIC for the current taxable year or any future taxable year. No assurances can be made, however, that the Internal Revenue Service will not challenge this position or that we will not subsequently become a PFIC.

Provisions of our Articles of Association and Dutch law and an option we have granted may make it difficult to replace or remove management and may inhibit or delay a takeover.

Our Articles of Association (Articles) provide that our shareholders may only suspend or dismiss our Managing Directors and Supervisory Directors against their wishes with a vote of two-thirds of the votes cast if such votes represent more than 50% of our issued share capital. If the proposal was made by the joint meeting of the Supervisory Board and the Managing Board, a simple majority is sufficient. The Articles also provide that if the members of our Supervisory Board and our Managing Board have been nominated by the joint meeting of the Supervisory Board and Managing Board, shareholders may only overrule this nomination with a vote of two-thirds of the votes cast if such votes represent more than 50% of our issued share capital.

Certain other provisions of our Articles allow us, under certain circumstances, to prevent a third party from obtaining a majority of the voting control of our Common Shares through the issuance of Preference Shares. Pursuant to our Articles and the resolution adopted by our General Meeting of Shareholders, our Supervisory Board is entitled to issue Preference Shares in case of an intended takeover of our company by (i) any person who alone or with one or more other persons, directly or indirectly, have acquired or given notice of an intent to acquire (beneficial) ownership of an equity stake which in aggregate equals 20% or more of our share capital then outstanding or (ii) an "adverse person" as determined by the Supervisory Board. If the Supervisory Board opposes an intended takeover and authorizes the issuance of Preference Shares, the bidder may withdraw its

bid or enter into negotiations with the Managing Board and/or Supervisory Board and agree on a higher bid price for our Shares.

In 2004, we granted an option to the Stichting Preferente Aandelen QIAGEN, or the Foundation (*Stichting*), subject to the conditions described in the paragraph above, which allows the Foundation to acquire Preference Shares from us. The option enables the Foundation to acquire such number of Preference Shares as equals the number of our outstanding Common Shares at the time of the relevant exercise of the option, less one Preference Share. When exercising the option and exercising its voting rights on these Preference Shares, the Foundation must act in our interest and the interests of our stakeholders. The purpose of the Foundation option is to prevent or delay a change of control that would not be in the best interests of our stakeholders. An important restriction on the Foundation's ability to prevent or delay a change of control is that a public offer must be announced by a third party before it can issue (preference or other) protective shares that would enable the Foundation to exercise rights to 30% or more of the voting rights without an obligation to make a mandatory offer for all shares held by the remaining shareholders. In addition, the holding period for these shares by the Foundation is restricted to two years, and this protective stake must fall below the 30% voting rights threshold before the two-year period ends.

Note Regarding Forward-Looking Statements and Risk Factors

Our future operating results may be affected by various risk factors, many of which are beyond our control. Certain statements included in this Annual Report and the documents incorporated herein by reference may be forward-looking statements within the meaning of Section 27A of the U.S. Securities Act of 1933, as amended, and Section 21E of the U.S. Securities Exchange Act of 1934, as amended, including statements regarding potential future net sales, gross profit, net income and liquidity. 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. Reference is made in particular to the description of our plans and objectives for future operations, assumptions underlying such plans and objectives, and other forward-looking statements. 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. Factors which could cause such results to differ materially from those described in the forward-looking statements include those set forth in the risk factors below. As a result, our future success involves a high degree of risk. When considering forward-looking statements, you should keep in mind that the risk factors could cause our actual results to differ significantly from those contained in any forward-looking statement.

Item 4. Information on the Company

Description of our business

Company overview

QIAGEN is a global leader in Sample to Insight solutions that transform biological samples into valuable molecular insights. Our mission is to enable customers across the continuum of molecular testing to unlock valuable insights faster, better and more efficiently - from the raw biological sample to the final interpreted result. Proven QIAGEN solutions and content are providing answers in hospitals and laboratories worldwide, helping make sense of the increasing volumes and complexity of biological information, in keeping with our vision of making improvements in life possible.

We began operations in 1986 as a pioneer in the emerging biotechnology sector, introducing a novel method that standardized and accelerated extraction and purification of nucleic acids from biological samples. As molecular biology and genomic knowledge have grown to influence many areas of life, we have expanded to serve the full spectrum of market needs. We believe our sample technologies are unmatched in quality for isolating and preparing DNA (deoxyribonucleic acid), RNA (ribonucleic acid) and proteins from blood or other liquids, tissue, plants or other materials. Our assay technologies amplify, enrich and make these biomolecules accessible for analysis, such as identifying the genetic information of a pathogen or a gene mutation in a tumor. Our industry-leading bioinformatics solutions allow users to analyze and interpret data with bioinformatics software and knowledge bases to provide relevant, actionable insights. Our automation systems can be used to tie these technologies together in seamless and cost-effective molecular testing workflows.

We have grown by developing new instruments, consumables and digital solutions to meet diverse and growing needs in the market, partnering with researchers and pharma companies, and acquiring companies or technologies to complement our portfolio. We believe the addressable global market for our portfolio of molecular testing products in life science research and molecular diagnostics totals more than $11 billion. We continue to accelerate the growth of our portfolio of Sample to Insight solutions, delivering efficiency and effectiveness, increasing the value of QIAGEN as an employer of choice and enhancing the customer experience. Our growth strategy is anchored in our Five Pillars of Growth: sample technologies, the digital PCR

platform QIAcuity, the clinical PCR automation solutions QIAstat-Dx and NeuMoDx and the QuantiFERON technology platform used to detect diseases such as latent tuberculosis.

We have funded our growth through internally generated funds, debt offerings, and private and public sales of equity securities. Our global shares are listed on the New York Stock Exchange under the ticker symbol QGEN and on the Frankfurt Prime Standard as QIA.

The company is registered under its commercial and legal name QIAGEN N.V. with the trade register (*kamer van koophandel*) of the Dutch region Limburg Noord under file number 12036979. QIAGEN N.V. is a public limited liability company (*naamloze vennootschap*) under Dutch law as a holding company. Our principal executive office is located at Hulsterweg 82, 5912 PL Venlo, The Netherlands, and our telephone number is +31-77-355-6600.

As a holding company, QIAGEN conducts business through subsidiaries located throughout the world. Further information about QIAGEN can be found at *www.qiagen.com*. By referring to our website, we do not incorporate the website or any portion of the website by reference into this Annual Report.

Our products

Our leadership in molecular testing solutions leverages our product portfolio across a wide range of applications. We provide more than 500 core consumable products (sample and assay kits), instruments and automation systems, and bioinformatics solutions for analysis and interpretation. These products comprise two main categories: consumables and related revenues accounted for between 86% and 89% of total net sales during the last three years and includes sample and assay kits, bioinformatics solutions, royalties, co-development milestone payments and services while instruments includes related services and contracts and accounted for between 11% and 14% of total net sales during the same time period.

In 2020, we worked closely with public authorities and customers to launch products based on molecular technologies to test for the SARS-CoV-2 pathogen and the COVID-19 disease it triggers. We have built a comprehensive portfolio of solutions to cover the phases of the pandemic including: a collection of RNA extraction kits and automation instrumentation from our sample technologies portfolio, PCR testing workflows including QIAstat-Dx, NeuMoDx, and other PCR solutions, OEM components used by other diagnostic suppliers, antigen and antibody tests, and genomic solutions. We are fully mobilized to serve our customers in the pandemic response, providing existing solutions and developing a series of differentiated products. Dedicated COVID-19 solutions brought to market in 2020 include:

- QIAstat-Dx Respiratory SARS-CoV-2 Panel - a multiplex PCR test with EUA-authorization for the detection of SARS-CoV-2 plus more than 20 other respiratory pathogens;
- NeuMoDx - single-plex (also approved for saliva sample type) and multiplex;
- QIAprep&amp rapid PCR test - a solution that streamlines RNA extraction and PCR analysis into one process, delivering a result in under one hour and requiring less disposable laboratory plastic-ware than standard PCR tests, helping to avoid resource bottlenecks;
- QIAreach Antibody test - allows clinicians to detect immune status of individuals and has applications in determining vaccine efficacy;
- QuantiFERON SARS-CoV-2 T cell assay - enables researchers to explore longer-term immune responses to the virus and vaccines; and
- a suite of next generation sequencing (NGS) and bioinformatics tools - used for epidemiological studies.

QIAGEN Product Groups

Sample Technologies

Sample technologies is the first of our Five Pillars of Growth and includes products involved in the first step of any molecular lab process. Our broad portfolio of sample technologies includes consumables and instruments used in sample collection, stabilization, storage, purification and quality control. Some of our consumables are designed to run on our instruments, while others are universal kits designed for use with any molecular testing platform. These products are used in research and applied testing (forensics, human identification and food safety) laboratories as well as clinical testing.

Sample technologies	Selected QIAGEN brands		
Primary sample technology consumables • Nucleic stabilization and purification kits designed for primary sample materials (DNA, RNA), manual and automated processing for genotyping, gene expression, viral and bacterial analysis • Mainly based on silica membrane and magnetic bead technologies	• QIAamp • PAXgene • AllPrep	• DNeasy • AdnaTest • QIAprep&amp	• RNeasy • MagAttract
Secondary sample technology consumables • Kits and components for purification of nucleic acids from secondary sample materials (e.g. gel, plasmid DNA)	• QIAprep • QIAGEN Plasmid • HiSpeed	• QIAquick • QIAfilter • EndoFree	• DyeEx • R.E.A.L.
Sample technology instruments • Instruments for nucleic acid purification, quality control and accessories	• QIAsymphony • EZ1 • TissueLyser	• QIAcube Connect • QIAxpert	• QIAcube HT • QIAxcel

Diagnostic Solutions

Diagnostic solutions include our molecular testing platforms and consumables covering three of our five pillars of growth, which are QuantiFERON, QIAstat-Dx and NeuMoDx, as well as Precision Medicine which involves companion diagnostic co-development revenues from projects with pharmaceutical companies, regulated assays and solutions for laboratory developed tests. Additional areas include Oncology and Sexual & Reproductive Health for detection of various diseases and for use in prenatal testing for detection of infectious diseases and for other laboratory processes.

Diagnostic solutions	Selected QIAGEN brands		
Immune response consumables • Interferon-Gamma Release Assay (IGRA) for TB testing • Assays for post-transplant testing and viral load monitoring	• QuantiFERON	• QIAreach	
Oncology and Sexual & Reproductive health consumables • Assays for analysis of genomic variants such as mutations, insertions, deletions and fusions • Assays for prenatal testing and detection of sexually transmitted diseases and HPV	• Therascreen • AmniSure / PartoSure	• Ipsogen	• digene HC2
Sample to Insight instruments • One-step molecular analysis of hard-to-diagnose syndromes • Fully integrated PCR testing	• QIAstat-Dx	• NeuMoDx	

PCR / Nucleic Acid Amplification

PCR / Nucleic Acid Amplification involves our research and applied PCR solutions and components. The product group includes another of our Five Pillars of Growth: QIAcuity. We offer optimized solutions for end-point PCR, quantitative PCR and digital PCR. Our kits, assays, instruments and accessories amplify and detect targets and streamline workflow for virtually any application.

PCR/Nucleic acid amplification	Selected QIAGEN brands
Research PCR consumables • Different generations of PCR, quantitative PCR, reverse transcription and combinations (RT-PCR) kits for analysis of gene expression, genotyping and gene regulation, running on QIAGEN or third-party instruments and technologies	• QuantiTect • OneStep RT-PCR • Type-it • OmniScript • QuantiFast • QIAGEN Multiplex • miRCURY • miScript • QuantiNova • HotStarTaq • TopTaq
Human ID / Forensics assay consumables • STR assays for Human ID, additional assays for food contamination	• Investigator (human ID / forensics) • *mericon* (food safety)
PCR instruments • Digital PCR solutions.	• QIAcuity • Rotor-Gene Q • QIAquant • QIAgility • QIAamplifier 96
OEM consumables • Custom-developed and configured enzymes and PCR solutions that are sold to OEM customers	• Provided on an individualized contract basis

Genomics / NGS

Genomics / NGS includes our universal NGS solutions as well as the full QIAGEN Digital Insights portfolio.

Genomics / NGS	Selected QIAGEN brands
Universal NGS consumables • Predefined and custom NGS gene panels (DNA, RNA), library prep kits and components, whole genome amplification, etc.	• QIAseq • REPLI-g Epitect
QIAGEN Digital Insights solutions • Bioinformatics solutions analyze and interpret data to deliver actionable insights from NGS. This includes freestanding software or cloud-based solutions and is also integrated into many QIAGEN consumables and instruments	• QIAGEN Clinical Insight • N-of-One • Ingenuity Variant Analysis • CLC Genomics Workbench • OmicSoft • Ingenuity Pathway Analysis • QIAGEN Knowledge Base • HGMD
Custom laboratory and genomic services • Custom services such as DNA sequencing, whole genome amplification, and non-cGMP DNA production	• Provided on an individualized contract basis

Other

Revenues from various sources including protein biology products, royalties, intellectual property and freight charges.

Principal Markets

We sell our products to more than 500,000 customers in two broad customer groups: Molecular Diagnostics (clinical testing) and Life Sciences (academia, pharmaceutical R&D and applied testing). We estimate the total addressable market has a volume of about $11 billion per year. The five pillars of growth – sample technologies, immune response, digital PCR, integrated PCR, syndromic testing – account for $6 billion of this total.

Molecular Diagnostics

The molecular diagnostics market includes healthcare providers engaged in many aspects of patient care that require accurate diagnoses and insights to guide treatment decisions in oncology, infectious diseases and immune monitoring.

We offer one of the broadest portfolios of molecular technologies for healthcare. The success of molecular testing in healthcare depends on the ability to accurately analyze purified nucleic acid samples from sources such as blood, tissue, body fluids and

stool. Automated systems process tests reliably and efficiently, often handling hundreds of samples simultaneously. Our range of assays for diseases and biomarkers speed up and simplify laboratory workflow and standardize many lab procedures.

Molecular testing is the most dynamic segment of the global *in vitro* diagnostics market, growing at an estimated annual rate in the mid-single-digits at constant exchange rates even before COVID-19 struck. The pandemic has demonstrated the value of molecular testing in healthcare and we expect the market to provide significant growth opportunities.

We have built a position as a preferred partner to co-develop companion diagnostics paired with targeted drugs. We have more than 25 master collaboration agreements with pharmaceutical industry customers, some with multiple co-development projects. They have created a rich pipeline of molecular tests that are transforming the treatment of cancer and other diseases. Companion diagnostics can move through clinical trials and regulatory approvals, along with the paired drugs, to commercialization and marketing to healthcare providers.

Molecular Diagnostics customers accounted for $904 million, $737 million, and $732 million of our sales in 2020, 2019 and 2018, respectively.

Life Sciences

The Life Sciences market includes governments and biotechnology companies – and researchers who use molecular testing and technologies and are generally served by public funding in areas such as medicine and clinical development, forensics and exploring the secrets of life.

We partner with customers across diverse disciplines in academia and industry, providing sample technologies, assay technologies, bioinformatics and services to universities and institutes, pharmaceutical and biotech companies, government and law enforcement agencies.

We provide Sample to Insight solutions to academic and research institutions around the world. We focus on enabling researchers to use reliable, fast, highly reproducible and high-quality technologies, sometimes replacing time-consuming traditional or in-house methods. We often partner with leading institutions on research projects and develop customized solutions such as NGS panels for the digital sequencing of multiple gene targets.

In the course of the COVID-19 pandemic, we served increased demand from viral and vaccine researchers for RNA extraction, general PCR reagents and enzymes, and universal NGS solutions.

We are a global leader in solutions for governments and industry, particularly in forensic testing and human identification. The value of genetic "fingerprinting" has been proven in criminal investigations and examinations of paternity or ancestry, as well as in food safety and veterinary diagnostics. We provide sample collection and analytical solutions for law enforcement and human identification labs, as well as advanced technologies for studies of microbiomes and their effect on health and the environment.

We have deep relationships with pharmaceutical and biotechnology companies. Drug discovery and translational research efforts increasingly employ genomic information, both to guide research in diseases and to differentiate patient populations that are most likely to respond to particular therapies. We estimate that about half of our sales to these companies supports research, while the other half supports clinical development, including stratification of patient populations based on genetic information. Also, QIAGEN Digital Insights solutions are widely used to guide pharmaceutical research.

Life Sciences customers accounted for $966 million, $789 million, and $770 million of our sales in 2020, 2019 and 2018, respectively.

Competition

In sample technology products, we also experience competition in various markets from other companies providing sample preparation products in kit form and assay solutions. These competitors include, but are not limited to, companies with a focus on nucleic acid separation and purification, assay solutions, transfection reagents and protein fractionation products. We compete with other suppliers through innovative technologies and products, offering a comprehensive solution for nucleic acid collection, pre-treatment, separation and purification needs and providing significant advantages in speed, reliability, convenience, reproducibility and ease of use.

Some of our other products within our molecular diagnostics customer class, such as tests for chlamydia, gonorrhea, hepatitis B virus, herpes simplex virus and CMV, compete against existing screening, monitoring and diagnostic technologies, including tissue culture and antigen-based diagnostic methodologies. We believe the primary competitive factors in the market for gene-based probe diagnostics and other screening devices are clinical validation, performance and reliability, ease of use, standardization, cost, proprietary position, competitors' market shares, access to distribution channels, regulatory approvals and reimbursement.

We believe our competitors typically do not have the same comprehensive approach to sample to insight solutions as we do, nor do they have the ability to provide the broad range of technologies and depth of products and services that we offer. With our complete range of manual and fully automated solutions, we believe we offer the value of standardization of procedures and, therefore, more reliable results. We also believe our integrated strategic approach gives us a competitive advantage. The quality of sample technologies - an area in which we have a unique market and leadership position - is a key prerequisite for reliable molecular assay solutions, which increasingly are being applied in emerging markets such as Molecular Diagnostics and Applied Testing.

Current and potential competitors may be in the process of seeking FDA or foreign regulatory approvals for their respective products. Our continued future success will depend in large part on our ability to maintain our technological advantage over competing products, expand our market presence and preserve customer loyalty. There can be no assurance that we will be able to compete effectively in the future or that development by others will not render our technologies or products non-competitive.

Global Presence by Category of Activity and Geographic Market

Product Category Information

Net sales for the product categories are attributed based on those revenues related to sample and assay products and related revenues including bioinformatics solutions, and revenues derived from instrumentation sales.

Net Sales (in millions)	2020	2019	2018
Consumables and related revenues	**$ 1,615.4**	$ 1,354.1	$ 1,315.5
Instrumentation	**254.9**	172.3	186.4
Total	**$ 1,870.3**	$ 1,526.4	$ 1,501.8

Geographical Information

We currently market products in more than 130 countries. The following table shows total revenue by geographic market for the past three years (net sales are attributed to countries based on the location of the customer, as certain subsidiaries have international distribution):

Net Sales (in millions)	2020	2019	2018
United States	**$ 728.6**	$ 663.9	$ 632.7
Other Americas	**96.9**	58.1	60.4
Total Americas	**825.5**	722.0	693.0
Europe, Middle East and Africa	**682.3**	487.5	490.3
Asia Pacific, Japan and Rest of World	**362.6**	317.0	318.5
Total	**$ 1,870.3**	$ 1,526.4	$ 1,501.8

We have built an increasing presence in key emerging markets as a growth strategy. In 2020, the top seven emerging markets - Brazil, Russia, India, China, South Korea, Mexico and Turkey - contributed approximately 15% of net sales.

Seasonality

Our business does not experience significant predictable seasonality. Historically, a significant portion of our sales has been to researchers, universities, government laboratories and private foundations whose funding is dependent upon grants from government agencies, such as the National Institutes of Health and similar bodies. To the extent that our customers experience increases, decreases or delays in funding arrangements and budget approvals, and to the extent that customers' activities are slowed, such as during times of higher unemployment, vacation periods or delays in approval of government budgets, we may experience fluctuations in sales volumes during the year or delays from one period to the next in the recognition of sales. Additionally, we have customers who are active in the diagnostics testing market, and sales to these customers fluctuate to the extent that their activities are impacted by public health concerns such as the timing and severity of flu season.

Suppliers

We strive to ensure that our quality standards, compliance with laws and regulations as well as environmental and social standards are maintained along the entire value chain of suppliers and partners. We demand the same from our business partners. Suppliers are subjected to a risk analysis with regard to environmental and social criteria based on their geographic location. Our procurement policy, which is available on our website, contains requirements with regard to legal compliance, bribery and corruption, labor rights, non-discrimination and fair treatment, health and safety as well as environmental protection and conservation. In 2020, all new suppliers have signed our procurement policy. In addition, first-tier suppliers must confirm REACH, RoHS and conflict minerals compliance as appropriate.

As part of our supplier assessment procedures, we evaluate on a monthly basis the supply performance of our raw material and component suppliers, and we assess on a continuous basis potential alternative sources of such materials and components, and on a yearly basis the risks and benefits of reliance on our existing suppliers. We buy materials for our products from many suppliers, and are not dependent on any one supplier or group of suppliers for our business as a whole. Raw materials generally include chemicals, raw separation media, biologics, plastics, electronics and packaging. Raw materials are generally readily available at competitive, stable prices from a number of suppliers. Certain raw materials are produced under our specifications. We have inventory agreements with the majority of our suppliers and we closely monitor stock levels to maintain adequate supplies. We believe we maintain inventories at a sufficient level to ensure reasonable customer service levels and to guard against normal volatility in availability.

Research and Development

We are committed to expanding our global leadership in Sample to Insight solutions in Molecular Diagnostics and the Life Sciences. We target our research and development resources at the most promising technologies to address the unmet needs of our customers in healthcare and research labs in key geographic markets.

As a percentage of sales, our research and development investments are among the highest in our industry. 902 employees in research and development work in QIAGEN centers of excellence on three continents.

Innovation at QIAGEN follows parallel paths:

- Creating new systems for automation of workflows - platforms for laboratories, hospitals and other users of novel molecular technologies.
- Expanding our broad portfolio of novel content - including assays to detect and measure biomarkers for disease or genetic identification.
- Integrating QIAGEN Digital Insights with the testing process - software and cloud-based resources to interpret and transform raw molecular data into useful insights.

Innovation in automation systems positions us in fast-growing fields of molecular testing, and generates ongoing demand for our consumable products. We are developing and commercializing a deep pipeline of assays for preventive screening and diagnostic profiling of diseases, detection of biomarkers to guide Precision Medicine in cancer and other diseases, and other molecular targets. Our assay development program aims to commercialize tests that will add value to our QIAsymphony, QIAstat-Dx and NeuMoDx automation systems in the coming years, as well as next-generation sequencing kits to support our universal NGS franchise and our in vitro diagnostics partnership with Illumina. In 2020, we launched the QIAcuity digital PCR system which is designed to make digital PCR technology available to Life Sciences laboratories worldwide.

We collaborate with many institutions and companies to create innovative molecular solutions. In 2020, we partnered with Ellume, an Australian digital diagnostics company, to develop antigen and antibody tests. These tests provide rapid results through use of the QIAGEN eHub, which gives an automated read-out in less than 15 minutes.

Our QIAGEN Digital Insights teams are developing new software and adding proprietary cloud-based content to support the latest research and clinical trends in molecular testing, especially the interpretation of large volumes of NGS data. We also integrate digital solutions with instruments and molecular content to provide our customers seamless Sample to Insight workflows.

Sales and Marketing

We market our products in more than 130 countries, mainly through subsidiaries in markets in the Americas, Europe, Australia and Asia with the greatest sales potential. Experienced marketing and sales staff, many of them scientists with academic degrees in molecular biology or related areas, sell our products and support our customers. Business managers oversee key accounts to ensure that we serve customers' commercial needs, such as procurement processes, financing, data on costs and the value of our systems, and collaborative relationships. In many markets, we have specialized independent distributors and importers.

Our marketing strategy focuses on providing differentiated, high-quality products across the value chain from Sample to Insight, integrating components into end-to-end solutions when possible, and enhancing relationships with commitment to technical excellence and customer service. Our omni-channel approach seeks to engage customers through their preferred channels - online, by phone, in person, etc. - and to optimize investment in different customer types.

We have initiated actions to drive the growth of our digital marketing channels - including our website (www.qiagen.com), product-specific sites and social media. Our eCommerce team works with clients to provide automated processes supporting a variety of electronic transactions and all major eProcurement systems. Information contained on our website, or accessed through it, is not part of this Annual Report.

My QIAGEN is an easy-to-use self-service portal that is personalized to our customers' needs and enables customers to manage different activities in one central place. Customers can now easily reorder, place bulk orders, apply quotes to their cart, and then track their order status. Functionality in the dashboard allows customers to monitor their instrument use and view the status of licenses and service agreements. Additionally, customers can access our exclusive content and services, such as webinars, handbooks and other documents.

Our GeneGlobe Design & Analysis Hub (www.geneglobe.com) is a valuable outreach to scientists in pharma and academia, enabling researchers to search and order from approximately 25 million pre-designed and custom PCR assay kits, NGS assay panels and other products. The new hub brings next-level experiment planning, execution and follow-up to life science researchers, linking our QIAGEN Digital Insights solutions with ordering of assays to accelerate research.

We use a range of tools to provide customers with direct access to technical support, inform them of new product offerings, and enhance our reputation for technical excellence, high-quality products and commitment to service. For example, our technical service hotline allows existing or potential customers to discuss a wide range of questions about our products and molecular biology procedures, online or via phone, with Ph.D. and M.Sc. scientists at QIAGEN. Frequent communication with customers enables us to identify market needs, learn of new developments and opportunities, and respond with new products.

We also distribute publications, including our catalog, to existing and potential customers worldwide, providing new product information, updates, and articles about existing and new applications. In addition, we hold numerous scientific seminars at clinical, academic and industrial research institutes worldwide and at major scientific and clinical meetings. We conduct direct marketing campaigns to announce new products and special promotions, and we offer personalized electronic newsletters and webinars highlighting molecular biology applications.

For laboratories that frequently rely on our consumables, the QIAstock program maintains inventory on-site to keep up with their requirements. QIAGEN representatives make regular visits to replenish the stock and help with other needs, and we are automating this process with digital technologies. Easy-to-use online ordering, inventory monitoring and customer-driven changes make QIAstock an efficient system for providing ready access to our products for the hundreds of customers worldwide who use this program.

Intellectual Property, Proprietary Rights and Licenses

We have made and expect to continue to make investments in intellectual property. In 2020, additions to our intangible assets outside of business combinations totaled $24.0 million. While we do not depend solely on any individual patent or technology, we are significantly dependent in the aggregate on technology that we own or license. Therefore, we consider protection of proprietary technologies and products one of the major keys to our business success. We rely on a combination of patents, licenses and trademarks to establish and protect proprietary rights. As of December 31, 2020, we owned 368 issued patents in the United States, 284 issued patents in Germany and 1,813 issued patents in other major industrialized countries. We had 546 pending patent applications. Our policy is to file patent applications in Western Europe, the United States and Japan. Patents in most countries have a term of 20 years from the date of filing the patent application. We intend to aggressively prosecute and enforce patents and to otherwise protect our proprietary technologies. We also rely on trade secrets, know-how, continuing technological innovation and licensing opportunities to develop and maintain our competitive position.

Our practice is to require employees, consultants, outside scientific collaborators, sponsored researchers and other advisers to execute confidentiality agreements upon commencement of their relationships with us. These agreements provide that all confidential information developed by or made known to the individual during the course of the relationship is to be kept confidential and not disclosed to third parties, subject to a right to publish certain information in scientific literature in certain circumstances and to other specific exceptions. In the case of our employees, the agreements provide that all inventions conceived by individuals in the course of their employment will be our exclusive property.

See “Risk Factors” included in Item 3 above for details regarding risks related to our reliance on patents and proprietary rights.

Government Regulations

We are subject to a variety of laws and regulations in the European Union, the United States and other countries. The level and scope of the regulation varies depending on the country or defined economic region, but may include, among other things, the

research, development, testing, clinical trials, manufacture, storage, recordkeeping, approval, labeling, promotion and commercial sales and distribution, of many of our products.

European Union Regulations

In the European Union, *in vitro* diagnostic medical devices (IVDs) have been regulated under EU-Directive 98/79/EC (IVD Directive) and corresponding national provisions. The IVD Directive requires that medical devices meet the essential requirements set out in an annex of the Directive. These requirements include information about the safety and efficacy of the devices. According to the IVD Directive, the Member States presume compliance with these essential requirements in respect of devices which are in conformity with the relevant national standards transposing the harmonized standards of which the reference numbers have been published in the Official Journal of the European Communities. These harmonized standards include ISO 13485:2016, the quality standard for medical device manufacturers.

IVD medical devices, other than devices for performance evaluation, must bear the CE marking of conformity when they are placed on the market. The CE mark is a declaration by the manufacturer that the product meets all the appropriate provisions of the applicable legislation implementing the relevant European Directive. As a general rule, the manufacturer must follow the procedure of the EC Declaration of conformity to obtain this CE marking.

Each European country must adopt its own laws, regulations and administrative provisions necessary to comply with the IVD Directive. Member States may not create any obstacle to the placing on the market or the putting into service within their territory of devices bearing the CE marking according to the conformity assessment procedures.

In May 2022, the Directive will be replaced by the In Vitro Diagnostic Device Regulation (IVDR) (EU) 2017/746 that was published in May 2017 and given a 5-year transition period until its full implementation on May 26, 2022. Unlike the Directive that specifies certain results that must be achieved by each Member State and permits each Member State to decide how to transpose the Directive into national law, the IVDR has binding legal force throughout every Member State and it will become effective on a set date in all the Member States. The major goals of the IVDR are to standardize diagnostic procedures within the EU, increase reliability of diagnostic analysis and enhance patient safety. Under the IVDR as enacted by the European Commission (EC), in vitro diagnostics will be subject to additional legal regulatory requirements after it comes into full effect. Among other things, the IVDR introduces a new risk-based classification system and requirements for conformity assessments. Products already certified by a Notified Body may remain on the market until 25 May 2024 under some conditions including fulfillment of specific requirements in the IVDR, but ultimately most products will have to be approved. Under the Directive nearly eighty (80) percent of QIAGEN products were under the self-declaration classification, while under IVDR nearly ninety (90) percent of QIAGEN products will require pre-approval, and those that are in the highest risk class will have to be tested by a Designated Reference Laboratory. In addition, there will also be a greater emphasis on post-market surveillance and submission of post-market performance follow-up reports.

With respect to the current COVID-19 pandemic, the EC has classified SARS-CoV-2 assays as high risk, and designated five (5) Notified Bodies under the IVDR, including QIAGEN's Notified Body, TÜV Rheinland. MedTech Europe has issued guidance in several areas, e.g., clinical benefit, technical documentation, state of art, accessories, and EUDAMED. Open points still being addressed/defined are the designation of EU Reference Laboratories and Common Specification for high risk IVDs.

United Kingdom

The UK's withdrawal from the EU will have major ramifications for IVD manufacturers that will, among other things have to follow new procedures that will apply in the UK including appointment of a UK Responsible Person rather than relying on European Authorized Representatives to manage their compliance efforts in the UK.

The UK Medicine and Healthcare Products Regulatory Agency (MHRA) issued a new guidance on how the country will regulate IVDs after January 1, 2021. According to MHRA, IVDs in the future will require certification in the UK, which is defined as England, Scotland and Wales, while companies will still be able to sell tests in Northern Ireland under existing EU IVD regulations. As described in the guidance, MHRA will continue to recognize CE marks until June 30, 2023. Companies wishing to place IVDs on the UK market will be required to register with MHRA after January 1, 2021, but will still be able to sell CE-IVD marked products for the next two-and-a half years. After July 1, 2023, companies selling in the UK will have to obtain a new marking called a UK Conformity Assessed mark (UKCA). More information about the new UK requirements should become available in the near future.

U.S. Regulations

In the United States, *in vitro* diagnostic products are subject to regulation by the FDA as medical devices to the extent that they are intended for use in the diagnosis, treatment, mitigation or prevention of disease or other conditions.

They are subject to premarket review and postmarket controls which will differ depending on how the FDA classifies a specific IVD. Certain types of tests like some that we manufacture and sell for research use only in the United States have not been

subject to FDA's premarket review and controls because we do not promote these tests for clinical diagnostic use, and they are labeled "For Research Use Only," or RUO, as required by the FDA. Other tests, known as laboratory developed tests (LDTs) which are *in vitro* diagnostic tests that are designed, manufactured and used within a single laboratory, have generally been subject to enforcement discretion, which means that FDA generally has not enforced premarket review and other applicable FDA requirements. However, as LDTs have increased in complexity, the FDA has begun to take a risk-based approach to their regulation. Congress has also signaled interest in clarifying the regulatory landscape for LDTs. In 2020, the Verifying Accurate, Leading-edge IVCT Development ("VALID") Act was introduced in both chambers of Congress. If enacted, clinical laboratories that develop and offer LDTs and traditional IVD medical device manufacturers would be subjected to the same regulatory oversight. The VALID Act defines both LDTs and IVDs as in vitro clinical tests ("IVCT") and would establish a new regulatory framework under the Food, Drug and Cosmetic Act ("FDCA") for the review and oversight of IVCTs. The proposed regulatory framework adopts various concepts from the FDCA, utilizing a risk-based approach that aims to ensure that all marketed IVCTs have a reasonable assurance of both analytical and clinical validity.

The FDA regulates the sale or distribution of medical devices, including *in vitro* diagnostic test kits and some LDTs. The information that must be submitted to the FDA in order to obtain clearance or approval to market a new medical device varies depending on how the medical device is classified by the FDA. Medical devices are classified into one of three classes depending on the controls deemed by the FDA to be necessary to reasonably ensure their safety and effectiveness. Class I devices are subject to general controls, including labeling requirements, and adherence to the FDA's quality system regulations (QSRs), which are device-specific current good manufacturing practices. Class II devices are subject to premarket notification, QSRs, general controls and sometimes special controls, including performance standards and post-market surveillance. Class III devices are subject to most of the previously identified requirements as well as to pre-market approval. Class I devices are exempt from premarket review; most Class II devices require 510(k) clearance, and all Class III devices must receive premarket approval before they can be sold in the United States. The payment of a user fee, that is typically adjusted annually, to the FDA is usually required when a 510(k) notice or premarket approval application is submitted.

510(k) Premarket Notification. A 510(k) premarket notification requires the sponsor to demonstrate that a medical device is substantially equivalent to another marketed device, termed a "predicate device," that is legally marketed in the United States and for which a premarket approval was not required. A device is substantially equivalent to a predicate device if it has the same intended use and technological characteristics as the predicate; or has the same intended use but different technological characteristics, where the information submitted to the FDA does not raise new questions of safety and effectiveness and demonstrates that the device is at least as safe and effective as the legally marketed device.

If the FDA believes that the device is not substantially equivalent to a predicate device, it will issue a "Not Substantially Equivalent" (NSE) determination and designate the device as a Class III device, which will require the submission and approval of a PMA before the new device may be marketed. A person who receives an NSE determination in response to a 510(k) submission may, within 30 days of receipt of the NSE determination, submit a de novo request for the FDA to make a risk-based evaluation for classification of the device into Class I or II. Devices that are classified through the de novo process may be marketed and used as predicates for future 510(k) submissions. The FDA continues to reevaluate the 510(k) pathway and process and the de novo process, and has taken what it describes as a risk-based approach to develop innovative regulatory policy to propose a more "contemporary" approach. In October 2017, the FDA published a final guidance entitled, "De Novo Classification Process (Evaluation of Automatic Class III Designation)," and in December 2018, the FDA published a proposed rule which if finalized is intended to provide structure, clarity and transparency on the de novo classification process. In January 2021, it also published a final guidance entitled "Requests for Feedback and Meetings for Medical Device Submissions: The Q-Submission Program."

Premarket Approval. The PMA process is more complex, costly and time consuming than the 510(k) process. A PMA must be supported by more detailed and comprehensive scientific evidence, including clinical data, to demonstrate the safety and efficacy of the medical device for its intended purpose. If the device is determined to present a "significant risk," the sponsor may not begin a clinical trial until it submits an investigational device exemption (IDE) to the FDA and obtains approval to begin the trial.

After the PMA is submitted, the FDA has 45 days to make a threshold determination that the PMA is sufficiently complete to permit a substantive review. If the PMA is complete, the FDA will file the PMA. The FDA is subject to a performance goal review time for a PMA that is 180 days from the date of filing, although in practice this review time is longer. Questions from the FDA, requests for additional data and referrals to advisory committees may delay the process considerably. The total process may take several years and there is no guarantee that the PMA will ever be approved. Even if approved, the FDA may limit the indications for which the device may be marketed. The FDA may also request additional clinical data as a condition of approval or after the PMA is approved. Any changes to the medical device may require a supplemental PMA to be submitted and approved before changed medical device may be marketed.

Any products sold by us pursuant to FDA clearances or approvals will be subject to pervasive and continuing regulation by the FDA, including record keeping requirements, reporting of adverse experiences with the use of the device and restrictions on the advertising and promotion of our products. Device manufacturers are required to register their establishments and list their devices with the FDA and are subject to periodic inspections by the FDA and certain state agencies. Noncompliance with applicable FDA requirements can result in, among other things, warning letters, fines, injunctions, civil penalties, recalls or seizures of products, total or partial suspension of production, refusal of the FDA to grant 510(k) clearance or PMA approval for new devices, withdrawal of 510(k) clearances and/or PMA approvals and criminal prosecution.

As a result of the COVID-19 pandemic, the US government declared a state of emergency which enabled the FDA to issue emergency use authorizations (EUAs) to provide more timely access to critical medical products (including medicines and tests) that may help during the emergency when there are no adequate, approved, and available alternative options. EUAs are in effect until the emergency declaration ends but can be revised or revoked as FDA considers the needs during the emergency and new data on a product's safety and effectiveness, or as products meet the criteria to become approved, cleared, or licensed by the FDA. Manufacturers of several types of SARS-CoV-2 assays have been granted EUAs, including QIAGEN. These authorizations are only intended for the duration of the emergency declaration, and afterwards will be revoked. The FDA has indicated the withdrawal of the EUA process will be done in a controlled ramp down.

Regulation of Companion Diagnostic Devices

If a sponsor or the FDA believes that a diagnostic test is essential for the safe and effective use of a corresponding therapeutic product, the sponsor of the therapeutic product will typically work with a collaborator to develop an in vitro companion diagnostic device. FDA issued a final guidance document in 2014, entitled "*In Vitro* Companion Diagnostic Devices" that is intended to assist companies developing *in vitro* companion diagnostic devices and companies developing therapeutic products that depend on the use of a specific *in vitro* companion diagnostic for the safe and effective use of the product. The FDA defined an IVD companion diagnostic device as a device that provides information that is essential for the safe and effective use of a corresponding therapeutic product. The FDA also noted that in some cases, if evidence is sufficient to conclude that the IVD companion diagnostic device is appropriate for use with a class of therapeutic products, the intended use/ indications for use should name the therapeutic class, rather than each specific product within the class.

In April 2020, FDA published a final guidance entitled, "Developing and Labeling In Vitro Companion Diagnostic Devices for a Specific Group or Class of Oncology Therapeutic Products" that expands on that last issue in the 2014 final guidance and describes considerations for the development and labeling of *in vitro* companion diagnostic devices to support the indicated uses of multiple drug or biological oncology products, when appropriate.

The FDA also issued a draft guidance in July 2016, entitled, "Principles for Codevelopment of an In Vitro Companion Diagnostic Device with a Therapeutic Product" to serve as a practical guide to assist therapeutic product sponsors and IVD sponsors in developing a therapeutic product and an accompanying IVD companion diagnostic.

The FDA subsequently introduced the concept of complementary diagnostics that are distinct from companion diagnostics because they provide additional information about how a drug is used or identify patients who are likely to derive the greatest benefit from therapy without being required for the safe and effective use of that drug. The FDA has not yet provided much guidance on the regulation and use of complementary diagnostics, but several have been approved.

The FDA indicated that it will apply a risk-based approach to determine the regulatory pathway for IVD companion diagnostic devices, as it does with all medical devices. This means that the regulatory pathway will depend on the level of risk to patients, based on the intended use of the IVD companion diagnostic device and the controls necessary to provide a reasonable assurance of safety and effectiveness. The two primary types of marketing pathways for medical devices are clearance of a premarket notification under Section 510(k) of the Federal Food, Drug, and Cosmetic Act, or 510(k), and approval of a premarket approval application, or PMA. We expect that any IVD companion diagnostic device that we develop will utilize the PMA pathway and that a clinical trial performed under an investigational device exemption, or IDE, will have to be completed before the PMA may be submitted.

The FDA expects that the therapeutic sponsor will address the need for an IVD companion diagnostic device in its therapeutic product development plan and that, in most cases, the therapeutic product and its corresponding IVD companion diagnostic device will be developed contemporaneously. If the companion diagnostic test will be used to make critical treatment decisions such as patient selection, treatment assignment, or treatment arm, it will likely be considered a significant risk device for which a clinical trial will be required.

The sponsor of the IVD companion diagnostic device will be required to comply with the FDA's IDE requirements that apply to clinical trials of significant risk devices. If the diagnostic test and the therapeutic drug are studied together to support their respective approvals, the clinical trial must meet both the IDE and IND requirements.

Unique Device Identifier Requirements

In September 2013, the FDA issued its final rule on the Unique Device Identifier. This rule now requires an additional registered identifier, including a special barcode, on all FDA regulated medical devices. The rule is implemented in phases with the first deadline of September 24, 2014 being established for all Class III medical devices. For QIAGEN, this impacted the HC2, QuantiFERON, *artus, and therascreen* products. We established a task force to ensure that the deadline was met but there is additional administrative and regulatory burden on us related to the annual reporting of compliance of these products to the new regulation. Class II and Class I products were required to have this same labeling as of September 24, 2016 and 2018, respectively. QIAGEN was fully compliant with the new rule by September 2018. The new rule will also require additional compliance oversight now that it has been implemented. The requirements are now confirmed as part of our annual reporting and PMA submissions. They are also assessed during site inspections by the U.S. FDA.

Regulation of Research Use Only Products

Some of our products are sold for research purposes in the U.S., and labeled "For Research Use Only" (RUO) or "for molecular biology applications." In November 2013, the FDA issued a final Guidance for Industry and Food and Drug Administration Staff entitled, "Distribution of In Vitro Diagnostic Products Labeled for Research Use Only or Investigational Use Only." In the Guidance, RUO refers to devices that are in the laboratory phase of development, and investigational use only, or IUO, refers to devices that are in the product testing phase of development. These types of devices are exempt from most regulatory controls. Because we do not promote our RUOs for clinical diagnostic use or provide technical assistance to clinical laboratories with respect to these tests, we believe that these tests are exempt from FDA's premarket review and other requirements. If the FDA were to disagree with our designation of any of these products, we could be forced to stop selling the product until we obtain appropriate regulatory clearance or approval. Further, it is possible that some of our RUOs may be used by some customers without our knowledge in their LDTs, which they develop, validate and promote for clinical use. However, as previously noted, we do not promote these products for use in LDTs or assist in the development of the LDTs for clinical diagnostic use.

The 21st Century Cures Act (Cures Act) was enacted into law on December 13, 2016, after a bipartisan, multi-year effort. The Cures Act primarily affects activities of the Department of Health and Human Services (HHS) and its agencies, including the Food and Drug Administration (FDA or the Agency). On June 6, 2017, the Commissioner of Food and Drugs reported to Congress as required by the Cures Act. This report included the Food & Drug Administration Work Plan and Proposed Funding Allocations of FDA Innovation Account (Required by Section 1002 of the 21st Century Cures Act (Public Law 114-255). This is now being implemented with a broad spectrum of initiatives within the FDA with the goal to support patients with improved and timely access to safe and efficacious medical products. For industry, it is anticipated that some processes will become less burdensome with more rapid approval/clearance cycles while others will continue to require significant investment.

HIPAA and Other Privacy and Security Laws

The Health Insurance Portability and Accountability Act of 1996 ("HIPAA"), established comprehensive federal standards for the privacy and security of health information. The HIPAA standards apply to three types of organizations: health plans, healthcare clearing houses, and healthcare providers that conduct certain healthcare transactions electronically ("Covered Entities"). Title II of HIPAA, the Administrative Simplification Act, contains provisions that address the privacy of health data, the security of health data, the standardization of identifying numbers used in the healthcare system and the standardization of certain healthcare transactions. The privacy regulations protect medical records and other protected health information by limiting their use and release, giving patients the right to access their medical records and limiting most disclosures of health information to the minimum amount necessary to accomplish an intended purpose. The HIPAA security standards require the adoption of administrative, physical, and technical safeguards and the adoption of written security policies and procedures.

On February 17, 2009, Congress enacted Subtitle D of the Health Information Technology for Economic and Clinical Health Act, or HITECH, provisions of the American Recovery and Reinvestment Act of 2009. HITECH expanded and strengthened HIPAA, created new targets for enforcement, imposed new penalties for noncompliance and established new breach notification requirements for Covered Entities. Regulations implementing major provisions of HITECH were finalized on January 25, 2013 through publication of the HIPAA Omnibus Rule (the "Omnibus Rule").

Under HITECH's breach notification requirements, Covered Entities must report breaches of protected health information that has not been encrypted or otherwise secured in accordance with guidance from the Secretary of the U.S. Department of Health and Human Services (the "Secretary"). Required breach notices must be made as soon as is reasonably practicable, but no later than 60 days following discovery of the breach. Reports must be made to affected individuals and to the Secretary and, in some cases depending on the size of the breach, they must be reported through local and national media. Breach reports can lead to investigation, enforcement and civil litigation, including class action lawsuits.

We are currently subject to the HIPAA regulations and maintain an active compliance program that is designed to identify security incidents and other issues in a timely fashion and enable us to remediate, mitigate harm or report if required by law. We are subject to prosecution and/or administrative enforcement and increased civil and criminal penalties for non-compliance,

including a new, four-tiered system of monetary penalties adopted under HITECH. We are also subject to enforcement by state attorneys general who were given authority to enforce HIPAA under HITECH. To avoid penalties under the HITECH breach notification provisions, we must ensure that breaches of protected health information are promptly detected and reported within the company, so that we can make all required notifications on a timely basis. However, even if we make required reports on a timely basis, we may still be subject to penalties for the underlying breach.

In addition to the federal privacy and security regulations, there are a number of state laws regarding the privacy and security of health information and personal data that are applicable to our clinical laboratories. Many states have also implemented genetic testing and privacy laws imposing specific patient consent requirements and protecting test results by strictly limiting the disclosure of those results. State requirements are particularly stringent regarding predictive genetic tests, due to the risk of genetic discrimination against healthy patients identified through testing as being at a high risk for disease. We believe that we have taken the steps required of us to comply with health information privacy and security statutes and regulations, including genetic testing and genetic information privacy laws in all jurisdictions, both state and federal. However, these laws constantly change, and we may not be able to maintain compliance in all jurisdictions where we do business. Failure to maintain compliance, or changes in state or federal laws regarding privacy or security could result in civil and/or criminal penalties, significant reputational damage and could have a material adverse effect on our business.

The Genetic Information Nondiscrimination Act of 2008, also referred to as GINA, is a federal law that protects individuals from discrimination in the health insurance and employment contexts because of DNA characteristics that may affect their health. GINA prohibits covered employers from requesting, obtaining, or using employees' genetic information (subject to limited exceptions), and prohibits covered health insurers from requesting genetic information or using any such information they may already have for purposes of making eligibility, premium, or coverage-related decisions.

Many states have also adopted genetic testing and privacy laws. These laws typically require a specific, written consent for genetic testing as well as consent for the disclosure of genetic test results and otherwise limit uses and disclosures of genetic testing results. A few states have adopted laws that give their residents property rights in their genetic information.

Privacy and data security laws, including those relating to health information, are complex, overlapping and rapidly evolving. As our activities evolve and expand, additional laws may be implicated. For example, the California Consumer Privacy Act of 2018, which took effect on January 1, 2020, imposes requirements and protections upon the processing of personal data, aimed at giving California consumers more visibility and control over their personal information. There are also non-U.S. privacy laws, such as the General Data Protection Regulation (GDPR) of the European Union, that impose restrictions on the transfer, access, use, and disclosure of health and other personal information. We have implemented the requirements set forth by the GDPR, which took effect on May 25, 2018. All of these laws impact our business either directly or indirectly. Our failure to comply with applicable privacy or security laws or significant changes in these laws could significantly impact our business and future business plans. For example, we may be subject to regulatory action or lawsuits in the event we fail to comply with applicable privacy laws. We may face significant liability in the event any of the personal information we maintain is lost or otherwise subject to misuse or other wrongful use, access or disclosure.

The General Data Protection Regulation ("GDPR"), which applies to all EU member states from May 25, 2018, also applies to some of our operations.

We are subject to laws and regulations related to the protection of the environment, the health and safety of employees and the handling, transportation and disposal of medical specimens, infectious and hazardous waste and radioactive materials. For example, the U.S. Occupational Safety and Health Administration ("OSHA") has established extensive requirements relating specifically to workplace safety for healthcare employers in the U.S. This includes requirements to develop and implement multi-faceted programs to protect workers from exposure to blood-borne pathogens, including preventing or minimizing any exposure through needle stick injuries. For purposes of transportation, some biological materials and laboratory supplies are classified as hazardous materials and are subject to regulation by one or more of the following agencies: the U.S. Department of Transportation, the U.S. Public Health Service, the United States Postal Service, the Office of Foreign Assets Control, and the International Air Transport Association. We generally use third-party vendors to dispose of regulated medical waste, hazardous waste and radioactive materials and contractually require them to comply with applicable laws and regulations.

Compliance with Fraud and Abuse Laws

We have to comply with various U.S. federal and state laws, rules and regulations pertaining to healthcare fraud and abuse, including anti-kickback laws and physician self-referral laws, rules and regulations. Violations of the fraud and abuse laws are punishable by criminal and civil sanctions, including, in some instances, exclusion from participation in federal and state healthcare programs, including Medicare and Medicaid.

Anti-Kickback Statute

The federal Anti-Kickback Statute prohibits persons from knowingly or willfully soliciting, receiving, offering or paying remuneration, directly or indirectly, in exchange for or to induce:

- The referral of an individual for a service or product for which payment may be made by Medicare, Medicaid or other government-sponsored healthcare program; or
- purchasing, ordering, arranging for, or recommending the ordering of, any service or product for which payment may be made by a government-sponsored healthcare program.

The definition of “remuneration” has been broadly interpreted to include anything of value, including such items as gifts, certain discounts, waiver of payments, and providing anything at less than its fair market value. In addition, several courts have interpreted the law to mean that if “one purpose” of an arrangement is intended to induce referrals, the statute is violated.

The Anti-Kickback Statute is broad and prohibits many arrangements and practices that are lawful in businesses outside of the healthcare industry. Recognizing that the Anti-Kickback Statute is broad and may technically prohibit many innocuous or beneficial arrangements, the Office of Inspector General of the Department of Health and Human Services (OIG) has issued regulations, commonly known as "safe harbors." These safe harbors set forth certain requirements that, if fully met, will insulate healthcare providers, medical device manufacturers, and others, from prosecution under the Anti-Kickback Statute. Although full compliance with these safe harbor provisions ensures against prosecution under the Anti-Kickback Statute, full compliance is often difficult and the failure of a transaction or arrangement to fit within a specific safe harbor does not necessarily mean that the transaction or arrangement is illegal or that prosecution under the Anti-Kickback Statute will be pursued. However, conduct and business arrangements that do not fully satisfy each applicable safe harbor may result in increased scrutiny by government enforcement authorities such as the OIG. The statutory penalties for violating the Anti-Kickback Statute include imprisonment for up to five years and criminal fines of up to $25,000 per violation. In addition, through application of other laws, conduct that violates the Anti-Kickback Statute can also give rise to False Claims Act lawsuits, civil monetary penalties and possible exclusion from Medicare and Medicaid and other federal healthcare programs. In addition to the Federal Anti-Kickback Statute, many states have their own kickback laws. Often, these laws closely follow the language of the federal law, although they do not always have the same scope, exceptions, safe harbors or sanctions. In some states, these anti-kickback laws apply not only to payment made by a government health care program but also with respect to other payors, including commercial insurance companies.

We have and may in the future, enter into various agreements with health care providers who perform services for us, including some who make clinical decisions to use our products. All such arrangements have been structured with the intention of complying with all applicable fraud and abuse laws, including the Anti-Kickback Statute.

Other Fraud and Abuse Laws

The federal False Claims Act (FCA) prohibits any person from knowingly presenting, or causing to be presented, a false claim or knowingly making, or causing to be made, a false statement to obtain payment from the federal government. Those found in violation of the FCA can be subject to fines and penalties of three times the damages sustained by the government, plus mandatory civil penalties of between $5,500 and $11,000 for each separate false claim. Actions filed under the FCA can be brought by any individual on behalf of the government, a "qui tam" action, and such individual, known as a "relator" or, more commonly, as a "whistleblower," who may share in any amounts paid by the entity to the government in damages and penalties or by way of settlement. In addition, certain states have enacted laws modeled after the FCA, and this legislative activity is expected to increase. Qui tam actions have increased significantly in recent years, causing greater numbers of healthcare companies, including medical device manufacturers, to defend false claim actions, pay damages and penalties or be excluded from Medicare, Medicaid or other federal or state healthcare programs as a result of investigations arising out of such actions.

The federal ban on physician self-referrals, commonly known as the Stark Law, prohibits, subject to certain exceptions, physician referrals of Medicare and Medicaid patients to an entity providing certain “designated health services” if the physician or an immediate family member of the physician has any financial relationship with the entity. Penalties for violating the Stark Law include fines, civil monetary penalties and possible exclusion from federal healthcare programs. In addition to the Stark Law, many states have their own self-referral laws. Often, these laws closely follow the language of the federal law, although they do not always have the same scope, exceptions or safe harbors.

The anti-inducement law (Section 1128A(a)(5) of the Social Security Act), prohibits providers from offering anything of value to a Medicare or Medicaid beneficiary to induce the beneficiary to use items or services covered by either program. Additionally, the Civil Monetary Penalties Law (Section 1128A of the Social Security Act), authorizes the United States Department of Health and Human Services to impose civil penalties administratively for various fraudulent or abusive acts.

The OIG also has authority to bring administrative actions against entities for alleged violations of a number of prohibitions, including the Anti-Kickback Statute and the Stark Law. The OIG may seek to impose civil monetary penalties or exclusion from the Medicare, Medicaid and other federal healthcare programs. Civil monetary penalties can range from $2,000 to $50,000 for each violation or failure plus, in certain circumstances, three times the amounts claimed in reimbursement or illegal remuneration. Typically, exclusions last for five years.

In addition, we must comply with a variety of other laws, such as laws prohibiting false claims for reimbursement under

Medicare and Medicaid, all of which can also be triggered by violations of federal anti-kickback laws; the Health Insurance Portability and Accounting Act of 1996, which makes it a federal crime to commit healthcare fraud and make false statements; and the Federal Trade Commission Act and similar laws regulating advertisement and consumer protections.

There are also an increasing number of state "sunshine" laws that require manufacturers to provide reports to state governments on pricing and marketing information. Several states have enacted legislation requiring manufacturers, including medical device companies to, among other things, establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales and marketing activities, and to prohibit or limit certain other sales and marketing practices. In addition, a federal law known as the Physician Payments Sunshine Act, requires manufacturers, including medical device manufacturers, to track and report to the federal government certain payments and other transfers of value made to physicians and teaching hospitals and ownership or investment interests held by physicians and their immediate family members. The federal government discloses the reported information on a publicly available website. If we fail to track and report as required by these laws or to otherwise comply with these laws, we could be subject to the penalty provisions of the pertinent state and federal authorities.

Despite extensive procedures to ensure compliance, we may also be exposed to liabilities under the U.S. Foreign Corrupt Practices Act, or FCPA, which generally prohibits companies and their intermediaries from making corrupt payments to foreign officials for the purpose of obtaining or maintaining business or otherwise obtaining favorable treatment, and requires companies to maintain adequate record-keeping and internal accounting practices to accurately reflect the transactions of the company. We are also subject to a number of other laws and regulations relating to money laundering, international money transfers and electronic fund transfers. These laws apply to companies, individual directors, officers, employees and agents.

Environment, Health and Safety

We are subject to laws and regulations related to the protection of the environment, the health and safety of employees and the handling, transportation and disposal of medical specimens, infectious and hazardous waste and radioactive materials. For example, the U.S. Occupational Safety and Health Administration (OSHA) has established extensive requirements relating specifically to workplace safety for healthcare employers in the U.S. This includes requirements to develop and implement multi-faceted programs to protect workers from exposure to blood-borne pathogens, such as HIV and hepatitis B and C, including preventing or minimizing any exposure through needle stick injuries. For purposes of transportation, some biological materials and laboratory supplies are classified as hazardous materials and are subject to regulation by one or more of the following agencies: the U.S. Department of Transportation, the U.S. Public Health Service, the United States Postal Service and the International Air Transport Association. The U.S. Environmental Protection Agency (EPA) has also promulgated regulations setting forth importation, labelling, and registration requirements, among others, which may apply to certain products and/or establishments of the company.

Other Country Specific Requirements

In many countries outside of the United States and the EU, coverage, pricing and reimbursement approvals are also required. Additionally, many major markets are adopting regulations and requirements similar to those of the U.S. Food and Drug Administration (FDA), which require additional submission activities and management of country-specific regulatory requirements. This is being led by the International Medical Device Regulators Forum (IMDRF). This Forum consists of regulators from around the world that have signed governmental agreements to align global regulations, especially around submissions and approvals. In the long term this holds the promise of reducing volatility and complexity in the regulatory landscape.

Reimbursement

United States

In the United States, payments for diagnostic tests come from several sources, including third party payors such as health maintenance organizations and preferred provider organizations; government health care programs such as Medicare or Medicaid; and, in most cases, the patients themselves. For many years, federal and state governments in the United States have pursued methods to reduce the cost of healthcare delivery. For example, in 2010, the United States enacted major healthcare reform legislation known as the Patient Protection and Affordable Care Act (ACA). Such changes have had, and are expected to continue to have, an impact on our business. At present, Medicare payment rates are affected by across-the-board federal budget cuts commonly referred to as "sequestration." Under sequestration, the Centers for Medicare & Medicaid Services (CMS), the federal agency responsible for administering Medicare and Medicaid, reduced Medicare payments to providers by 2% annually beginning in 2013 and through 2023.

We frequently identify value propositions on our products and communicate them to payors, providers, and patient stakeholders and attempt to positively impact coverage, coding and payment pathways. However, we have no direct control over payor decisions with respect to coverage and payment levels for our products. The manner and level of reimbursement may depend on the site of care, the procedure(s) performed, the final patient diagnosis, the device(s) and/or drug(s) utilized, the available

budget, or a combination of these factors, and coverage and payment levels are determined at each payor's discretion. Changes in reimbursement levels or methods may positively or negatively affect sales of our products in any given country for any given product. At QIAGEN, we work with several specialized reimbursement consulting companies and maintain regular contact with payors.

As government programs seek to expand healthcare coverage for their citizens, they have at the same time sought to control costs by limiting the amount of reimbursement they will pay for particular procedures, products or services. Many third-party payors have developed payment and delivery mechanisms to support cost control efforts and to focus on paying for quality. Such mechanisms include payment reductions, pay for performance metrics, quality-based performance payments, restrictive coverage policies, studies to compare effectiveness and patient outcomes, and technology assessments. These changes have increased emphasis on the delivery of more cost-effective and quality-driven healthcare.

Code Assignment. In the United States, a third-party payor's decisions regarding coverage and payment are impacted, in large part, by the specific Current Procedural Terminology, or CPT, code used to identify a test. The American Medical Association, or AMA, publishes the CPT, which identifies codes, along with descriptions, for reporting medical services and procedures. The purpose of the CPT is to provide a uniform language that accurately describes medical, surgical, and diagnostic services and therefore to ensure reliable nationwide communication among healthcare providers, patients, and third-party payors. CMS uses its own HCPCS codes for medical billing and reimbursement purposes. Level I HCPCS codes reflect current CPT codes, while Level II codes primarily represent non-physician services and Level III codes are local codes developed by Medicaid agencies, Medicare contractors and private insurers. Proprietary Laboratory Analyses (PLA) Codes are an addition to the CPT® code set approved by the AMA CPT® Editorial Panel. They are alpha-numeric CPT codes with a corresponding descriptor for labs or manufacturers that want to more specifically identify their test.

A manufacturer of in vitro diagnostic kits or a provider of laboratory services may request establishment of a Category I CPT code for a new product or the PLA Code or both. In addition, Z-Code identifiers are unique five-character alphanumeric tracking codes associated with a specific molecular diagnostic test. When a claim is submitted, it includes the associated CPT code and the Z-Code identifier is entered as a device code. Assignment of a specific CPT code ensures routine processing and payment for a diagnostic test by both private and government third-party payors.

The AMA has specific procedures for establishing a new CPT code and, if appropriate, for modifying existing nomenclature to incorporate a new test into an existing code. If the AMA concludes that a new code or modification of nomenclature is unnecessary, the AMA will inform the requestor how to use one or more existing codes to report the test.

While the AMA's decision is pending, billing and collection may be sought under an existing, non-specific CPT code. A manufacturer or provider may decide not to request assignment of a CPT code and instead use an existing, non-specific code for reimbursement purposes. However, use of such codes may result in more frequent denials and/or requests for supporting clinical documentation from the third-party payor and in lower reimbursement rates, which may vary based on geographical location.

CMS reimbursement rates for clinical diagnostic tests are defined by CPT and HCPS codes in the Clinical Laboratory Fee Schedule (CLFS). In 2012, the AMA added 127 new CPT codes for molecular pathology services that became effective on January 1, 2013. These new CPT codes are biomarker specific and were designed to replace the previous methodology of billing for molecular pathology testing, which involved "stacking" a series of non-biomarker specific CPT codes together to describe the testing performed. CMS issued final national reimbursement prices for the new CPT codes in November 2013. These federal reimbursement amounts are widely acknowledged to be lower than the reimbursement obtained by the now outdated "stacking" method, but commercial insurers and Medicare contractors are still in the process of solidifying their coverage and reimbursement policies for the testing described by these new CPT codes.

As of January 1, 2018, in accordance with the Protecting Access to Medicare Act of 2014 (PAMA), CMS began calculating Medicare reimbursement rates for certain clinical diagnostic tests using weighted median private payor rates, which are based on rate information reported by applicable laboratories. This new rate methodology means the lower reimbursement rates previously experienced in the field of molecular pathology testing now extends to additional diagnostic testing codes on the CLFS. On December 20, 2019, the President signed the Further Consolidated Appropriations Act, which included the Laboratory Access for Beneficiaries Act, or the LAB Act. The LAB Act delays by one year the reporting of payment data under PAMA for clinical laboratory diagnostic tests that are not advanced diagnostic laboratory tests. CDLT data for the collection period of January 1, 2019 through June 30, 2019, which was supposed to be reported in 2020, must now be reported between January 1, 2021 and March 31, 2021. Data reporting will then resume on a three-year cycle beginning in 2024. Under PAMA, as amended by the LAB Act, any reduction to a particular payment rate resulting from the new methodology is limited to 10% per test per year in 2020 and to 15% per test per year in each of the years 2021 through 2023.

Coverage Decisions. When deciding whether to cover a particular diagnostic test, private and government third-party payors generally consider whether the test is a medically necessary and, if so, whether the test will directly impact clinical decision making. For coverage, the testing method should be considered scientifically valid to identify the specific gene biomarker or

gene mutation, and must have been demonstrated to improve clinical outcomes for the patient's condition. Coverage of a drug therapy and its companion diagnostic are usually validated by a NCCN category 1, 2A or 2B recommendation. However, most third-party payors do not cover experimental services. Coverage determinations are often influenced by current standards of practice and clinical data, particularly at the local level. CMS has the authority to make coverage determinations on a national basis, but most Medicare coverage decisions are made at the local level by contractors that administer the Medicare program in specified geographic areas. Private and government third-party payors have separate processes for making coverage determinations, and private third-party payors may or may not follow Medicare's coverage decisions. If a third-party payor has a coverage determination in place for a particular diagnostic test, billing for that test must comply with the established policy. Otherwise, the third-party payor makes reimbursement decisions on a case-by-case basis.

Payment. Payment for covered diagnostic tests is determined based on various methodologies, including prospective payment systems and fee schedules. In addition, private third-party payors may negotiate contractual rates with participating providers, establish fee schedule rates, or set rates as a percentage of the billed charge. Diagnostic tests furnished to Medicare inpatients generally are included in the bundled payment made to the hospital under Medicare's Inpatient Prospective Payment System, utilizing Diagnosis Related Groups (DRGs) depending on the patient's condition. Payment rates for diagnostic tests furnished to Medicare beneficiaries in outpatient settings are the lesser of the amount billed, the local fee for a geographic area, or a national limit. Each year, the fee schedule is updated for inflation and could be modified by Congress in accordance with the CLFS rules and provisions. Medicaid programs generally pay for diagnostic tests based on a fee schedule, but reimbursement varies by geographic region.

European Union

In the European Union, the reimbursement mechanisms used by private and public health insurers vary by country. For the public systems, reimbursement is determined by guidelines established by the legislator or responsible national authority. As elsewhere, inclusion in reimbursement catalogues focuses on the medical usefulness, need, quality and economic benefits to patients and the healthcare system. Acceptance for reimbursement comes with cost, use, and often volume restrictions, which again can vary by country.

Conflict Minerals

U.S. legislation has been enacted to improve transparency and accountability concerning the sourcing of conflict minerals from mines located in the conflict zones of the Democratic Republic of Congo (DRC) and its adjoining countries. The term conflict minerals currently encompasses tantalum, tin, tungsten (or their ores) and gold. Certain of our instrumentation product components that we purchase from third party suppliers contain gold. This U.S. legislation requires manufacturers, such as us, to investigate our supply chain and disclose if there is any use of conflict minerals originating in the DRC or adjoining countries. We conduct due diligence measures annually to determine the presence of conflict minerals in our products and the source of any such conflict minerals. Because we do not purchase conflict minerals directly from smelters or refineries, we rely on our suppliers to specify to us their conflict minerals sources and declare their conflict minerals status. We disclosed our most recent conflict minerals findings to the Securities Exchange Commission for the calendar year ending December 31, 2019 on Form SD on March 30, 2020 and will provide updated disclosure to the Securities Exchange Commission as required.

Organizational Structure

QIAGEN N.V. is the holding company for more than 50 consolidated subsidiaries, many of which have the primary function of distributing our products and services on a regional basis. Certain subsidiaries also have research and development or production activities. A listing of our significant subsidiaries and their jurisdictions of incorporation is included in Exhibit 8.1 to this Annual Report.

Description of Property

Our production and manufacturing facilities for consumable products are located in Germany, the United States and China. Our facilities for software development are located in the United States, Germany, Poland, Denmark and Romania. In recent years, we have made investments in automated and interchangeable production equipment to increase our production capacity and improve efficiency. Our production and manufacturing operations are highly integrated and benefit from sophisticated inventory control. Production management personnel are highly qualified, and many have advanced degrees in engineering, business and science. We also have installed and continue to expand production-planning systems that are included in our integrated information and control system based on the SAP R/3 business software package from SAP SE. Worldwide, we use SAP software to integrate most of our operating subsidiaries. Capital expenditures for property, plant and equipment totaled $132.8 million, $118.0 million and $109.8 million for 2020, 2019 and 2018, respectively.

We have an established quality system, including standard manufacturing and documentation procedures, intended to ensure that products are produced and tested in accordance with the FDA's Quality System Regulations, which impose current Good Manufacturing Practice (cGMP) requirements. For cGMP production, special areas were built in our facilities in Hilden, Germany, Germantown, Maryland and Shenzhen, China. These facilities operate in accordance with cGMP requirements.

The consumable products manufactured at QIAGEN GmbH in Germany, and QIAGEN Sciences LLC in Maryland, are produced under ISO 9001: 2008, ISO 13485:2012, ISO 13485:2003 CMDCAS. Our certifications form part of our ongoing commitment to provide our customers with high-quality, state-of-the-art sample and assay technologies under our Total Quality Management system.

Our facilities in Hilden, Germany, currently occupy a total of approximately 786,000 square feet. In 2020, we made additional investments to expand production lines to meet both current demand as well as future growth. Our production capacity is increased through our manufacturing and research facilities in the United States. QIAGEN Sciences, LLC owns a 24-acre site in Germantown, Maryland. The 285,000-square-foot Germantown facility consists of several buildings in a campus-like arrangement and can accommodate over 500 employees. There is room for future expansion of up to 300,000 square feet of facility space. In 2020, we announced our plans to renovate the manufacturing facility to accommodate expanded production of testing products, including for COVID-19.

We lease facilities in Frederick, Maryland, comprising 42,000 square feet for manufacturing, warehousing, distribution and research operations and also facilities in Beverly, Massachusetts, with 44,000 square feet for enzyme manufacturing. Additionally, we have leased facilities in Redwood City, California, with 12,700 square feet for bioinformatics and 19,000 square feet in Minden, Nevada, for Service Solutions. We have shared service centers that lease facilities in Wroclaw, Poland, (65,100 square feet) and Manila, Philippines (29,300 square feet). Additionally, we lease facilities in Shenzhen, China, and Manchester, United Kingdom, for research operations. Other subsidiaries throughout the world lease smaller amounts of space. Our corporate headquarters are located in leased office space in Venlo, The Netherlands.

We believe our existing production and distribution facilities can support anticipated production needs for the next 36 months. Our production and manufacturing operations are subject to various federal, state, and local laws and regulations including environmental regulations. We do not believe we have any material issues relating to these laws and regulations.

Human Capital

The skills, knowledge, dedication and passion of our employees are critical for the success of QIAGEN. We want to recruit, support and retain the best employees, offering performance-based remuneration, development opportunities and measures to balance work and family life. We are committed to diversity in our teams, fueling innovation and engagement with our customers and business partners. In a fast-changing, competitive business environment, QIAGEN has a significant commitment to being an employer of choice and further enhancing our position as a great place to work. At the end of 2020, QIAGEN had 5,610 full-time equivalent employees, an increase of 10% from 5,096 at the end of 2019.

Recognizing that our employees are the key to our success, we seek to be a great place to work. In 2020, we were once again recognized as a “Top Employer” in Germany by the Top Employer Institute, a global authority on recognizing excellence in people practices. Also in 2020, our subsidiary in Brazil was certified for the first time as a “Great Place to Work,” and awarded one of the “Best Workplaces” in healthcare as well as Top 5 in diagnostic medicine. Finally, our U.S. headquarters in Germantown, Maryland, was awarded five different awards by the Alliance for Workplace Excellence (AWE), including the Workplace Excellence Seal of Approval, Diversity Champion Award, and Best Practices Supporting Workers 50+.

We are committed to creating an environment that is rich in diversity and empowers all employees. Diverse teams strengthen our organization through the variety of ideas, perspectives and approaches they bring to our business. Our teams outperform and succeed when they are composed of individuals with the widest possible range of personalities, backgrounds and traits. That’s why we value each person’s uniqueness and maintain an environment where all individuals can contribute to our success based on their strengths and characteristics. In 2020, our multicultural workforce was composed of at least 80 nationalities with an average age of 40.1. With 48% women, we are well balanced in terms of gender on an aggregate level. Our strategic initiative on gender diversity, which began in 2018, has yielded remarkable results in the past years, particularly with regard to leadership positions. The participation of women in leadership roles rose from just under 28% in 2018 to just under 32% in 2020 as a result of a series of initiatives to drive awareness, engagement, and development of this area among our leadership team.

Employee development is viewed as integral to the success of creating lasting value for our customers, patients, colleagues, partners, and shareholders. We offer opportunities to work on exciting tasks and projects in an engaging work environment. Employees join QIAGEN and stay with QIAGEN because they can see how their work makes a difference to people’s lives everywhere in the world. We offer various training platforms that provide the possibility to either use our global e-learning portfolio or to participate in personal trainings usually offered in a blended format. The focus is on job-specific skills, compliance, competencies and leadership development. In 2020, we ran a mix of virtual instructor-led and e-learning courses. All in person trainings were put on hold in 2020 due to the COVID-19 pandemic.

Internal and external ratings have improved significantly and support our preferred position in the global working environment. Specific retention targets have been met with a 9% voluntary turnover rate for the total workforce and a voluntary turnover rate of 5% for the management level in 2020.

Since the creation of QIAGEN, management has formed a culture that seeks to attract and retain the best talent worldwide and reward associates for performance. This compensation system fosters a focus on achieving corporate strategic initiatives as well as personal accountability. We participate in various compensation benchmarking surveys that provide information on the level and mix of compensation awarded by companies and industries for a broad range of positions around the world. In the case of QIAGEN, these include many peer life science and diagnostics companies based in the U.S. QIAGEN has a "pay for performance" culture, with the compensation of employees linked to the achievement of corporate financial and individual performance goals. Business goals are established by senior management. These goals are set at ambitious levels each year to motivate and drive performance, with a focus on both short-term and long-term quantifiable objectives. Furthermore, to align our compensation programs with the interests of shareholders, management levels receive a portion of their total compensation in the form of long-term compensation, which is granted as equity as a reward for performance.

In 2020 as a consequence of the global pandemic, a large portion of our employees worked remotely beginning in the first quarter of 2020 and continuing throughout the year. For our essential workers and in our locations where a small number of employees continued to work on site, we implemented safety measures including routine on-site testing at critical manufacturing facilities to reduce the risk of COVID-19 transmission.

For more information about our human capital, please also refer our non-financial statement available at our website.

Item 4A. Unresolved Staff Comments

Not applicable.

Item 5. 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" in Item 3 of this Annual Report.

Results of Operations

Overview

We are a leading global provider of Sample to Insight solutions that enable customers to gain valuable molecular insights from samples containing the building blocks of life. Our sample technologies isolate and process DNA, RNA and proteins from blood, tissue and other materials. Assay technologies make these biomolecules visible and ready for analysis, such as identifying the DNA of a virus or a mutation of a gene. QIAGEN Digital insights 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 December 31, 2020, we employed more than 5,600 people in more than 35 locations worldwide.

Recent Acquisitions

We have made a number of strategic acquisitions and implemented other strategic transactions aiming to achieve market-leading positions with innovative technologies in high-growth areas of molecular diagnostics and research. These transactions have enhanced our product offerings and technology platforms, as well as our geographic footprint. They include:

- In September 2020, we acquired the remaining 80.1% of NeuMoDx, a company that designs and develops molecular diagnostic solutions for hospital and clinical reference laboratories. Prior to acquisition, we held a 19.9% investment in NeuMoDx and entered a strategic partnership in 2018 to commercialize next-generation, fully integrated automation systems for PCR testing. The NeuMoDx 288 (high-throughput version) and NeuMoDx 96 (mid-throughput) systems

help clinical laboratories process increasing molecular test volumes and deliver more rapid diagnostic insights. We distribute these systems in Europe and other markets outside the United States.

- In January 2019, we began developing next-generation systems for digital PCR and acquired the digital PCR assets of Formulatrix, Inc., a developer of laboratory automation solutions. In 2020, we began commercialization of fully integrated digital PCR solutions, combining QIAGEN technologies and automation with the Formulatrix assets we acquired. Known as QIAcuity digital PCR, the system offers highly automated workflows, quicker time-to-result, and higher multiplexing and throughput flexibility than current digital PCR platforms. Digital PCR is one of the fastest-growing molecular testing applications in the life sciences industry. We paid Formulatrix $125.0 million in cash upon closing and paid $135.9 million during 2020 for the remaining milestone payments.
- Also in January 2019, we acquired N-of-One, Inc., a pioneer in molecular oncology decision support services, to strengthen our bioinformatics leadership in clinical NGS interpretation. The acquisition broadened the QIAGEN Digital Insights offering of software, content and service-based solutions. N-of-One's services and content have been integrated into QIAGEN Clinical Insights (QCI), adding medical interpretation and real-world evidence insights. The N-of-One somatic cancer database, drawing upon more than 125,000 anonymized patient samples, has increased our lead as the provider of the industry's largest genomics knowledge base.

Our financial results include the impacts of recent acquisitions from their effective dates.

Year Ended December 31, 2020, Compared to 2019

Net Sales

(in millions)	**2020**		**2019**		
Product type	**Net sales**	**% of net sales**	**Net sales**	**% of net sales**	**% change**
Consumables and related revenues	**$ 1,615.4**	**86%**	$ 1,354.1	89%	+19%
Instruments	**254.9**	**14%**	172.3	11%	+48%
Net Sales	**$ 1,870.3**		$ 1,526.4		+23%
Non-COVID-19 and COVID-19 products					
Non-COVID-19 products	**$ 1,252.4**	**67%**	$ 1,383.1	91%	-9%
COVID-19 products	**617.9**	**33%**	143.3	9%	+331%
Net Sales	**$ 1,870.3**		$ 1,526.4		+23%

In 2020, we experienced significant demand for solutions used in the COVID-19 pandemic and experienced improving trends in other areas of the business during the second half of 2020.

The instruments portfolio saw strong sales growth across multiple product categories including sample preparation platforms as well as general and integrated PCR equipment and platforms. Consumables and related revenues benefited from increased output of key consumable products including sample technologies kits and testing cartridges for QIAstat-Dx and NeuMoDx instruments. Net sales were positively impacted by two percentage points from favorable currency movements against the U.S. dollar.

(in millions)	2020		2019		
Customer class	**Net sales**	**% of net sales**	**Net sales**	**% of net sales**	**% change**
Molecular Diagnostics	**$ 904.0**	**48%**	$ 737.1	48%	+23%
Life Sciences	**966.4**	**52%**	789.3	52%	+22%
Net Sales	**$ 1,870.3**		$ 1,526.4		+23%
Product group					
Sample technologies	**$ 803.9**	**43%**	$ 548.4	36%	+47%
Diagnostic solutions	**460.8**	**25%**	465.5	30%	-1%
PCR / Nucleic acid amplification	**363.6**	**19%**	224.7	15%	+62%
Genomics / NGS	**165.6**	**9%**	183.8	12%	-10%
Other	**76.6**	**4%**	104.1	7%	-26%
Net Sales	**$ 1,870.3**		$ 1,526.4		+23%

Sample technologies were driven by strong growth in both consumables and instruments. Key drivers of this product group, which represents products involved in the first step in any molecular lab process, included COVID-19 solutions such as automated RNA extraction kits along with the launch of QIAprep&amp and improving trends in non-COVID products in the later portion of 2020.

Diagnostic solutions includes molecular testing platforms and products as well as Precision Medicine and companion diagnostic co-development revenues. This product group experienced growth due to sales of COVID testing solutions including QIAstat-Dx and NeuMoDx that was more than offset by the steep declines experienced earlier in 2020 for QuantiFERON-TB test sales that did see improving trends during the later portion of 2020 but finished the year down 21% compared to 2019.

PCR / Nucleic acid amplification involves research and applied PCR solutions and components and includes the QIAcuity digital PCR platform launched in September 2020. This product group was driven by strong growth across consumables and instruments in 2020 and also saw strong demand for OEM solutions and enzymes used in third-party diagnostic kits for COVID-19 testing.

Genomics / NGS includes universal NGS solutions as well as the full QIAGEN Digital Insights portfolio. This product group faced slower customer demand during the pandemic. Universal NGS sales were supported by initial orders of NGS-based kits used for epidemiological research of positive COVID-19 samples for viral variants during the second half of 2020.

Geographic region (in millions)	2020	2019	% change
Americas	**$ 825.5**	$ 722.0	+14%
Europe, Middle East and Africa	**682.3**	487.5	+40%
Asia Pacific, Japan and Rest of World	**362.6**	317.0	+14%
Net Sales	**$ 1,870.3**	$ 1,526.4	+23%

Top 7 emerging markets: Brazil, Russia, India, China, South Korea, Mexico and Turkey (2020: $287 million, 2019: $250 million, +14%)

EMEA led the geographic regions with 40% sales growth in 2020 due to strong performance in countries including France, the United Kingdom, Italy and Germany. EMEA was supported by one percentage point of sales growth from positive currency movements in 2020. Asia Pacific, Japan and Rest of World experienced gains during 2020 in China in part from strong QIAstat-Dx instrument sales as well as overall gains in other countries including Japan and Australia that more than offset a decline in South Korea particularly in QuantiFERON-TB tests. The Americas region benefited from significant increased demand in Brazil and Mexico throughout the year and gains in the United States in other areas of the portfolio more than offset the decline in QuantiFERON-TB tests for the full-year.

Gross Profit

(in millions)	2020	2019	% change
Gross Profit	**$ 1,232.7**	$ 1,005.3	+23%
Gross Margin	**65.9 %**	65.9 %	

Generally, our consumables and related products have a higher gross margin than our instrumentation products and service arrangements and fluctuations in the sales levels of these products and services can result in changes in gross margin between periods. Gross profit in 2020 includes the shift in product mix where lower margin instrument products advanced at a faster pace than consumable products as well as higher material costs. These adverse impacts were offset by lower amortization expenses related to developed technology and patent and license rights, which have been acquired in business combinations or asset acquisitions. The amortization expense on acquisition-related intangibles within cost of sales decreased to $63.2 million in 2020 from $71.5 million in 2019. The decrease follows the full amortization of assets previously acquired in 2007. We expect that our acquisition-related intangible amortization will increase as a result of the acquisition of NeuMoDx as further discussed in Note 5 "*Acquisitions and Divestitures*" and in the event of future acquisitions.

Operating Expenses

	2020		2019		
(in millions)	**Expenses**	**% of net sales**	**Expenses**	**% of net sales**	**% change**
Research and development	**$ 149.1**	**8.0%**	$ 157.4	10.3%	-5%
Sales and marketing	**413.7**	**22.1%**	391.9	25.7%	+6%
General and administrative	**111.7**	**6.0%**	112.3	7.4%	-1%
Acquisition-related intangible amortization	**20.8**	**1.1%**	30.0	2.0%	-31%
Restructuring, acquisition, integration and other, net	**150.0**	**8.0%**	199.8	13.1%	-25%
Long-lived asset impairments	**1.0**	**0.1%**	140.0	9.2%	-99%
Total operating expenses	**$ 846.3**	**45.2%**	$ 1,031.4	67.6%	
Income (loss) from operations	**$ 386.4**	**20.7%**	$ (26.1)	(1.7)%	

2020 results include the expenses from the discontinued tender offer while 2019 includes expense related to the decision to stop NGS instrument development and targeted efficiency improvement initiatives.

Research and Development

The overall decrease is the result of the suspended development of NGS-related instrument systems in connection with the 2019 restructuring measures discussed in Note 6 "Restructuring". In 2020, additional costs include costs associated with QIAstat menu expansion, the launch of new products including QIAprep&amp and QIAcuity as well as costs incurred following the acquisition of NeuMoDx. 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 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 were primarily associated with personnel, commissions, advertising, trade shows, publications, freight and logistics expenses, and other promotional expense. Higher costs in 2020 reflect higher share-based compensation expense as a result of an increase in estimated performance achievement and increases in freight and commissions due to higher sales, partially offset from the lockdowns and limitations resulting from the COVID-19 pandemic, such as restricted travel and postponed trade shows and exhibits. When pandemic lockdowns and restrictions are lifted, we anticipate that absolute sales and marketing costs will increase along with new product introductions and growth in sales of our products.

General and Administrative

The decrease in general and administrative expenses reflects lower share-based compensation following the 2019 restructuring measures partially offset by continued investments in information technology systems, including cyber security, across the organization as well as an increase in the personnel expenses from performance achievements due to sales volume increases.

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 line items based on the use of the asset.

During 2020, amortization expense on acquisition-related intangibles within operating expense decreased to $20.8 million, compared to $30.0 million in 2019. The decrease follows the full amortization of assets previously acquired in 2007. Our acquisition-related intangible amortization will increase in the event of future acquisitions.

Restructuring, Acquisition, Integration and Other, net

Restructuring, acquisition, integration and other, net expenses totaled $150.0 million during the year ended December 31, 2020 and includes acquisition expenses related to the unsuccessful acquisition attempt by Thermo Fisher of $125.5 million, including a $95.0 million expense reimbursement. Additionally, we incurred net acquisition, integration and other expenses of $21.2 million, including charges for NeuMoDx as well as the $11.7 million gain on the value of our interest held on the acquisition date. We also incurred $3.3 million of charges related to the 2019 Restructuring program as discussed further in Note 6. As we continue the integration of NeuMoDx, we expect to incur additional integration costs in 2021.

During 2019, $199.8 million of restructuring, acquisition, integration and other, net expenses were incurred including $163.0 million for the 2019 Restructuring program. Additionally, we incurred net acquisition, integration and other expenses of $36.8 million, including charges for the 2019 acquisitions as well as a $7.4 million gain from the reduction in the fair value of contingent consideration.

Long-lived Asset Impairments

In 2020, $1.0 million impairments to property, plant and equipment were recorded and in 2019, $140.0 million impairments including both intangible assets and property, plant and equipment were recorded primarily in connection with the 2019 restructuring measures as further discussed in Note 6 "Restructuring and Impairments".

Other Income (Expense)

(in millions)	2020	2019	% change
Interest income	**$ 10.0**	$ 22.1	-55%
Interest expense	**(71.3)**	(74.2)	-4%
Other income, net	**114.3**	0.4	
Total other income (expense), net	**$ 53.0**	$ (51.6)	+203%

Interest income includes interest earned on cash, cash equivalents and short-term investments, income related to certain interest rate derivatives as discussed in Note 14 "Derivatives and Hedging" and other components including the interest portion of operating lease transactions. Interest income earned in 2019 included interest on higher cash balances following the issuance of cash convertible notes in November 2018.

Interest expense primarily relates to debt, discussed in Note 16 "Debt" in the accompanying consolidated financial statements. During 2020, the majority of the 2021 Notes were repaid and we issued new zero coupon convertible debt due in 2027.

Other income, net the for year ended December 31, 2020 includes a gain of $123.3 million for the sale of our investment in ArcherDX, $5.0 million of income from equity method investees and a total of $1.6 million in gains related to prior sales of assets. These gains were partially offset by $9.3 million in unrealized losses recognized for the change in fair market value of all marketable equity securities, $4.1 million net losses on foreign currency transactions and a $2.3 million loss from the sale of an equity security investment.

Other income, net was $0.4 million of income for the year ended December 31, 2019. Other income includes $7.8 million of upward adjustments resulting from observable price changes for non-marketable investments not accounted for under the equity method, $2.1 million in income from equity-method investments and a $0.7 million gain from receipt of shares in settlement of a zero-book value financial instrument held with a third party. This income was partially offset by impairments, including $4.8 million of impairments in non-marketable investments accounted for under the equity method and net losses on foreign currency of $5.7 million for the year ended December 31, 2019.

Income Tax Expense (Benefit)

(in millions)	2020	2019	% change
Income (loss) before income taxes	**$ 439.5**	$ (77.8)	+665%
Income tax expense (benefit)	**80.3**	(36.3)	+321%
Net income (loss)	**$ 359.2**	$ (41.5)	
Effective tax rate	**18.3 %**	46.7 %	

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 35%. 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 2020 and 2019, our effective tax rates were 18.3% and 46.7%, respectively. The comparison is impacted by pre-tax book income which was higher in 2020 reflecting higher operating income in the current year due to the significant demand for solutions used in COVID-19 testing. This compares to pre-tax book loss in 2019 which reflects the restructuring charges incurred during the third quarter of 2019. Additionally, we record partial tax exemptions on foreign income primarily derived from operations in Germany, the Netherlands and Singapore. These foreign tax benefits are due to a combination of favorable tax laws, rules, and exemptions in these jurisdictions, including intercompany foreign royalty income in Germany which is statutorily exempt from trade tax. Further, we have intercompany financing arrangements in which the intercompany income is nontaxable or partially exempt. During 2020, we have intercompany financing arrangements through Dubai, and through mid-2019 had arrangements through Luxembourg and Ireland.

See Note 17 "Income Taxes" to the consolidated financial statements for a full reconciliation of the effective tax rate to The Netherlands statutory rate.

In future periods, our effective tax rate may fluctuate from similar or other factors as discussed in “Changes in tax laws or their application could adversely affect our results of operations or financial flexibility” in Item 3 *Risk Factors*.

Year Ended December 31, 2019, Compared to 2018

Refer to Item 5 in our December 31, 2019 Annual Report on Form 20-F for discussion of the year ended December 31, 2019, compared to 2018.

Foreign Currencies

QIAGEN N.V.’s reporting currency is the U.S. dollar, and most of our subsidiaries’ functional currencies are the local currencies of the countries in which they are headquartered. All amounts in the financial statements of entities whose functional currency is not the U.S. dollar are translated into U.S. dollar equivalents at exchange rates as follows: (1) assets and liabilities at period-end rates, (2) income statement accounts at average exchange rates for the period, and (3) components of shareholders’ equity at historical rates. Translation gains or losses are recorded in shareholders’ equity, and transaction gains and losses are reflected in net income. The net loss on foreign currency transactions is included in other income, net, and in 2020, 2019 and 2018 was $4.1 million, $5.7 million, and $12.3 million, respectively.

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 the extent that the derivatives are not covered by collateral agreements with the respective counterparties. 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 including intercompany items. We manage our balance sheet exposure on a group-wide basis using foreign exchange forwards, options and cross-currency swaps.

Interest Rate Derivatives. We use interest rate derivative contracts on certain borrowing transactions to hedge interest rate exposures. We have entered into interest rate swaps in which we agree 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 14 "Derivatives and Hedging" to the accompanying consolidated financial statements.

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 December 31, 2020, we had cash and cash equivalents of $598.0 million and short-term investments of $117.2 million. As of December 31, 2019, we had cash and cash equivalents of $623.6 million, restricted cash of $5.7 million and short-term investments of $129.6 million. 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 December 31, 2020, cash and cash equivalents had decreased by $31.4 million from December 31, 2019, primarily as a result of cash used in investing activities of $443.3 million and cash used financing activities of $50.1 million, partially offset by cash

provided by operating activities of $457.8 million. As of December 31, 2020 and 2019, we had working capital of $1.05 billion and $618.9 million, respectively.

Cash Flow Summary

(in millions)	2020	2019
Net cash provided by operating activities	**$ 457.8**	$ 330.8
Net cash used in investing activities	**$ (443.3)**	$ (222.3)
Net cash used in financing activities	**$ (50.1)**	$ (639.1)
Effect of exchange rate changes on cash, cash equivalents and restricted cash	**$ 4.2**	$ 0.8
Net decrease in cash, cash equivalents and restricted cash	**$ (31.4)**	$ (529.7)

Operating Activities. For the years ended December 31, 2020 and 2019, we generated net cash from operating activities of $457.8 million and $330.8 million, respectively. While net income was $359.2 million in 2020, non-cash components in income included $205.0 million of depreciation and amortization, a gain of $121.8 million on sales of investments primarily related to the sale of the investment in ArcherDX as discussed in Note 10 "Investments", $42.3 million of amortization of debt discount and issuance costs and $40.9 million of share-based compensation expense. Operating cash flows include a net decrease in working capital of $130.2 million excluding changes in fair value of derivative instruments. The current period change in working capital is primarily due to increased inventories in order to meet the increase in demand and decreased accrued and other current liabilities following cash payments made in connection with the 2019 restructuring measures. 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 $443.3 million of cash was used in investing activities during 2020, compared to $222.3 million during 2019. Investing activities during 2020 consisted principally of $239.6 million in cash paid for acquisitions, net of cash acquired primarily for NeuMoDx, $171.5 million paid for intangible assets including $135.9 million of the remaining milestone payments for the digital PCR assets acquired from Formulatrix in 2019, $132.8 million in cash paid for purchases of property and equipment which includes the investments we are making in expanded production capacity, $53.4 million paid for collateral assets and $49.8 million for purchases of short-term investments. This was partially offset by $181.2 million from the sale of short-term investments and $25.6 million net proceeds from sales of investments in privately held companies as discussed in Note 10 "Investments".

Cash used in investing activities during 2019 includes $156.9 million paid for intangible assets primarily related to the asset acquisition from Formulatrix, $294.0 million for purchases of short-term investments and $118.0 million purchases of property, plant and equipment partially offset by $396.1 million from the sale of short-term investments.

Financing Activities. For the year ended December 31, 2020, cash used in financing activities was $50.1 million compared to cash provided by financing activities of $639.1 million in 2019. Financing activities during 2020 consisted primarily of net payments of $468.6 million in connection with the final conversion, redemption and termination of the 2021 Cash Convertible Notes and warrants as discussed further in Note 16 "Debt" as well as $64.0 million for repurchases of QIAGEN shares. This was partially offset by $497.6 million in proceeds from issuance of the 2027 Zero Coupon Convertible Notes.

In 2019, cash used in financing activities totaled $639.1 million primarily due to $506.4 million repayments of long-term debt and repurchases of QIAGEN shares totaled $74.5 million in 2019.

Other Factors Affecting Liquidity and Capital Resources

As of December 31, 2020, we carry $1.9 billion of long-term debt, of which $42.5 million is current.

In December 2020, we issued $500.0 million aggregate principal amount of zero coupon Convertible Notes due in 2027 (2027 Notes). The 2027 Notes will mature on December 17, 2027 unless converted in accordance with their terms prior to such date as described more fully in Note 16 "Debt".

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

In September 2017, we issued $400.0 million aggregate principal amount of Cash Convertible Senior Notes which are due in 2023 (2023 Notes). 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 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 16 "Debt".

In December 2020, we obtained a €400 million syndicated revolving credit facility with a contractual life of three years with the ability to extend by one year two times. No amounts were utilized at December 31, 2020. The facility can be utilized in Euro and bears interest of 0.525% to 1.525% above EURIBOR, and is offered with interest periods of one, three or six months. The interest rate is linked to our environmental, social and governance (ESG) performance. We have additional credit lines totaling €27.0 million with no expiration date, none of which were utilized as of December 31, 2020.

In March 2014, we issued Cash Convertible Senior Notes of which $0.2 million remains outstanding as of December 31, 2020 and will be repaid at maturity on March 19, 2021.

In October 2012, we completed a U.S. private placement with three series at a weighted average interest rate of 3.66%. The following two series remain outstanding at December 31, 2020: (1) $300 million 10-year term due in 2022 (3.75%); and (2) $27 million 12-year term due in 2024 (3.90%).

In connection with certain acquisitions, we could be required to make additional contingent cash payments totaling up to $26.6 million based on the achievement of certain revenue and operating results milestones as further discussed in Note 20 "Commitments and Contingencies".

In May 2019, we announced our sixth share repurchase program of up to $100 million of our common shares. During 2020, we repurchased 1.3 million QIAGEN shares for $64.0 million (including transaction costs). This program ended in December 2020. 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 any public and private sales of equity, and availability of financing facilities, will be sufficient to fund our planned operations and expansion during the coming year. However, any global economic downturn may have a greater impact on our business than currently expected, and we may experience a decrease in the sales of our products, which could impact our ability to generate cash. If our future cash flows from operations and other capital resources are not adequate to fund our liquidity needs, we may be required to obtain additional debt or equity financing or to reduce or delay our capital expenditures, acquisitions or research and development projects. If we could not obtain financing on a timely basis or at satisfactory terms, or implement timely reductions in our expenditures, our business could be adversely affected.

Off-Balance Sheet Arrangements

We did not use special purpose entities and do not have off-balance sheet financing arrangements as of and during the years ended December 31, 2020, 2019 and 2018.

Contractual Obligations

As of December 31, 2020, our future contractual cash obligations are as follows:

Contractual Obligations (in millions)	Payments Due by Period						
	Total	2021	2022	2023	2024	2025	Thereafter
Long-term debt [1]	$ 1,980.0	$ 64.7	$ 505.3	$ 370.2	$ 578.9	$ 0.3	$ 460.7
Purchase obligations	250.8	199.8	42.6	5.4	3.0	—	—
Operating leases	117.0	25.4	21.0	16.3	10.8	6.7	36.9
License and royalty payments	30.0	10.0	7.2	4.5	2.6	2.3	3.4
Total contractual cash obligations	$ 2,377.9	$ 299.9	$ 576.1	$ 396.3	$ 595.3	$ 9.3	$ 501.0

[1] Amounts include required principal, stated at the current carrying values, and interest payments.

In addition to the above, and pursuant to the purchase agreements for certain acquisitions and other contractual arrangements, we could be required to make additional contingent cash payments totaling up to $26.6 million based on the achievement of certain revenue and operating results milestones as follows:

(in millions)		
2021	$	8.9
2022		17.7
	$	26.6

Of the $26.6 million total contingent obligation, we have assessed the fair value at December 31, 2020 to be $23.6 million which is included in accrued and other current liabilities in the accompanying consolidated balance sheet.

Liabilities associated with uncertain tax positions, including interest and penalties, are currently estimated at $104.9 million as of December 31, 2020 and are not included in the table above, as we cannot reasonably estimate when, if ever, an amount would be paid to a government agency. Ultimate settlement of these liabilities is dependent on factors outside of our control, such as examinations by each agency and expiration of statutes of limitation for assessment of additional taxes.

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, 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 to 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 it is reasonably likely that changes in the accounting estimate may occur from period to period that would have 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. We reviewed the development, selection, and disclosure of our critical accounting policies and estimates with the Audit Committee of our Supervisory Board.

Revenue Recognition. We recognize revenue when control of promised goods or services is transferred to customers in an amount that reflects the consideration that is expected to be received for those goods or services. Identifying performance obligations in a contract, estimating the amount of variable consideration to include in the transaction price and allocating the transaction price to each separate performance obligation requires management's judgments and estimates. Sales arrangements which require a measure of progress toward completion by measuring actual hours incurred to date as a proportion of the total budgeted hours of the project also involves management's judgments and estimates. While the majority of our sales agreements contain standard terms and conditions, we do enter into agreements that contain multiple products or services or non-standard terms and conditions. Sometimes it is difficult to determine whether there is more than one performance obligation under a sales agreement and if so, how and when revenue should be recognized is subject to certain estimates or assumptions. Should our judgments and estimates not be correct, revenue recognized for any reporting period could be adversely affected.

Income Taxes. Calculation of our tax provision is complex due to our international operations and the multiple taxing jurisdictions in which we operate. Some of our deferred tax assets relate to net operating losses (NOL). The utilization of NOLs is not assured and is dependent on generating sufficient taxable income in the future. Although management believes it is more likely than not that we will generate sufficient taxable income to utilize substantially all NOL carryforwards, evaluating the NOLs related to our newer subsidiaries requires us to make estimates that we believe are reasonable, but may also be highly uncertain given that we do not have direct experience with these subsidiaries or their products. Thus, the estimates may be subject to significant changes from period to period as we gain that experience. To the extent that our estimates of future taxable income are insufficient to utilize all available NOLs, a valuation allowance will be recorded in the provision for income taxes in the period the determination is made, and the deferred tax assets will be reduced by this amount, which could be material. In the event that actual circumstances differ from management's estimates, or to the extent that these estimates are adjusted in the future, any changes to the valuation allowance could materially impact our financial position and results of operations.

The calculation of our tax liabilities involves dealing with uncertainties in the application of complex tax laws and regulations in many jurisdictions across our global operations. ASC 740 states that a tax benefit from an uncertain tax position may be recognized when it is more likely than not that the position will be sustained upon examination, including resolutions of any related appeals or litigation processes on the basis of technical merits. We record unrecognized tax positions in accordance with ASC 740 and adjust these liabilities when our judgment changes as a result of the evaluation of new information not previously available. Because of the complexity of some of these uncertainties, the ultimate resolution may result in a payment that is materially different from our current estimate of the unrecognized tax liabilities. These differences will be reflected as increases or decreases to income tax expense in the period in which the new information is available.

Investments. Generally accepted accounting principles require different methods of accounting for an investment depending on the level of influence that we exert. Assessing the level of influence involves subjective judgments. If management's assumptions with respect to its level of influence differ in future periods and we therefore have to account for these investments under a method other than the cost method, it could have a material impact to our financial statements.

We have equity investments accounted for under the measurement alternative as these equity securities do not have readily determinable fair values and are not accounted for under the equity method. This measurement alternative requires these investments to be 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. At each reporting date, we review each investment for impairment, considering factors such as book values from the most recent financial statements, and forecasts and expectations of the investee, and also for any observable price changes from stock transactions of the issuer. If an impairment is determined to have occurred, estimation of the fair value of these nonmarketable equity investments is inherently subjective. Therefore, in the case of an impairment or an observable price change occurs, it could require a write-down or write-up of the investment that could materially impact our financial position and results of operations.

Additionally, we have made strategic investments in certain companies as more fully described in Note 10 "Investments" to the Consolidated Financial Statements, some of which are variable interest entities. FASB ASC Topic 810 requires a company to consolidate a variable interest entity in which it holds a variable interest if it is designated as the primary beneficiary of that entity even if the company does not have a majority of voting interests. A variable interest entity is generally defined as an entity with insufficient equity to finance its activities or where the owners of the entity lack the risk and rewards of ownership. Assessing the requirements of ASC Topic 810 involves subjective judgments. If management's assumptions with respect to the criteria differ in future periods, and we therefore have to account for these investments under a different method, it could have a material impact on our financial statements.

Goodwill and Other Intangible Assets. We assess goodwill and other intangible assets for impairment at least annually in the absence of an indicator of possible impairment and immediately upon an indicator of possible impairment. Intangibles are assessed for recoverability considering the contract life, where applicable, and the period of time over which the intangible will contribute to future cash flow. The unamortized cost of intangible assets, where cash flows are independent and identifiable from other assets, is evaluated periodically and adjusted, if necessary, if events and circumstances indicate that a decline in value below the carrying amount has occurred. Goodwill is subject to impairment tests annually or earlier if indicators of potential impairment exist, using a fair-value-based approach. We have elected to perform our annual test for indications of impairment as of October 1st of each year. Goodwill is deemed to be impaired if we determine that the carrying value of our reporting unit is more than the fair value. Due to the numerous variables associated with our judgments and assumptions and the effects of changes in circumstances affecting the valuation, both the precision and reliability of the resulting estimates are subject to uncertainty. As additional information becomes known, we may change our estimates.

Acquisitions. We frequently enter into business combinations and must determine whether an acquired entity is considered to be a business or an asset or group of assets under ASU 2017-01, *Business Combinations: Clarifying the Definition of a Business*. A portion of the purchase price can only be allocated to goodwill in a business combination and transaction costs are expensed in a business combination yet capitalized in an asset acquisition. Contingent payments and in-process research and development costs are also handled differently. A set of assets is not a business if substantially all of the fair value of the acquired gross assets is concentrated in a single asset or group of similar identifiable assets. In determining whether an acquired entity is considered to be a business or a set of assets, application of the "substantially all" threshold requires judgment.

The purchase price allocation for acquisitions of a business requires extensive use of accounting estimates and judgments to allocate the purchase price to the identifiable tangible and intangible assets acquired, including in-process research and development, and liabilities assumed based on their respective fair values. An acquisition may include contingent consideration as part of the purchase price. Contingent consideration is accounted for at fair value at the acquisition date with subsequent changes to the fair value being recognized in earnings.

We have made several acquisitions of businesses in recent years. The purchase prices for the acquisitions were allocated to tangible and intangible assets acquired and liabilities assumed based on their estimated fair values at the acquisition dates. We engaged an independent third-party valuation firm to assist us in determining the estimated fair values of acquired in-process research and development and identifiable intangible assets. Such a valuation requires significant estimates and assumptions, including but not limited to determining the timing and estimated costs to complete the in-process projects, projecting regulatory approvals, estimating projected revenue and related growth rates, estimating future cash flows, estimating customer attrition rates and developing appropriate discount rates. We believe the estimated fair values of contingent consideration and assets acquired and liabilities assumed are based on reasonable assumptions. However, the fair value estimates for the purchase price allocations may change during the allowable allocation period, which is up to one year from the acquisition dates, if additional information becomes available.

Fair Value Measurements. We have categorized our assets and liabilities that are measured at fair value, based on the priority of the inputs to the valuation techniques, in a three-level fair value hierarchy: Level 1 - using quoted prices in active markets for identical assets or liabilities; Level 2 - using observable inputs other than quoted prices; and Level 3 – using unobservable inputs. We primarily apply the market approach for recurring fair value measurements, maximize our use of observable inputs and minimize our use of unobservable inputs. We utilize the mid-point price between bid and ask prices for valuing the majority of our assets and liabilities measured and reported at fair value. In addition to using market data, we make assumptions in valuing assets and liabilities, including assumptions about risk and the risks inherent in the inputs to the valuation technique.

Certain of our derivative instruments, which are classified in Level 2 of the fair value hierarchy, are valued using industry-standard models that consider various inputs, including time value, volatility factors, and current market and contractual prices for the underlying instruments, as well as other relevant economic measures. Substantially all of these inputs are observable in the marketplace throughout the full term of the instrument, can be derived from observable data or are supported by observable prices at which transactions are executed in the marketplace.

Certain of our acquisitions involve contingent consideration, the payment of which is contingent on the occurrence of future events. Contingent consideration is classified in Level 3 of the fair value hierarchy and is initially recognized at fair value as a cost of the acquisition. After the acquisition, the contingent consideration liability is remeasured each reporting period. The fair value of contingent consideration is measured predominantly on unobservable inputs such as assumptions about the likelihood of achieving specified milestone criteria, projections of future financial performance, assumed discount rates and assumed weightings applied to potential scenarios in deriving a probability weighted fair value. Significant judgment is used in developing these estimates and assumptions both at the acquisition date and in subsequent periods. If actual events differ from management's estimates, or to the extent these estimates are adjusted in the future, our financial condition or results of operations could be affected in the period of any change.

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

For other fair value measurements, we generally use an income approach to measure fair value when there is not a market observable price for an identical or similar asset or liability. This approach utilizes management’s best assumptions regarding expectations of projected cash flows, and discounts the expected cash flows using a commensurate risk-adjusted discount rate.

The above listing is not intended to be a comprehensive list of all our accounting policies. In many cases, the accounting treatment of a particular transaction is specifically dictated by generally accepted accounting principles in the United States, with limited or no need for management’s judgment. There are also areas in which management’s judgment in selecting available alternatives may or may not produce a materially different result. See our audited consolidated financial statements and notes thereto in Item 18 of this Annual Report, containing a description of accounting policies and other disclosures required by generally accepted accounting principles in the United States.

Recent Authoritative Pronouncements

For information on recent accounting pronouncements impacting our business see Note 2 "Effects of New Accounting Pronouncements" of the Notes to Consolidated Financial Statements included in Item 18.

Item 6. Directors, Senior Management and Employees

Managing Directors and Supervisory Directors are appointed annually for the period beginning on the date following the Annual General Meeting of our shareholders up to and including the date of the Annual General Meeting held in the following year.

Our Supervisory Directors and Managing Directors for the year ended December 31, 2020 and their ages as of January 31, 2021, are as follows:

Managing Directors:

Name	Age	Position
Thierry Bernard	56	Managing Director, Chief Executive Officer
Roland Sackers	52	Managing Director, Chief Financial Officer

Supervisory Directors:

Name [1]	Age	Position
Stéphane Bancel	48	Supervisory Director, Member of the Audit Committee
Dr. Metin Colpan	66	Supervisory Director, Chair of the Science and Technology Committee and Member of the Selection and Appointment Committee
Dr. Ross L. Levine	49	Supervisory Director and Member of the Science and Technology Committee
Dr. Elaine Mardis	58	Supervisory Director, Member of the Science and Technology Committee and Member of the Compensation Committee
Lawrence A. Rosen	63	Chair of the Supervisory Board, Chair of the Audit Committee, Chair of the Selection and Appointment Committee and Member of the Compensation Committee
Elizabeth E. Tallett	71	Supervisory Director, Chair of the Compensation Committee, Member of the Audit Committee and Member of the Selection and Appointment Committee

[1] Dr. Håkan Björklund stepped down from his roles as Chair of the Supervisory Board, Member of the Compensation Committee and Selection and Appointment Committee effective August 21, 2020.

The following is a brief summary of the background of each of the Supervisory Directors and Managing Directors. References to "QIAGEN" and the "Company" in relation to periods prior to April 29, 1996 mean QIAGEN GmbH and its consolidated subsidiaries:

Managing Directors and Chief Executive Officer

Thierry Bernard, 56, joined QIAGEN in February 2015 to lead QIAGEN's growing presence in Molecular Diagnostics, the application of Sample to Insight solutions for molecular testing in human healthcare. He was named Chief Executive Officer in March 2020, after having previously served in this role on an interim basis. In June 2020, he became a member of the Managing Board. Mr. Bernard previously worked at bioMérieux, where he served in roles of increasing responsibility for 15 years, most recently as Corporate Vice President, Global Commercial Operations, Investor Relations and the Greater China Region. Prior to joining bioMérieux, he served in management roles in multiple international environments. Mr. Bernard is a current member of the boards of directors of First Light Biosciences, Inc., Huttopia SA and T2 Biosystems, Inc. He is a former member of the board of HepatoChem and Daktari Diagnostics, where he also served as CEO. He has earned degrees from Sciences Po (Paris), Harvard Business School, London School of Economics and the College of Europe and is a member of French Foreign Trade Advisors.

Roland Sackers, 52, joined QIAGEN in 1999 as Vice President Finance and has been Chief Financial Officer since 2004. In 2006, Mr. Sackers became a member of the Managing Board. Between 1995 and 1999, he served as an auditor with Arthur Andersen Wirtschaftsprüfungsgesellschaft Steuerberatungsgesellschaft. Mr. Sackers earned his Diplom-Kaufmann from University of Münster, Germany. In 2019, he joined the supervisory board of Evotec SE and is chairman of the audit committee. He is a former member of the supervisory board and audit committee of IBS AG and a former member of the board of directors of Operon Biotechnologies, Inc. Mr. Sackers is a board member of the industry association BIO Deutschland. He was previously a non-executive director and chair of the audit committee from 2011 to 2018 of Immunodiagnostic Systems Holding PLC (IDS), a leading producer of immunological tests for research and diagnostic applications publicly listed in the United Kingdom.

Supervisory Directors

Stéphane Bancel, 48, joined the Supervisory Board in 2013 and has been a member of the Audit Committee since 2014. He was a member of the Compensation Committee from 2013 through July 2020 and a member of the Science and Technology Committee from 2014 through July 2020. He is Chief Executive Officer of Moderna, Inc., a clinical-stage biotechnology company based in Cambridge, Massachusetts, which is advancing 24 drug development programs involving messenger RNA therapeutics. Before joining Moderna, Mr. Bancel served for five years as Chief Executive Officer of the French diagnostics company bioMérieux SA. Prior to bioMérieux, he was Managing Director of Eli Lilly in Belgium and Executive Director of Global Manufacturing Strategy and Supply Chain at Eli Lilly in Indianapolis, Indiana, after having started at Lilly in Great Britain. Before joining Eli Lilly, Mr. Bancel served as Asia-Pacific Sales and Marketing Director for bioMérieux while based in Tokyo, Japan. He holds a Master of Engineering degree from École Centrale Paris (ECP), a Master of Science in Chemical Engineering from the University of Minnesota and an M.B.A. from Harvard Business School.

Dr. Håkan Björklund, 64, joined the Supervisory Board Member in March 2017 and was Chair of the Supervisory Board from June 2018 until he stepped down in August 2020.

Dr. Metin Colpan, 66, is a co-founder of QIAGEN and was the Chief Executive Officer and a Managing Director from 1985 through 2003. Dr. Colpan has been a member of the Supervisory Board since 2004 and has served as Chair of the Science and Technology Committee since 2014. He has been a member of the Selection and Appointment Committee since 2015. Dr. Colpan obtained his Ph.D. and M.S. in Organic Chemistry and Chemical Engineering from the Darmstadt Institute of Technology in 1983. Prior to founding QIAGEN, Dr. Colpan was an Assistant Investigator at the Institute for Biophysics at the University of Düsseldorf. Dr. Colpan has had wide experience in separation techniques and in the separation and purification of nucleic acids in particular, and has filed many patents in the field. Dr. Colpan also serves as a Supervisory Board member of CGR GmbH in Mettmann, Germany and Heilpflanzenwohl AG in Baar, Germany. Dr. Colpan previously served as a Supervisory Board member of Ingenium Pharmaceuticals AG, GenPat77 Pharmacogenetics AG, GPC Biotech AG and Morphosys AG, each in Munich, Germany and Qalovis Farmer Automatic Energy GmbH, in Laer, Germany.

Dr. Ross L. Levine, 49, joined the Supervisory Board and its Science and Technology Committee in 2016. He is a physician-scientist focused on researching and treating blood and bone marrow cancers as the Laurence Joseph Dineen Chair in Leukemia Research, the Chief of Molecular Cancer Medicine, and an Attending Physician at Memorial Sloan Kettering Cancer Center, as well as Professor of Medicine at Weill Cornell Medical College. He leads a research lab investigating genetics and targeted therapies in myeloid malignancies and is interested in application of next-generation sequencing technology in the practice of medicine in hematologic cancers. He trained in internal medicine at Massachusetts General Hospital and in hematology-oncology at the Dana-Farber Cancer Institute, earning board certification in these specialties. He received his M.D. from the Johns Hopkins University School of Medicine and his A.B. degree from Harvard College.

Dr. Elaine Mardis, 58, joined the Supervisory Board in 2014. She is also a member of the Science and Technology Committee and the Compensation Committee. Dr. Mardis is the Co-Executive Director of the Institute for Genomic Medicine at Nationwide Children's Hospital in Columbus, OH. She also is Professor of Pediatrics at the Ohio State University College of Medicine. Dr. Mardis has research interests in the application of genomic technologies to improve our understanding of human disease, and toward improving the precision of medical diagnosis, prognosis and treatment. Dr. Mardis is the former Robert E. and Louise F. Dunn Distinguished Professor of Medicine at Washington University School of Medicine in St. Louis, MO, where she was on the faculty for 22 years. As Co-Director of the McDonnell Genome Institute, she devised methods and automation that contributed to the Human Genome Project and has since played key roles in the 1000 Genomes Project, The Cancer Genome Atlas, and the Pediatric Cancer Genome Project. Prior to joining the Washington University faculty, she was a senior research scientist at BioRad Laboratories in Hercules, CA. Dr. Mardis is the immediate past President of the American Association for Cancer Research, and has scientific advisory roles at Kiadis Pharmaceuticals N.V., PACT Pharma LLC, and Scorpion Therapeutics LLC. Dr. Mardis received her Bachelor of Science degree in Zoology in 1984 and her Ph.D. in Chemistry and Biochemistry in 1989, both from the University of Oklahoma. She is an elected member of the U.S. National Academy of Medicine.

Lawrence A. Rosen, 63, joined the Supervisory Board in 2013 and was appointed Chair in 2020. He is also Chair of the Audit Committee and Chair of the Selection and Appointment Committee, in addition to being a member of the Compensation Committee. Mr. Rosen was a member of the Board of Management and Chief Financial Officer of Deutsche Post DHL until September 2016. Holding this position since 2009, Mr. Rosen was in charge of controlling, corporate accounting and reporting, investor relations, corporate finance, corporate internal audit and security, taxes, as well as the group's global business services. Prior to joining Deutsche Post DHL, Mr. Rosen served as Chief Financial Officer of Fresenius Medical Care AG & Co. KGaA in Germany from 2003 to 2009. Prior to that, he was Senior Vice President and Treasurer for Aventis SA in Strasbourg, France. Between 1984 and 2000, Mr. Rosen held different positions at the Aventis predecessor companies Hoechst AG and American Hoechst/Hoechst Celanese Inc. Since 2015, Mr. Rosen has served as a member of the board of Lanxess AG and previously served on the board of Postbank AG from 2009 until 2015. Mr. Rosen, who is a U.S. citizen, holds a Bachelor's degree in Economics from the State University of New York and an M.B.A. from the University of Michigan.

Elizabeth E. Tallett, 71, joined the Supervisory Board, as well as the Audit Committee and Compensation Committee, in 2011. She is a member of the Selection and Appointment Committee, and since 2016 has served as Chair of the Compensation Committee. Ms. Tallett was a Principal of Hunter Partners, LLC, a management company for early to mid-stage pharmaceutical, biotechnology and medical device companies, from 2002 until February 2015. Ms. Tallett continues to consult with early stage health care companies. Her senior management experience includes President and CEO of Transcell Technologies Inc., President of Centocor Pharmaceuticals, member of the Parke-Davis Executive Committee, and Director of Worldwide Strategic Planning for Warner-Lambert Company. Ms. Tallett graduated from Nottingham University, England with dual Bachelor's degrees with honors in mathematics and economics. She is a member of the board of directors of Anthem, Inc. (where she is currently Chair), Principal Financial Group, Inc. (where she is retiring from in May 2021), Meredith Corp. and Moderna, Inc. She is a former director of Coventry Health Care, Inc. Ms. Tallett was a founding board member of the Biotechnology Council of New Jersey and is Chair of the Trustees of Solebury School in Pennsylvania.

Dr. Toralf Haag, 54, joined the Supervisory Board and the Audit Committee in January 2021. He has served since October 2018 as Chairman of the Corporate Board of Management of Voith GmbH & Co. KGaA in Germany, a global technology company with more than EUR 4 billion in annual sales and over 19,000 employees. Before joining Voith in October 2016 as Chief Financial Officer, Dr. Haag served for more than 11 years as CFO and Member of the Executive Committee of Lonza

Group AG since August 2005. He began his career in 1994 as the personal assistant to the CEO of Thyssen Handelsunion AG after earning a degree in Business Administration from the University of Augsburg and a Ph.D. at the University of Kiel.

Compensation of Managing Board Members and Supervisory Directors

Managing Board Remuneration policy

The objective of the Remuneration Policy for the Managing Board is to ensure a fair compensation in line with market conditions for the most talented, qualified leaders. This enables us to achieve our strategic initiatives and operational excellence. The Remuneration Policy aligns remuneration to reward individual performance as well as the overall performance of QIAGEN, and to foster sustainable growth and value creation.

The Remuneration Policy and overall remuneration levels are benchmarked regularly against a selected group of companies in key markets in which QIAGEN operates to ensure overall competitiveness. We participate in various compensation benchmarking surveys in which companies provide information on the level, as well as the structure, of compensation awarded for a broad range of positions around the world.

Remuneration of Managing Board members consists of a combination of base salary, short-term variable cash award and elements of long-term incentives. In addition, the members of the Managing Board can receive pension arrangements and other benefits in line with market practices. The total target remuneration package of the Managing Board members is appropriately set with consideration of a variety of factors that include external benchmarks and the individual's experience as well as the complexity of the position, scope and areas of responsibilities. This applies for all compensation components, both individually and in total.

The structure of the remuneration package for the Managing Board members is designed to balance incentives for short-term operational performance with incentives for long-term sustainable value creation while considering the interests of shareholders and other stakeholders. This means that a significant portion of total remuneration consists of variable awards, which can differ substantially from year to year and depend on the achievement of corporate goals as well as individual performance.

The Remuneration Policy for the Managing Board is generally aligned and consistent with the framework for remuneration of other senior managers of QIAGEN.

The current Remuneration Policy for the Managing Board was adopted by the General Meeting of Shareholder in 2014. A revised Remuneration Policy which considers changes to market trends, best practices and benchmarks, and an increased level of disclosure in line with best practices will be on the agenda for the General Meeting of Shareholders in 2021.

Managing Board compensation

The compensation granted to the members of the Managing Board in 2020 consisted of a fixed salary and variable components, with the significant majority of compensation awarded in the form of QIAGEN stock units that are restricted for a long multi-year period to align management with the interests of shareholders and other stakeholders. Variable compensation included long-term equity incentives that were awarded based on individual performance as well as equity awards in lieu of the value of the annual cash bonus.

The Remuneration Policy provides that annual regular equity-based compensation grants to members of the Managing Board will primarily consist of performance stock units. Grants of stock options and restricted stock units which are based on time vesting only shall no longer be granted on a regular basis and shall be reserved for use as special equity incentive rewards in certain situations.

Stock options, if granted, to the Managing Board members must have an exercise price that is higher than the market price at the time of grant. Restricted Stock Units granted to the Managing Board members, vest over a 10-year period. Performance Stock Units are subject to long-term vesting periods and contingent upon the achievement of several financial goals over a multi-year period.

In 2018, a grant of Performance Stock Units with mandatory minimum holding levels of QIAGEN shares was made under the Commitment Program linked to achievement of a three-year plan covering 2019 and 2021 including quantitative goals for net sales, earnings before interest and taxes (EBIT), QIAGEN Value Added (QVA), a steering metric that measures the ability of QIAGEN to generate returns and exceed its cost of capital and share price development as compared to peer companies. Under the Commitment Program, the financial targets for vesting are based on three-year goals as defined within QIAGEN's five-year business plan covering the period from 2019 until the end of 2023. The targets for vesting were set and approved by the Supervisory Board.

For the year ended December 31, 2020, the Managing Board members received the following compensation:

	Annual Compensation				Long-Term Compensation	
Managing Board Member	Fixed Salary	Variable Cash Bonus	Other [1]	Total	Benefit Plans	Stock Units Granted
Thierry Bernard	$ 900,000	1,492,000	18,000	$ 2,410,000	$ 90,000	140,000
Roland Sackers	$ 570,500	366,000	41,000	$ 977,500	$ 77,500	120,000

[1] Amounts include, among others, car lease and reimbursed personal expenses such as tax consulting. We also occasionally reimburse our Managing Directors' personal expenses related to attending out-of-town meetings but not directly related to their attendance. Amounts do not include the reimbursement of certain expenses relating to travel incurred at the request of QIAGEN, other reimbursements or payments that in total did not exceed $10,000 or tax amounts paid by the Company to tax authorities in order to avoid double-taxation under multi-tax jurisdiction employment agreements.

Supervisory Board Remuneration Policy

At the Annual General Meeting of Shareholders in 2020, a Remuneration Policy for the Supervisory Board was adopted. The objective of the Remuneration Policy is to attract, retain, and motivate high-qualified Supervisory Board members, taking into account the Company's identity, mission, values, strategic initiatives and value creation. It focuses on achieving a total remuneration level, both short-term and long term, which is comparable with levels provided by other European and United States-based companies.

Supervisory Board compensation

The Supervisory Board remuneration is aligned to the applicable market standards, considering peer companies of similar size and complexity in similar industries, including biotechnology, life science supplies, diagnostics and pharmaceuticals, to reflect our nexus to the European Markets as a Dutch company as well as our U.S. focus as a NYSE listed company subject to U.S. regulations and the fact that several of the Supervisory Board members are residing in the United States.

The Supervisory Board compensation for 2020 consists of fixed retainer compensation and additional retainer amounts for Chair and Vice Chair. Annual remuneration of the Supervisory Board members is as follows:

Fee payable to the Chair of the Supervisory Board	$150,000
Fee payable to each member of the Supervisory Board	$57,500
Additional compensation payable to members holding the following positions:	
Chair of the Audit Committee	$25,000
Chair of the Compensation Committee	$18,000
Chair of the Selection and Appointment Committee and other board committees	$12,000
Fee payable to each member of the Audit Committee	$15,000
Fee payable to each member of the Compensation Committee	$11,000
Fee payable to each member of the Selection and Appointment Committee and other board committees	$6,000

Further, the Supervisory Board members will be reimbursed for tax consulting costs incurred in connection with the preparation of their tax returns up to an amount of €5,000 per person per fiscal year.

Supervisory board members also receive a variable component, in the form of share-based compensation. We did not pay any agency or advisory service fees to members of the Supervisory Board.

For the year ended December 31, 2020, the Supervisory Board members received the following compensation:

Supervisory Board Member	Fixed Remuneration	Committee Chair	Committee Membership	Total [1]	Restricted Stock Units
Stéphane Bancel	$ 57,500	—	23,500	$ 81,000	9,426
Dr. Håkan Björklund[2]	$ 100,000	8,000	7,300	$ 115,300	9,426
Dr. Metin Colpan	$ 57,500	12,000	6,000	$ 75,500	9,426
Dr. Ross L. Levine	$ 57,500	—	6,000	$ 63,500	9,426
Dr. Elaine Mardis	$ 57,500	—	9,700	$ 67,200	9,426
Lawrence A. Rosen	$ 88,300	29,000	5,500	$ 122,800	9,426
Elizabeth E. Tallett	$ 57,500	18,000	21,000	$ 96,500	9,426

[1] Supervisory Directors are reimbursed for travel costs and for any value-added tax to be paid on their remuneration. These reimbursements are excluded from the amounts presented herein.

[2] Dr. Håkan Björklund stepped down from his roles as Chair of the Supervisory Board, Member of the Compensation Committee and Selection and Appointment Committee effective August 21, 2020.

Committees of the Supervisory Board

The Supervisory Board has established an Audit Committee, a Compensation Committee, a Selection and Appointment Committee and a Science and Technology Committee from among its members and can establish other committees as deemed beneficial. The Supervisory Board has approved charters under which each of the committees operates. These charters are published on our website www.qiagen.com. The committees were comprised of the following members in 2020:

Name of Supervisory Director	Member of Audit Committee	Member of Compensation Committee	Member of Selection and Appointment Committee	Member of Science and Technology Committee
Stéphane Bancel	•			
Dr. Metin Colpan			•	• (Chair)
Dr. Ross L. Levine				•
Dr. Elaine Mardis		•		•
Lawrence A. Rosen	• (Chair)	•	• (Chair)	
Elizabeth E. Tallett	•	• (Chair)	•	

We believe that all of our Supervisory Directors meet the independence requirements set forth in the Dutch Corporate Governance Code (the Dutch Code). We further believe that all Supervisory Board Directors qualify as independent under the independence standards set forth in the New York Stock Exchange (NYSE) Listed Company Manual. Pursuant to the NYSE rules, a majority of the Supervisory Directors must qualify as independent, as defined in the Rules.

Audit Committee

The Audit Committee consists of three members and meets at least quarterly. The Audit Committee members are appointed by the Supervisory Board and serve for a term of one year. We believe that all members of our Audit Committee meet the independence requirements as set forth in Rule 10A-3 of the Securities Exchange Act of 1934, as amended, and the New York Stock Exchange Listed Company Manual. The Board has designated Mr. Rosen as an “audit committee financial expert” as that term is defined in the United States Securities and Exchange Commission rules adopted pursuant to the Sarbanes-Oxley Act of 2002 and as referred to in the Dutch Decree on Audit Committees (*Besluit instelling audit committee*). The Audit Committee performs a self-evaluation of its activities on an annual basis.

The Audit Committee's primary duties and responsibilities include, among other things, to serve as an independent and objective party to monitor QIAGEN's accounting and financial reporting process and internal risk management, control and compliance systems. The Audit Committee also is directly responsible for proposing the external auditor to the Supervisory Board, which then proposes the appointment of the external auditor to the General Meeting. Further, the Audit Committee is responsible for the compensation and oversight of QIAGEN’s external auditor and for providing an open avenue of communication among the external auditor as well as the Management Board and the Supervisory Board. Our Internal Audit department operates under the direct responsibility of the Audit Committee. Further, the Audit Committee is responsible to establish procedures to allow for the confidential and or anonymous submission by employees of concerns. Additionally, this includes the receipt, retention and treatment of submissions received regarding accounting, internal accounting controls, or auditing matters. The Audit Committee discusses our financial accounting and reporting principles and policies and the adequacy of our internal accounting, financial and operating controls and procedures with the external auditor and management; considers and approves any recommendations regarding changes to our accounting policies and processes; reviews with management and the external auditor our quarterly earnings reports prior to their release to the press; and reviews the quarterly and annual reports (reported on Forms 6-K and 20-F) to be furnished to or filed with the Securities and Exchange Commission and the Deutsche Boerse. The Audit Committee met seven times in 2020 and met with the external auditor excluding members of the Managing Board in July and October 2020. The Audit Committee reviews major financial risk exposures, pre-approves related-party transactions between the Company and Supervisory Board or Managing Board, and reviews any legal matter including compliance topics that could have a significant impact on the financial statements.

Compensation Committee

The Compensation Committee's primary duties and responsibilities include, among other things, the preparation of a proposal for the Supervisory Board concerning the Remuneration Policy for the Managing Board to be adopted by the General Meeting, the preparation of a proposal concerning the individual compensation of Managing Board members to be adopted by the Supervisory Board and the preparation of the Remuneration Report on compensation policies for the Managing Board to be adopted by the Supervisory Board. The Compensation Committee reviews and approves all equity-based compensation, reviews and approves the annual salaries, bonuses and other benefits of executive officers, and reviews general policies relating to employee compensation and benefits. The Remuneration Report reviews the implementation of the Remuneration Policy in the most recent year and provides an outline of the Remuneration Policy for the future. The Compensation Committee engages external consultants to ensure that the overall remuneration levels are benchmarked regularly, against a selected group of companies and key markets in which QIAGEN operates. The Compensation Committee consists of three members and members are appointed by the Supervisory Board and serve for a term of one year. The Compensation Committee met five times in 2020.

Selection and Appointment Committee

The Selection and Appointment (Nomination) Committee is primarily responsible for the preparation of selection criteria and appointment procedures for members of the Supervisory Board and Managing Board as well as the periodic evaluation of the scope and composition of the Managing Board and the Supervisory Board, including the profile of the Supervisory Board. Additionally, the Selection and Appointment Committee periodically evaluates the functioning of individual members of the Managing Board and Supervisory Board, reporting these results to our Supervisory Board. It also proposes the (re-)appointments of members of our Managing Board and Supervisory Board and supervises the policy of our Managing Board in relation to selection and appointment criteria for senior management. Members of the Selection and Appointment Committee are appointed by the Supervisory Board and serve for a one-year term. Following the departure of Dr. Björklund, the Supervisory Board discussed the composition of the Supervisory Board during Supervisory Board meetings and teleconferences. The Selection and Appointment committee met five times in 2020.

Science and Technology Committee

The Science and Technology Committee is primarily responsible for reviewing and monitoring research and development projects, programs, budgets, infrastructure management and overseeing the management risks related to the Company's portfolio and information technology platforms. The Science and Technology Committee provides understanding, clarification and validation of the fundamental technical basis of the Company's businesses in order to enable the Supervisory Board to make informed, strategic business decisions and vote on related matters, and to guide the Managing Board to ensure that powerful, global, world-class science is developed, practiced and leveraged throughout the Company to create shareholder value. The members of the Science and Technology Committee are appointed by the Supervisory Board and serve for a term of one year. The Science and Technology Committee met four times in 2020.

Share Ownership

The following table sets forth certain information as of January 31, 2021 concerning the ownership of Common Shares by our directors and officers. In preparing the following table, we have relied on information furnished by such persons.

	Shares Beneficially Owned [1]		
Name and Country of Residence	Number [2]		Percent Ownership
Thierry Bernard, United States	50,343	(3)	*
Roland Sackers, Germany	170,000	(4)	*
Stéphane Bancel, United States	15,926	(5)	*
Dr. Metin Colpan, Germany	1,172,698	(6)	0.51 %
Dr. Toralf Haag, Germany	700		*
Dr. Ross L. Levine, United States	2.151	(7)	*
Dr. Elaine Mardis, United States	—	(8)	—
Lawrence A. Rosen, United States	—	(9)	—
Elizabeth Tallett, United States	28,668	(10)	*

* Indicates that the person beneficially owns less than 0.5% of the Common Shares issued and outstanding as of January 31, 2021.

(1) The number of Common Shares outstanding as of January 31, 2021 was 227,871,296. The persons and entities named in the table have sole voting and investment power with respect to all shares shown as beneficially owned by them and have the same voting rights as shareholders with respect to Common Shares.

(2) Does not include Common Shares subject to options or awards held by such persons at January 31, 2021. See footnotes below for information regarding options now exercisable or that could become exercisable within 60 days of the date of this table.

(3) Does not include 61,590 shares issuable upon the release of unvested stock awards that could become releasable within 60 days from the date of this table.

(4) Does not include 88,299 shares issuable upon the release of unvested stock awards that could become releasable within 60 days from the date of this table.

(5) Does not include 10,392 shares issuable upon the release of unvested stock awards that could become releasable within 60 days from the date of this table.

(6) Includes 357,893 shares held by CC Verwaltungs GmbH, of which Dr. Colpan is the sole stockholder and 770,370 shares held by Colpan GbR. Does not include 10,860 shares issuable upon the release of unvested stock awards that could become releasable within 60 days from the date of this table.

(7) Does not include 3,946 shares issuable upon the release of unvested stock awards that could become released within 60 days from the date of this table.

(8) Does not include 10,392 shares issuable upon the release of unvested stock awards that could become releasable within 60 days from the date of this table.

(9) Does not include 10,392 shares issuable upon the release of unvested stock awards that could become releasable within 60 days from the date of this table.

(10) Does not include 1,563 shares issuable upon the exercise of options now exercisable having exercise prices of $15.59 per share. Options expire on February 2022. Does not include 10,392 shares issuable upon the release of unvested stock awards that could become releasable within 60 days from the date of this table.

The following table sets forth the options of our officers and directors as of January 31, 2021:

Name	Number of Options	Expiration Date	Exercise Price
Elizabeth E. Tallett	1,563	2/28/2022	$15.59

Employees

As of December 31, 2020, we employed 5,610 individuals, of which 16% worked in research and development, 39% in sales, 28% in production, 6% in marketing and 11% in administration.

Region	Research & Development	Sales	Production	Marketing	Administration	Total
Americas	210	575	392	71	80	1,328
Europe, Middle East & Africa	642	825	1,030	177	385	3,059
Asia Pacific, Japan & Rest of World	50	792	144	82	155	1,223
December 31, 2020	**902**	**2,192**	**1,566**	**330**	**620**	**5,610**

At December 31, 2019 and 2018, we employed 5,096 and 4,952 individuals, respectively.

As a company headquartered in the European Union, freedom of association and collective bargaining are cornerstones of the good relationship between management and representatives of employees. A significant portion of workforce is employed in the Organization for Security and Co-Operation in Europe (OSCE) member states and in all regions where we operate, we comply with all applicable laws regarding freedom of association and collective bargaining and respect local laws and regulations concerning labor relations.

We strive to respect and promote human rights and our commitment on this issue can be found in our Human Rights Policy available on our website. This policy is communicated to all employees globally on an ongoing basis via the company intranet and also given to newly hired employees. We strive to foster an open-door workplace culture where employees are able to approach management and/or Human Resources about their concerns without fear of retaliation. Our policy states that employees may communicate openly with management regarding their working conditions without threat of reprisal, intimidation or harassment.

Depending on local law and custom, there are different types of employment ranging from long-term fixed contracts to temporary positions, also including flexible time and programs for parents returning from childcare. In 2020, part-time

employees represented 3.0% of our workforce (2019: 3.0%) and temporary employees represented 2.1% with QIAGEN contract / fixed-term work contract (2019: 1.24%).

Management believes that its relations with regional labor unions and employees are good.

Stock Plans

We adopted the QIAGEN N.V. Amended and Restated 2005 Stock Plan (the 2005 Plan) which was approved by our shareholders on June 14, 2005. The 2005 Plan expired by its terms in April 2015 and no further awards will be granted under the 2005 Plan. On June 25, 2014, our shareholders approved the QIAGEN N.V. 2014 Stock Plan (the 2014 Plan), which replaced the 2005 Plan in April 2015. An aggregate of 16.7 million Common Shares were reserved for issuance pursuant to the 2014 Plan, subject to certain antidilution adjustments. We issue Treasury Shares to satisfy option exercises and award releases and had approximately 14.4 million Common Shares reserved and available for issuance under the 2005 and 2014 Plans at December 31, 2020.

Pursuant to the 2014 Plan, stock rights, which include options to purchase our Common Shares, stock grants and stock-based awards, may be granted to employees and consultants of QIAGEN and its subsidiaries and to Supervisory Directors. Options granted pursuant to the 2014 Plan may either be incentive stock options within the meaning of Section 422 of the United States Internal Revenue Code of 1986, as amended (the Code), or non-qualified stock options. Options granted to members of the Supervisory Board and the Managing Board must have an exercise price that is higher than the market price at the time of grant. Generally, the stock rights and incentive stock options, as well as non-qualified options, stock grants and stock-based awards have terms of up to five or ten years, subject to earlier termination in the event of death, disability or other termination of employment. The vesting and exercisability of certain stock rights will be accelerated in the event of a Change of Control, as defined in the agreements under the 2014 Plan.

The Plan is administered by the Compensation Committee of the Supervisory Board, which selects participants from among eligible employees, consultants and directors and determines the number of shares subject to the stock-based award, the length of time the award will remain outstanding, the manner and time of the award's vesting, the price per share subject to the award and other terms and conditions of the award consistent with the Plan. The Compensation Committee's decisions are subject to the approval of the Supervisory Board.

The Compensation Committee has the power, subject to Supervisory Board approval, to interpret the plans and to adopt such rules and regulations (including the adoption of “sub plans” applicable to participants in specified jurisdictions) as it may deem necessary or appropriate. The Compensation Committee or the Supervisory Board may at any time amend the plans in any respect, subject to Supervisory Board approval, and except that (i) no amendment that would adversely affect the rights of any participant under any option previously granted may be made without such participant's consent and (ii) no amendment shall be effective prior to shareholder approval to the extent such approval is required to ensure favorable tax treatment for incentive stock options or to ensure compliance with Rule 16b-3 under the United States Securities Exchange Act of 1934, as amended (the Exchange Act) at such times as any participants are subject to Section 16 of the Exchange Act.

As of January 31, 2021, there were 0.3 million options outstanding with exercise prices ranging between $14.91 and $21.87 and expiring between May 31, 2021 and May 31, 2023. The exercise price of the options is the fair market value of the Common Shares as of the date of grant or a premium above fair market value. Additionally, there were 5.1 million stock unit awards outstanding as of January 31, 2021. These awards will be released between February 15, 2021 and May 31, 2028. As of January 31, 2021, 1.4 million stock unit awards were held by the officers and directors of QIAGEN, as a group.

Item 7. Major Shareholders and Related Party Transactions

The following table sets forth certain information concerning the ownership of Common Shares of each holder of greater than 5% ownership. None of these holders have any different voting rights than other holders of our Common Shares.

	Shares Beneficially Owned		
Name and Country of Residence	Number		Percent Ownership [1]
BlackRock, Inc., United States and United Kingdom	34,350,924	(2)	15.07 %
Massachusetts Financial Services Company, United States and Canada	11,783,002	(3)	5.17 %

(1) The percentage ownership was calculated based on 227,985,334 Common Shares outstanding as of December 31, 2020.

(2) Of the 34,350,924 shares attributed to BlackRock, Inc., it has sole voting power over 32,239,657 and sole dispositive power over all 34,350,924 shares. This information is based solely on the Schedule 13G filed by BlackRock, Inc. with the Securities and Exchange Commission on January 26, 2021, which reported ownership as of December 31, 2020.

(3) Of the 11,783,002 shares attributed to Massachusetts Financial Services Company, it has sole voting power over 9,404,989 and sole dispositive power over all 11,783,002 shares. This information is based solely on the Schedule 13G filed by Massachusetts Financial Services Company with the Securities and Exchange Commission on February 11, 2021, which reported ownership as of December 31, 2020.

Our common stock is traded on the New York Stock Exchange in the United States and on the Prime Standard Segment of the Frankfurt Stock Exchange in Germany. A significant portion of our shares are held electronically in the account of a stockbroker, therefore we generally have no way of determining who our shareholders are, their geographical location or how many shares a particular shareholder owns. As of January 31, 2021, there were 95 shareholders of record of our Common Shares.

Control of Registrant

To our knowledge, we are not directly or indirectly owned or controlled by another corporation, by any foreign government, or by any other natural or legal person. As of January 31, 2021, the officers and directors of QIAGEN as a group beneficially owned 1.4 million Common Shares, or 0.6% of the then outstanding Common Shares.

Related Party Transactions

For information on related party transactions, see Note 24 "Related Party Transactions" of the Notes to Consolidated Financial Statements.

Item 8. Financial Information

See Item 18.

Legal Proceedings

For information on legal proceedings, see Note 20 "Commitments and Contingencies" of the Notes to Consolidated Financial Statements.

While no assurances can be given regarding the outcome of proceedings described in Note 20, 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.

Statement of Policy on Dividend Distribution

We have not paid any dividends on our Common Shares since our inception and do not intend to pay any dividends on our Common Shares in the foreseeable future. We intend to retain our earnings, if any, for the development of our business.

Disclosure pursuant to Section 219 of the Iran Threat Reduction & Syria Human Rights Act (ITRA)

QIAGEN is a global leader in Sample to Insight solutions that transform biological samples into valuable molecular insights. QIAGEN GmbH, our subsidiary located in Hilden, Germany, has conducted limited business with certain Iranian and Syrian entities consisting of sales for our consumables and instrumentation products. In 2020, sales to Iran totaled $0.6 million, or approximately 0.03% of our consolidated net sales and sales to Syria totaled $92,000. These transactions were processed in compliance with German and European Union customs regulations; and do not include any products that are “dual-use” products or products requiring special clearance from the German customs authorities.

Although these activities are compliant with applicable law and not financially material, the Iran Threat Reduction and Syria Human Rights Act of 2012 (the "Act") requires us to include the following disclosures in this report. U.S. affiliates, or foreign affiliates controlled by U.S. affiliates, are not involved in these sales activities and we have not knowingly conducted a transaction or dealt with a person or entity designated in U.S. Executive Orders No. 13224 and 13382. No business has been transacted with the Governments of Iran or Syria as defined in the Act. We do not believe any of our activities are sanctionable under the Iran Sanctions Act or the Comprehensive Iran Sanctions, Accountability, and Divestment Act of 2010.

In light of the nature of the products concerned, we do not currently anticipate any change in activities in Iran that would result in a material impact on QIAGEN.

Item 9. The Offer and Listing

Effective January 10, 2018, our Common Shares began trading on the New York Stock Exchange (NYSE) under the symbol QGEN. Prior to that, from July 3, 2006 until January 9, 2018, our Common Shares were traded on the NASDAQ Global Select Market under the symbol QGEN. Previously, since February 15, 2005, our Common Shares had been quoted on the NASDAQ National Market under the symbol QGEN. Prior to that, since June 27, 1996, our Common Shares had been quoted on the NASDAQ National Market under the symbol QGENF. The following tables set forth the annual high and low sale prices for the last five years, the quarterly high and low sale prices for the last two years, and the monthly high and low sale prices for the last six months of our Common Shares on the NYSE and NASDAQ Global Select, as applicable.

	High ($)	Low ($)
Annual:		
2016	28.84	19.94
2017	36.34	27.40
2018	39.45	30.78
2019	43.16	25.04
2020	55.27	32.97

	High ($)	Low ($)
Quarterly 2019:		
First Quarter	40.77	33.52
Second Quarter	41.55	35.61
Third Quarter	40.93	32.36
Fourth Quarter	43.16	25.04
Quarterly 2020:		
First Quarter	42.41	32.97
Second Quarter	44.41	39.05
Third Quarter	52.86	42.48
Fourth Quarter	55.27	45.33
Quarterly 2021:		
First Quarter (through February 2021)	59.00	49.14

	High ($)	Low ($)
Monthly:		
September 2020	52.51	46.39
October 2020	55.27	47.12
November 2020	51.77	45.33
December 2020	53.27	47.42
January 2021	54.78	50.64
February 2021	59.00	49.14

From September 25, 1997, to December 31, 2002, our Common Shares were traded on the Frankfurt Stock Exchange Neuer Markt under the symbol QIA and with the security code number 901626. As of January 1, 2003, the trading of our Common Shares was transferred to the Prime Standard Segment of the Frankfurt Stock Exchange, where QIAGEN is a member of the TecDAX, an index of the 30 leading technology companies in Germany not included in the benchmark DAX index. In addition to the listing in the TecDAX, QIAGEN is also a member of MDAX effective September 24, 2018, due to reorganization of German stock market indices. MDAX is an index of the 60 largest companies in Germany after the 30 largest companies included in DAX. The following table sets forth the annual high and low sale prices for the last five years, the quarterly high and low sale prices for the last two years, and the monthly high and low sale prices for the last six months of our Common Shares on the Prime Standard.

	High (EUR)	Low (EUR)
Annual:		
2016	27.26	17.76
2017	31.52	25.41
2018	34.05	25.22
2019	39.19	22.54
2020	46.95	29.55

	High (EUR)	Low (EUR)
Quarterly 2019:		
First Quarter	36.19	29.19
Second Quarter	37.03	31.66
Third Quarter	36.32	29.21
Fourth Quarter	39.19	22.54
Quarterly 2020:		
First Quarter	38.75	29.55
Second Quarter	39.80	36.11
Third Quarter	45.44	37.92
Fourth Quarter	46.95	36.00
Quarterly 2021:		
First Quarter (through February 2021)	46.45	40.55

	High (EUR)	Low (EUR)
Monthly:		
September 2020	45.44	39.34
October 2020	46.95	40.25
November 2020	44.08	36.00
December 2020	43.65	39.20
January 2021	45.35	41.56
February 2021	46.45	40.55

Item 10. Additional Information

Memorandum and Articles of Association

We are a public company with limited liability (*naamloze vennootschap*) incorporated under Dutch law and registered with the Dutch Trade Register under file number 12036979. Set forth below is a summary of certain provisions of our full Articles of Association, as lastly amended on January 17, 2020 (the Articles), and Dutch law, where appropriate. The Dutch Corporate Governance Code, (the Dutch Code), contains principles of good corporate governance and best practice provisions that regulate relations between the Managing Board, the Supervisory Board and the Shareholders. The principles and provisions are aimed at defining responsibilities for long-term value creation, risk control, effective management and supervision, remuneration and the relationship with Shareholders, including the General Meeting, and other stakeholders. The Dutch Code was lastly amended in 2016. This amended Dutch Code is applicable as from January 1, 2017 and replaces the 2008 Code. A listed company should either comply with, or if not, explain in its annual report why and to what extent it does not comply, with the principles of the Dutch Code. The Dutch Code has been taken into account in the summary below.

This summary does not purport to be complete and is qualified in its entirety by reference to the Articles, Dutch Law and the Dutch Code.

Corporate Purpose

Our objectives include, without limitation, the performance of activities in the biotechnology industry, as well as incorporating, acquiring, participating in, financing, managing and having any other interest in companies or enterprises of any nature, raising and lending funds and such other acts as may be conducive to our business.

Managing Directors

QIAGEN shall be managed by a Managing Board consisting of one or more Managing Directors under the supervision of the Supervisory Board. The Managing Board is responsible for our continuity and our affiliated enterprise. The Managing Board focuses on our long-term value creation and our affiliated enterprise, and takes into account our stakeholders' interests that are relevant in this context, which includes but is not limited to our shareholders. Managing Directors shall be appointed by the General Meeting upon the joint meeting of the Supervisory Board and the Managing Board (Joint Meeting), having made a binding nomination for each vacancy. However, the General Meeting may at all times overrule the binding nature of such a nomination by a resolution adopted by at least a two-thirds majority of the votes cast, if such majority represents more than half the issued share capital. This is different from the provisions of many American corporate statutes, including the Delaware General Corporation Law, which give the directors of a corporation greater authority in choosing the executive officers of a corporation. Under our Articles, the General Meeting may suspend or dismiss a managing director at any time. The Supervisory Board shall also at all times be entitled to suspend (but not to dismiss) a Managing Director. The Articles provide that the Supervisory Board may adopt management rules governing the internal organization of the Managing Board.

Furthermore, the Supervisory Board shall determine the salary, the bonus, if any, and the other compensation terms and conditions of employment of the Managing Directors within the scope of the remuneration policy. The current remuneration policy of the Managing Board has been adopted in our Annual General Meeting on June 25, 2014.

Resolutions of the Managing Board shall be validly adopted, if adopted by simple majority of votes, at least one of whom voting in favour of the proposal must be the Chairman. Each Managing Director has the right to cast one vote.

Under Dutch law, in the event that there is a conflict of interest between a Managing Director and us and our business on a certain matter, that Managing Director shall not participate in the discussions and voting on that matter. If all our Managing Directors have a conflict of interest, such resolution shall be adopted by the Supervisory Board. If all Supervisory Directors have a conflict of interest as well, the General Meeting will be authorized to resolve on such matter. According to the Dutch Code, any conflict of interest or apparent conflict of interest between the company and Managing Directors should be prevented. To avoid conflicts of interest, adequate measures should be taken. Under the Dutch Code, the Supervisory Board is responsible for the decision-making on dealing with conflicts of interest regarding Managing Directors, Supervisory Directors and majority shareholders in relation to us. A Managing Director should report any potential conflict of interest in a transaction that is of material significance to the Company and/or to such Managing Director to the Chairman of the Supervisory Board and to the other members of the Managing Board without delay. The Supervisory Board should decide, outside the presence of the Managing director, whether there is a conflict of interest.

Supervisory Directors

The Supervisory Board shall be responsible for supervising the policy pursued by the Managing Board and our general course of affairs. Under our Articles, the Supervisory Directors are required to serve our interests and our business and the interest of all stakeholders (which includes but is not limited to our shareholders) in fulfilling their duties. The Supervisory Board shall consist of such number of members as the Joint Meeting may from time to time determine, with a minimum of three members. The Supervisory Directors shall be appointed by the General Meeting upon the Joint Meeting having made a binding nomination for each vacancy. If during a financial year a vacancy occurs in the Supervisory Board, the Supervisory Board may appoint a Supervisory Director who will cease to hold office at the next Annual General Meeting. Under Dutch law, in the event that there is a conflict of interest between a Supervisory Director and us and our business on a certain matter, that Supervisory Director shall not participate in the discussions and voting on that matter. Under the Dutch Code, a Supervisory Director should report any conflict of interest or potential conflict of interest in a transaction that is of material significance to the Company and/or to such Supervisory Director to the Chairman of the Supervisory Board without delay. The Supervisory Board should decide, outside the presence of the Supervisory Director concerned, whether there is a conflict of interest. If all Supervisory Directors have a conflict of interest, the relevant resolution shall be adopted by the General Meeting. Decisions to enter into transactions under which a Supervisory Director would have a conflict of interest that are of material significance to QIAGEN and/or to the Supervisory Director concerned, require the approval of the Supervisory Board.

Under our Articles, the General Meeting determines the compensation of the Supervisory Directors upon the proposal of the Compensation Committee with due observance of the remuneration policy for Supervisory Directors as adopted at the 2020 Annual General Meeting. Under the Dutch Code, any shares held by a Supervisory Director in the Company on whose board he or she sits should be long-term investments.

Under our Articles, the General Meeting may suspend or dismiss a Supervisory Director at any time. This is different from the provisions of many American corporate statutes, including the Delaware General Corporation Law, which provides that directors may vote to fill vacancies on the board of directors of a corporation.

Liability of Managing Directors and Supervisory Directors

Under Dutch law, as a general rule, Managing Directors and Supervisory Directors are not liable for obligations we incur. Under certain circumstances, however, they may become liable, either towards QIAGEN (internal liability) or to others (external liability), although some exceptions are described below.

Liability towards QIAGEN

Failure of a Managing or Supervisory Director to perform his or her duties does not automatically lead to liability. Liability is only incurred in the case of a clear, indisputable shortcoming about which no reasonably judging business-person would have any doubt. In addition, the Managing or Supervisory Director must be deemed to have been grossly negligent. Managing Directors are jointly and severally liable for failure of the Managing Board as a whole, but an individual Managing Director will not be held liable if he or she is determined not to have been responsible for the mismanagement and has not been negligent in preventing its consequences. Supervisory Directors are jointly and severally liable for failure of the Supervisory Board as a whole, but an individual Supervisory Director will not be held liable if he or she is determined not to have been responsible for the mismanagement and has not been negligent in preventing its consequences.

Liability for Misrepresentation in Annual Accounts

Managing and Supervisory Directors are also jointly and severally liable to any third party for damages suffered as a result of misrepresentation in the annual accounts, management commentary or interim statements of QIAGEN, although a Managing or Supervisory Director will not be held liable if found not to be personally responsible for the misrepresentation. Moreover, a Managing or Supervisory Director may be found to be criminally liable if he or she deliberately publishes false annual accounts or deliberately allows the publication of such false annual accounts.

Tort Liability

Under Dutch law, there can be liability if one has committed a tort (*onrechtmatige daad*) against another person. Although there is no clear definition of "tort" under Dutch law, breach of a duty of care towards a third party is generally considered to be a tort. Therefore, a Dutch corporation may be held liable by any third party under the general rule of Dutch laws regarding tort claims. In exceptional cases, Managing Directors and Supervisory Directors have been found liable on the basis of tort under Dutch common law, but it is generally difficult to hold a Managing or Supervisory Director personally liable for a tort claim. Shareholders cannot base a tort claim on any losses which derive from and coincide with losses we suffered. In such cases, only we can sue the Managing or Supervisory Directors.

Criminal Liability

Under Dutch law, if a legal entity has committed a criminal offence, criminal proceedings may be instituted against the legal entity itself as well as against those who gave order to or were in charge of the forbidden act. As a general rule, it is held that a Managing Director is only criminally liable if he or she played a reasonably active role in the criminal act.

Indemnification

Article 27 of our Articles provides that we shall indemnify every person who is or was a Managing Director or Supervisory Director against all expenses (including attorneys' fees) judgments, fines and amounts paid in settlement with respect to any threatened pending or completed action, suit or proceeding as well as against expenses (including attorneys' fees) actually and reasonably incurred in connection with the defense or settlement of an action or proceeding, if such person acted in good faith and in a manner he reasonably could believe to be in or not opposed to our best interests. An exception is made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable for gross negligence or willful misconduct in the performance of his or her duty to us.

Classes of Shares

The authorized classes of our shares consist of Common Shares, Financing Preference Shares and Preference Shares. No Financing Preference Shares or Preference Shares have been issued.

Common Shares

Common Shares are issued in registered form only. No share certificates are issued for Common Shares and Common Shares are registered in either our shareholders register with American Stock Transfer & Trust Company, or New York Transfer Agent, our transfer agent and registrar in New York, or our shareholder register with TMF FundServices B.V., Westblaak 89, NL-3012 KG Rotterdam.

The transfer of registered shares requires that a written instrument of transfer and the written acknowledgment of such transfer by us or the New York Transfer Agent (in our name).

Financing Preference Shares

No Financing Preference Shares are currently issued or outstanding. If issued, Financing Preference Shares will be issued in registered form only. No share certificates are issued for Financing Preference Shares. Financing Preference Shares must be fully paid up upon issue. The preferred dividend rights attached to Financing Preference Shares are described under "Dividends" below. We have no present plans to issue any Financing Preference Shares.

Preference Shares

No Preference Shares are currently issued or outstanding. If issued, Preference Shares will be issued in registered form only. No share certificates shall be issued for Preference Shares. Only 25% of the nominal value thereof is required to be paid upon subscription for Preference Shares. The obligatory payable part of the nominal amount (or the call) must be equal for each Preference Share. The Managing Board may, subject to the approval of the Supervisory Board, resolve on which day and up to which amount a further call must be paid on Preference Shares which have not yet been paid up in full. The preferred dividend rights attached to Preference Shares are described under "Dividends" below.

Pursuant to our Articles, QIAGEN's Supervisory Board is entitled, if and in so far as the Supervisory Board has been designated by our General Meeting, to resolve to issue Preference Shares in case of an intended take-over of our Company by (i) any person who alone or with one or more other persons, directly or indirectly, have acquired or given notice of an intent to acquire (beneficial) ownership of an equity stake which in aggregate equals 20% or more of our share capital then outstanding or (ii) an "adverse person" as determined by the Supervisory Board. For this purpose, an "adverse person" is generally any (legal) person, alone or together with affiliates or associates, with an equity stake in our Company which the Supervisory Board considers to be substantial and where the Supervisory Board is of the opinion that this (legal) person has engaged in an acquisition that is intended to cause or pressure QIAGEN to enter into transactions intended to provide such person with short-term financial gain under circumstances that would not be in the interest of QIAGEN and our shareholders or whose ownership is reasonably likely to cause a material adverse impact on our business prospects. Currently the Supervisory Board has not been designated to issue Preference Shares.

On August 2, 2004, we entered into an agreement (Option Agreement) with Stichting Preferente Aandelen QIAGEN (SPAQ) which was most recently amended on June 4, 2012. Pursuant to the Option Agreement, SPAQ was granted an option to acquire such number of Preference Shares as are equal to the total number of all outstanding Common Shares minus one in our share capital at the time of the relevant exercise of the right. SPAQ may exercise its right to acquire the Preference Shares in all situations that it believes that our interest or our stakeholders is at risk (which situations include but are not limited to (i) receipt of a notification from the Managing Board that a takeover is imminent and (ii) receipt of a notification from the Managing Board that one or more activist shareholders take a position that is not in the interest of QIAGEN, our shareholders or our other stakeholders), provided that the conditions mentioned in the previous paragraph have been met. Due to the implementation of the EC Directive on Takeover Bids in Dutch legislation, the exercise of the option to acquire Preference Shares by SPAQ and the subsequent issuance of Preference Shares to SPAQ needs to be done with due observance and in consideration of the restrictions imposed by the Public Offer Rules.

SPAQ was incorporated on August 2, 2004. Its principal office is located at Hulsterweg 82, 5912 PL Venlo, The Netherlands. Its statutory objectives are to protect our interests and our enterprise and the enterprises of companies which are linked to us. SPAQ shall attempt to accomplish its objectives by way of acquiring Preference Shares in the share capital of QIAGEN and to exercise the voting rights in our interests and the interests of our stakeholders.

The board of SPAQ shall consist of at least two directors. Upon incorporation of SPAQ, two members were appointed to the board of SPAQ who resigned in 2019. In December 2019, two new members were appointed. Additional board members shall be appointed by the board of SPAQ. Board resolutions will be adopted by unanimity of the votes cast. SPAQ will be represented either by its board or by the chairman of its board.

Pre-emptive Rights

Under our Articles, existing holders of Common Shares will have pre-emptive rights in respect of future issuances of Common Shares in proportion to the number of Common Shares held by them, unless limited or excluded as described below. Holders of Common Shares shall not have pre-emptive rights in respect of future issuances of Financing Preference Shares or Preference Shares. Holders of Financing Preference Shares and Preference Shares shall not have pre-emptive rights in respect of any future issuances of share capital. Pre-emptive rights do not apply with respect to shares issued against contributions other than in cash or shares issued to our employees or one of our group companies. Under our Articles, the Supervisory Board has the power to limit or exclude any pre-emptive rights to which shareholders may be entitled, provided that it has been authorized by the General Meeting to do so. The authority of the Supervisory Board to limit or exclude pre-emptive rights can only be exercised if at that time the authority to issue shares is in full force and effect. The authority to limit or exclude pre-emptive rights may be

extended in the same manner as the authority to issue shares. If there is no designation of the Supervisory Board to limit or exclude pre-emptive rights in force, the General Meeting shall have authority to limit or exclude such pre-emptive rights, but only upon the proposal of the Supervisory Board.

Resolutions of the General Meeting (i) to limit or exclude pre-emptive rights or (ii) to designate the Supervisory Board as the corporate body that has authority to limit or exclude pre-emptive rights, require a majority of at least two-thirds of the votes cast in a meeting of shareholders if less than 50% of the issued share capital is present or represented. For these purposes, issuances of shares include the granting of rights to subscribe for shares, such as options and warrants, but not the issue of shares upon exercise of such rights.

On June 30, 2020, the General Meeting resolved to authorize the Supervisory Board until December 30, 2021 to issue Common Shares and Financing Preference Shares or grant rights to subscribe for such shares, the aggregate par value of which shall be equal to the aggregate par value of fifty percent of the shares issued and outstanding in the capital of the Company as at December 31, 2019 as included in the Annual Accounts for Calendar Year 2019.

The General Meeting subsequently resolved to grant the authority to restrict or exclude pre-emptive rights until December 30, 2021. However, the General Meeting has limited this authority in a way that the Supervisory Board can only exclude or limit the pre-emptive rights in relation to (i) no more than 10% of the aggregate par value of all shares issued and outstanding in the capital of the Company as of December 31, 2019 increased by (ii) solely for the purpose of strategic transactions such as mergers, acquisitions or strategic alliances an additional 10% of the aggregate par value of all shares issued and outstanding in the capital of the Company as of December 31, 2019.

Acquisition of Our Own Shares

We may acquire our own shares, subject to certain provisions of Dutch law and our Articles, if (i) shareholders' equity less the payment required to make the acquisition does not fall below the sum of paid-up and called-up capital and any reserves required by Dutch law or the Articles and (ii) we and our subsidiaries would not thereafter hold shares with an aggregate nominal value exceeding half of our issued share capital. Shares that we hold in our own capital or shares held by one of our subsidiaries may not be voted. The Managing Board, subject to the approval of the Supervisory Board, may affect our acquisition of shares in our own capital. Our acquisitions of shares in our own capital may only take place if the General Meeting has granted to the Managing Board the authority to effect such acquisitions. Such authority may apply for a maximum period of 5 years and must specify the number of shares that may be acquired, the manner in which shares may be acquired and the price limits within which shares may be acquired. Dutch corporate law allows for the authorization of the Managing Board to purchase a number of shares equal to up to 50% of the Company's issued share capital on the date of the acquisition. On June 30, 2020, the General Meeting resolved to extend the authorization of the Managing Board in such manner that the Managing Board may cause us to acquire shares in our own share capital, for an 18-month period beginning June 30, 2020 until December 30, 2021, without limitation at a price between one Euro cent (Euro 0.01) and one hundred ten percent (110%) of the price for such shares on the New York Stock Exchange or, as applicable, the Frankfurt Stock Exchange, for the five trading days prior to the day of purchase, or, with respect to Preference and Finance Preference shares, against a price between one Euro cent (Euro 0.01) and three times the issuance price and in accordance with applicable provisions of Dutch law and our Articles.

Capital Reduction

Subject to the provisions of Dutch law and our Articles, the General Meeting may, upon the proposal of the Supervisory Board, resolve to reduce the issued share capital by (i) canceling shares or (ii) reducing the nominal value of shares through an amendment of our Articles. Cancellation with repayment of shares or partial repayment on shares or release from the obligation to pay up may also be made or given exclusively with respect to Common Shares, Financing Preference Shares or Preference Shares.

Financial Year, Annual Accounts and Independent Registered Public Accounting Firm

Our financial year coincides with the calendar year. Dutch law requires that within four months after the end of the financial year, the Managing Board must make available a report with respect to such financial year, including our financial statements for such year prepared under International Financial Reporting Standards and accompanied by a report of an Independent Registered Public Accounting Firm. The annual report is submitted to the Annual General Meeting for adoption.

The General Meeting appoints the external auditor of our statutory financial statements prepared in accordance with International Financial Reporting Standards and to issue a report thereon. On June 30, 2020, our shareholders appointed KPMG Accountants N.V. to serve as our external auditor for our statutory consolidated financial statements prepared in accordance with International Financial Reporting Standards for the year ending December 31, 2020.

Dividends and Other Distributions

Subject to certain exceptions, dividends may only be paid out of profits as shown in our annual financial statements as adopted by the General Meeting. Distributions may not be made if the distribution would reduce shareholders' equity below the sum of the paid-up capital and any reserves required by Dutch law or our Articles.

Out of profits, dividends must first be paid on any outstanding Preference Shares (the Preference Share Dividend) in a percentage (the Preference Share Dividend Percentage) of the obligatory call amount paid up on such shares at the beginning of the financial year in respect of which the distribution is made. The Preference Share Dividend Percentage is equal to the average main refinancing rates during the financial year for which the distribution is made. Average main refinancing rate shall be understood to mean the average value on each individual day during the financial year for which the distribution is made of the main refinancing rates prevailing on such day. The main refinancing rate shall be understood to mean the rate of the Main Refinancing Operation as determined and published from time to time by the European Central Bank. If and to the extent that profits are not sufficient to pay the Preference Share Dividend in full, the deficit shall be paid out of the reserves, with the exception of any reserve, which was formed as share premium reserve upon the issue of Financing Preference Shares. If in any financial year the profit is not sufficient to make the distributions referred to above and if no distribution or only a partial distribution is made from the reserves referred to above, such that the deficit is not fully made good, no further distributions will be made as described below until the deficit has been made good.

Out of profits remaining after payment of any dividends on Preference Shares, the Supervisory Board shall determine such amounts as shall be kept in reserve as determined by the Supervisory Board. Out of any remaining profits not allocated to reserve, a dividend (the Financing Preference Share Dividend) shall be paid on the Financing Preference Shares equal to a percentage (the Financing Preference Share Dividend Percentage) over the nominal value of the Financing Preference Shares, increased by the amount of share premium that was paid upon the first issue of Financing Preference Shares. The Financing Preference Shares Dividend Percentage which percentage is related to a fixed average effective yield on the prime interest rate on corporate loans in the United States as quoted in the Wall Street Journal as set forth in article 40.4 of our Articles. If and to the extent that the profits are not sufficient to pay the Financing Preference Share Dividend in full, the deficit may be paid out of the reserves if the Managing Board so decides with the approval of the Supervisory Board, with the exception of the reserve which was formed as share premium upon the issue of Financing Preference Shares.

Insofar as the profits have not been distributed or allocated to reserves as specified above, the General Meeting may act to allocate such profits, provided that no further dividends will be distributed on the Preference Shares or the Financing Preference Shares.

The General Meeting may resolve, on the proposal of the Supervisory Board, to distribute dividends or reserves, wholly or partially, in the form of QIAGEN shares.

Distributions as described above are payable as from a date to be determined by the Supervisory Board. Distributions will be made payable at an address or addresses in The Netherlands to be determined by the Supervisory Board, as well as at least one address in each country where the shares are listed or quoted for trading. The Supervisory Board may determine the method of payment of cash distributions. Distributions in cash that have not been collected within five years and two days after they have become due and payable shall revert to QIAGEN.

Dutch law provides that the declaration of dividends out of the profits that are at the free disposal of the General Meeting is the exclusive right of the General Meeting. This is different from the corporate law of most jurisdictions in the United States, which permit a corporation's board of directors to declare dividends.

Shareholder Meetings, Voting Rights and Other Shareholder Rights

The Annual General Meeting is required to be held within six months after the end of each financial year for the purpose of, among other things, adopting the annual accounts and filling of any vacancies on the Managing and Supervisory Boards.

Extraordinary General Meetings are held as often as deemed necessary by the Managing Board or Supervisory Board, or upon the request of one or more shareholders and other persons entitled to attend meetings jointly representing at least 40% of our issued share capital or by one or more shareholders jointly representing at least 10% of our issued share capital as provided for and in accordance with the laws of The Netherlands.

General Meetings are held in Amsterdam, Haarlemmermeer (Schiphol Airport), Arnhem, Maastricht, Rotterdam, Venlo or The Hague. The notice convening a General Meeting must be given in such manner as shall be authorized by law including but not limited to an announcement published by electronic means no later than the forty-second day prior to day of the general meeting. The notice will contain the agenda for the meeting or state that the agenda can be obtained at our offices.

The agenda shall contain such subjects to be considered at the General Meeting, as the persons convening or requesting the meeting shall decide. Under Dutch law, holders of shares representing solely or jointly at least three hundredth part of the issued share capital may request QIAGEN not later than on the sixtieth day prior to the day of the General Meeting, to include

certain subjects on the notice convening a meeting. No valid resolutions can be adopted at a General Meeting in respect of subjects which are not mentioned in the agenda.

Dutch corporate law sets a mandatory (participation and voting) record date for Dutch listed companies fixed at the twenty-eighth day prior to the day of the shareholders' meeting. Shareholders registered at such record date are entitled to attend and exercise their rights as shareholders at the General Meeting, regardless of a sale of shares after the record date.

General Meetings are presided over by the Chairman of the Supervisory Board or, in his absence, by any person nominated by the Supervisory Board.

At the General Meeting, each share shall confer the right to cast one vote, unless otherwise provided by law or our Articles. No votes may be cast in respect of shares that we or our subsidiaries hold, or by usufructuaries and pledgees. All shareholders and other persons entitled to vote at General Meetings are entitled to attend General Meetings, to address the meeting and to vote. They must notify the Managing Board in writing of their intention to be present or represented not later than on the third day prior to the day of the meeting, unless the Managing Board permits notification within a shorter period of time prior to any such meeting. Subject to certain exceptions, resolutions may be passed by a simple majority of the votes cast.

Except for resolutions to be adopted by the meeting of holders of Preference Shares, our Articles do not allow the adoption of shareholders resolutions by written consent (or otherwise without holding a meeting).

A resolution of the General Meeting to amend our Articles, dissolve QIAGEN, issue shares or grant rights to subscribe for shares or limit or exclude any pre-emptive rights to which shareholders shall be entitled is valid only if proposed to the General Meeting by the Supervisory Board.

A resolution of the General Meeting to amend our Articles is further only valid if the complete proposal has been made available for inspection by the shareholders and the other persons entitled to attend General Meetings at our offices as from the day of notice convening such meeting until the end of the meeting. A resolution to amend our Articles to change the rights attached to the shares of a specific class requires the approval of the relevant class meeting.

Resolutions of the General Meeting in a meeting that has not been convened by the Managing Board and/or the Supervisory Board, or resolutions included on the agenda for the meeting at the request of shareholders, will be valid only if adopted with a majority of two-thirds of votes cast representing more than half the issued share capital, unless our Articles require a greater majority or quorum.

A resolution of the General Meeting to approve a legal merger or the sale of all or substantially all of our assets is valid only if adopted by a vote of at least two-thirds of the issued share capital, unless proposed by the Supervisory Board, in which case a simple majority of the votes cast shall be sufficient.

A shareholder shall upon request be provided, free of charge, with written evidence of the contents of the share register with regard to the shares registered in its name. Furthermore, any shareholder shall, upon written request, have the right, during normal business hours, to inspect our share register and a list of our shareholders and their addresses and shareholdings, and to make copies or extracts therefrom. Such request must be directed to our Managing Directors at our registered office in The Netherlands or at our principal place of business. Financial records and other company documents (other than those made public) are not available in this manner for shareholder review, but an extract of the minutes of the General Meeting shall be made available.

According to Dutch law and our Articles, certain resolutions of the Managing Board regarding a significant change in the identity or nature of us or our enterprise are subject to the approval of the General Meeting. The following resolutions of the Managing Board require the approval of the General Meeting in any event:

(i) the transfer of our enterprise or practically our entire enterprise to a third party;

(ii) the entry into or termination of a long-term cooperation by us or one of our subsidiaries (*dochtermaatschappijen*) with another legal person or partnership or as a fully liable general partner of a limited partnership or a general partnership, if such cooperation or termination is of a far-reaching significance for us; and

(iii) the acquisition or divestment by us or one of our subsidiaries (*dochtermaatschappijen*) of a participating interest in the capital of a company with a value of at least one-third of the sum of our assets according to our consolidated balance sheet and explanatory notes in our last adopted annual accounts.

No Derivative Actions; Right to Request Independent Inquiry

Dutch law does not afford shareholders the right to institute actions on behalf of us or in our interest. Shareholders holding at least one-tenth of our issued capital, or EUR 225,000, in nominal value of our shares may inform the Managing Board and the Supervisory Board of their objections as to our policy or the course of our affairs and, within a reasonable time thereafter, may request the Enterprises Division of the Court of Appeal in Amsterdam to order an inquiry into the policy and the course of our

affairs by independent investigators. If such an inquiry is ordered and the investigators conclude that there has been mismanagement, the shareholders can request the Division to order certain measures such as a suspension or annulment of resolutions.

Dissolution and Liquidation

The General Meeting may resolve to dissolve QIAGEN. If QIAGEN is dissolved, the liquidation shall be carried out by the person designated for that purpose by the General Meeting, under the supervision of the Supervisory Board. The General Meeting shall upon the proposal of the Supervisory Board determine the remuneration payable to the liquidators and to the person responsible for supervising the liquidation.

During the liquidation process, the provisions of our Articles will remain applicable to the extent possible.

In the event of our dissolution and liquidation, the assets remaining after payment of all debts and liquidation expenses will be distributed among registered holders of Common Shares in proportion to the nominal value of their Common Shares, subject to liquidation preference rights of holders of Preference Shares and Financing Preference Shares, if any.

Restrictions on Transfer of Preference Shares

The Supervisory Board, upon application in writing, must approve each transfer of Preference Shares. If approval is refused, the Supervisory Board will designate prospective purchasers willing and able to purchase the shares, otherwise the transfer will be deemed approved.

Limitations in our Articles on Rights to Own Securities

Other than with respect to usufructuaries and pledgees who have no voting rights, our Articles do not impose limitations on rights to own our securities.

Provisions which May Defer or Prevent a Change in Control

The Option Agreement and our Articles could, under certain circumstances, prevent a third party from obtaining a majority of the voting control of our shares by issuing Preference Shares. Under the Option Agreement, SPAQ could acquire Preference Shares subject to the provisions referred to under "Preference Shares".

If SPAQ acquires the Preference Shares, the bidder may withdraw its bid or enter into negotiations with the Managing Board and/or Supervisory Board and agree on a higher bid price for our shares.

Shareholders who obtain control of a company are obliged to make a mandatory offer to all other shareholders. The threshold for a mandatory offer is set at the ability to exercise 30% of the voting rights at the general meeting of shareholders in a Dutch public limited company (*naamloze vennootschap*) whose securities are admitted to trading on a regulated market in the EU, such as QIAGEN.

Ownership Threshold Requiring Disclosure

Our Articles do not provide an ownership threshold above which ownership must be disclosed. However, there are statutory requirements to disclose share ownership above certain thresholds under Dutch law-see “Obligation of Shareholders to Disclose Major Holdings”.

Exchange Controls

There are currently no limitations either under the laws of The Netherlands or in our Articles, to the rights of shareholders from outside The Netherlands to hold or vote Common Shares. Under current foreign exchange regulations in The Netherlands, there are no material limitations on the amount of cash payments that we may remit to residents of foreign countries.

Obligation of Shareholders to Disclose Major Holdings

Holders of our shares or rights to acquire shares (which include options and convertible bonds - see also below) may be subject to notification obligations under the Dutch Financial Markets Supervision Act (FMSA).

Pursuant to the FMSA, any person who, directly or indirectly, acquires or disposes of an interest (including a potential interest, such as options and convertible bonds) in our issued share capital or voting rights must notify the Netherlands Authority for the Financial Markets (AFM) without delay, if as a result of such acquisition or disposal, the percentage of capital interest or voting rights held by such person in QIAGEN reaches, exceeds or falls below any of the following thresholds: 3%, 5%, 10%, 15%, 20%, 25%, 30%, 40%, 50%, 60%, 75% and 95%. The notifications should be made electronically through the notification system of the AFM.

A notification requirement also applies if a person's capital interest or voting rights reaches, exceeds or falls below the above-mentioned thresholds as a result of a change in our total issued share capital or voting rights. Such notification has to be made no later than the fourth trading day after the AFM has published our notification as described below.

Under the FMSA, we are required to notify the AFM without delay of the changes to our total issued share capital or voting rights if our issued share capital or voting rights changes by 1% or more since our previous notification. We must furthermore quarterly notify the AFM within eight days after the end of the relevant quarter, in the event our issued share capital or voting rights changed by less than 1% in that relevant quarter since our previous notification.

Furthermore, each person who is or ought to be aware that, as a result of the exchange of certain financial instruments, such as options for shares, his actual capital or voting interest in QIAGEN, reaches, exceeds or falls below any of the following thresholds: 3%, 5%, 10%, 15%, 20%, 25%, 30%, 40%, 50%, 60%, 75% and 95%, vis-à-vis his most recent notification to the AFM, must give notice to the AFM no later than the fourth trading day after he became or ought to be aware of this change.

Controlled entities, within the meaning of the FMSA, do not have notification obligations under the FMSA, as their direct and indirect interests are attributed to their (ultimate) parent. Any person may qualify as a parent for purposes of the FMSA, including an individual. A person who has a 3% or larger interest in our share capital or voting rights and who ceases to be a controlled entity for these purposes must notify the AFM without delay. As of the date of that notification, all notification obligations under the FMSA will become applicable to that entity.

For the purpose of calculating the percentage of capital interest or voting rights, the following interests must, *inter alia*, be taken into account: (i) our shares or voting rights on our shares directly held (or acquired or disposed of) by a person, (ii) our shares or voting rights on our shares held (or acquired or disposed of) by such person's controlled entity or by a third party for such person's account or by a third party with whom such person has concluded an oral or written voting agreement (including a discretionary power of attorney), and (iii) our shares or voting rights on our shares which such person, or any subsidiary or third party referred to above, may acquire pursuant to any option or other right held by such person (or acquired or disposed of, including, but not limited to, on the basis of convertible bonds). Special rules apply with respect to the attribution of our shares or voting rights on our shares which are part of the property of a partnership or other community of property. A holder of a pledge or right of usufruct (*vruchtgebruik*) in respect of our shares can also be subject to the notification obligations of the FMSA, if such person has, or can acquire, the right to vote on our shares or, in the case of depository receipts, our underlying shares. The acquisition of (conditional) voting rights by a pledgee or usufructuary may also trigger the notification obligations as if the pledgee or beneficial owner were the legal holder of our shares or voting rights on our shares. A holding in certain cash settled derivatives (such as cash settled call options and total equity return swaps) referencing to our shares should also be taken into account for the purpose of calculating the percentage of capital interest.

Gross short positions in our shares must also be notified to the AFM. For these gross short positions, the same thresholds apply as for notifying an actual or potential interest in our issued share capital and/or voting rights as referred to above, and without any set-off against long positions.

In addition, pursuant to Regulation (EU) No 236/2012, each person holding a net short position amounting to 0.2% of our issued share capital is required to report such position to the AFM. Each subsequent increase of this position by 0.1% above 0.2% will also need to be reported. Each net short position equal to 0.5% of our issued share capital and any subsequent increase of that position by 0.1% will be made public via the AFM short selling register. To calculate whether a natural person or legal person has a net short position, their short positions and long positions must be set-off. A short transaction in a share can only be contracted if a reasonable case can be made that the shares sold can actually be delivered, which requires confirmation of a third party that the shares have been located.

The AFM does not issue separate public announcements of the above notifications. However, it does keep a public register of all notifications made pursuant to the above disclosure obligations under the FMSA on its website www.afm.nl. Third parties can request to be notified automatically by e-mail of changes to the public register in relation to a particular company’s shares or a particular notifying party.

Non-compliance with the notification obligations under the FMSA may lead to criminal fines, administrative fines, imprisonment or other sanctions. In addition, non-compliance with the shareholding disclosure obligations under the FMSA may lead to civil sanctions, including suspension of the voting rights relating to our shares held by the offender for a period of not more than three years and a prohibition applicable to the offender to acquire any of our shares or voting rights on our shares for a period of up to five years.

Management Notifications

Pursuant to the FMSA, each Managing Director and each Supervisory Director must notify the AFM: (a) within two weeks after his or her appointment of the number of our shares or rights to acquire shares he or she holds and the number of votes he or she is entitled to cast in respect our issued share capital, and (b) subsequently, each change in the number or our shares or rights to acquire shares such member holds and of each change in the number of votes he or she is entitled to cast in respect of our issued share capital, immediately after the relevant change. If a Managing Director or Supervisory Director has notified a change in shareholding to the AFM under the FMSA as described above under “Obligation of Shareholders to Disclose Major Holdings”, such notification is sufficient for the purposes as described in this paragraph.

Furthermore, pursuant to European Union Regulation (EU) No 596/2014 (the Market Abuse Regulation) and the regulations promulgated thereunder, any Managing Director and Supervisory Director, as well as any other person discharging managerial responsibilities in respect of QIAGEN who has regular access to inside information relating directly or indirectly to QIAGEN and power to take managerial decisions affecting future developments and business prospects of QIAGEN, must notify the AFM and QIAGEN by means of a standard form of any transactions conducted for his or her own account relating to the shares or debt instruments of QIAGEN or to derivatives or other financial instruments linked thereto.

In addition, pursuant to the Market Abuse Regulation, certain persons who are closely associated with Managing Directors and Supervisory Directors or any of the other persons as described above, are required to notify the AFM and QIAGEN of any transactions conducted for their own account relating to the shares or debt instruments of QIAGEN or to derivatives or other financial instruments linked thereto. The Market Abuse Regulation covers, *inter alia*, the following categories of persons: (i) the spouse or any partner considered by national law as equivalent to the spouse; (ii) dependent children; (iii) other relatives who have shared the same household for at least one year at the relevant transaction date; and (iv) any legal person, trust or partnership whose, among other things, managerial responsibilities are discharged by a person referred to under (i) to (iii) above or by the relevant Managing Directors and Supervisory Directors or other person discharging the managerial responsibilities in respect of QIAGEN as described above.

The notifications pursuant to the Market Abuse Regulation described above must be made to the AFM no later than the third business day following the relevant transaction date. Under certain circumstances, these notifications may be postponed until all transactions within a calendar year have reached a total amount of €5,000 (calculated without netting). Any subsequent transaction must be notified as set forth above. If a Managing Director or Supervisory Director has notified a change in the number of our shares or options to acquire shares such member holds or a change in the number of votes he or she is entitled to cast to the AFM under the FMSA as described in the first paragraph above, such notification - but only to the extent there is an overlap with the notifications obligations under the Market Abuse Regulation - is sufficient for the purposes of the Market Abuse Regulation as described in this paragraph.

Taxation

The following is a general summary of certain material United States federal income tax consequences to holders of our Common Shares who are "U.S. Holders" (as such term is defined below) and certain material Netherlands tax consequences to holders of our Common Shares who are "non-resident Shareholders" or "Shareholders" (as each term is defined below). This summary does not discuss every aspect of such taxation that may be relevant to such holders. Therefore, all prospective purchasers of our Common Shares described above are advised to consult their own tax advisors with respect to the United States federal, state and local tax consequences, as well as The Netherlands tax consequences, of the ownership of our Common Shares. This summary is based upon the advice of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. with respect to tax consequences for U.S. Holders under United States law and Ernst & Young Belastingadviseurs LLP with respect to tax consequences for non-resident Shareholders or Shareholders under Netherlands law.

The statements of The Netherlands and United States tax laws set out below are based on the laws in force as of the date of this Annual Report on Form 20-F, and as a consequence are subject to any changes in United States or The Netherlands law, or in the taxation conventions concluded by the United States and The Netherlands, occurring after such date.

Netherlands Tax Considerations

The following describes the material tax consequences under Netherlands law of an investment in our Common Shares. Such description is based on current understanding of Netherlands tax law currently in force as interpreted under officially published case law and in published policy, and is limited to the tax implications for an owner of our Common Shares who is not, or is not deemed to be, a resident of The Netherlands for purposes of the relevant tax laws (a "non-resident Shareholder" or "Shareholder").

Dividend Withholding Tax

General. Upon distribution of dividends, we are obligated to withhold 15% dividend tax at source and to pay the amount withheld to The Netherlands tax authorities. The term "dividends" means income from shares or other rights participating in profits, as well as income from other corporate rights that is subjected to the same taxation treatment as income from shares by the laws of The Netherlands. Dividends include dividends in cash or in kind, constructive dividends, certain repayments of capital qualified as dividends, interest on loans that are treated as equity instruments for Netherlands corporate income tax purposes and liquidation proceeds in excess of, for Netherlands tax purposes, recognized paid-in capital. Stock dividends are also subject to withholding tax, unless derived from our paid-in share premium that is recognized as equity for Netherlands tax purposes.

No withholding tax should apply on the proceeds resulting from the sale or disposition of our Common Shares to persons other than QIAGEN and our affiliates. A disposition of our Common Shares to QIAGEN or to our affiliates should in general be subject to withholding tax.

A domestic exemption from Netherlands withholding tax may apply when dividends are paid to a corporate Shareholder that own 5% or more of our Common Shares and qualifying as beneficial owner and is solely resident in an EU/EEA Member State or in a country with which The Netherlands has concluded a tax convention that includes a dividend article. This general exemption does not apply to abusive structures. A structure is deemed abusive if a corporate Shareholder owns our Common Shares with the main purpose or one of the main purposes to avoid tax for another person and the structure is considered artificial (i.e. not put into place for valid commercial reasons that reflect economic reality). This domestic exemption may under conditions further not apply in case of hybrid mismatches.
A corporate Shareholder may also be eligible for a reduction or a refund of Netherlands dividend withholding tax under Netherlands tax law, or under a tax convention that is in force between the country of residence of the Shareholder and The Netherlands.

Specific for U.S. Shareholders. The regular 15% withholding tax is withheld by us on dividends we pay to a resident of the United States. For a corporate U.S. Shareholder that cannot apply the Dutch domestic exemption (as explained above), withholding tax on dividends may still be reduced to 5% or 0% if the recipient is entitled to benefits under the Tax Convention between The Netherlands and the United States (the "Convention"), and the relevant specific conditions are met. Dividends we pay to U.S. pension funds and U.S. tax-exempt organizations may be eligible for an exemption from dividend withholding tax under the Convention.

Dividend Stripping. A refund, reduction, exemption, or credit of Netherlands dividend withholding tax on the basis of Netherlands tax law or on the basis of a tax treaty between The Netherlands and another state, will only be granted if the dividends are paid to the beneficial owner ("*uiteindelijk gerechtigde*") of the dividends. A recipient of a dividend is amongst others not considered to be the beneficial owner of a dividend in an event of "dividend stripping". In general terms, "dividend stripping" can be described as the situation in which a foreign or domestic person (usually, but not necessarily, the original shareholder) has transferred in return for a consideration his shares or his entitlement to the dividend distributions to a party that has a more favorable right to a refund or reduction of Netherlands dividend withholding tax than the foreign or domestic person. In these situations, the foreign or domestic person (usually the original shareholder) avoids Netherlands dividend withholding tax while retaining an interest in the shares and the dividend distributions, by transferring his shares or his entitlement to the dividend distributions in exchange for a consideration.

Income Tax and Corporate Income Tax

General. A non-resident Shareholder will not be subject to Netherlands income tax or corporate income tax with respect to dividends we distribute on our Common Shares or with respect to capital gains derived from the sale or disposition of our Common Shares, provided that:

a. the non-resident Shareholder does not carry on or have an interest in a business in The Netherlands through a permanent establishment or a permanent representative to which or to whom the Common Shares are attributable or deemed to be attributable;
b. the non-resident Shareholder does not have a direct or indirect substantial or deemed substantial interest (*"aanmerkelijk belang,"* as defined in The Netherlands tax law) in our share capital or, in the event the Shareholder does have such a substantial interest, such interest is a "business asset", or, in case of a corporate Shareholder, the arrangement or a series of arrangements are not put in place with the main purpose or one of the main purposes to avoid Netherlands income tax for another person or cannot be considered artificial. An arrangement or series of arrangements are considered artificial to the extent not put in place for valid commercial reasons that reflect economic reality; and
c. the non-resident Shareholder is not entitled to a share in the profits of an enterprise, to which our Common Shares are attributable and that is effectively managed in The Netherlands, other than by way of securities or through an employment contract.

In general terms, a substantial interest (*"aanmerkelijk belang"*) in our share capital does not exist if the Shareholder (individuals as well as corporations), alone or together with his partner, does not own, directly or indirectly, 5% or more of the nominal paid-in capital of, or any class of our shares, does not have the right to acquire 5% or more of the nominal paid-in capital of, or any class of our shares (including a call option) and does not have the right to share in our profit or liquidation revenue amounting to 5% or more of the annual profits or liquidation revenue.

There is no all-encompassing definition of the term "business asset"; whether this determination can be made in general depends on the facts presented and in particular on the activities performed by the Shareholder. If the Shareholder materially conducts a business activity, while the key interest of his investment in our Shares will not be his earnings out of the investment in our Shares but our economic activity, an investment in our Shares will generally be deemed to constitute a business asset, in particular if the Shareholder's involvement in our business will exceed regular monitoring of his investment in our Shares.
A non-resident Shareholder that holds a substantial interest in our share capital may be eligible for an exemption or a reduction of Netherlands income tax or corporate income tax under a tax convention.

Specific for U.S. Shareholders

U.S. Shareholders that do not own a substantial interest should not be subject to Dutch Personal Income Tax or Dutch Corporate Income Tax. For U.S. Shareholders that do own a substantial interest, Dutch Personal Income Tax of Dutch Corporate Income Tax could be due. However, U.S. Shareholders that are entitled to benefits of the Convention may be eligible for a tax reduction.

Gift and Inheritance Tax

A gift or inheritance of our Common Shares from a non-resident Shareholder should generally not be subject to a Netherlands gift and inheritance tax, provided that the Shareholder is not considered a (deemed) resident of The Netherlands. The Netherlands has concluded a tax convention with the United States based on which double taxation on inheritances may be avoided if the inheritance is subject to Netherlands and/or U.S. inheritance tax and the deceased was a resident of either The Netherlands or the United States.

United States Federal Income Tax Considerations

The following summary describes certain U.S. federal income tax considerations generally applicable to U.S. Holders (as defined below) of our Common Shares. This summary deals only with our Common Shares held as capital assets within the meaning of Section 1221 of the Internal Revenue Code of 1986, as amended (the "Internal Revenue Code" or the "Code"). This summary also does not address the tax consequences that may be relevant to holders in special tax situations including, without limitation, dealers in securities; traders that elect to use a mark-to-market method of accounting; pass-through entities such as partnerships, S corporations, disregarded entities for federal income tax purposes and limited liability companies (and investors therein); holders that own our Common Shares as part of a "straddle," "hedge," "conversion transaction," or other integrated investment; banks or other financial institutions; individual retirement accounts and other tax-deferred accounts; insurance companies; tax-exempt organizations; U.S. expatriates; holders whose functional currency is not the U.S. dollar; holders subject to the alternative minimum tax; holders that acquired our Common Shares in a compensatory transaction; holders subject to special tax accounting rules as a result of any item of gross income with respect to the Common Shares being taken into account in an applicable financial statement; or holders that actually or constructively own 10% or more of the total voting power or value of our Common Shares.

This summary is based upon the Code, applicable U.S. Treasury regulations, administrative pronouncements and judicial decisions, in each case as in effect on the date hereof, all of which are subject to change (possibly with retroactive effect). No ruling will be requested from the Internal Revenue Service (the "IRS") regarding the tax consequences of the initial listing, and there can be no assurance that the IRS will agree with the discussion set out below. This summary does not address any consequences other than U.S. federal income tax consequences (such as the estate and gift tax or the Medicare tax on net investment income).

As used herein, the term "U.S. Holder" means a beneficial owner of our Common Shares that is, for U.S. federal income tax purposes, (i) a citizen or resident of the United States, (ii) a corporation or other entity taxable as a corporation created or organized under the laws of the United States or any state thereof or therein or the District of Columbia, (iii) an estate the income of which is subject to U.S. federal income taxation regardless of its source, or (iv) a trust (a) that is subject to the supervision of a court within the United States and the control of one or more United States persons as described in Code Section 7701(a)(30), or (b) that has a valid election in effect under applicable U.S. Treasury regulations to be treated as a United States person.

If an entity or other arrangement treated as a partnership for U.S. federal income tax purposes acquires our Common Shares, the tax treatment of a partner in the partnership generally will depend upon the status of the partner and the activities of the partnership. Partners of a partnership considering an investment in our Common Shares should consult their tax advisers regarding the U.S. federal income tax consequences of acquiring, owning, and disposing our Common Shares.

Taxation of Dividends

Subject to the discussion below under "Passive Foreign Investment Company Status," the sum of any cash plus the fair market value of any property that we distribute (before reduction for Netherlands withholding tax) to a U.S. Holder with respect to our Common Shares generally will be included in the U.S. Holder's gross income as a dividend, taxable as ordinary income from foreign sources to the extent of our current or accumulated earnings and profits (as determined for U.S. federal income tax purposes).

Dividends paid to a non-corporate U.S. Holder by a "qualified foreign corporation" may be subject to a reduced rate of tax if certain conditions are met including the following: QIAGEN must not be classified as a "passive foreign investment company" ("PFIC") (discussed below), QIAGEN must be a "qualified foreign corporation" (as defined below), the U.S. Holder must satisfy a holding period requirement, and the distribution must not be treated to the U.S Holder as "investment income" for purposes of the investment interest deduction rules. A "Qualified foreign corporation" generally includes a foreign corporation (other than a foreign corporation that is a PFIC with respect to the relevant U.S. Holder for the taxable year in

which the dividends are paid or for the preceding taxable year) (i) whose Common Shares are readily tradable on an established securities market in the United States, or (ii) which is eligible for benefits under a comprehensive U.S. income tax treaty that includes an exchange of information program and which the U.S. Treasury Department has determined is satisfactory for these purposes. Our Common Shares are expected to be readily tradable on the NYSE, an established securities market. U.S. Holders should consult their own tax advisors regarding the availability of the reduced tax rate on dividends in light of their particular circumstances. Dividends on our Common Shares will not be eligible for the dividends received deduction available to corporations in respect of dividends received from other U.S. corporations.

Distributions in excess of our earnings and profits (as determined for U.S. federal income tax purposes) will be treated as a non-taxable return of capital to the extent of the U.S. Holder's adjusted tax basis in our Common Shares and thereafter as capital gain. However, we do not intend to calculate our earnings and profits under U.S. federal income tax principles. Therefore, U.S. Holders should expect that a distribution will generally be treated as a dividend even if that distribution would otherwise be treated as a non-taxable return of capital or as capital gain under the rules described above.

Foreign Tax Credit

Subject to the PFIC rules discussed below, a U.S. Holder that is subject to Netherlands withholding tax with respect to dividends paid on the Common Shares generally will be entitled, at the election of such U.S. Holder, to receive either a deduction or a credit for such Netherlands withholding tax. Generally, subject to the limitations described in the next paragraph, a credit will reduce a U.S. Holder's U.S. federal income tax liability on a dollar-for-dollar basis, whereas a deduction will reduce a U.S. Holder's income subject to U.S. federal income tax. This election is made on a year-by-year basis and generally applies to all foreign taxes paid (whether directly or through withholding) or accrued by a U.S. Holder during a year.

Limitations apply to the foreign tax credit, including the general limitation that the credit cannot exceed the proportionate share of a U.S. Holder's U.S. federal income tax liability (determined before application of the foreign tax credit) that such U.S. Holder's "foreign source" taxable income bears to such U.S. Holder's worldwide taxable income. In applying this limitation, a U.S. Holder's various items of income and deduction must be classified, under complex rules, as either "foreign source" or "U.S. source" and the limitation is calculated separately for each with respect to specific categories of income. Generally, dividends paid by a foreign corporation should be treated as foreign source for this purpose, and gains recognized on the sale of stock of a foreign corporation by a U.S. Holder should generally be treated as U.S. source for this purpose, except as otherwise provided in an applicable income tax treaty or if an election is properly made under the Code. However, the amount of a distribution with respect to the common shares that is treated as a "dividend" may be lower for U.S. federal income tax purposes than it is for Netherlands tax purposes, resulting in a reduced foreign tax credit allowance to a U.S. Holder.

Each U.S. Holder should consult its own U.S. tax advisor regarding the foreign tax credit rules.

Disposition of our Common Shares

Subject to the PFIC rules discussed below, upon the sale or other disposition of our Common Shares, a U.S. Holder will recognize capital gain or loss for U.S. federal income tax purposes equal to the difference between the amount realized on the disposition of our Common Shares and the U.S. Holder's adjusted tax basis in our Common Shares. Such capital gain or loss generally will be subject to U.S. federal income tax. In general, capital gains recognized by a non-corporate U.S. Holder, including an individual, are subject to a lower rate under current law if such U.S. Holder held shares for more than one year. The deductibility of capital losses is subject to limitations. Any such gain or loss generally will be treated as U.S. source income or loss for purposes of the foreign tax credit. A U.S. Holder's initial tax basis in Common Shares generally will equal the cost of such shares.

Passive Foreign Investment Company Status

We may be classified as a PFIC for U.S. federal income tax purposes if certain tests are met. We will be a PFIC with respect to a U.S. Holder if, for any taxable year in which the U.S. Holder held our Common Shares, either (i) 75% or more of our gross income for the taxable year is passive income; or (ii) the average value of our assets (during the taxable year) which produce or are held for the production of passive income is at least 50% of the average value of all assets for such year. Passive income means, in general, dividends, interest, royalties, rents (other than rents and royalties derived in the active conduct of a trade or business and not derived from a related person), annuities, and gains from assets which would produce such income other than sales of inventory. Passive assets for this purpose generally includes assets held for the production of passive income. Accordingly, passive assets generally include any cash, cash equivalents and cash invested in short-term, interest-bearing debt instruments or bank deposits that are readily convertible into cash. For the purpose of the PFIC tests, if a foreign corporation owns at least 25% (by value) of the stock of another corporation, the foreign corporation is treated as owning its proportionate share of the assets of the other corporation, and as if it had received directly its proportionate share of the income of such other corporation (the "look-through rule"). The effect of the look-through rule with respect to QIAGEN and our ownership of our subsidiaries is that, for purposes of the income and assets tests described above, we will be treated as owning our proportionate share of the assets of our subsidiaries and of earning our proportionate share of each of our subsidiary's income, if any, so long as we own, directly or indirectly, at least 25% of the value of the particular subsidiary's stock. Active business income of our

subsidiaries will be treated as our active business income, rather than as passive income. Based on our income, assets and activities, we do not believe that we were a PFIC for our taxable years ended December 31, 2018, December 31, 2019, and December 31, 2020, and do not expect to be a PFIC for the current taxable year. No assurances can be made, however, that the IRS will not challenge this position or that we will not subsequently become a PFIC. Following the close of any tax year, we intend to promptly send a notice to all shareholders of record at any time during such year, if we determine that we are a PFIC.

If we are considered a PFIC for any taxable year that a U.S. Holder holds our Common Shares, any gain recognized by the U.S. Holder on a sale or other disposition of our Common Shares would be allocated pro-rata over the U.S. Holder's holding period for our Common Shares. The amounts allocated to the taxable year of the sale or other disposition and to any year before we became a PFIC would be taxed as ordinary income. The amount allocated to each other taxable year would be subject to tax at the highest rate in effect for individuals or corporations, as appropriate, for that taxable year, and an interest charge would be imposed with respect to any amount allocated to any prior taxable year that we were a PFIC. Further, if we are a PFIC for any taxable year, to the extent that any distribution received by a U.S. Holder on our Common Shares exceeds 125% of the average of the annual distributions on our Common Shares received during the preceding three years or the U.S. Holder's holding period, whichever is shorter, such excess amount would be subject to taxation in the same manner as gain on the sale or other disposition of Common Shares if we were a PFIC, described above. Certain elections may be available that would result in alternative treatments (such as mark-to-market treatment) of our Common Shares. If we are treated as a PFIC with respect to a U.S. Holder for any taxable year, the U.S. Holder will be deemed to own shares in any of our subsidiaries that also are PFICs. A timely election to treat us as a qualified electing fund under the Code would result in an alternative treatment. However, we do not intend to prepare or provide the information that would enable U.S. Holders to make a qualified electing fund election. If we are considered a PFIC, a U.S. Holder also will be subject to annual information reporting requirements.

Prospective purchasers of our Common Shares are urged to consult their tax advisors regarding the potential application of the PFIC rules to an investment in the Common Shares.

Foreign Currency Issues

If dividends on our Common Shares are paid in euros, the amount of the dividend distribution included in the income of a U.S. Holder will be the U.S. dollar value of the payments made in euros, determined at a spot, euro/U.S. dollar rate applicable to the date such dividend is includible in the income of the U.S. Holder, regardless of whether the payment is in fact converted into U.S. dollars. Generally, gain or loss (if any) resulting from currency exchange fluctuations during the period from the date the dividend is paid to the date such payment is converted into U.S. dollars will be treated as ordinary income or loss.

Backup Withholding and Information Reporting

U.S. backup withholding and information reporting requirements generally apply to payments made to non-corporate holders of Common Shares that are paid within the United States or through certain U.S. related financial intermediaries. Information reporting will apply to payments of dividends on, and to proceeds from the disposition of, Common Shares by a paying agent within the United States (or through certain U.S. related financial intermediaries) to a U.S. Holder, other than U.S. Holders that are exempt from information reporting and properly certify their exemption. A paying agent within the United States (or through certain U.S. related financial intermediaries) will be required to withhold at the applicable statutory rate, currently 24%, in respect of any payments of dividends on, and the proceeds from the disposition of, Common Shares to a U.S. Holder (other than U.S. Holders that are exempt from backup withholding and properly certify their exemption) if the holder fails to furnish its correct taxpayer identification number or otherwise fails to comply with applicable backup withholding requirements. U.S. Holders who are required to establish their exempt status generally must provide a properly completed IRS Form W-9.

Backup withholding is not an additional tax. Amounts withheld as backup withholding may be credited against a U.S. Holder's U.S. federal income tax liability. A U.S. Holder generally may obtain a refund of any amounts withheld under the backup withholding rules that exceed such U.S. Holder's income tax liability by filing a refund claim with the IRS in a timely manner and furnishing required information.

Foreign Financial Asset Reporting

Certain U.S. Holders who hold "specified foreign financial assets" (as defined in section 6038D of the Code), including stock of a non-U.S. corporation that is not held in an account maintained by a U.S. "financial institution" (as defined in section 6038D of the Code), whose aggregate value exceeds $50,000 on the last day of the taxable year or $75,000 at any time during the tax year, may be required to attach to their tax returns for the year certain specified information (on IRS Form 8938) (higher thresholds apply to married individuals filing a joint return and certain individuals residing outside of the United States). Persons who fail to timely furnish the required information may be subject to substantial penalties. Additionally, in the event a U.S. Holder does not file such a report, the statute of limitations on the assessment and collection of U.S. federal income taxes of such U.S. Holder for the related tax year may not close before such report is filed. U.S. Holders (including entities) should consult their own tax advisors regarding their reporting obligations and the possible application of such reporting obligations to the holding of Common Shares.

Documents on Display

Documents referred to in this Annual Report may be inspected at our principal executive office located at Hulsterweg 82, 5912 PL Venlo, The Netherlands.

Item 11. Quantitative and Qualitative Disclosures About Market Risk

Our market risk relates primarily to interest rate exposures on cash, short-term investments and borrowings and foreign currency exposures. Financial risk is centrally managed and is regulated by internal guidelines which require a continuous internal risk analysis. The overall objective of our risk management is to reduce the potential negative earnings effects from changes in interest and foreign exchange rates. Exposures are managed through operational methods and financial instruments relating to interest rate and foreign exchange risks. 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 rates. 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 other speculative purposes. All derivatives are recognized as either assets or liabilities in the balance sheet and are measured at fair value with any change in fair value recognized 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 the extent that the derivatives are not covered by collateral agreements with the respective counterparties.

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.

Further details of our derivative and hedging activities can be found in Note 14 "Derivatives and Hedging" to the accompanying consolidated financial statements.

Interest Rate Risk

At December 31, 2020, we had $598.0 million in cash and cash equivalents as well as $117.2 million in short-term investments. Interest income earned on our cash investments is affected by changes in the relative levels of market interest rates. We only invest in high-grade investment instruments. A hypothetical adverse 10% movement in market interest rates would not have materially impacted our financial statements.

Borrowings against lines of credit are at variable interest rates. We had no amounts outstanding against our lines of credit at December 31, 2020. A hypothetical adverse 10% movement in market interest rates would not have materially impacted our financial statements.

At December 31, 2020, we had $1.9 billion in long-term debt. Through the use of interest rate derivatives we have swapped $127.0 million of our fixed rate debt into a variable interest rate based on the 3-months LIBOR. A hypothetical adverse 10% movement in market interest rates would not have materially impacted our financial statements, as the increased interest expense would have been off-set by increased interest income from our variable rate financial assets.

Foreign Currency Exchange Rate Risk

As a global enterprise, we are subject to risks associated with fluctuations in foreign currencies with regard to our ordinary operations. This includes foreign currency-denominated receivables, payables, debt, and other balance sheet positions as well as future cash flows resulting from anticipated transactions including intra-group transactions.

A significant portion of our revenues and expenses are earned and incurred in currencies other than the U.S. dollar. The euro is the most significant such currency, with others including the British pound, Japanese yen, Chinese renminbi, Turkish lira, Brazilian real, Indian rupee, Swiss franc, and Canadian and Australian dollars. Fluctuations in the value of the currencies in which we conduct our business relative to the U.S. dollar have caused and will continue to cause U.S. dollar translations of such currencies to vary from one period to another. Due to the number of currencies involved, the constantly changing currency exposures, and the potential substantial volatility of currency exchange rates, we cannot predict the effect of exchange rate fluctuations upon future operating results. In general terms, depreciation of the U.S. dollar against our other foreign currencies will increase reported net sales. However, this effect is, at least partially, offset by the fact that we also incur substantial expenses in foreign currencies.

We have significant production and manufacturing facilities located in Germany and intercompany sales of inventory also expose us to foreign currency exchange rate risk. Intercompany sales of inventory are generally denominated in the local currency of the subsidiary purchasing the inventory in order to centralize foreign currency risk with the manufacturing subsidiary. We use an in-house bank approach to net and settle intercompany payables and receivables as well as intercompany foreign exchanged swaps and forward contracts in order to centralize the foreign exchange rate risk to the extent possible. We have entered in the past and may enter in the future into foreign exchange derivatives including forwards, swaps and options to manage the remaining foreign exchange exposure.

Item 12. Description of Securities Other than Equity Securities

Not applicable.

PART II

Item 13. Defaults, Dividend Arrearages and Delinquencies

Not applicable.

Item 14. Material Modifications to the Rights of Security Holders and Use of Proceeds

Not applicable.

Item 15. Controls and Procedures

Disclosure Controls and Procedures

Our Managing Director, with the assistance of other members of management, performed an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures, as that term is defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934, as amended, within 90 days of the date of this report. Based on that evaluation, they concluded that as of December 31, 2020, our disclosure controls and procedures were effective to ensure that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC's rules and forms, and is accumulated and communicated to our management, including our Managing Directors, as appropriate to allow timely decisions regarding required disclosure.

There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, no matter how well designed, such as the possibility of human error and the circumvention or overriding of the controls and procedures. Therefore, even those systems determined to be effective may not prevent or detect misstatements and can provide only reasonable assurance of achieving their control objectives. In addition, any determination of effectiveness of controls is not a projection of any effectiveness of those controls to future periods, as those controls may become inadequate because of changes in conditions or the degree of compliance with the policies or procedures may deteriorate.

Report of Management on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934, as amended. The Company's system of internal controls over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of the consolidated financial statements in accordance with generally accepted accounting principles.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements and even when determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Our management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2020. In making this assessment, management used the updated criteria set forth in 2013 by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control-Integrated Framework.

Based on our assessment under the COSO Internal Control-Integrated Framework, management believes that, as of December 31, 2020, our internal control over financial reporting is effective**.** Management's assessment of and conclusion on the effectiveness of internal control over financial reporting did not include the internal controls of NeuMoDx Molecular, Inc, which is included in the 2020 consolidated financial statements of QIAGEN N.V. and Subsidiaries and constituted 6.31% of total assets as of December 31, 2020 and 0.53% of revenues for the year then ended. Securities and Exchange Commission guidelines permit companies to exclude acquisitions from their assessment of internal control over financial reporting during the first year following an acquisition.

Attestation Report of the Independent Registered Public Accounting Firm

KPMG AG Wirtschaftsprüfungsgesellschaft, the independent registered public accounting firm that audited our consolidated financial statements prepared in accordance with U.S. generally accepted accounting principles (GAAP) as of and for the year ended December 31, 2020, has also audited the effectiveness of the Company's internal control over financial reporting as of December 31, 2020. Their report is included in this Annual Report on Form 20-F on page F-2.

Changes in Internal Control over Financial Reporting

There has been no change in our internal control over financial reporting during 2020 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 16A. Audit Committee Financial Expert

The Supervisory Board has designated Mr. Lawrence Rosen as an "audit committee financial expert" as that term is defined in the SEC rules adopted pursuant to the Sarbanes-Oxley Act. Mr. Rosen is "independent" as defined under the independence standards set forth in the New York Stock Exchange (NYSE) Listed Company Manual as applicable to Audit Committees.

Item 16B. Code of Ethics

QIAGEN has in place a Code of Conduct which qualifies as a code of ethics, as required by SEC and the New York Stock Exchange (NYSE) Listed Company Manual. The Code of Conduct applies to all of QIAGEN's employees, including our principal executive officer, principal financial officer, principal accounting officer or controller and other persons performing similar functions. The full text of the Code of Conduct is available on our website at *www.qiagen.com.*

Item 16C. Principal Accountant Fees and Services

Audit Committee Pre-Approval Policies and Procedures

The Audit Committee has adopted a policy that requires the pre-approval of all services performed for us by our independent registered public accounting firm. Additionally, the Audit Committee has delegated to the Committee Chairman full authority to approve any management request for pre-approval, provided the Chairman presents any approval given at its next scheduled meeting. All audit-related services, tax services and other services rendered by our independent registered public accounting firm or their affiliates were pre-approved by the Audit Committee and are compatible with maintaining the auditor's independence.

Set forth below are the total fees billed (or expected to be billed), on a consolidated basis, by the independent registered public accounting firm or their affiliates for providing audit and other professional services in each of the last two years:

(in millions)	**2020**	**2019**
Audit fees	**$ 2.9**	$ 2.5
-Consolidated financial statements	***2.3***	*1.8*
-Statutory financial statements	***0.6***	*0.7*
Audit-related fees	**0.1**	0.2
Tax and other fees	**—**	—
Total	**$ 3.0**	$ 2.7

Audit fees consist of fees and expenses billed for the annual audit and quarterly review of QIAGEN's consolidated financial statements. They also include fees billed for other audit services, which are those services that only the statutory auditor can provide, and include the review of documents filed with the Securities Exchange Commission. In 2020, audit fees include fees related to the acquisition of NeuMoDx Molecular, Inc. and capital market transactions.

Audit-related fees consist of fees and expenses billed for assurance and related services that are related to the performance of the audit or review of QIAGEN's financial statements and include consultations concerning financial accounting and reporting standards and review of the opening balance sheets of newly acquired companies.

Tax fees include fees and expenses billed for tax compliance services, including assistance on the preparation of tax returns and claims for refund; tax consultations, such as assistance and representation in connection with tax audits and appeals. All other fees include various fees and expenses billed for services as approved by the Audit Committee and as permitted by the Sarbanes-Oxley Act of 2002.

Item 16D. Exemptions From the Listing Standards for Audit Committees

Not applicable.

Item 16E. Purchases of Equity Securities by the Issuer and Affiliated Purchasers

The following table sets out information concerning repurchases of our common shares, which we intend to use to serve our exchangeable debt instruments and employee share-based remuneration plans.

On May 6, 2019, we announced our sixth share repurchase program of up to $100 million of our common shares. During 2020, we repurchased 1.3 million QIAGEN shares for $64.0 million (including transaction costs). This program ended on December 17, 2020.

Period	(a)Total number of shares purchased	(b)Average price paid per share in $[1]	(c) Total number of shares purchased as part of publicly announced plans and programs	(d) Approximate dollar value of shares that may yet be purchased under these plans and programs (in $ millions)[2]
November 1-30, 2020	965,255	$46.76	965,255	$54.9
December 1-31, 2020	380,646	$49.54	380,646	$—
Total	1,345,901	$47.55	1,345,901	

[1]The average price paid per share of stock repurchased under the stock repurchase program includes the commissions paid to the brokers.

[2]The approximate value of shares that may yet be purchased under these plans and programs does not include commissions that may be paid to brokers in connection with such purchases.

Item 16F. Change in Registrant's Certifying Accountant

Not applicable.

Item 16G. Corporate Governance

We recognize the importance of clear and straightforward rules on corporate governance and, where appropriate, have adapted our internal organization and processes to these rules. This section provides an overview of QIAGEN's corporate governance structure and includes details of the information required under the Dutch Corporate Governance Code (the Dutch Code). The Dutch Code is applicable to QIAGEN N.V. (in the following also referred to as the "Company"), as it is a publicly listed company incorporated under the laws of The Netherlands with a registered seat in Venlo, The Netherlands. The Dutch Code contains the principles and concrete provisions which the persons involved in a listed company (including Managing Board members and Supervisory Board members) and stakeholders should observe in relation to one another.

Our corporate governance practices generally derive from the provisions of the Dutch Civil Code and the Dutch Corporate Governance Code. Further, due to our listing on the New York Stock Exchange in the U.S., the Managing Board and the Supervisory Board of QIAGEN N.V. declared their intention to disclose in QIAGEN's Annual Reports the Company's compliance with the corporate governance practices followed by U.S. companies under the New York Stock Exchange listing standards or state the deviations recorded in the period.

A brief summary of the principal differences follows.

Corporate Structure

QIAGEN is a 'Naamloze Vennootschap,' or N.V., a Dutch limited liability company similar to a corporation in the United States. QIAGEN has a two-tier board structure. QIAGEN is managed by a Managing Board consisting of executive management acting under the supervision of a Supervisory Board (non-executives), similar to a Board of Directors in a U.S. corporation. It is in the interest of QIAGEN and all its stakeholders that each Board performs its functions appropriately and that there is a clear division of responsibilities between the Managing Board, the Supervisory Board, the general meeting of shareholders (General Meeting) and the external auditor in a well-functioning system of checks and balances.

Managing Board

General

The Managing Board manages QIAGEN and is responsible for defining and achieving QIAGEN's aims, strategy, policies and results. The Managing Board is also responsible for complying with all relevant legislation and regulations as well as for managing the risks associated with the business activities and the financing of QIAGEN. It reports related developments to and discusses the internal risk management and control systems with the Supervisory Board and the Audit Committee. The Managing Board is accountable for the performance of its duties to the Supervisory Board and the General Meeting of Shareholders (General Meeting). The Managing Board provides the Supervisory Board with timely information necessary for the exercise of the duties of the Supervisory Board. In discharging its duties, the Managing Board takes into account the interests of QIAGEN, its enterprises and all parties involved in QIAGEN, including shareholders and other stakeholders.

Composition and Appointment

The Managing Board consists of one or more members as determined by the Supervisory Board. The members of the Managing Board are appointed by the General Meeting upon the joint meeting of the Supervisory Board and the Managing Board (the

Joint Meeting) having made a binding nomination for each vacancy. However, the General Meeting may at all times overrule the binding nature of such a nomination by a resolution adopted by at least a two-thirds majority of the votes cast, if such majority represents more than half the issued share capital. Managing Directors are appointed annually for the period beginning on the date following the Annual General Meeting up to and including the date of the Annual General Meeting held in the following year.

Members of the Managing Board may be suspended and dismissed by the General Meeting by a resolution adopted by a two-thirds majority of the votes cast, if such majority represents more than half of the issued share capital, unless the proposal was made by the Joint Meeting, in which case a simple majority of votes cast is sufficient. Furthermore, the Supervisory Board may at any time suspend (but not dismiss) a member of the Managing Board.

Conflicts of Interest, Loans or Similar Benefits

Resolutions to enter into transactions under which members of the Managing Board could have a conflict of interest with QIAGEN, and which are of material significance to QIAGEN and/or the relevant member of the Managing Board, require the approval of the Supervisory Board. QIAGEN has not entered into any such transactions in 2020. No credit, loans or similar benefits were granted to members of the Managing Board. Additionally, the Managing Board Members did not receive any benefits from third parties that were either promised or granted in view of their position as members of the Managing Board.

Further information on our Managing Directors can be found in Item 6 of this Annual Report.

Supervisory Board

General

The Supervisory Board supervises the policies of the Managing Board, the general course of QIAGEN's affairs and strategy and the business enterprises which we operate. The Supervisory Board assists the Managing Board by providing advice relating to the business activities of QIAGEN. In 2020, the Supervisory Board had five regular meetings that were held with the attendance of the Managing Board, while certain agenda items were discussed exclusively between the Supervisory Board members. In discharging its duties, the Supervisory Board takes into account the interests of QIAGEN, its enterprise and all parties involved in QIAGEN, including shareholders and other stakeholders. The Supervisory Board is responsible for the quality of its own performance. In this respect, the Supervisory Board conducts a self-evaluation on an annual basis. Our Supervisory Board has specified matters requiring its approval, including decisions and actions which would fundamentally change the company's assets, financial position or results of operations. The Supervisory Board has appointed an Audit Committee, a Compensation Committee, a Selection and Appointment (Nomination) Committee and a Science and Technology Committee from among its members and can appoint other committees as deemed beneficial. The Supervisory Board has approved charters pursuant to which each of the committees operates.

Composition and Appointment

The Supervisory Board consists of at least three members, or a larger number as determined by the Joint Meeting. Members of the Supervisory Board are appointed by the General Meeting upon the Joint Meeting having made a binding nomination for each vacancy. However, the General Meeting may at all times overrule the binding nature of such a nomination by a resolution adopted by at least a two-thirds majority of the votes cast, if such majority represents more than half the issued share capital.

The Supervisory Board shall be composed in a way that enables it to carry out its duties properly and enables its members to act critically and independently of one another and of the Managing Board and any particular interests. To that effect, the Supervisory Board has adopted a profile of its size and composition that takes into account the nature of our business, our activities and the desired diversity, expertise and background of the members of the Supervisory Board. The current profile of the Supervisory Board can be found on our website. The Supervisory Board has appointed a chairman from its members who has the duties assigned to him by the Articles of Association and the Dutch Code.

Members of the Supervisory Board are appointed annually for the period beginning on the date following the General Meeting up to and including the date of the General Meeting held in the following year. Members of the Supervisory Board may be suspended and dismissed by the General Meeting by a resolution adopted by a two-thirds majority of the votes cast, if such majority represents more than half of the issued share capital, unless the proposal was made by the Joint Meeting in which case a simple majority of votes cast is sufficient.

Conflicts of Interest, Loans or Similar Benefits

Resolutions to enter into transactions under which members of the Supervisory Board could have a conflict of interest with QIAGEN, and which are of material significance to QIAGEN and/or the relevant member of the Supervisory Board, must be reported and require the approval of the Supervisory Board plenum. In 2020, neither QIAGEN nor its Supervisory Board members have entered into any such transactions. No credit, loans or similar benefits were granted to members of the

Supervisory Board. Additionally, the Supervisory Board Members did not receive any benefits from third parties that were either promised or granted in view of their position as members of the Supervisory Board.

Further information on our Supervisory Directors can be found in Item 6 of this Annual Report.

Additional Information

Shareholders

Our shareholders exercise their voting rights through Annual and Extraordinary General Meetings. Resolutions of the General Meeting are adopted by an absolute majority of votes cast, unless a different majority of votes or quorum is required by Dutch law or the Articles of Association. Each common share confers the right to cast one vote.

Furthermore, the Managing Board, or where appropriate, the Supervisory Board, shall provide all shareholders and other parties in the financial markets with equal and simultaneous information about matters that may influence QIAGEN's share price.

QIAGEN is required to convene an Annual General Meeting in The Netherlands no later than six months following the end of each year. The agenda for the Annual General Meeting must contain certain matters as specified in QIAGEN's Articles of Association and under Dutch law, including, among other things, the adoption of QIAGEN's annual financial statements.

Additional Extraordinary General Meetings may be convened at any time by the Managing Board, the Supervisory Board or by one or more shareholders jointly representing at least 40% of QIAGEN's issued share capital. Furthermore, one or more shareholders, who jointly represent at least 10% of QIAGEN's issued share capital may, on their application, be authorized by the district court judge having applications for interim relief, to convene a General Meeting. Shareholders are entitled to propose items for the agenda of the General Meeting provided that they hold at least 3% of the issued share capital. Proposals for agenda items for the General Meeting must be submitted at least 60 days prior to the meeting date. The notice convening a General Meeting, accompanied by the agenda, shall be sent no later than 42 days prior to the meeting. QIAGEN informs the General Meeting by means of explanatory notes to the agenda, providing all facts and circumstances relevant to the proposed resolutions.

Pursuant to the Dutch Code, all transactions between the company and legal or natural persons who hold at least ten percent of the shares in the company shall be agreed on terms that are customary in the sector concerned. Decisions to enter into transactions in which there are conflicts of interest with such persons that are of material significance to the company and/or to such persons require the approval of the Supervisory Board. QIAGEN has not entered into any such transactions in 2020.

Furthermore, pursuant to the Dutch implementation of the Shareholders Rights Directive II (SRD II), certain material transactions with related parties (in the meaning of the standards adopted by the International Accounting Standards Board and approved by the European Commission) require the approval of the Supervisory Board, or, if all Supervisory Directors are involved in such transaction, the General Meeting of Shareholders.

Independence

Unlike the New York Stock Exchange listing standards which require a majority of the Supervisory Board members to be independent, the Dutch Corporate Governance Code distinguishes between certain independence criteria which may be fulfilled by not more than one Supervisory Board Members (as e.g. prior employment with the Company, receiving personal financial an important business relationship with the Company) and other criteria which may not be fulfilled by more than the majority of the Supervisory Board members. In some cases the Dutch independence requirement is more stringent, such as by requiring a longer “look back” period (five years) for former executive directors. In other cases, the New York Stock Exchange rules are more stringent, such as a broader definition of disqualifying affiliations. Currently, all members of our Supervisory Board are “independent” under both the New York Stock Exchange and Dutch definitions.

Independent Auditors

In accordance with the requirements of Dutch law, our independent registered public accounting firm for our statutory consolidated financial statements prepared in accordance with International Financial Reporting Standards and filed with the Netherlands Authority for the Financial Markets (AFM), is appointed, and may be removed by, the General Meeting. The Supervisory Board nominates a candidate for the appointment as external auditor, for which the Audit Committee advises the Supervisory Board. At the Annual General Meeting in 2020, KPMG Accountants N.V. was appointed as external auditor for the Company for 2020 year. The external auditor is invited to attend the meeting of the Supervisory Board at which the statutory financial statements prepared in accordance with International Financial Reporting Standards and filed with the AFM shall be approved and is furthermore invited to attend the General Meeting at which the statutory financial statements are adopted and may be questioned by the General Meeting on its statement on the fairness of our annual accounts prepared in accordance with International Financial Reporting Standards.

Following the appointment of KPMG Accountants N.V. for the audit of our statutory consolidated financial statements, the external auditor for our consolidated financial statements prepared under U.S. generally accepted accounting principles is

KPMG AG Wirtschaftsprüfungsgesellschaft who audited the consolidated financial statements as of and for the year ended December 31, 2020 contained in this annual report.

The remuneration of the external auditor, and instructions to the external auditor to provide non-audit services, shall be approved by the Supervisory Board on the recommendation of the Audit Committee and after consultation with the Managing Board. At least once every four years, the Supervisory Board and the Audit Committee shall conduct a thorough assessment of the functioning of the external auditor. The main conclusions of this assessment shall be communicated to the General Meeting for the purposes of assessing the nomination for the appointment of the external auditor.

Whistleblower Policy and Code of Conduct

We have a formal Whistleblower Policy concerning the reporting of alleged irregularities within QIAGEN of a general, operational or financial nature. Furthermore, we have a published Code of Conduct that outlines business principles for our employees and rules of conduct. The Code of Conduct can be found on our website at www.qiagen.com.

Anti-Takeover Measures

In 2004, the Supervisory Board granted an option to the Dutch Foundation Stichting Preferente Aandelen QIAGEN that allows the Foundation to acquire preference shares from QIAGEN if (i) a person has (directly or indirectly) acquired or has expressed a desire to acquire more than 20% of our issued share capital, or (ii) a person holding at least a 10% interest in the share capital has been designated as a hostile person by our Supervisory Board. The option enables the Foundation to acquire preference shares equal to the number of our outstanding common shares at the time of the relevant exercise of the right, less one share. When exercising the option and exercising its voting rights on these shares, the Foundation must act in the interest of QIAGEN and the interests of our stakeholders. No preference shares are currently outstanding.

Dutch Corporate Governance Code--Comply or Explain

The corporate governance structure and compliance with the Dutch Code is the joint responsibility of the Managing Board and the Supervisory Board. They are accountable for this responsibility to the General Meeting. We continue to seek ways to improve our corporate governance by measuring itself against international best practice. The Dutch Code was last amended on December 8, 2016, and can be found at www.commissiecorporategovernance.nl.

Non-application of a specific best practice provision is not in itself considered objectionable by the Dutch Code and may well be justified because of particular circumstances relevant to a company. In accordance with Dutch law, we disclose in our Annual Report the application of the Dutch Code's principles and best practice provisions.

To the extent that we do not apply certain principles and best practice provisions, or do not intend to apply these in the current or the subsequent year, we state the reasons.

We take a positive view of the Dutch Code and apply nearly all of the best practice provisions. However, we prefer not to apply some provisions due to the international character of our business as well as the fact - acknowledged by the Commission that drafted the Dutch Code - that existing contractual agreements between QIAGEN and individual members of the Managing Board cannot be set aside at will.

The following provides an overview of exceptions that we have identified:

1. *Best practice provision 2.2.2 recommends that a supervisory board member is appointed for a period of four years. A member may be reappointed for a term of additional two years, which appointment may be extended by at most two years.*

   Members of the Supervisory Board are appointed annually for a one-year period beginning on the day following the General Meeting up to and including the day of the General Meeting held in the following year. Dr. Metin Colpan has joined the Supervisory Board in 2004 and Ms. Elizabeth Tallett has been a Supervisory Board member since 2011. We highly value the scientific and commercial experience of Dr. Colpan and his in-depth knowledge of QIAGEN and the broad industry knowledge, management and board experience of Ms. Tallett. QIAGEN therefore supports the reappointment of Dr. Colpan and Ms. Tallett beyond the eight-year term as recommended by the Dutch Code.

2. *Best practice provision 2.1.5 recommends that the Supervisory Board should draw up a diversity policy for the composition of the Management Board, the Supervisory Board and, if applicable, the Executive Committee. The policy should address concrete targets relating to diversity and the diversity aspects to the Company, such as nationality, age, gender and education and work background.*

   While QIAGEN strives for a diverse composition of the Supervisory Board, Managing Board, Executive Committee and in all other management levels of the Company, we do not consider the definition of concrete targets relating to diversity useful. We are committed to creating an environment where all individuals have the opportunity to grow and contribute to our progress, regardless of their age, educational background, gender, nationality, physical abilities, race and ethical

background, religion, or sexual orientation. We consider it to be a key success factor on the path to achieving our mission and goals. Individuals and teams alike understand the diverse needs of our customers, identify and realize cross-functional opportunities for our business areas, and can quickly adapt to a fast changing environment. In 2020, our multicultural workforce was composed of at least 80 nationalities with an average age of 40.1. With 48.4% women, we are well balanced in terms of gender on an aggregate level. Information on the composition of our Managing and Supervisory Boards can be found in Item 6.

3. *Best practice provision 3.1.2 vi. recommends that when formulating the remuneration policy, it should be considered that shares awarded to management board should be held for a period of at least five years*

   Pursuant to the Company's Remuneration Policy, long-term equity-based grants to members of the Managing Board under the 2014 Plan primarily consist of an award of performance stock units, i.e. long-term incentive awards which are dependent upon the achievement of pre-defined performance goals. Grants of restricted stock units, which are based on time vesting only, are no longer to be granted on a regular basis and shall be reserved for use as special equity incentive rewards in certain situations. Performance stock units and restricted stock units granted until February 2018 are basically structured so that 40% of a grant vests after three years, 50% after five years and the remaining 10% after ten years. Grants of performance stock units and restricted stock units granted after February 2018 vest 40% after three years, 60% after five years. In 2019, the members of the Managing Board elected to receive in lieu of their 2018 cash bonus the value earned in the year in performance stock units which vest over five years from the grant date.

4. *Best practice provision 3.2.3 recommends that the maximum remuneration in the event of dismissal of a management board member may not exceed one year's salary (the "fixed" remuneration component).*

   Our Managing Board members have entered into employment agreements with QIAGEN N.V. and some QIAGEN affiliates for which they hold managing positions. In case of termination of an agreement without serious cause as defined by the applicable law, the respective affiliate would remain obliged to compensate the Managing Board member for the remaining term of the employment agreement.

5. *Best practice provision 2.2.4 recommends that the supervisory board should draw up a retirement schedule in order to avoid, as far as possible, a situation in which many supervisory board members retire simultaneously. The retirement schedule should be made generally available and should be posted on the company's website.*

   The Supervisory Board follows the practice to discuss retirement plans of individual members early to proactively manage continuity within the Supervisory Board. QIAGEN believes that this practice provides a more flexible and better succession planning than a fixed retirement schedule.

6. *Best practice provision 3.3.2 recommends that a supervisory board member may not be granted any shares and/or rights to shares by way of remuneration.*

   QIAGEN has granted stock options to the members of the Supervisory Board as a remuneration component since its establishment until 2013 when we stopped granting stock options. Since 2007, Supervisory Board members have been granted restricted stock units. We believe that the reasonable level of equity-based compensation which we practice allows a positive alignment of shareholder interests with the other duties of the Supervisory Board and that this practice is necessary to attract and retain Supervisory Board members as the granting of share-based compensation to Supervisory Board members is a common practice in our industry.

NYSE Exemptions

Exemptions from the NYSE corporate governance standards are available to foreign private issuers, such as QIAGEN when those standards are contrary to a law, rule or regulation of any public authority exercising jurisdiction over such issuer or contrary to generally accepted business practices in the issuer's country of domicile. In connection with QIAGEN's listing on the NYSE, the NYSE accepted QIAGEN's exemptions from certain corporate governance standards that are contrary to the laws, rules, regulations or generally accepted business practices of The Netherlands. These exemptions and the practices followed by QIAGEN are described below:

- QIAGEN is exempt from NYSE's quorum requirements applicable to meetings of ordinary shareholders. In keeping with the law of The Netherlands and generally accepted business practices in The Netherlands, QIAGEN's Articles of Association provide that there are no quorum requirements generally applicable to meetings of the General Meeting.
- QIAGEN is exempt from NYSE's requirements that shareholder approval be obtained prior to the establishment of, or material amendments to, stock option or purchase plans and other equity compensation arrangements pursuant to which options or stock may be acquired by directors, officers, employees or consultants. QIAGEN is also exempt from NYSE's requirements that shareholder approval be obtained prior to certain issuances of stock resulting in a change of control, occurring in connection with acquisitions of stock or assets of another company

or issued at a price less than the greater of book or market value other than in a public offering. QIAGEN's Articles of Association do not require approval of the General Meeting prior to the establishment of a stock plan. The Articles of Association also permit the General Meeting to grant the Supervisory Board general authority to issue shares without further approval of the General Meeting. QIAGEN's General Meeting has granted the Supervisory Board general authority to issue up to a maximum of our authorized capital without further approval of the General Meeting. QIAGEN plans to seek approval of the General Meetings for stock plans and stock issuances only where required under the law of The Netherlands or under QIAGEN's Articles of Association.

Further Information

For additional information regarding our Boards, including the Audit and other Committees of our Supervisory Board, please refer to the discussion in Item 6 above.

Item 16H. Mine Safety Disclosure

Not applicable.

PART III

Item 17. Financial Statements

See Item 18.

Item 18. Financial Statements

See pages F-1 through F-53 included herein.

(A) The following financial statements, together with the reports of KPMG thereon, are filed as part of this annual report:

Item 19. Exhibits

1.1	Articles of Association as confirmed by notarial deed as of January 17, 2020 (English translation)
2.1	$400 Million Note Purchase Agreement dated as of October 16, 2012 (Filed as Exhibit 2.9) (2)
2.2	2021 Bonds Indenture dated March 19, 2014 (Filed as Exhibit 2.8) (3)
2.3	Schuldscheindarlehensvertrag Form of Loan Agreement dated as of June 19, 2017 (Filed as Exhibit 2.11) (6)
2.4	2023 Bonds Indenture dated September 13, 2017 (Filed as Exhibit 2.13) (6)
2.5	2023 Form of Warrant Confirmation dated September 6, 2017 (Filed as Exhibit 2.14) (6)
2.6	2023 Form of Bond Hedge Confirmation dated September 6, 2017 (Filed as Exhibit 2.15) (6)
2.7	2024 Bonds Indenture dated November 13, 2018 (Filed as Exhibit 2.17) (7)
2.8	2024 Form of Warrant Confirmation dated November 6, 2018 (Filed as Exhibit 2.18) (7)
2.9	2024 Form of Bond Hedge Confirmation dated November 6, 2018 (Filed as Exhibit 2.19) (7)
2.11	Description of Securities (Filed as Exhibit 2.12) (8)
*2.12	Global Bearer Bond Representing Convertible Bonds due 2027 dated as of December 17, 2020
*2.13	Purchase Agent Agreement dated as of December 10, 2020
*2.14	Subscription Agreement dated as of December 10, 2020
4.1	QIAGEN N.V. Amended and Restated 2005 Stock Plan (Filed as Exhibit 99.1) (4)
4.2	QIAGEN N.V. 2014 Stock Plan (Filed as Exhibit 99.1) (5)
*8.1	List of Subsidiaries
*12.1	Certification under Section 302; Thierry Bernard, Managing Director and Chief Executive Officer
*12.2	Certification under Section 302; Roland Sackers, Managing Director and Chief Financial Officer
*13.1	Certifications under Section 906; Thierry Bernard, Managing Director and Chief Executive Officer and Roland Sackers, Managing Director and Chief Financial Officer
*15.1	Consent of Independent Registered Public Accounting Firm
*101	Inline XBRL Interactive Data File
*104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

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* Filed herewith.

(1) Incorporated by reference to Form 20-F Annual Report of QIAGEN N.V. filed with the Securities and Exchange Commission on March 6, 2017.

(2) Incorporated by reference to Form 20-F Annual Report of QIAGEN N.V. filed with the Securities and Exchange Commission on March 4, 2013.

(3) Incorporated by reference to Form 20-F Annual Report of QIAGEN N.V. filed with the Securities and Exchange Commission on March 2, 2015.

(4) Incorporated by reference to Registration Statement of QIAGEN N.V. on Form S-8 filed with the Securities and Exchange Commission on November 17, 2011.

(5) Incorporated by reference to Registration Statement of QIAGEN N.V. on Form S-8 filed with the Securities and Exchange Commission on April 2, 2015.

(6) Incorporated by reference to Form 20-F Annual Report of QIAGEN N.V. filed with the Securities and Exchange Commission on March 6, 2018.

(7) Incorporated by reference to Form 20-F Annual Report of QIAGEN N.V. filed with the Securities and Exchange Commission on March 6, 2019.

(8) Incorporated by reference to Form 20-F Annual Report of QIAGEN N.V. filed with the Securities and Exchange Commission on March 2, 2020.

SIGNATURES

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorized the undersigned to sign this annual report on its behalf.

QIAGEN N.V.

Dated: March 4, 2021

By: /s/ Thierry Bernard

Thierry Bernard, Chief Executive Officer

/s/ Roland Sackers

Roland Sackers, Chief Financial Officer

QIAGEN N.V. AND SUBSIDIARIES

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Shareholders and Supervisory Board
QIAGEN N.V.:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheets of QIAGEN N.V. and subsidiaries (the "Company") as of December 31, 2020 and 2019, the related consolidated statements of income (loss), comprehensive income (loss), changes in equity, and cash flows for each of the years in the three-year period ended December 31, 2020, and the related notes and financial statement schedule as listed in Item 18 (A) (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2020 and 2019, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2020, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated March 4, 2021 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

Change in Accounting Principle

As discussed in Note 2 to the consolidated financial statements, in 2020 the Company has changed its method of accounting for expected credit losses on financial instruments and other commitments due to the adoption of Accounting Standards Codification Topic 326 – *Measurement of Credit Losses on Financial Instruments*. In 2019, the Company has changed its method for accounting for leases due to the adoption of Accounting Standards Codification Topic 842 – *Leases*.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Assessment of unrecognized tax benefits

As discussed in Note 17 to the consolidated financial statements, the Company conducts its business globally and operates more than 50 consolidated subsidiaries in multiple tax jurisdictions. This multi-jurisdictional business operation involves complex intercompany operating and financing activities. The nature of these activities can result in uncertainties in the estimation of the related tax exposures. The Company initially recognizes and subsequently measures the unrecognized tax benefit in its consolidated financial statements when it is more likely than not that the position will be sustained upon examination by the tax authorities. As at 31 December 2020, the Company recorded unrecognized tax benefits of $100.1m.

We identified the assessment of unrecognized tax benefits as a critical audit matter. Complex auditor judgment and specialized skills and knowledge were required in evaluating the Company's interpretation and application of tax laws in the jurisdictions where it operates and its estimate of the ultimate resolution of the tax position.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls related to the Company's unrecognized tax benefit process, including controls related to (1) its interpretation and application of tax statutes and legislation, and changes thereto, in the various jurisdictions in which it operates and (2) its determination of the estimate for the associated unrecognized tax benefit. We inspected the Company's legal composition to identify and assess changes in operating structures and financing arrangements. We inquired of the Company's tax department in combination with inspecting correspondence with the responsible tax authorities with respect to the results of inspections by tax authorities. We involved tax and transfer pricing professionals with specialized skills and knowledge, who assisted in:

- analyzing the Company's interpretation and application of multi-jurisdictional tax laws, and changes thereto, and its impact on the unrecognized tax benefit by reading advice obtained from the Company's external specialists,
- inspecting the lapse of statute of limitations and settlements with tax authorities over a selection of unrecognized tax benefits to evaluate the amount in the settlement documents compared to the unrecognized tax benefit, and
- inspecting a selection of intercompany operating and financing activities between group entities to assess the sustainability of tax positions based on their technical merits and the probabilities of possible settlement alternatives.

Initial measurement of fair value of developed technology and in-process research and development assets related to a business combination

As discussed in Note 1 and 5 to the consolidated financial statements, in September 2020, the Company acquired the remaining 80.1% shares of NeuMoDx Molecular, Inc. ("NeuMoDx") for a purchase price of $239.4m, net of cash acquired. In allocating the purchase price, the Company recognized intangible assets at fair value in the amount of $157.2m, including developed technology ($101.0m) and in-process research and development (IPR&D) assets ($55.0m), and goodwill in the amount of $157.6m.

We identified the assessment of the initial measurement of fair value of developed technology and IPR&D acquired in the NeuMoDx business combination as a critical audit matter. Evaluating the key fair value assumptions, including the projected revenue and related growth rates, the estimated customer attrition rates and discount rates, involved a high degree of auditor judgment. Minor changes in those assumptions could have a significant effect on the determination of fair value. In addition, the audit effort required specialized skills and knowledge.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of an internal control related to the Company's acquisition-date fair value measurement process of intangible assets, including the development of the key assumptions. We evaluated the growth rates used by the Company to determine projected revenue by comparing them to industry benchmarks and publicly available data. We assessed the customer attrition rates by comparing it to historical data of the Company. We involved valuation professionals with specialized skills and knowledge, who assisted in:

- performing sensitivity analyses to assess the impact of possible changes to the key assumptions on the fair value of these intangible assets, and
- developing an estimated range of fair values of the intangible assets acquired using the Company's key assumptions and an independently developed range of discount rates using publicly available market data for comparable entities and comparing them to the Company's selected discount rates.

/s/ KPMG AG Wirtschaftsprüfungsgesellschaft

We have served as the Company's auditor since 2015.

Düsseldorf, Germany

March 4, 2021

To the Shareholders and Supervisory Board
QIAGEN N.V.:

Opinion on Internal Control Over Financial Reporting

We have audited QIAGEN N.V.'s and subsidiaries' (the "Company") internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2020, based on criteria established in Internal Control – Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2020 and 2019, the related consolidated statements of income (loss), comprehensive income (loss), changes in equity, and cash flows for each of the years in the three-year period ended December 31, 2020, and the related notes and financial statement schedule as listed in Item 18 (A) (collectively, the consolidated financial statements), and our report dated March 4, 2021 expressed an unqualified opinion on those consolidated financial statements.

The Company acquired NeuMoDx Molecular, Inc. during 2020, and management excluded from its assessment of the effectiveness of the Company's internal control over financial reporting as of December 31, 2020, NeuMoDx Molecular, Inc.'s internal control over financial reporting associated with 6.31% of total assets and 0.53% of total revenues included in the consolidated financial statements of the Company as of and for the year ended December 31, 2020. Our audit of internal control over financial reporting of the Company also excluded an evaluation of the internal control over financial reporting of NeuMoDx Molecular, Inc.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying 'Report of Management on Internal Control over Financial Reporting'. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ KPMG AG Wirtschaftsprüfungsgesellschaft

Düsseldorf, Germany

March 4, 2021

QIAGEN N.V. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

(in thousands)

	Note	As of December 31, 2020	2019
Assets			
Current assets:			
Cash and cash equivalents	**(3)**	**$ 597,984**	$ 623,647
Restricted cash	**(3)**	**—**	5,743
Short-term investments	**(7)**	**117,249**	129,586
Accounts receivable, net of allowance for credit losses of $27,052 in 2020 and allowance for doubtful accounts of $12,115 in 2019	**(3, 24)**	**380,519**	385,117
Income taxes receivable		**59,335**	42,119
Inventories, net	**(3)**	**291,181**	170,704
Prepaid expenses and other current assets (of which $25,429 and $13,697 in 2020 and 2019 due from related parties, respectively)	**(8, 24)**	**206,921**	105,464
Fair value of derivative instruments - current	**(14)**	**14,127**	107,868
Total current assets		**1,667,316**	1,570,248
Long-term assets:			
Property, plant and equipment, net of accumulated depreciation of $630,443 and $699,130 in 2020 and 2019, respectively	**(9)**	**559,372**	455,243
Goodwill	**(11)**	**2,364,031**	2,140,503
Intangible assets, net of accumulated amortization of $809,724 and $776,520 in 2020 and 2019, respectively	**(11)**	**726,194**	632,434
Deferred income tax assets	**(17)**	**54,879**	56,542
Fair value of derivative instruments - long-term	**(14)**	**379,080**	192,266
Other long-term assets (of which $9,594 and $16,830 in 2020 and 2019 due from related parties, respectively)	**(10, 12, 24)**	**161,658**	188,380
Total long-term assets		**4,245,214**	3,665,368
Total assets		**$ 5,912,530**	$ 5,235,616

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

QIAGEN N.V. AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

(in thousands, except par value)

	Note	As of December 31, 2020	2019
Liabilities and equity			
Current liabilities:			
Current portion of long-term debt	**(16)**	**$ 42,539**	$ 285,244
Accounts payable	**(24)**	**118,153**	84,767
Fair value of derivative instruments - current	**(14)**	**51,464**	103,175
Accrued and other current liabilities (of which $1,380 and $15,404 due to related parties in 2020 and 2019, respectively)	**(10, 13, 24)**	**345,665**	444,303
Income taxes payable		**57,265**	33,856
Total current liabilities		**615,086**	951,345
Long-term liabilities:			
Long-term debt, net of current portion	**(16)**	**1,880,210**	1,421,108
Deferred income tax liabilities	**(17)**	**39,216**	23,442
Fair value of derivative instruments - long-term	**(14)**	**393,455**	196,929
Other long-term liabilities	**(12, 15)**	**186,724**	106,201
Total long-term liabilities		**2,499,605**	1,747,680
Commitments and contingencies	**(20)**		
Equity:			
Preference shares, 0.01 EUR par value, authorized—450,000 shares, no shares issued and outstanding		**—**	—
Financing preference shares, 0.01 EUR par value, authorized—40,000 shares, no shares issued and outstanding		**—**	—
Common Shares, 0.01 EUR par value, authorized—410,000 shares, issued—230,829 shares in 2020 and 2019, respectively		**2,702**	2,702
Additional paid-in capital		**1,834,169**	1,777,017
Retained earnings		**1,323,091**	1,178,457
Accumulated other comprehensive loss	**(18)**	**(243,822)**	(309,619)
Less treasury shares, at cost—2,844 and 3,077 shares in 2020 and 2019, respectively	**(18)**	**(118,301)**	(111,966)
Total equity		**2,797,839**	2,536,591
Total liabilities and equity		**$ 5,912,530**	$ 5,235,616

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

QIAGEN N.V. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF INCOME (LOSS)

(in thousands, except per share data)

	Note	Years ended December 31, 2020	2019	2018
Net sales	**(3, 4, 24)**	**$ 1,870,346**	$ 1,526,424	$ 1,501,848
Cost of sales:				
Cost of sales		**574,467**	449,651	444,165
Acquisition-related intangible amortization		**63,164**	71,511	56,723
Total cost of sales		**637,631**	521,162	500,888
Gross profit		**1,232,715**	1,005,262	1,000,960
Operating expenses:				
Research and development	**(3)**	**149,072**	157,448	161,852
Sales and marketing		**413,684**	391,906	392,281
General and administrative	**(3)**	**111,678**	112,262	104,568
Acquisition-related intangible amortization		**20,811**	29,973	39,032
Restructuring, acquisition, integration and other, net	**(1, 6)**	**150,005**	199,778	28,659
Long-lived asset impairments	**(6)**	**1,034**	140,031	7,987
Total operating expenses		**846,284**	1,031,398	734,379
Income (loss) from operations		**386,431**	(26,136)	266,581
Other income (expense):				
Interest income		**10,032**	22,113	20,851
Interest expense		**(71,317)**	(74,185)	(67,293)
Other income, net	**(6)**	**114,326**	432	5,598
Total other income (expense), net		**53,041**	(51,640)	(40,844)
Income (loss) before income tax (benefit) expense		**439,472**	(77,776)	225,737
Income tax expense (benefit)	**(3, 17)**	**80,284**	(36,321)	35,357
Net income (loss)		**$ 359,188**	$ (41,455)	$ 190,380
Basic earnings (loss) per common share	**(19)**	**$ 1.57**	$ (0.18)	$ 0.84
Diluted earnings (loss) per common share	**(19)**	**$ 1.53**	$ (0.18)	$ 0.82
Weighted-average common shares outstanding				
Basic	**(19)**	**228,427**	226,777	226,640
Diluted	**(19)**	**234,214**	226,777	233,456

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

QIAGEN N.V. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

(in thousands)

	Note	Years ended December 31, 2020	2019	2018
Net income (loss)		**$ 359,188**	$ (41,455)	$ 190,380
Other comprehensive income (loss) to be reclassified to profit or loss in subsequent periods:				
(Losses) gains on cash flow hedges, net of tax benefit of $2.8 million in 2020, tax expense of $0 in 2019 and tax expense of $2.8 million in 2018	**(14)**	**(8,536)**	11,547	8,526
Reclassification adjustments on cash flow hedges, net of tax expense of $4.7 million in 2020, tax expense of $0 in 2019 and tax benefit of $2.4 million in 2018	**(14)**	**13,999**	(3,888)	(7,331)
Cash flow hedges, net of tax		**5,463**	7,659	1,195
Net investment hedge		**(26,442)**	5,505	13,839
Gain on pension, net of tax expense of $0 in 2020, tax expense of $0.4 million in 2019 and tax benefit of $0.6 million in 2018		**(38)**	(437)	754
Foreign currency translation adjustments, net of tax expense of $0.9 million in 2020, tax benefit of $0.5 million in 2019 and tax benefit of $1.4 million in 2018		**86,814**	(11,702)	(106,615)
Total other comprehensive income (loss)		**65,797**	1,025	(90,827)
Comprehensive income (loss)		**$ 424,985**	$ (40,430)	$ 99,553

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

QIAGEN N.V. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY

(in thousands)	Note	Common Shares		Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Treasury Shares		Total Equity
		Shares	Amount				Shares	Amount	
Balance at December 31, 2017		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		—	—	—	(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)
Issuance of warrants	(18)	—	—	71,983	—	—	—	—	71,983
Net income		—	—	—	190,380	—	—	—	190,380
Unrealized gain, net on pension		—	—	—	—	754	—	—	754
Unrealized gain, net on hedging contracts	(14)	—	—	—	—	22,365	—	—	22,365
Realized gain, net on hedging contracts	(14)	—	—	—	—	(7,331)	—	—	(7,331)
Translation adjustment, net		—	—	—	—	(106,615)	—	—	(106,615)
Purchase of treasury shares	(18)	—	—	—	—	—	(2,871)	(104,685)	(104,685)
Issuance of common shares in connection with stock plan	(22)	—	—	—	(40,357)	—	1,823	44,769	4,412
Share-based compensation	(22)	—	—	40,113	—	—	—	—	40,113
Balance at December 31, 2018		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		—	—	—	(316)	—	—	—	(316)
Net loss		—	—	—	(41,455)	—	—	—	(41,455)
Conversion of warrants	(18)	—	—	(31,067)	(37,698)	—	2,056	68,761	(4)
Unrealized loss, net on pension		—	—	—	—	(437)	—	—	(437)
Unrealized gain, net on hedging contracts	(14)	—	—	—	—	17,052	—	—	17,052
Realized gain, net on hedging contracts	(14)	—	—	—	—	(3,888)	—	—	(3,888)
Translation adjustment, net		—	—	—	—	(11,702)	—	—	(11,702)
Purchase of treasury shares	(18)	—	—	—	—	—	(1,987)	(74,450)	(74,450)
Issuance of common shares in connection with stock plan	(22)	—	—	—	(121,698)	—	3,622	123,773	2,075
Tax withholding related to vesting of stock awards	(22)	—	—	—	—	—	(1,448)	(51,147)	(51,147)
Share-based compensation	(22)	—	—	65,893	—	—	—	—	65,893
Balance at December 31, 2019		230,829	$ 2,702	$ 1,777,017	$ 1,178,457	$ (309,619)	(3,077)	$ (111,966)	$ 2,536,591
ASC 326 impact of change in accounting policy		**—**	**—**	**—**	**(15,074)**	**—**	**—**	**—**	**(15,074)**
Net income		—	—	—	**359,188**	—	—	—	**359,188**
Conversion of warrants	(18)	**—**	**—**	**(7,547)**	**(22,725)**	**—**	**807**	**30,272**	**—**
Termination of warrants	(18)	—	—	**(30,289)**	**(144,337)**	—	—	—	**(174,626)**
Equity component of convertible debt, net	(16)	—	—	**54,052**	—	—	—	—	**54,052**
Unrealized loss, net on pension		—	—	—	—	**(38)**	—	—	**(38)**
Unrealized loss, net on hedging contracts	(14)	—	—	—	—	**(34,978)**	—	—	**(34,978)**
Realized loss, net on hedging contracts	(14)	—	—	—	—	**13,999**	—	—	**13,999**
Translation adjustment, net		—	—	—	—	**86,814**	—	—	**86,814**
Purchase of treasury shares	(18)	—	—	—	—	—	**(1,346)**	**(63,995)**	**(63,995)**
Issuance of common shares in connection with stock plan	(22)	—	—	—	**(32,418)**	—	**1,085**	**40,079**	**7,661**
Tax withholding related to vesting of stock awards	(22)	—	—	—	—	—	**(313)**	**(12,691)**	**(12,691)**
Share-based compensation	(22)	—	—	**40,936**	—	—	—	—	**40,936**
Balance at December 31, 2020		**230,829**	**$ 2,702**	**$ 1,834,169**	**$ 1,323,091**	**$ (243,822)**	**(2,844)**	**$ (118,301)**	**$ 2,797,839**

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

QIAGEN N.V. AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)	Note	Years ended December 31, 2020	2019	2018
Cash flows from operating activities:				
Net income (loss)		**$ 359,188**	$ (41,455)	$ 190,380
Adjustments to reconcile net income to net cash provided by operating activities, net of effects of businesses acquired:				
Depreciation and amortization		**205,014**	231,458	206,436
Non-cash impairments	**(6)**	**1,432**	144,830	17,020
Amortization of debt discount and issuance costs		**42,318**	40,763	35,537
Share-based compensation expense	**(22)**	**40,936**	65,893	40,113
Deferred income tax benefit	**(17)**	**(6,706)**	(55,362)	(23,272)
(Gain) loss on marketable securities		**(1,992)**	2,867	(2,725)
Gain on sale of investment	**(10)**	**(121,813)**	—	—
Reversals of contingent consideration	**(15)**	**—**	(10,433)	—
Other items, net including fair value changes in derivatives		**11,696**	(3,394)	(8,834)
Net changes in operating assets and liabilities:				
Accounts receivable	**(3)**	**(14,711)**	(39,578)	(41,813)
Inventories	**(3)**	**(107,573)**	(30,028)	(36,918)
Prepaid expenses and other current assets	**(8)**	**1,061**	18,626	(9,942)
Other long-term assets		**316**	(1,406)	(30,312)
Accounts payable		**8,442**	9,252	6,993
Accrued and other current liabilities	**(13)**	**(22,141)**	19,913	(13,317)
Income taxes	**(17)**	**4,682**	(6,782)	14,239
Other long-term liabilities		**57,657**	(14,321)	15,911
Net cash provided by operating activities		**457,806**	330,843	359,496
Cash flows from investing activities:				
Purchases of property, plant and equipment		**(132,787)**	(117,950)	(109,773)
Purchases of intangible assets	**(11)**	**(171,450)**	(156,934)	(40,990)
Proceeds from (purchases of) investments, net	**(10)**	**25,638**	(5,170)	(9,398)
Cash paid for acquisitions, net of cash acquired	**(5)**	**(239,572)**	(68,058)	(172,832)
Purchases of short-term investments	**(7)**	**(49,770)**	(293,959)	(568,002)
Proceeds from redemptions of short-term investments	**(7)**	**181,223**	396,098	691,765
Proceeds from divestiture	**(5)**	**1,845**	1,000	16,394
Cash (paid) received for collateral asset	**(14)**	**(53,417)**	22,685	(3,461)
Other investing activities		**(4,991)**	10	(15,059)
Net cash used in investing activities		**(443,281)**	(222,278)	(211,356)
Cash flows from financing activities:				
Proceeds from short-term debt	**(16)**	**59,345**	—	—
Repayment of short-term debt	**(16)**	**(58,705)**	—	—
Proceeds from long-term debt, net of issuance costs	**(16)**	**497,646**	—	—
Repayment of long-term debt	**(16)**	**(296,400)**	(506,400)	—
Payment for termination of warrants	**(18)**	**(174,627)**	—	—
Payment of intrinsic value of cash convertible notes	**(16)**	**(237,438)**	(133,763)	—
Proceeds from exercise of call option related to cash convertible notes	**(16)**	**239,836**	134,737	—
Purchase of treasury shares	**(18)**	**(63,995)**	(74,450)	(104,685)
Proceeds from issuance of common shares		**7,662**	2,075	4,412
Tax withholding related to vesting of stock awards		**(13,841)**	(49,998)	—
Other financing activities		**(9,610)**	(11,281)	(8,019)
Proceeds from issuance of cash convertible notes, net of issuance costs	**(16)**	**—**	—	494,879
Purchase of call option related to cash convertible notes	**(16)**	**—**	—	(97,277)
Proceeds from issuance of warrants, net of issuance costs	**(18)**	**—**	—	72,406
Principal payments on capital leases		**—**	—	(1,308)
Net cash (used in) provided by financing activities		**(50,127)**	(639,080)	360,408
Effect of exchange rate changes on cash, cash equivalents and restricted cash		**4,196**	826	(7,183)
Net (decrease) increase in cash, cash equivalents and restricted cash		**(31,406)**	(529,689)	501,365
Cash, cash equivalents and restricted cash, beginning of period		**629,390**	1,159,079	657,714
Cash, cash equivalents and restricted cash, end of period		**$ 597,984**	$ 629,390	$ 1,159,079
Supplemental cash flow disclosures:				
Cash paid for interest		**$ 25,351**	$ 29,721	$ 25,902
Cash paid for income taxes		**$ 42,572**	$ 41,474	$ 29,317

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

1. Corporate Information and Basis of Presentation

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 a leading global provider of Sample to Insight solutions that enable customers to gain valuable molecular insights from samples containing the building blocks of life. Our sample technologies isolate and process DNA, RNA and proteins from blood, tissue and other materials. Assay technologies make these biomolecules visible and ready for analysis. Bioinformatics software and knowledge bases interpret data to report relevant, actionable insights. Automation solutions tie these together in seamless and cost-effective workflows. We provide solutions to more than 500,000 customers around the world in Molecular Diagnostics (human healthcare) and Life Sciences (academia, pharma R&D and industrial applications, primarily forensics). As of December 31, 2020, we employed more than 5,600 people in over 35 locations worldwide.

Announced Merger with Thermo Fisher Scientific Inc.

On March 3, 2020, QIAGEN and Thermo Fisher Scientific Inc. (NYSE: TMO) announced that their boards of directors, as well as the Managing Board of QIAGEN N.V., unanimously approved Thermo Fisher's proposal to acquire QIAGEN for €39.00 per share in cash. On July 16, 2020, Thermo Fisher and QIAGEN entered into an amendment to the Business Combination Agreement dated as of March 3, 2020 whereby Quebec B.V., the wholly-owned subsidiary of Thermo Fisher making the public tender offer, increased the cash consideration offered per QIAGEN share from €39.00 to €43.00. The amendment also provided for a reduction of the minimum acceptance threshold from 75% to 66.67% of QIAGEN's issued and outstanding ordinary share capital at the end of the acceptance period on August 10, 2020, as well as a $95.0 million expense reimbursement payable by QIAGEN to Thermo Fisher if the minimum acceptance threshold is not met. On August 13, 2020, QIAGEN announced that Thermo Fisher did not achieve the minimum 66.67% acceptance threshold from QIAGEN shareholders. For the year ended December 31, 2020, we incurred related expenses of $125.5 million, which includes the $95.0 million expense reimbursement which was paid when the minimum acceptance threshold was not met. These costs are recorded within restructuring, acquisition, integration and other expenses, net in the accompanying consolidated statement of income.

Basis of Presentation

The accompanying consolidated financial statements were prepared in accordance with U.S. generally accepted accounting principles (GAAP) and all amounts are presented in U.S. dollars rounded to the nearest thousand, unless otherwise indicated. The consolidated financial statements have been prepared on a historical cost basis, except for derivative financial instruments, contingent consideration and available-for-sale financial instruments that have been measured at fair value.

We undertake acquisitions to complement our own internal product development activities. In September 2020, we completed the acquisition of the remaining shares in NeuMoDx Molecular, Inc ("NeuMoDx"), a privately-held U.S. company that designs and develops molecular diagnostics solutions for hospital and clinical reference laboratories. In 2019, we completed three immaterial acquisitions, including the January 2019 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. In April 2018, we acquired all shares in STAT-Dx Life, S.L. ("STAT-Dx"), a privately-held company located in Barcelona, Spain and also completed the acquisition of the 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 date.

Certain prior year amounts have been reclassified to conform to the current year presentation.

2. Effects of New Accounting Pronouncements

The following new Financial Accounting Standards Board (FASB) Accounting Standards Updates (ASU) were adopted in 2020, 2019 and 2018:

Adoption of New Accounting Standards in 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 with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to form credit loss estimates. The measurement of expected credit losses under Topic 326 is applicable to financial assets measured at amortized cost, including loan receivables and held-to-maturity debt securities. It also applies to off-balance sheet credit exposures not accounted for as insurance (loan commitments, standby letters of credit, financial guarantees, and other similar instruments) and net investments in leases recognized by a lessor in accordance with Topic 842 on leases. In addition, Topic 326 made changes to the accounting for available-for-sale debt securities. One such change is to require credit losses to be presented as an allowance rather than as a write-down on available-for-sale debt securities management does not intend to sell or believes is more likely than not they will be required to sell.

We adopted Topic 326 on January 1, 2020 using the modified retrospective approach by recognizing the effect of initially applying Topic 326 as an after-tax $15.1 million ($19.6 million pre-tax) adjustment to the opening balance of retained earnings at January 1, 2020 for credit losses on loans, notes and accounts receivable. The adoption did not have an impact on our consolidated statements of income or cash flows.

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. Entities are required to apply the amendments retrospectively to the date they initially applied ASC 606. We adopted ASU 2018-18 on January 1, 2020 without any cumulative effect.

ASU 2020-03, *Codification Improvements to Financial Instruments,* was issued to improve and clarify various financial instrument topics, including Topic 326 issued in 2016. The ASU includes seven issues that describe areas of improvement and the related amendments to GAAP. They are intended to make the standards easier to understand and apply and to eliminate inconsistencies. They are narrow in scope and are not expected to significantly change practice for most entities. The amendments have different effective dates with early adoption permitted. We adopted ASU 2020-03 on January 1, 2020 without any effect.

ASU 2020-01, *Investments-Equity Securities (Topic 321), Investments-Equity Method and Joint Ventures (Topic 323), and Derivatives and Hedging (Topic 815)-Clarifying the Interactions between Topic 321, Topic 323, and Topic 815*, addresses accounting for the transition into and out of the equity method and measuring certain purchased options and forward contracts to acquire investments. The ASU is effective on January 1, 2021. Early adoption is permitted, including early adoption in an interim period. We adopted ASU 2020-01 on June 30, 2020 without any impact.

Adoption of New Accounting Standards 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 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 12 "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 applied 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 applied 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 applied 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.

Adoption of New Accounting Standards in 2018

ASU 2014-09, *Revenue from Contracts with Customers (Topic 606)* and additional related accounting standard updates to clarify and provide implementation guidance were adopted with a date of initial application of January 1, 2018. The comparative information for 2017 has not been adjusted and continues to be reported under ASC Topic 605 Revenue Recognition. As a result, we changed our accounting policy for revenue recognition. We applied the Topic 606 using the "modified retrospective method" by recognizing the effect of initially applying Topic 606 as an $1.3 million decrease to the opening balance of retained earnings at January 1, 2018, for all contracts not completed at January 1, 2018.

ASU 2016-01, *Financial Instruments - Overall (Subtopic 825-10): Recognition and Measurement of Financial Assets and Financial Liabilities* as well as an additional clarifying accounting standard update became effective for our financial statements beginning in the first quarter of 2018. This ASU makes targeted improvements to existing U.S. GAAP for both the recognition and measurement of financial assets and financial liabilities. Changes in accounting to our equity investments as a result of this standard are further discussed in Notes below. As required, we adopted using a cumulative-effect adjustment to the balance sheet as of the beginning of 2018 and recorded an adjustment to decrease opening retained earnings at January 1, 2018 by $0.9 million (pre-tax $1.1 million) as required for our equity investments recorded at fair value.

ASU 2016-05, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments* and ASU 2016-18, *Statement of Cash Flows (Topic 320): Restricted Cash,* addresses classification issues and presentation related to the statement of cash flows and was adopted on January 1, 2018 without any impact from the adoption.

ASU 2016-16, *Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory,* aims to improve the accounting for the income tax consequences of intra-entity transfers of assets other than inventory. This standard was adopted on a modified retrospective basis resulting in a decrease to opening retained earnings of $16.1 million at January 1, 2018.

ASU 2017-01, *Business Combinations (Topic 805): Clarifying the Definition of a Business*, clarifies and provides a more robust framework to use in determining when a set of assets and activities is a business. We adopted this update beginning January 1, 2018, without impact.

ASU 2017-09, *Compensation-Stock Compensation (Topic 718): Scope of Modification Accounting*, clarifies when to account for a change to the terms and conditions of a share-based payment award as a modification. This guidance is effective prospectively and was adopted as of January 1, 2018.

ASU 2018-02, *Income Statement - Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income,* permits reclassification of stranded tax effects of the U.S. Tax Cuts and Jobs Act (Tax Act). We adopted this standard as of April 1, 2018 with no impact as we had no stranded tax effects. This guidance only relates to the effects of the Tax Act. For all other tax law changes that have occurred or may occur in the future, we reclassify the tax effects to the consolidated statement of income (loss) on an item-by-item basis when the pre-tax item in accumulated other comprehensive income (loss) is reclassified to income.

ASU 2018-07, *Compensation-Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting*, aligns most of the accounting for share-based payment awards issued to employees and non-employees. We early adopted this standard as of July 1, 2018, without material impact.

New Accounting Standards Not Yet Adopted

The following new FASB Accounting Standards Updates, which are not yet adopted as of December 31, 2020, have been grouped by their required effective dates or early adoption date:

First Quarter of 2021

ASU 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*, removes certain exceptions for recognizing deferred taxes for investments, performing intraperiod tax allocations and calculating income taxes in interim periods. The ASU also adds guidance to reduce complexity in certain areas, including recognizing deferred taxes for tax goodwill and allocating income taxes to members of a consolidated group. ASU 2019-12 is effective for annual periods beginning on January 1, 2021, with earlier adoption permitted. We adopted the ASU on the effective date of January 1, 2021 and the adoption of this guidance did not have an impact on our consolidated financial statements on the date of adoption. Ultimately, the impact in future periods will be dependent on the extent of future events or conditions that would be affected such as enacted changes in tax laws or rates.

ASU 2020-06, *Debt—Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging—Contracts in Entity's Own Equity (Subtopic 815-40): Accounting for Convertible Instruments and Contracts in an Entity's Own Equity*, reduces the number of accounting models for convertible instruments. The ASU also amends diluted earnings per share (EPS) calculations for convertible instruments, which will result in more dilutive EPS results. The ASU also amends the requirements for a contract (or embedded derivative) that is potentially settled in an entity's own shares to be classified in equity. ASU 2020-06 is effective for annual periods beginning on January 1, 2022, with earlier adoption on January 1, 2021 permitted. We early adopted ASU 2020-06 on January 1, 2021 and as a result reclassified $54.1 million from equity for the conversion feature to the liability for our 2027 Convertible Notes further discussed in Note 16 "Debt".

Through December 31, 2022

ASU 2020-04, *Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting,* and ASU 2021-01 *Reference Rate Reform (Topic 848): Scope,* provide companies with optional guidance to ease the potential accounting burden associated with transitioning away from reference rates that are expected to be discontinued. Companies can apply the ASU immediately. However, the guidance will only be available for a limited time, generally through December 31, 2022. We continue to evaluate the guidance.

3. Summary of Significant Accounting Policies

Principles of Consolidation

The consolidated financial statements include the accounts of QIAGEN N.V. and its wholly-owned subsidiaries. All significant intercompany accounts and transactions have been eliminated. 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 as discussed under

"Non-marketable Investments" below. When there is a portion of equity in an acquired subsidiary not attributable, directly or indirectly, to the Company, we record the fair value of the noncontrolling interests at the acquisition date and classify the amounts attributable to noncontrolling interests separately in equity in the consolidated financial statements. Any subsequent changes in the Company's ownership interest while the Company retains its controlling financial interest in its subsidiary are accounted for as equity transactions.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities and disclosure of contingencies at the date of the financial statements as well as the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Concentrations of Risk

We buy materials for products from many suppliers, and are not dependent on any one supplier or group of suppliers for the business as a whole. However, key components of certain products, including certain instrumentation components and chemicals, are available only from a single source. If supplies from these vendors were delayed or interrupted for any reason, we may not be able to obtain these materials timely or in sufficient quantities in order to produce certain products and sales levels could be negatively affected. Additionally, our customers include researchers at pharmaceutical and biotechnology companies, academic institutions, and government and private laboratories. Fluctuations in the research and development budgets of these researchers and their organizations for applications in which our products are used could have a significant effect on the demand for our products.

The financial instruments used in managing our foreign currency, equity and interest rate exposures have an element of risk in that the counterparties may be unable to meet the terms of the agreements. We attempt to minimize this risk by limiting the counterparties to a diverse group of highly-rated international financial institutions. The carrying values of our financial instruments incorporate the non-performance risk by using market pricing for credit risk. However, we have no reason to believe that any counterparties will default on their obligations. In order to minimize our exposure with any single counterparty, we have entered into master agreements which allow us to manage the exposure with the respective counterparty on a net basis.

Other financial instruments that potentially subject us to concentrations of credit risk are cash and cash equivalents, short-term investments, and accounts receivable. We attempt to minimize the risks related to cash and cash equivalents and short-term investments by dealing with highly-rated financial institutions and investing in a broad and diverse range of financial instruments. We have established guidelines related to credit quality and maturities of investments intended to maintain safety and liquidity. Concentration of credit risk with respect to accounts receivable is limited due to a large and diverse customer base, which is dispersed over different geographic areas. Allowances are maintained for potential credit losses and such losses have historically been within expected ranges.

Foreign Currency Translation

Our reporting currency is the U.S. dollar and the functional currencies of our subsidiaries are generally the local currency of the respective countries in which they are headquartered. All amounts in the financial statements of entities whose functional currency is not the U.S. dollar are translated into U.S. dollar equivalents at exchange rates as follows: (1) assets and liabilities at period-end rates, (2) income statement accounts at average exchange rates for the period, and (3) components of equity at historical rates. Translation gains or losses are recorded in equity, and transaction gains and losses are reflected in net income (loss) as a component of other income, net. Realized gains or losses on the value of derivative contracts entered into to hedge the exchange rate exposure of receivables and payables are also included in net income (loss) as a component of other income, net. The net loss on foreign currency transactions was $4.1 million, $5.7 million, and $12.3 million in 2020, 2019 and 2018, respectively, and is included in other income, net.

The exchange rates of key currencies were as follows:

	Closing rate at December 31,		Annual average rate		
(US$ equivalent for one)	**2020**	**2019**	**2020**	**2019**	**2018**
Euro (EUR)	**1.2271**	1.1234	**1.1411**	1.1196	1.1813
Pound Sterling (GBP)	**1.3649**	1.3204	**1.2836**	1.2768	1.3356
Swiss Franc (CHF)	**1.1360**	1.0350	**1.0659**	1.0062	1.0228
Australian Dollar (AUD)	**0.7720**	0.7023	**0.6905**	0.6954	0.7478
Canadian Dollar (CAD)	**0.7849**	0.7696	**0.7463**	0.7535	0.7719
Japanese Yen (JPY)	**0.0097**	0.0092	**0.0094**	0.0092	0.0091
Chinese Yuan (CNY)	**0.1530**	0.1437	**0.1450**	0.1448	0.1514

Segment Information

We determined that we operate as one operating segment in accordance with the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) Topic 280, *Segment Reporting*. Our chief operating decision maker (CODM) makes decisions based on the Company as a whole. In addition, we have a common basis of organization and types of products and services which derive revenues and consistent product margins. Accordingly, we operate and make decisions as one reporting unit.

Revenue Recognition

We recognize revenue when control of promised goods or services transfers to our customers in an amount that reflects the consideration that is expected to be received in exchange for those goods or services. The majority of our sales revenue is recognized when products are shipped to the customers at which point control transfers.

Warranty

We provide warranties on our products against defects in materials and workmanship for a period of one year. A provision for estimated future warranty costs is recorded in cost of sales at the time product revenue is recognized. Product warranty obligations are included in accrued and other current liabilities in the accompanying consolidated balance sheets.

Research and Development

Research and product development costs are expensed as incurred. Research and development expenses consist primarily of salaries and related expenses, facility costs, and amounts paid to contract research organizations and laboratories for the provision of services and materials as well as costs for internal use or clinical trials.

Government Grants

We recognize government grants when there is reasonable assurance that all conditions will be complied with and the grant will be received. Our government grants generally represent subsidies for specified activities and are therefore recognized when earned as a reduction of the expenses recorded for the activity that the grants are intended to compensate. Thus, when the grant relates to research and development expense, the grant is recognized over the same period that the related costs are incurred. Otherwise, amounts received under government grants are recorded as liabilities in the balance sheet. When the grant relates to an asset, the nominal amount of the grant is deducted from the carrying amount of the asset and recognized over the same period that the related asset is depreciated.

Borrowing Costs

Borrowing costs directly attributable to the acquisition, construction or production of an asset that takes a substantial period of time to get ready for its intended use or sale are capitalized as part of the cost of the respective assets (qualifying asset) when such borrowing costs are significant. All other borrowing costs are expensed in the period they occur.

Shipping and Handling Income and Costs

Shipping and handling costs charged to customers are recorded as revenue in the period that the related product sale revenue is recorded. Associated costs of shipping and handling are included in sales and marketing expenses. For the years ended December 31, 2020, 2019 and 2018, shipping and handling costs totaled $32.1 million, $27.9 million and $28.4 million, respectively.

Advertising Costs

The costs of advertising are expensed as incurred and are included as a component of sales and marketing expense. Advertising costs for the years ended December 31, 2020, 2019 and 2018 were $9.5 million, $8.1 million and $8.1 million, respectively.

General and Administrative

General and administrative expenses primarily represent the costs required to support administrative infrastructure. These costs include licensing costs in connection with continued investments in information technology improvements, including cyber security, across the organization as well as personnel in administrative functions.

Restructuring, Acquisition, Integration and Other

We incur indirect acquisition and business integration costs in connection with business combinations which are expensed when incurred. These costs represent incremental costs that we believe would not have been incurred absent the business combinations. Major components of these costs include consulting and related fees incurred to integrate or restructure the acquired operations, payroll and related costs for employees remaining with the Company on a transitional basis and public relations, advertising and media costs for re-branding of the combined organization.

Restructuring costs include personnel costs (principally termination benefits) as well as contract and other costs, primarily contract termination costs. Termination benefits are accounted for in accordance with FASB ASC Topic 712, *Compensation - Nonretirement Postemployment Benefits,* and are recorded when it is probable that employees will be entitled to benefits and the amounts can be reasonably estimated. Estimates of termination benefits are based on the frequency of past termination benefits, the similarity of benefits under the current plan and prior plans, and the existence of statutory required minimum benefits. Contract and other costs are accounted for in accordance with FASB ASC Topic 420, *Exit or Disposal Cost Obligations* and are recorded when the liability is incurred. The specific restructuring measures and associated estimated costs are based on management's best business judgment under the existing circumstances at the time the estimates are made. If future events require changes to these estimates, such adjustments will be reflected in the period of the revised estimate.

Income Taxes

We account for income taxes under the liability method. Under this method, total income tax expense is the amount of income taxes expected to be payable for the current year plus the change from the beginning of the year for deferred income tax assets and liabilities established for the expected future tax consequences resulting from differences in the financial statement carrying amount and the tax basis of assets and liabilities. Deferred tax assets and/or liabilities are determined by multiplying the differences between the financial statement carrying amount and the tax reporting bases for assets and liabilities by the enacted tax rates expected to be in effect when such differences are recovered or settled. Deferred tax assets are reduced by a valuation allowance to the amount more likely than not to be realized. The effect on deferred taxes of a change in tax rates is recognized in income in the period that includes the enactment date.

Tax benefits are initially recognized in the financial statements when it is more likely than not that the position will be sustained upon examination by the tax authorities. Such tax positions are initially and subsequently measured as the largest amount of tax benefit that is greater than 50 percent likely of being realized upon settlement with the taxing authority using the cumulative probability method, assuming the tax authority has full knowledge of the position and all relevant facts. Our policy is to recognize interest accrued related to unrecognized tax benefits in interest expense and penalties within the income tax expense.

Derivative Instruments

We enter into derivative financial instrument contracts to minimize the variability of cash flows or income statement impact associated with the anticipated transactions being hedged or to hedge fluctuating interest rates. As changes in foreign currency or interest rate impact the value of anticipated transactions, the fair value of the forward or swap contracts also changes, offsetting foreign currency or interest rate fluctuations. Derivative instruments are recorded on the balance sheet at fair value. Changes in fair value of derivatives are recorded in current earnings or other comprehensive income, depending on whether a derivative is designated as part of a hedge transaction.

Share-Based Payments

Compensation cost for all share-based payments is recorded based on the grant date fair value, less an estimate for pre-vesting forfeitures, recognized in expense over the service period using an accelerated method.

Forfeiture Rate—This is the estimated percentage of grants that are expected to be forfeited or canceled on an annual basis before becoming fully vested. We estimated the forfeiture rate based on historical forfeiture experience.

Restricted Stock Units and Performance Stock Units: Restricted stock units and performance stock units represent rights to receive Common Shares at a future date. The fair market value of restricted and performance stock units is determined based on the number of stock units granted and the fair market value of our shares on the grant date. The fair market value at the time of the grant, less an estimate for pre-vesting forfeitures, is recognized in expense over the vesting period. At each reporting period, the estimated performance achievement of the performance stock units is assessed and any change in the estimated achievement is recorded on a cumulative basis in the period of adjustment.

Cash and Cash Equivalents

Cash and cash equivalents consist of cash on deposit in banks and other cash invested temporarily in various instruments that are short-term and highly liquid, and having an original maturity of less than 90 days at the date of purchase. Cash and cash equivalents as of December 31, 2020 and 2019 consist of the following:

(in thousands)	**2020**	**2019**
Cash at bank and on hand	**$ 245,373**	$ 189,569
Short-term bank deposits	**352,611**	434,078
Cash and cash equivalents	**$ 597,984**	$ 623,647

Restricted Cash

Restricted cash includes cash that is subject to legal restriction in connection with a tender offer and not available for general operating purposes. As of December 31, 2019, we had $5.7 million of restricted cash.

Short-Term Investments

Short-term investments consisting of marketable equity securities are reported at fair value with gains and losses recorded in earnings.

Short-term investments consisting of cash investments are classified as "available for sale" and stated at fair value, which is equivalent to the amortized cost, in the accompanying consolidated balance sheet. Interest income is accrued when earned and changes in fair market values are reflected in other income, net. The amortization of premiums and accretion of discounts to maturity arising from acquisition is included in interest income. A decline in fair value that is judged to be other-than-temporary is accounted for as a realized loss and the write-down is included in the consolidated statements of income. Realized gains and losses, determined on a specific identification basis on the sale of short-term investments, are included in income.

Fair Value of Financial Instruments

The carrying amount of cash and cash equivalents, notes receivable, accounts receivable, accounts payable and accrued liabilities approximate their fair values because of the short maturities of those instruments. The carrying value of our variable rate debt and leases approximates their fair values because of the short maturities and/or interest rates which are comparable to those available to us on similar terms. The fair values of the zero coupon convertible debt and the Cash Convertible Notes are based on an estimation using available over-the-counter market information. The fair values of the Private Placement Senior Notes were estimated using the changes in the U.S. Treasury rates and the fair value of the German Private Placement is based on an estimation using changes in the euro swap rates.

Accounts Receivable and Allowance for Credit Losses

Our accounts receivable consist of unsecured customer obligations and we are at risk to the extent such amounts become uncollectible. Accounts receivable are carried at face value less an allowance for doubtful accounts as of December 31, 2019, and following the adoption of ASU 2016-13, *Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments,* less an allowance for expected credit losses. We continually monitor accounts receivable balances, and until December 31, 2019, provided for an allowance for doubtful accounts at the time collection became questionable based on payment history or age of the receivable. Since January 1, 2020, we maintain allowances for credit losses resulting from the expected failure or inability of our customers to make required payments. We recognize the allowance for expected credit losses at inception and reassess regularly considering historical experience with bad debts, the aging of the receivables, credit quality of the customer base, current economic conditions and other reasonable and supportable expectations for future conditions, if applicable. Once a receivable is determined to be uncollectible, the balance is charged against the allowance.

We sell our products worldwide through sales subsidiaries and distributors. There is no concentration of credit risk with respect to trade accounts receivable as we have a large number of internationally dispersed customers. Trade accounts receivable are non-interest bearing and mostly have payment terms of 30-90 days. For all years presented, no single customer represented more than ten percent of accounts receivable or consolidated net sales.

The changes in the allowance for credit losses on accounts receivable for the year ended December 31, 2020 and in the allowance for doubtful accounts for the years ended December 31, 2019 and 2018 are as follows:

(in thousands)	2020	2019	2018
Balance at beginning of year	**$ 12,115**	$ 9,270	$ 8,008
ASC 326 adoption impact	**8,089**	—	—
Additions charged to expense	**16,439**	8,701	4,448
Deductions from allowance	**(9,868)**	(5,777)	(2,827)
Currency translation adjustments and other	**277**	(79)	(359)
Balance at end of year	**$ 27,052**	$ 12,115	$ 9,270

For the year ended December 31, 2020, additions charged to expense of $16.4 million include the forward-looking expected impact of the global economic uncertainty caused by COVID-19.

Loans and Other Receivables and Allowance for Credit Losses

Prepaid expenses and other current assets include other short-term receivables and other long-term assets include long-term loan receivables. Following the adoption of Topic 326, we are required to use the new forward-looking expected credit loss model that replaced the previous incurred credit loss model. The new model generally results in earlier recognition of allowances for credit losses and requires consideration of a broader range of information to estimate expected credit losses over the entire lifetime of the assets. Accordingly, with the adoption of Topic 326, we recorded allowances for credit losses of $10.2 million for other receivables and $1.3 million for loan receivables. As of December 31, 2020, allowances for credit losses of $7.9 million for other receivables are included in prepaid expenses and other current assets and $1.2 million for loan

receivables are included in other long-term assets in the accompanying consolidated balance sheet. The allowances reflect the forward-looking expected impact of non-payment of the contractual amounts due.

Inventories

Inventories are stated at the lower of cost or net realizable value, determined on either a weighted average cost basis or a standard cost basis which is regularly adjusted to actual. Inventories include material, direct labor and overhead costs and are reduced for estimated obsolescence. Inventories consisted of the following as of December 31, 2020 and 2019:

(in thousands)	2020	2019
Raw materials	**$ 65,449**	$ 26,077
Work in process	**74,398**	45,729
Finished goods	**151,334**	98,898
Total inventories, net	**$ 291,181**	$ 170,704

Property, Plant and Equipment

Property, plant and equipment are stated at cost less accumulated amortization. Capitalized internal-use software costs include only those direct costs associated with the actual development or acquisition of computer software solely to meet internal needs and cloud-based applications to deliver our service and comprise costs associated with the design, coding, installation and testing of the system. Costs associated with preliminary development, such as the evaluation and selection of alternatives, as well as training, maintenance and support are expensed as incurred. Costs for software to be sold, leased or otherwise marketed that are related to the conceptual formulation and design are expensed as incurred. Costs incurred to produce software products and the software components of products to be sold, leased or marketed after technological feasibility is established are capitalized and amortized in accordance with the accounting standards for the costs of software to be sold, leased, or otherwise marketed. All other depreciation is computed using the straight-line method over the estimated useful lives of the assets (3 to 40 years). Amortization of leasehold improvements is computed on a straight-line basis over the lesser of the remaining life of the lease or the estimated useful life of the improvement asset. We have a policy of capitalizing expenditures that materially increase assets' useful lives and charging ordinary maintenance and repairs to operations as incurred. When property or equipment is disposed of, the cost and related accumulated depreciation and amortization are removed from the accounts and any gain or loss is included in earnings.

Business Combinations

We include the results of operations of the businesses that we acquire as of the acquisition date. The purchase price of an acquired business is allocated to the individual assets acquired and liabilities assumed based on their fair values at the date of acquisition. Those fair values are determined using income, cost and market approaches, most of which depend upon significant inputs that are not observable in the market, or level 3 measurements. The excess of purchase price over the fair value of identifiable assets acquired and liabilities assumed is recorded as goodwill. Acquisition-related expenses are recognized separately from the business combinations and are expensed as incurred.

The purchase price for some business combinations includes consideration that is contingent on the achievement of net sales or earnings targets by the acquired business. Contingent consideration is measured initially and on a recurring basis at fair value. Payments to settle the acquisition-date fair value of contingent consideration are presented as financing activities on the statement of cash flows; any payments in excess of the acquisition-date fair value are presented as operating activities.

Acquired Intangibles and Goodwill

Acquired intangibles with alternative future uses are carried at cost less accumulated amortization and consist of licenses to technology held by third parties and other acquired intangible assets. Amortization is computed over the estimated useful life of the underlying patents, which has historically ranged from 1 to 20 years. Purchased intangible assets acquired in business combinations, other than goodwill, are amortized over their estimated useful lives unless these lives are determined to be indefinite. Intangibles are assessed for recoverability considering the contract life and the period of time over which the intangible will contribute to future cash flow. The unamortized cost of intangible assets, where cash flows are independent and identifiable from other assets, is evaluated periodically and adjusted, if necessary, if events and circumstances indicate that a decline in value below the carrying amount has occurred. Intangible asset impairments recorded during the year ended December 31, 2020, 2019 and 2018 are further discussed in Note 6 "Restructuring and Impairments".

Amortization expense related to developed technology and patent and license rights which have been acquired in a business combination is included in cost of sales. Amortization of trademarks, customer base and non-compete agreements which have been 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 either the cost of sales, research and development or sales and marketing line items based on the use of the asset.

We dispose the gross carrying amount and accumulated amortization of fully amortized intangible assets from historic business combinations once they are considered fully integrated into our business.

The fair value of in-process research and development (IPR&D) acquired in a business combination is capitalized as an indefinite-lived intangible asset until completion or abandonment of the related research and development activities. IPR&D is tested for impairment annually or when any event or circumstance indicates that the fair value may be below the carrying value. If and when research and development is complete, the associated asset is amortized over the estimated useful life.

Goodwill represents the difference between the purchase price and the estimated fair value of the net assets acquired arising from business combinations. Goodwill is subject to impairment tests annually or earlier if indicators of potential impairment exist, using a fair-value-based approach. We have elected to perform our annual test for indications of impairment as of October 1st of each year. Following the annual impairment tests for the years ended December 31, 2020, 2019 and 2018, goodwill has not been impaired.

Non-Marketable Investments

We have investments in non-marketable equity securities issued by privately held companies. These investments are included in other long-term assets in the accompanying consolidated balance sheets. Non-marketable investments through which we exercise significant influence but do not have control are accounted for using the equity method. We monitor for changes in circumstances that may require a reassessment of the level of influence. Following the adoption of ASU 2016-01 on January 1, 2018, our non-marketable equity securities not accounted for under the equity method are either 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.

Investments are evaluated periodically, or when impairment indicators are noted, to determine if declines in value are other-than-temporary. In making that determination, we consider all available evidence relating to the realizable value of a security. This evidence includes, but is not limited to, the following:

- adverse financial conditions of a specific issuer, segment, industry, region or other variables;
- the length of time and the extent to which the fair value has been less than cost; and
- the financial condition and near-term prospects of the issuer.

We consider whether the fair values of any of our non-marketable investments have declined below their carrying value whenever adverse events or changes in circumstances indicate that recorded values may not be recoverable. If any such decline is considered to be other than temporary (based on various factors, including historical financial results, product development activities and the overall health of the affiliate's industry), then a write-down of the investment would be recorded in operating expense to its estimated fair value. Investment impairments recorded during the year ended December 31, 2020 are discussed in Note 10 "Investments."

Variable Interest Entities

We evaluate at the inception of each arrangement whether we have made an investment in an entity that is considered a variable interest entity (VIE) or if we hold other variable interests in an arrangement that is considered a variable interest entity (VIE). We consolidate VIEs when we are the primary beneficiary. The primary beneficiary of a VIE is the party that meets both of the following criteria: (1) has the power to make decisions that most significantly affect the economic performance of the VIE; and (2) has the obligation to absorb losses or the right to receive benefits that in either case could potentially be significant to the VIE. Periodically, we assess whether any changes in our interest or relationship with the entity affect our determination of whether the entity is still a VIE and, if so, whether we are the primary beneficiary. If we are not the primary beneficiary in a VIE, we account for the investment or other variable interests in a VIE as an investment in a non-marketable investment or in accordance with other applicable GAAP.

Impairment of Long-Lived Assets

We review our long-lived assets for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset or a group of assets may not be recoverable. We consider, amongst other indicators, a history of operating losses or a change in expected sales levels to be indicators of potential impairment. Assets are grouped and evaluated for impairment at the lowest level for which there are identifiable cash flows that are largely independent of the cash flows of other groups of assets. If an asset is determined to be impaired, the loss is measured as the amount by which the carrying amount of the asset exceeds fair value which is determined by applicable market prices, when available. When market prices are not available, we generally measure fair value by discounting projected future cash flows of the asset. Considerable judgment is necessary to estimate discounted future cash flows. Accordingly, actual results could differ from such estimates.

4. Revenue

Nature of Goods and Services

Our revenues are reported net of sales and value added taxes and accruals for estimated rebates and returns and are derived primarily from the sale of consumable and instrumentation products, and to a much lesser extent, from the sale of services, intellectual property and technology. Revenue is recognized upon transfer of control of promised products or services to customers in an amount that reflects the consideration we expect to receive in exchange for those products or services. We enter into contracts that can include various combinations of products and services, which are generally distinct and accounted for as separate performance obligations. The transaction price is allocated to performance obligations based on their relative stand-alone selling prices.

We offer warranties on our products. Certain of our warranties are assurance-type in nature and do not cover anything beyond ensuring that the product is functioning as intended. Based on the guidance in Topic 606, assurance-type warranties do not represent separate performance obligations. The Company also sells separately-priced service contracts which qualify as service-type warranties and represent separate performance obligations.

We sell our products and services both directly to customers and through distributors generally under agreements with payment terms typically less than 90 days and in most cases not exceeding one year and therefore contracts do not contain a significant financing component.

Consumable and Related Revenue

Consumable Products: In the last three years, revenue from consumable product sales has accounted for approximately 78-80% of our net sales and revenue is recognized when performance obligations under the terms of a contract with a customer are satisfied. The majority of our contracts have a single performance obligation to transfer a product or multiple performance obligations to transfer multiple products concurrently. Accordingly, we recognize revenue when control of the products has transferred to the customer, which is generally at the time of shipment of products as this is when title and risk of loss have been transferred. In addition, invoicing typically occurs at this time so this is when we have a present right to payment. Revenue is measured as the amount of consideration we expect to receive in exchange for transferring products and is generally based upon a negotiated formula, list or fixed price.

Related Revenue: Revenues from related products include software-as-a-service (SaaS), licenses, intellectual property and patent sales, royalties and milestone payments and over the last three years has accounted for approximately 6-10% of our net sales.

SaaS arrangements: Revenue from SaaS arrangements, which allow customers to use hosted software over the contract period without taking possession of the software, is recognized over the duration of the agreement unless the terms of the agreement indicate that revenue should be recognized in a different pattern, for example based on usage.

Licenses: Licenses for on-site software, which allow customers to use the software as it exists when made available, are sold as perpetual licenses or term licenses. Revenue from on-site licenses are recognized upfront at the point in time at the later of when the software is made available to the customer and the beginning of the license term. When a portion of the transaction price is allocated to a performance obligation to provide support and/or updates, revenue is recognized as the updates/support are provided, generally over the life of the license. Fees from research collaborations include payments for technology transfer and access rights. Royalties from licensees of intellectual property are based on sales of licensed products and revenues are recognized at the later of (i) when the related sales occur, or (ii) when the performance obligation to which some or all of the royalty has been allocated has been satisfied (or partially satisfied).

Milestone Payments: At the inception of each companion diagnostic co-development arrangement that includes development milestone payments, which represent variable consideration, we evaluate whether the milestones are probable of being reached and estimate the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within our control, such as milestones which are achieved through regulatory approvals, are considered to be constrained and excluded from the transaction price until those approvals are received. Revenue is recognized following the input method as this is considered to best depict the timing of the transfer of control. This involves measuring actual hours incurred to date as a proportion of the total budgeted hours of the project. At the end of each subsequent reporting period, the proportion of completion is trued-up. We also re-evaluate the probability of achievement of development milestones and any related constraint on a periodic basis, and if necessary, adjust our estimate of the overall transaction price. Any such adjustments are recorded on a cumulative catch-up basis, which would affect revenues and earnings in the period of adjustment.

Instruments

Revenue from instrumentation includes the instrumentation equipment, installation, training and other instrumentation services, such as extended warranty services or product maintenance contracts and over the last three years has accounted for

approximately 11-14% of net sales. Revenue from instrumentation equipment is recognized when the customer obtains control of the instrument which is predominantly at the time of delivery or when title has transferred to the customer. Service revenue is recognized over the term of the service period as the customers benefit from the service throughout the service period. Revenue related to services performed on a time-and-materials basis is recognized when performed.

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 December 31, 2020, we had $23.7 million of remaining performance obligations for which the transaction price is not constrained related to these contracts which we expect to recognize over the next 12 to 18 months.

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

Contract Balances

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

Contract assets as of December 31, 2020 and 2019 totaled $8.5 million and $5.5 million, respectively, and are included in prepaid expenses and other current assets in the accompanying consolidated balance sheets and relate to the companion diagnostic co-development contracts discussed above.

Contract liabilities primarily relate to non-cancellable advances or deposits received from customers before revenue is recognized and is primarily related to instrument service and SaaS arrangements. As of December 31, 2020 and 2019, contract liabilities totaled $68.9 million and $56.2 million, respectively, of which $57.1 million and $48.5 million is included in accrued and other current liabilities, respectively, and $11.8 million and $7.7 million in included in other long-term liabilities, respectively. During the twelve months ended December 31, 2020 and 2019, we satisfied the associated performance obligations and recognized revenue of $48.1 million and $48.3 million, respectively, related to advance customer payments previously received.

Disaggregation of Revenue

We disaggregate our revenue based on product type and customer class as shown in the tables below for the years ended December 31, 2020, 2019 and 2018:

(in thousands)	2020	2019	2018
Consumables and related revenues	**$ 774,234**	$ 665,866	$ 649,602
Instruments	**129,742**	71,266	82,197
Molecular Diagnostics	**903,976**	737,132	731,799
Consumables and related revenues	**841,201**	688,281	665,857
Instruments	**125,169**	101,011	104,192
Life Sciences	**966,370**	789,292	770,049
Total	**$ 1,870,346**	$ 1,526,424	$ 1,501,848

Additionally, we disaggregate our revenue based on product category as shown in the tables below for the years ended December 31, 2020, 2019 and 2018:

(in thousands)	2020	2019	2018
Sample technologies	**$ 803,867**	$ 548,365	$ 546,636
Diagnostic solutions	**460,757**	465,503	461,064
PCR / Nucleic acid amplification	**363,552**	224,685	236,952
Genomics / NGS	**165,570**	183,768	163,383
Other	**76,600**	104,103	93,813
Total	**$ 1,870,346**	$ 1,526,424	$ 1,501,848

Refer to Note 21 "Segment Information" for disclosure of revenue by geographic region.

5. Acquisitions and Divestitures

Business Combinations and Asset Acquisitions

For acquisitions which have been accounted for as business combinations, the acquired companies' results have been included in the accompanying consolidated statements of income (loss) 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.

If the acquired net assets do not constitute a business under the acquisition method of accounting, the transaction is accounted for as an asset acquisition and no goodwill is recognized. In an asset acquisition, the amount allocated to acquired in-process research and development with no alternative future use is charged to expense at the acquisition date.

2020 Business Combinations

In September 2020, we completed the acquisition of the remaining 80.1% of NeuMoDx Molecular, Inc. ("NeuMoDx") shares, a privately-held U.S. company in which we held a minority interest. NeuMoDx designs and develops molecular diagnostics solutions for hospital and clinical reference laboratories. Prior to acquisition, we held a 19.9% investment in NeuMoDx with a carrying value of $41.0 million. The cash consideration, net of cash acquired totaled $239.4 million for the remaining shares. Of this amount, $8.5 million was retained in an escrow account as of December 31, 2020 which is expected to be fully utilized to cover claims for breach of any representations, warranties or indemnities.

The acquisition date fair value of the minority interest investment was $52.7 million and a gain of $11.7 million was recorded in restructuring, acquisition, integration and other, net in the accompanying consolidated statement of income. The fair value of the minority interest investment was determined using an implied purchase price reduced by a 20% control premium.

We incurred $2.5 million acquisition related costs to effect the business combination, of which $1.8 million was incurred during the year ended December 31, 2020, and are included in restructuring, acquisition, integration and other, net. Revenue and earnings in the reporting period since the acquisition date have not been significant.

The allocation of the purchase price is preliminary and not yet finalized. The preliminary allocation of the purchase price is based upon preliminary estimates which used information that was available to management at the time the consolidated 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 fair value of all assets and liabilities, including intangible assets acquired, and the related deferred taxes.

The preliminary purchase price allocation for NeuMoDx as of December 31, 2020 and the difference to September 30, 2020 is as follows:

(in thousands)	As of December 31, 2020	As of September 30, 2020	Difference
Purchase Price:			
Cash consideration	$ 251,730	$ 251,730	$ —
Fair value of minority interest	52,727	52,727	—
	$ 304,457	$ 304,457	**$ —**
Preliminary Allocation:			
Cash and cash equivalents	$ 12,291	$ 12,291	$ —
Accounts receivable	5,691	5,691	—
Inventories	20,666	18,866	1,800
Prepaid expenses and other current assets	5,961	5,943	18
Accounts payable	(12,450)	(11,168)	(1,282)
Accruals and other current liabilities	(18,929)	(18,770)	(159)
Other long-term liabilities	(4,101)	(4,101)	—
Fixed and other long-term assets	7,076	6,698	378
Developed technology	101,000	119,100	(18,100)
In-process research and development	55,000	64,800	(9,800)
Patents and license rights	770	770	—
Customer backlog	400	900	(500)
Goodwill	157,627	149,877	7,750
Deferred tax asset	12,457	—	12,457
Deferred tax liability on fair value of identifiable intangible assets acquired	(39,002)	(46,440)	7,438
Total	**$ 304,457**	$ 304,457	**$ —**

The in-process research and development recognized relates to technologies that remain in development and have not yet obtained regulatory approvals. The technologies within in-process research and development are expected to be completed within the next three years. The weighted average amortization period for the acquired intangibles is 10 years. The goodwill acquired is not deductible for tax purposes.

Pro forma results

The following unaudited pro forma information assumes that the above acquisition occurred at the beginning of the periods presented. For the year ended December 31, 2020, pro forma net sales would have been $1.90 billion, pro forma net income would have been $347.0 million, and pro forma diluted net income per common share would have been $1.48. For the year ended December 31, 2019, pro forma net sales would have been $1.53 billion, pro forma net loss would have been $69.1 million and pro forma diluted net loss per common share would have been $0.30. These unaudited pro forma results are intended for informational purposes only and are not necessarily indicative of the results of operations that would have occurred had the acquisition been in effect at the beginning of the periods presented, or of future results of the combined operations.

2019 Business Combinations

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, was $24.5 million. This acquisition was not significant to the overall consolidated financial statements and as of December 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.

In the third quarter of 2019, we acquired two additional companies for total cash consideration, net of cash acquired, of $43.5 million. The purchase price allocations for these acquisitions were final as of March 31, 2020. These acquisitions were not significant to the overall consolidated financial statements and the acquisitions did not have a material impact to net sales, net income or earnings per share. Thus, no pro forma information has been provided herein.

Other 2018 Business Combination

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 restructuring, acquisition, integration and other, net in the accompanying consolidated statement of income for the year ended December 31, 2018. This acquisition was not significant to the overall consolidated financial statements. 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.

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. During 2020, we paid the remaining $135.9 million of milestone payments.

Divestitures

In 2019, we sold a portfolio of protein catalysation products for $1.0 million. An immaterial gain was recorded on the sale. In 2018, we sold a portfolio of veterinary testing products for a total of €15.1 million ($18.5 million), of which €13.4 million ($16.4 million) was received during 2018 and the remaining €1.7 million ($1.8 million) was collected in 2020. An $8.0 million gain was recorded on the sale to other income, net in the accompanying consolidated statement of income for the year-ended December 31, 2018.

6. Restructuring and Impairments

As part of our restructuring activities, we incur expenses that qualify as exit and disposal costs under U.S. GAAP including severance and employee costs as well as contract and other costs, primarily contract termination costs, as well as inventory write-offs and other implementation costs primarily related to consulting fees. Personnel related costs primarily relate to cash severance and other termination benefits including accelerated share-based compensation. We also incur expenses that are an integral component of, and are directly attributable to, our restructuring activities which do not qualify as exit and disposal costs under U.S. GAAP, which consist of asset-related costs such as intangible asset impairments and other asset related write-offs.

Personnel costs are primarily determined based on established benefit arrangements, local statutory requirements, or historical benefit practices. We recognize these benefits when payment is probable and estimable. Other benefits which require future service and are associated to non-recurring benefits are recognized ratably over the future service period. Other assets, including inventory, are impaired or written-off if the carrying value exceeds the fair value. All other costs are recognized as incurred.

2019 Restructuring

In the second half of 2019, we decided to suspend development of NGS-related instrument systems and entered into a new strategic partnership with Illumina to commercialize IVD kits worldwide on Illumina's diagnostic sequencers. In order to align our business with this new strategy, we began restructuring initiatives to target resource allocation to growth opportunities in our Sample to Insight portfolio.

Impairments to property, plant and equipment primarily impacted computer software and machinery and equipment. Costs incurred to either purchase software or produce software products and the software components of products to be sold, leased or marketed after technological feasibility is established were previously capitalized during the development of certain NGS-related instrument systems. These long-lived assets were fully impaired due to the decision to suspend further development. In addition to computer software, certain machinery and equipment assets were fully impaired given that these assets had no alternative use following the changes announced for this program and it was estimated that no value was recoverable in a market disposal.

Due to the suspended development, intangible assets were also assessed for recoverability. The abandoned assets include developed technology related to the suspended projects as well as the termination of licenses which were used exclusively in connection with this program. As a result, we recorded intangible asset impairment charges due to the conclusion that the identified assets have no alternative use outside of the suspended program and thus are fully impaired.

We also conducted an impairment review of inventory and prepaid and other assets and recorded the charges noted in the table below. As these charges, including inventory, are a direct result of the decision to suspend further development of NGS-related instrument systems and are not related to external market factors, the impairment charges were recorded in the line item restructuring, acquisition, integration and other, net in the consolidated statements of income (loss) due to the assets being deemed excess and no longer utilized due to the discontinued development and related actions discussed above.

In addition, we implemented measures to:

- shift Commercial Operations activities into Business Areas;
- transition manufacturing activities into a regional structure; and
- expand the scope of activities at QIAGEN Business Services (QBS) centers in Wroclaw, Poland and Manila, Philippines

During 2020, certain of the planned measures were delayed during the acquisition attempt by Thermo Fisher or changed as a result of business needs during the pandemic. The following is a summary of the charges recorded in the consolidated statements of income (loss) during the years ended December 31, 2020 and 2019 and total program charges through December 31, 2020.

Classification and Type of Charge (in thousands)	Note	2020	2019	Total program charges through 2020
Restructuring, acquisition, integration and other, net				
Personnel related[1]	(22)	**$ 904**	$ 70,578	$ 71,482
Contract termination expense[1]		**682**	42,099	42,781
Consulting fees		**1,153**	10,150	11,303
Accounts receivable[2]		**(622)**	10,825	10,203
Inventories		**1,014**	12,336	13,350
Prepaid expenses and other assets[2]		**127**	17,012	17,139
		3,258	163,000	166,258
Long-lived asset impairments				
Property, plant and equipment	(9)	**1,034**	98,472	99,506
Intangible assets	(11)	**—**	40,301	40,301
		1,034	138,773	139,807
Other income, net				
Equity method investment impairment	(10)	**—**	4,799	4,799
Total		**$ 4,292**	$ 306,572	$ 310,864

(1) During the year ended December 31, 2019, personnel related and contract termination costs include $2,956 and $15,676, respectively, due to related parties.
(2) During the year ended December 31, 2019, accounts receivable and prepaid expenses and other assets includes $5,984 and $2,270, respectively due from related parties.

Of the total costs incurred, $11.2 million and $60.2 million are accrued as of December 31, 2020 and 2019, respectively, in accrued and other current liabilities in the accompanying consolidated balance sheets as summarized in the following table that includes the cash components of the restructuring activity.

(in thousands)	Personnel Related	Contract Termination	Consulting Fees	Total
Costs incurred in 2019	$ 44,640	$ 42,099	$ 10,150	$ 96,889
Payments	(17,272)	(18,294)	(2,162)	(37,728)
Foreign currency translation adjustment	631	493	(53)	1,071
Liability at December 31, 2019	27,999	24,298	7,935	60,232
Additional costs incurred in 2020	**4,542**	**1,639**	**1,661**	**7,842**
Release of excess accrual	**(3,638)**	**(957)**	**(508)**	**(5,103)**
Payments	**(24,355)**	**(18,319)**	**(9,028)**	**(51,702)**
Foreign currency translation adjustment	**139**	**(230)**	**(12)**	**(103)**
Liability at December 31, 2020	**$ 4,687**	**$ 6,431**	**$ 48**	**$ 11,166**

Future pre-tax costs between $5 - $10 million are expected to be incurred, primarily related to personnel and consulting, in the first half of 2021.

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 concluded in 2018, were $24.4 million. 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
Restructuring, acquisition, 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
Restructuring, acquisition, integration and other, net	4,207	4,232	1,610	10,049
Total 2018 costs	4,631	5,425	1,610	11,666
Restructuring, acquisition, integration and other, net	(1,100)	—	—	(1,100)
Total 2019 releases	(1,100)	—	—	(1,100)
Total cumulative costs	**$ 9,705**	**$ 10,008**	**$ 4,649**	**$ 24,362**

During 2018, fixed asset impairments of $1.6 million were recorded in connection with this initiative and are included within long-lived asset impairments in the accompanying consolidated statement of income.

7. Short-Term Investments

As of December 31, 2020 and 2019, short-term investments consisted of the following:

(in thousands)	2020	2019
Marketable equity securities	**$ 117,249**	$ —
Money market deposits	**—**	87,468
Commercial paper	**—**	22,459
Loans receivable	**—**	19,659
Total	**$ 117,249**	$ 129,586

At December 31, 2020, short-term investments include the fair value of our marketable equity securities totaling $117.2 million. These investments, further discussed in Note 10 "Investments", are reported at fair value with gains and losses recorded in earnings.

At December 31, 2019 we had $129.6 million ($65.0 million and €57.5 million) of money market deposits, commercial paper and loan receivables due from financial and nonfinancial institutions. These instruments are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market and are carried at fair market value, which is equal to the

cost. All instruments are classified as current assets in the accompanying balance sheet as they either have a maturity of less than one year or are redeemable at our discretion. Interest income is determined using the effective interest rate method.

8. Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets are summarized as follows as of December 31, 2020 and 2019:

(in thousands)	Note	2020	2019
Prepaid expenses		**$ 61,159**	$ 39,930
Cash collateral	(14)	**56,100**	2,683
Other receivables		**32,901**	29,486
Value added tax		**31,128**	20,347
Loan receivables		**17,094**	7,539
Contract assets	(4)	**8,539**	5,479
Total prepaid expenses and other current assets		**$ 206,921**	$ 105,464

9. Property, Plant and Equipment

Property, plant and equipment of December 31, 2020 and 2019 were as follows:

(in thousands)	Estimated useful life (in years)	2020	2019
Land	—	**$ 18,903**	$ 17,684
Buildings and improvements	5-40	**362,902**	341,032
Machinery and equipment	3-10	**322,379**	292,294
Computer software	3-7	**260,730**	301,604
Furniture and office equipment	3-10	**108,339**	102,901
Construction in progress	—	**116,562**	98,858
		1,189,815	1,154,373
Less: Accumulated depreciation and amortization		**(630,443)**	(699,130)
Property, plant and equipment, net		**$ 559,372**	$ 455,243

In 2019, we began restructuring initiatives to target resource allocation to growth opportunities in our Sample to Insight portfolio and in connection therewith, we recorded impairments. Asset impairment charges for the years ended December 31, 2020, 2019 and 2018 were as follows:

(in thousands)	2020	2019	2018
Machinery and equipment	**$ 77**	$ 9,177	$ —
Computer software	**—**	44,649	2,911
Furniture and office equipment	**315**	4,030	—
Construction in progress	**642**	41,870	4,979
Total impairment in property, plant and equipment	**$ 1,034**	$ 99,726	$ 7,890

During the year ended December 31, 2020, $1.0 million of impairments were related to the 2019 Restructuring program discussed in Note 6 "Restructuring and Impairments". In 2019, $98.5 million of impairments were related to the 2019 Restructuring program while the remaining $1.2 million were related to other identified impairments during the year. In 2018, we recorded asset impairment charges of $7.9 million of internal-use software of which $1.6 million were related to the 2017 Restructuring program discussed in Note 6 and $6.3 million were related to strategic shifts in our business.

For the years ended December 31, 2020, 2019 and 2018 depreciation and amortization expense totaled $78.6 million, $86.0 million and $87.9 million, respectively. For the years ended December 31, 2020, 2019 and 2018 amortization related to computer software to be sold, leased or marketed totaled $7.4 million, $18.3 million and $17.2 million, respectively. Impairment charges related to computer software to be sold, leased or marketed are included in computer software and construction in progress in the table above and totaled $65.9 million for the year ended December 31, 2019. As of

December 31, 2020 and 2019, the unamortized balance of computer software to be sold, leased or marketed was $50.5 million and $36.6 million, respectively.

Repairs and maintenance expense was $13.8 million, $10.7 million and $12.1 million in 2020, 2019 and 2018, respectively. For the year ended December 31, 2020, construction in progress primarily includes amounts related to projects to expand production lines as well as increase capacity of manufacturing as well as ongoing software development projects. For the years ended December 31, 2020, 2019 and 2018, interest capitalized in connection with construction projects was not significant.

10. Investments

Marketable Equity Securities

We hold investments in marketable equity securities that have readily determinable fair values. Since January 1, 2018, these investments are reported at fair value with gains and losses recorded in earnings.

As of December 31, 2020, our investments in marketable equity securities totaled $117.5 million, of which $117.2 million are included in short-term investments and $0.3 million are included in other long-term assets in the accompanying consolidated balance sheet, as follows:

	Short-Term			Long-Term
(in thousands, except shares held)	Invitae Corporation (Invitae)	OncoCyte Corporation (OncoCyte)	Oncimmune Holdings plc (Oncimmune)	HTG Molecular Diagnostics, Inc (HTGM)
Shares held	**2,769,189**	**88,101**	**560,416**	**55,556**
Cost basis	**$ —**	**$ —**	**$ —**	**$ 2,000**
Fair value	**$ 115,780**	**$ 211**	**$ 1,258**	**$ 266**
Total cumulative unrealized gain (loss)	**$ 115,780**	**$ 211**	**$ 1,258**	**$ (1,734)**

In 2020, HTGM completed a 15:1 reverse stock split.

In 2020, we received 2.4 million shares of Invitae as part of the initial consideration for the sale of our ArcherDX shares, followed by an earn-out of an additional 0.4 million Invitae shares. Additionally in 2020, we received 0.1 million shares in OncoCyte. These transactions are discussed further below. In February 2021, we sold 2.4 million shares of Invitae for $101.5 million.

During the year ended December 31, 2020, unrealized losses recognized for the change in fair market value of all marketable equity securities totaled $5.7 million of which $5.4 million is attributable to short-term investments and $0.3 million to long-term investments.

As of December 31, 2019, these marketable securities are included in other long-term assets in the accompanying consolidated balance sheet as follows:

	Long-Term	
(in thousands, except shares held)	Oncimmune	HTGM
Shares held	560,416	833,333
Cost basis	$ —	$ 2,000
Fair value	$ 285	$ 585
Total cumulative unrealized gain (loss)	$ 285	$ (1,415)

During 2019, we received 0.6 million shares in Oncimmune in settlement of a zero-book value financial instrument held with a third party. On the date of receipt, these shares held a fair value of $0.7 million which was recorded as a gain in other income, net for the year ended December 31, 2019.

During the years ended December 31, 2019 and 2018 unrealized losses recognized for the change in fair market value of all marketable equity securities totaled $2.1 million and $0.1 million, respectively.

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

A summary of our non-marketable investments accounted for as equity method investments is as follows:

($ in thousands)	Ownership Percentage	Equity investments as of December 31, 2020	Equity investments as of December 31, 2019	Share of income (loss) for the years ended December 31, 2020	Share of income (loss) for the years ended December 31, 2019	Share of income (loss) for the years ended December 31, 2018
PreAnalytiX GmbH	50.00 %	**$ 4,761**	$ 5,452	**$ 3,070**	$ 3,971	$ 4,062
Suzhou Fuda Business Management and Consulting Partnership	33.67 %	**3,301**	3,100	**—**	—	—
Apis Assay Technologies Ltd	19.00 %	**1,940**	719	**1,221**	(51)	—
TVM Life Science Ventures III	3.10 %	**1,545**	1,219	**630**	(330)	—
Hombrechtikon Systems Engineering AG	19.00 %	**(530)**	(761)	**97**	(1,124)	(668)
MAQGEN Biotechnology Co., Ltd	40.00 %	**—**	—	**—**	(383)	(579)
Biotype Innovation GmbH	0.00 %	**—**	—	**—**	—	(123)
Pyrobett	0.00 %	**—**	—	**—**	—	(100)
		$ 11,017	$ 9,729	**$ 5,018**	$ 2,083	$ 2,592

TVM Life Science Ventures III is a limited partnership and we account for our 3.1% investment under the equity method as we have the ability to exercise significant influence over the limited partnership. Of the $11.0 million of non-marketable investments accounted for as equity method investments, $11.5 million is included in other long-term assets and $0.5 million, where we are committed to fund losses, is included in other long-term liabilities in the accompanying consolidated balance sheet as of December 31, 2020.

During the year ended December 31, 2019, we recorded an impairment of $4.8 million in other income, net in the accompanying consolidated statements of income, following changes in circumstances of MAQGEN Biotechnology Co., Ltd that indicated the carrying value was no longer recoverable. Accordingly, the investment was fully impaired.

In 2018, we recorded impairments totaling $6.1 million in other income, net in the accompanying consolidated statements of income, following changes in the investees' circumstances that indicated the carrying value was no longer recoverable.

Three 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 December 31, 2020, these investments had a total net carrying value of $3.0 million, of which $3.5 million is included in other long-term assets and $0.5 million is included in other long-term liabilities in the accompanying consolidated balance sheet. As of December 31, 2019, these investments held a balance of $1.2 million, of which $1.9 million is included in other long-term assets and $0.8 million is included in other long-term liabilities in the accompanying consolidated balance sheet. These balances represent our maximum exposure to loss.

Non-Marketable Investments Not Accounted for Under the Equity Method

At December 31, 2020 and 2019, we had investments in non-publicly traded companies that do not have readily determinable fair values with carrying amounts that totaled $4.1 million and $70.8 million, respectively. The changes in these investments which 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 for the years ended December 31, 2020 and 2019 are as follows:

(in thousands)	2020	2019
Balance at beginning of year	**$ 70,849**	$ 59,484
Full acquisition of equity securities	**(41,001)**	—
Sale of equity securities	**(23,812)**	—
Loss on sale of equity securities	**(2,250)**	—
Impairments	**(398)**	—
Cash investments in equity securities, net	**173**	3,619
Net increases due to observable price changes	**—**	7,760
Foreign currency translation adjustments	**581**	(14)
Balance at end of year	**$ 4,142**	$ 70,849

2020 Changes in Non-Marketable Investments Not Accounted for Under the Equity Method

During 2020, we acquired the remaining shares of NeuMoDx as further discussed in Note 5 "Acquisitions and Divestitures".

In 2020, Invitae Corporation ("Invitae"), a publicly traded company (NVTA), completed the acquisition of ArcherDX, Inc. ("ArcherDX"), a company in which we held an approximate 8% investment. In exchange for our shares in ArcherDX, we initially received cash of $21.1 million and 2.4 million shares in Invitae followed by an additional 0.4 million shares for milestone achievement. For the year ended December 31, 2020, we recognized a total gain of $123.3 million in other income, net in the accompanying consolidated statement of income as a result of this transaction. We are entitled to up to 1.7 million additional Invitae shares subject to milestone achievement.

We sold an investment with a carrying value of $2.5 million in exchange for cash of $0.3 million including the shares in OncoCyte, as discussed above. A loss of $2.3 million was recognized in other income, net in the accompanying consolidated statement of income on the sale of this investment.

We sold another investment for its book value and received $3.7 million in cash.

In 2020, we recorded a $0.4 million impairment in other income, net in the accompanying consolidated statement of income due following indications that the carrying value was no longer recoverable. Accordingly, the investment was fully impaired.

For non-marketable investments not accounted for under the equity method as of December 31, 2020, cumulative upward adjustments for price changes was $0.7 million. These adjustments were due to equity offerings at a higher price from the issuer in orderly transactions for identical or similar investments as those we hold.

11. Goodwill and Intangible Assets

The following sets forth the intangible assets by major asset class as of December 31, 2020 and 2019:

(in thousands)	Weighted Average Life (in years)	2020 Gross Carrying Amount	2020 Accumulated Amortization	2019 Gross Carrying Amount	2019 Accumulated Amortization
Amortized Intangible Assets:					
Patent and license rights	10.50	**$ 298,395**	**$ (197,038)**	$ 320,406	$ (216,554)
Developed technology	10.74	**860,129**	**(378,705)**	766,966	(346,085)
Customer base, trademarks, and non-compete agreements	12.02	**314,876**	**(233,981)**	314,638	(213,881)
	10.86	**$ 1,473,400**	**$ (809,724)**	$ 1,402,010	$ (776,520)
Unamortized Intangible Assets:					
In-process research and development		**$ 62,518**		$ 6,944	
Goodwill		**2,364,031**		2,140,503	
		$ 2,426,549		$ 2,147,447	

The in-process research and development as of December 31, 2020 is associated to the acquisitions of NeuMoDx in 2020 and STAT-Dx in 2018. The estimated fair value of acquired in-process research and development projects which have not reached technological feasibility at the date of acquisition are capitalized and subsequently tested for impairment through completion of the development process, at which point the capitalized amounts are amortized over their estimated useful life. If a project is abandoned rather than completed, all capitalized amounts are written-off immediately.

Developed technology includes the acquired intangibles from NeuMoDx and the digital PCR asset from Formulatrix as discussed in Note 5 "Acquisitions and Divestitures" which are both being amortized over 10 years.

The changes in intangible assets for the years ended December 31, 2020 and 2019 are as follows:

(in thousands)	2020	2019
Balance at beginning of year	**$ 632,434**	$ 475,043
Additions	**24,007**	286,159
Additions from acquisitions	**157,170**	36,458
Amortization	**(103,230)**	(122,560)
Disposals	**(537)**	—
Impairments	**—**	(40,301)
Foreign currency translation adjustments	**16,350**	(2,365)
Balance at end of year	**$ 726,194**	$ 632,434

Cash paid for purchases of intangible assets during the twelve months ended December 31, 2020 totaled $171.5 million, of which $146.1 million is related to current year payments for assets that were accrued as of December 31, 2019, $24.0 million of current year additions and $1.4 million for prepayments recorded in other long-term assets in the accompanying consolidated balance sheet.

Cash paid for intangible assets during the year ended December 31, 2019 totaled $156.9 million of which $11.5 million is related to current year payments for licenses that were accrued as of December 31, 2018 and $0.5 million is related to prepayments recorded in other long-term assets in accompanying consolidated balance sheet. Intangible asset additions of $286.2 million includes $144.9 million of cash paid during the year ended December 31, 2019, together with $137.8 million of additions that were accrued as of December 31, 2019 and $3.5 million of additions which were previously recorded as prepayments.

Amortization expense on intangible assets totaled approximately $103.2 million, $122.6 million and $118.6 million, respectively, for the years ended December 31, 2020, 2019 and 2018. During the year ended December 31, 2019, we recorded an impairment charge of $40.3 million related to the restructuring activities discussed further in Note 6 "Restructuring and Impairments" of which $28.1 million is related to patent and license rights and $12.1 million is related to developed technology.

Amortization of intangibles for the next five years is expected to be approximately:

Years ended December 31, (in thousands)	
2021	**$ 103,485**
2022	**$ 89,734**
2023	**$ 87,355**
2024	**$ 83,520**
2025	**$ 71,130**

The changes in goodwill for the years ended December 31, 2020 and 2019 are as follows:

(in thousands)	2020	2019
Balance at beginning of year	**$ 2,140,503**	$ 2,108,536
Business combinations	**157,627**	34,807
Purchase adjustments	**3,382**	(236)
Disposals	**—**	(225)
Foreign currency translation adjustments	**62,519**	(2,379)
Balance at end of year	**$ 2,364,031**	$ 2,140,503

The changes in the carrying amount of goodwill during the year ended December 31, 2020 resulted primarily from the acquisition of NeuMoDx discussed in Note 5 "Acquisitions and Divestitures" and changes in foreign currency translation. The changes in goodwill during the year ended December 31, 2019 resulted primarily from the acquisition of N-of-One, Inc. and other acquisitions and divestitures also discussed in Note 5 "Acquisitions and Divestitures" and changes in foreign currency translation.

12. Leases

We have operating leases primarily for real estate. The leases generally have terms which range from one year to 15 years, some include options to extend or renew, and some include options to early terminate the leases. As of December 31, 2020 and 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 year ended December 31, 2020 and 2019, amounts recorded as variable lease payments not included in the operating lease liability were not material.

When the interest rate implicit in each lease is not readily determinable, we apply our incremental borrowing rate in determining the present value of lease payments. All operating lease expense is recognized on a straight-line basis over the lease term. For the years ended December 31, 2020 and 2019, we recognized $25.0 million and $24.4 million in total lease costs, respectively.

Supplemental balance sheet and other information related to operating leases as of December 31, 2020 and 2019 are as follows:

(in thousands, except lease term and discount rate)	Location in balance sheet	2020	2019
Operating lease right-of-use assets	Other long-term assets	**$ 102,522**	$ 57,305
Current operating lease liabilities	Accrued and other current liabilities	**$ 23,450**	$ 18,739
Long-term operating lease liabilities	Other long-term liabilities	**$ 85,585**	$ 39,631
Weighted average remaining lease term		**7.04 years**	3.71 years
Weighted average discount rate		**1.89%**	2.39%

Supplemental cash flow information related to operating leases for the years ended December 31, 2020 and 2019 are as follows:

(in thousands)	2020	2019
Cash paid for operating leases included in operating cash flows	**$ 24,193**	$ 26,113
Operating lease right-of-use assets obtained in exchange for lease obligations	**$ 58,992**	$ 24,670

Future maturities of operating lease liabilities as of December 31, 2020 are as follows:

Years ending December 31, (in thousands)	
2021	**$ 25,353**
2022	**20,993**
2023	**16,280**
2024	**10,790**
2025	**6,707**
Thereafter	**36,878**
Total lease payments	**117,001**
Less: imputed interest	**(7,966)**
Total	**$ 109,035**

As of December 31, 2020, we do not have any material operating leases that have not yet commenced. We did not hold any material finance leases as of December 31, 2020 and 2019.

13. Accrued and Other Current Liabilities

Accrued and other current liabilities at December 31, 2020 and 2019 consist of the following:

(in thousands)	Note	2020	2019
Payroll and related accruals		**$ 99,085**	$ 66,866
Other liabilities		**67,244**	54,241
Deferred revenue	(4)	**57,066**	48,525
Accrued expenses		**51,026**	38,963
Accrued contingent consideration and milestone payments	(15)	**23,593**	142,604
Operating lease liabilities	(12)	**23,450**	18,739
Restructuring	(6)	**11,599**	62,227
Accrued royalties	(20)	**7,427**	5,481
Accrued interest on long-term debt	(16)	**4,575**	5,257
Cash collateral	(14)	**600**	1,400
Total accrued and other current liabilities		**$ 345,665**	$ 444,303

14. Derivatives and Hedging

Objective and Strategy

In the ordinary course of business, we use derivative instruments, including swaps, forwards and/or options, to manage potential losses from foreign currency exposures and interest bearing assets or liabilities. The principal objective of such derivative instruments is to minimize the risks and/or costs associated with our global financial and operating activities. We do not utilize derivative or other financial instruments for trading or other speculative purposes. We recognize all derivatives as either assets or liabilities on the balance sheet on a gross basis, measure those instruments at fair value and recognize the change in fair value in earnings in the period of change, unless the derivative qualifies as an effective hedge that offsets certain exposures. We have agreed with almost all of our counterparties with whom we had entered into cross-currency swaps, interest rate swaps or foreign exchange contracts, to enter into bilateral collateralization contracts under which we will receive or provide cash collateral, as the case may be, for the net position with each of these counterparties. As of December 31, 2020, cash collateral positions consisted of $0.6 million recorded in accrued and other current liabilities and $56.1 million recorded in prepaid expenses and other current assets. As of December 31, 2019, we had cash collateral positions consisting of $1.4 million recorded in accrued and other current liabilities and $2.7 million recorded in prepaid expenses and other current assets in the accompanying consolidated balance sheets.

Non-Derivative Hedging Instrument

Net Investment Hedge

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 16 "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 loss. Based on the spot rate method, the unrealized loss recorded in equity as of December 31, 2020 and 2019 is $26.9 million and $0.4 million, respectively. Since we are using the debt as the hedging instrument, which is also remeasured based on the spot rate method, there is no hedge ineffectiveness related to the net investment hedge as of December 31, 2020 and 2019.

Derivatives Designated as Hedging Instruments

Cash Flow Hedges

As of December 31, 2020 and 2019, we held derivative instruments that are designated and qualify as cash flow hedges, where the effective portion of the gain or loss on the derivative is reported as a component of other comprehensive loss and reclassified into earnings in the same period or periods during which the hedged transaction affects earnings. Gains and losses on the derivative representing either hedge ineffectiveness or hedge components excluded from the assessment of effectiveness are recognized in current earnings. To date, we have not recorded any hedge ineffectiveness related to any cash-flow hedges in

earnings. Based on their valuation as of December 31, 2020, we expect approximately $3.6 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 consolidated statements of cash flows in the same category as the consolidated balance sheets account of the underlying item.

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 December 31, 2020 and 2019, interest receivables of $1.1 million and $1.5 million, respectively are recorded in prepaid expenses and other current assets in the accompanying consolidated balance sheets.

Fair Value Hedges

As of December 31, 2020 and 2019, 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. To date, there has been no ineffectiveness. The cash flows derived from derivatives are classified in the consolidated statements of cash flows in the same category as the consolidated balance sheets account of the underlying item.

We hold interest rate swaps which effectively fix the fair value of a portion 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 December 31, 2020 and 2019, interest receivables of $0.6 million and $0.1 million, respectively, are recorded in prepaid and other current assets in the accompanying consolidated balance sheets.

Derivatives Not Designated as Hedging Instruments

Call Options

We entered into Call Options which, along with the sale of the Warrants, represent the Call Spread Overlay entered into in connection with the Cash Convertible Notes and which are more fully described in Note 16 "Debt". In these transactions, the Call Options are intended to address the equity price risk inherent in the cash conversion feature of each instrument by offsetting cash payments in excess of the principal amount due upon any conversion of the Cash Convertible Notes.

Aside from the initial payment of premiums for the Call Options, we will not be required to make any cash payments under the Call Options. We will, however, be entitled to receive under the terms of the Call Options, an amount of cash generally equal to the amount by which the market price per 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.

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 15 "Financial Instruments and Fair Value Measurements".

The Call Options do not qualify for hedge accounting treatment. Therefore, the change in fair value of these instruments is recognized immediately in our consolidated statements of income (loss) in other income, net. 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 discussed in Note 16 "Debt" is required to be separated from the Cash Convertible Notes and accounted for separately as a derivative liability, with changes in fair value reported in our consolidated statements of income (loss) in other income, net until the cash conversion option settles or expires. The embedded cash conversion option is measured and reported at fair value on a recurring basis, within Level 2 of the fair value hierarchy. For further discussion of the inputs used to determine the fair value of the embedded cash conversion option, refer to Note 15 "Financial Instruments and Fair Value Measurements".

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 conversion option within the convertible note was required to be separated from the convertible note and accounted for separately as a derivative liability, with changes in fair value reported in our consolidated statements of income (loss) in other income, net. The embedded cash conversion option was measured and reported at fair value on a recurring basis, within Level 2 of the fair value hierarchy. During 2020, $3.2 million was collected including the principal including accrued interest.

For further discussion of the inputs used to determine the fair value of the embedded cash conversion option, refer to Note 15 "Financial Instruments and Fair Value Measurements".

Foreign Exchange Contracts

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

We are party to various foreign exchange forward, option and swap arrangements which had, at December 31, 2020 and 2019, aggregate notional values of $1.3 billion and $701.4 million, respectively which expire at various dates through March 2021. 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, net.

Fair Values of Derivative Instruments

The following table summarizes the fair value amounts of derivative instruments reported in the consolidated balance sheets as of December 31, 2020 and 2019:

	2020		2019	
(in thousands)	Current Asset	Long-Term Asset	Current Asset	Long-Term Asset
Assets:				
Derivative instruments designated as hedges				
Interest rate contracts - fair value hedge [1]	**$ —**	**$ 5,042**	**$ —**	$ 2,474
Total derivative instruments designated as hedges	**$ —**	**$ 5,042**	**$ —**	$ 2,474
Undesignated derivative instruments				
Equity options	**$ 2,415**	**$ 374,038**	$ 101,179	$ 189,792
Foreign exchange forwards and options	**11,712**	**—**	6,689	—
Total undesignated derivative instruments	**$ 14,127**	**$ 374,038**	$ 107,868	$ 189,792
Total Derivative Assets	**$ 14,127**	**$ 379,080**	$ 107,868	$ 192,266

	2020		2019	
(in thousands)	Current Liability	Long-Term Liability	Current Liability	Long-Term Liability
Liabilities:				
Derivative instruments designated as hedges				
Interest rate contracts - cash flow hedge [1]	**$ —**	**$ (17,409)**	**$ —**	$ (6,027)
Total derivative instruments designated as hedges	**$ —**	**$ (17,409)**	$ —	$ (6,027)
Undesignated derivative instruments				
Equity options	**$ (5,966)**	**$ (376,046)**	$ (101,361)	$ (190,902)
Foreign exchange forwards and options	**(45,498)**	**—**	(1,814)	—
Total undesignated derivative instruments	**$ (51,464)**	**$ (376,046)**	$ (103,175)	$ (190,902)
Total Derivative Liabilities	**$ (51,464)**	**$ (393,455)**	$ (103,175)	$ (196,929)

[1] The fair value amounts for the interest rate contracts do not include accrued interest.

Gains and Losses on Derivative Instruments

The following tables summarize the gains and losses on derivative instruments for the years ended December 31, 2020, 2019 and 2018:

(in thousands)	2020 Other income, net	2019 Other income, net	2018 Other income, net
Total amounts presented in the Consolidated Statements of Income in which the effects of cash flow and fair value hedges are recorded	**$ 114,326**	$ 432	$ 5,598
Gains (Losses) on Derivatives in Cash Flow Hedges			
Interest rate contracts			
Amount of gain (loss) reclassified from accumulated other comprehensive loss	**$ 18,666**	$ (3,888)	$ (9,774)
Amounts excluded from effectiveness testing	**—**	—	—
Gains (Losses) on Derivatives in Fair Value Hedges			
Interest rate contracts			
Hedged item	**(2,568)**	(3,668)	2,051
Derivatives designated as hedging instruments	**2,568**	3,668	(2,051)
Gains (Losses) Derivatives Not Designated as Hedging Instruments			
Embedded conversion option	**—**	(349)	131
Equity options	**322,580**	(104,125)	74,682
Cash convertible notes embedded cash conversion option	**(321,213)**	106,998	(76,500)
Foreign exchange forwards and options	**(12,429)**	1,835	(19,857)
Total gains (losses)	**$ 7,604**	$ 471	$ (31,318)

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 December 31, 2020 and 2019:

	Carrying Amount of the Hedged Assets (Liabilities)		Cumulative Amount of Fair Value Hedging Adjustment Included in the Carrying Amount of Hedged Assets (Liabilities)	
(in thousands)	2020	2019	2020	2019
Long-term debt	**$ (131,923)**	$ (129,290)	**$ 5,042**	$ 2,474

15. 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 marketable securities discussed in Note 10 "Investments", which are classified in Level 1, short-term investments, which are classified in Level 2 of the fair value hierarchy, derivative contracts used to hedge currency and interest rate risk and derivative financial instruments entered into in connection with the Cash Convertible Notes discussed in Note 16 "Debt", which are classified in Level 2 of the fair value hierarchy, contingent consideration accruals which are classified in Level 3 of the fair value hierarchy, and are shown in the tables below and non-marketable equity securities remeasured during the year ended December 31, 2020 and 2019 are

classified within Level 3 in the fair value hierarchy. There were no transfers between levels for the year ended December 31, 2020.

In determining fair value for Level 2 instruments, we apply a market approach, using quoted active market prices relevant to the particular instrument under valuation, giving consideration to the credit risk of both the respective counterparty to the contract and the Company. To determine our credit risk, we estimated our credit rating by benchmarking the price of outstanding debt to publicly-available comparable data from rated companies. Using the estimated rating, our credit risk was quantified by reference to publicly-traded debt with a corresponding rating. The Level 2 derivative financial instruments include the Call Options asset and the embedded conversion option liability. See Note 16 "Debt", and Note 14 "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. Under the measurement alternative, the carrying value is measured at cost, less any impairment, plus or minus changes resulting from observable price changes in orderly transactions for identical or similar investments of the same issuer. Adjustments are determined primarily based on a market approach as of the transaction date.

Our Level 3 instruments also include contingent consideration liabilities. We value contingent consideration liabilities using unobservable inputs, applying the income approach, such as the discounted cash flow technique, or the probability-weighted scenario method. Contingent consideration arrangements obligate us to pay the sellers of an acquired entity if specified future events occur or conditions are met such as the achievement of technological or revenue milestones. We use various key assumptions, such as the probability of achievement of the milestones (0% to 100%) and the discount rate (between 6.5% and 6.9%), 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 (loss) 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 as of December 31, 2020 and 2019:

	2020				2019			
(in thousands)	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Assets:								
Short-term investments	**$ —**	**$ —**	**$ —**	**$ —**	$ —	$ 129,586	$ —	$ 129,586
Marketable equity securities	**117,515**	**—**	**—**	**117,515**	870	—	—	870
Non-marketable equity securities	**—**	**—**	**4,142**	**4,142**	—	—	70,849	70,849
Equity options	**—**	**376,453**	**—**	**376,453**	—	290,971	—	290,971
Foreign exchange forwards and options	**—**	**11,712**	**—**	**11,712**	—	6,689	—	6,689
Interest rate contracts	**—**	**5,042**	**—**	**5,042**	—	2,474	—	2,474
	$ 117,515	**$ 393,207**	**$ 4,142**	**$ 514,864**	$ 870	$ 429,720	$ 70,849	$ 501,439
Liabilities:								
Foreign exchange forwards and options	**$ —**	**$ (45,498)**	**$ —**	**$ (45,498)**	$ —	$ (1,814)	$ —	$ (1,814)
Interest rate contracts	**—**	**(17,409)**	**—**	**(17,409)**	—	(6,027)	—	(6,027)
Equity options	**—**	**(382,012)**	**—**	**(382,012)**	—	(292,263)	—	(292,263)
Contingent consideration	**—**	**—**	**(23,593)**	**(23,593)**	—	—	(162,160)	(162,160)
	$ —	**$(444,919)**	**$ (23,593)**	**$(468,512)**	$ —	$(300,104)	$(162,160)	$(462,264)

Refer to Note 10 "Investments" for the change in non-marketable equity securities with Level 3 inputs during the year ended December 31, 2020 and 2019. For contingent consideration liabilities with Level 3 inputs, the following table summarizes the activity for the years ended December 31, 2020 and 2019:

(in thousands)	2020	2019
Balance at beginning of year	**$ (162,160)**	$ (48,971)
Additions from acquisitions	**(3,223)**	(132,422)
Payments	**141,790**	11,800
Gain included in earnings	**—**	7,433
Balance at end of year	**$ (23,593)**	$ (162,160)

As of December 31, 2020, we had $23.6 million accrued for contingent consideration which is included in accrued and other current liabilities in the accompanying consolidated balance sheet. As of December 31, 2020, the $3.2 million of additions is related to the time value increases of existing contingent consideration liabilities related to both the 2019 asset acquisition of Formulatrix discussed in Note 5 "Acquisitions and Divestitures" as well as the 2018 acquisition of STAT-Dx. During 2019, a gain for the reduction in the fair value of contingent consideration related to unmet milestones of $7.4 million was recognized in restructuring, acquisition, integration and other, net in the accompanying consolidated statements of income (loss) and additions of $132.4 million primarily related to the asset acquisition of Formulatrix as discussed in Note 5.

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 16 "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. There were no fair value differences in the years ended December 31, 2020 and 2019 for nonfinancial assets or liabilities required to be measured at fair value on a nonrecurring basis other than the impairments of non-marketable investments not accounted for under the equity method as discussed in Note 10.

The table below presents the carrying values and the estimated fair values of financial instruments not presented in the tables above as of December 31, 2020 and 2019.

	2020			2019		
(in thousands)	Carrying Amount	Level 1	Level 2	Carrying Amount	Level 1	Level 2
Long-term debt including current portion:						
Cash convertible notes	**$ 791,000**	**$ 1,167,201**	**$ —**	$ 1,046,511	$ 1,296,334	$ —
Convertible notes	**442,481**	**510,930**	**—**	—	—	—
U.S. Private placement	**331,717**	**—**	**337,747**	328,984	—	329,157
German private placement	**357,551**	**—**	**361,957**	330,857	—	334,371
	$ 1,922,749	**$ 1,678,131**	**$ 699,704**	$ 1,706,352	$ 1,296,334	$ 663,528

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

Cash Convertible Notes and Convertible Notes: Fair value is based on an estimation using available over-the-counter market information on the Cash Convertible Notes due in 2021, 2023 and 2024 as well as the Convertible Notes due in 2027.

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 twelve-month periods ended December 31, 2020, 2019 or 2018 for nonfinancial assets or liabilities required to be measured at fair value on a nonrecurring basis.

16. Debt

At December 31, 2020 and 2019, total current long-term debt, net of debt issuance costs of $10.7 million and $10.8 million, respectively, consists of the following:

(in thousands)	2020	2019
0.875% Senior Unsecured Cash Convertible Notes due 2021	**$ 200**	$ 285,244
0.500% Senior Unsecured Cash Convertible Notes due 2023	**361,304**	347,995
1.000% Senior Unsecured Cash Convertible Notes due 2024	**429,496**	413,272
0.000% Senior Unsecured Convertible Notes due 2027	**442,481**	—
3.75% Series B Senior Notes due October 16, 2022	**304,761**	302,040
3.90% Series C Senior Notes due October 16, 2024	**26,956**	26,944
German Private Placement (Schuldschein)	**357,551**	330,857
Total long-term debt	**1,922,749**	1,706,352
Less current portion	**42,539**	285,244
Long-term portion	**$ 1,880,210**	$ 1,421,108

The notes are all unsecured obligations that rank pari passu. Interest expense on long-term debt was $63.5 million, $68.0 million and $61.2 million for the years ended December 31, 2020, 2019 and 2018, respectively.

In 2020, we repaid $296.4 million of the 2021 Notes, leaving $0.2 million outstanding as of December 31, 2020, which will be repaid at the original maturity on March 19, 2021.

In 2019, we repaid $506.4 million of long-term debt including $430.0 million for the amount due for the 2019 Cash Convertible Notes, $73.0 million for amounts due for the U.S. Private Placement 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.

Future maturities (stated at the carrying values) of long-term debt as of December 31, 2020, are as follows:

Years ending December 31, (in thousands)	
2021	**$ 42,539**
2022	**485,795**
2023	**361,304**
2024	**572,870**
2025	**—**
thereafter	**460,241**
	$ 1,922,749

Convertible Notes due 2027

On December 17, 2020, we issued zero coupon convertible notes in an aggregate principal amount of $500.0 million with a maturity date of December 17, 2027 (2027 Notes). The 2027 Notes carry no coupon interest. The net proceeds of the 2027 Notes totaled $497.6 million, after debt issuance costs of $3.7 million, of which $1.3 million was accrued as of December 31, 2020.

In accounting for the issuance of the 2027 Notes, we separated the 2027 Notes into liability and equity components. We allocated $445.9 million of the 2027 Notes to the liability component, representing the fair value of a similar debt instrument that does not have an associated convertible feature; and $54.1 million to the equity component, representing the conversion option, which does not meet the criteria for separate accounting as a derivative as it is indexed to our own stock.

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

We incurred issuance costs of $3.7 million related to the 2027 Notes. Issuance costs were allocated to the liability and equity components based on the same proportion used to allocate the proceeds. Issuance costs attributable to the liability component of $3.3 million are amortized to interest expense over the term of the 2027 Notes, and issuance costs attributable to the equity component of $0.5 million are included along with the equity component in equity.

The 2027 Notes are convertible into common shares based on an initial conversion rate, subject to adjustment, of 2,477.65 shares per $200,000 principal amount of notes (which represents an initial conversion price of $80.7218 per share, or

6.2 million underlying shares). At conversion, we will settle the 2027 Notes by repaying the principal portion in cash and any excess of the conversion value over the principal amount in shares of common stock.

The notes may be redeemed at the option of each noteholder at their principal amount on December 17, 2025 or in connection with a change of control or delisting event.

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

- if the last reported sale price of our common 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; or
- if we undergo certain fundamental changes as defined in the agreement; or
- if parity event or trading price unavailability event, as the case maybe occurs during the period of 10 days, including the first business day following the relevant trading price notification date; or
- if we distribute assets or property to all or substantially all of the holders of our common 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; or
- in case of early redemption in respect of the outstanding notes at our option, where the conversion date falls in the period from (and including) the date on which the call notice is published to (and including) the 45th business day prior to the redemption date; or
- if we experience certain customary events of default, including defaults under certain other indebtedness, until such event of default has been cured or waived.

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

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 on March 19, 2019 (2019 Notes) and $300.0 million due on March 19, 2021 (2021 Notes). The aggregate net proceeds of the 2019 and 2021 Convertible Notes were $680.7 million, after payment of the net cost of the Call Spread Overlay described below and transaction costs. During 2019, $430.0 million was paid at maturity (2019 Notes) and $3.4 million of the 2021 Notes was redeemed. In 2020, a total of $296.4 million of the 2021 Notes was repaid, leaving $0.2 million outstanding as of December 31, 2020, which will be repaid at the original maturity on March 19, 2021.

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.

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 $468.9 million, after payment of the net cost of the Call Spread Overlay described below and transaction costs.

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	From April 29, 2014 to September 18, 2020	7,063.1647
2023 Notes	0.500%	March 13 and September 13	September 13, 2023	From October 24, 2017 to March 13, 2023	4,829.7279
2024 Notes	1.000%	May 13 and November 13	November 13, 2024	From 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 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 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 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 of 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, 2023, 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, 2023 and 2024 Notes (i.e., the host contracts). As a result, pursuant to the accounting provisions of ASC 815, *Derivatives and Hedging*, the Contingent Conversion Conditions noted above are not required to be bifurcated as separate instruments.

No Contingent Conversion Conditions were triggered for the 2023 Notes and 2024 Notes as of December 31, 2020.

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 (loss) until the cash conversion option transaction settles or expires. The initial fair value liability of the embedded cash conversion option for the 2019 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 14 "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 and 2021 Cash Convertible Notes, we incurred approximately $13.1 million in transaction costs. We incurred approximately $6.2 million in transaction costs for the 2023 Cash Convertible Notes. For 2024 Cash Convertible Notes, we incurred $5.7 million transaction costs. 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 for the years ended December 31, 2020 and 2019 related to the 2027 Notes and the Cash Convertible Notes was comprised of the following:

(in thousands)	2020	2019
Coupon interest	**$ 9,025**	$ 9,954
Amortization of original issuance discount	**38,229**	36,966
Amortization of debt issuance costs	**2,942**	3,014
Total interest expense	**$ 50,196**	$ 49,934

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 and 2021 Cash Convertible 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 Cash Convertible 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. A total of $0.4 million in issuance costs were paid in connection with the Warrant and the Call Option.

In November 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. A total of $0.9 million in issuance costs were paid in connection with the Warrant and the Call Option.

The Call Options are derivative financial instruments and are discussed further in Note 14 "Derivatives and Hedging". The Warrants are equity instruments and are further discussed in Note 18 "Equity".

Aside from the initial payment of a premium of $105.2 million (2019 and 2021 Notes), $73.7 million (2023 Notes), and $97.3 million (2024 Notes) for the Call Option, 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 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. The net effect of the cash paid and received of $0.5 million was recognized as a gain in other income, net. In connection with the early conversion of a portion of 2021 Notes during 2019, we received $1.5 million upon the exercise of the related call options. Also, we paid $1.1 million for the intrinsic value of the 2021 Notes' embedded cash conversion option. As a result of these early conversions, a gain of $0.4 million was recognized in other income, net.

During 2020, while the 2021 Notes were contingently convertible, we received conversion notices for $119.4 million of outstanding principal. In December 2020, we initiated a tender offer and repurchased a further $177.0 million of outstanding principal. In connection with these transactions, we received $239.8 million in cash upon the exercise of the call options and we paid $237.4 million for the intrinsic value of the 2021 Notes' embedded cash conversion option. The net effect of the cash paid and received of $2.4 million was recognized as a gain in other income, net. Following the completion of the tender offer, $0.2 million of 2021 Notes will remain outstanding and will be repaid or converted at their stated maturity date on March 19, 2021.

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.

U.S. Private Placement

In October 16, 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 and paid on October 16, 2019 (3.19%); (2) $300.0 million 10-year term due on October 16, 2022 (3.75%); and (3) $27.0 million 12-year term due on October 16, 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 December 31, 2020. Based on an estimation using the changes in the U.S. Treasury rates, the Level 2 fair value of these senior notes as of December 31, 2020 and 2019 was approximately $337.7 million and $329.2 million, respectively. During 2014, we entered into interest rate swaps, which effectively fixed the fair value of $200.0 million of this debt, which was reduced to $127.0 million following the 2019 $73.0 million repayment. These interest rate swaps qualify for hedge accounting as fair value hedges as described in Note 14 "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 one U.S. dollar and several Euro denominated tranches. The Euro tranches are designated as a foreign currency non-derivative hedging instrument that qualifies as a net investment hedge as described in Note 14 "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 December 31, 2020 totaled $26.9 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 is as follows:

Currency	Notional Amount	Interest Rate	Maturity	Carrying Value (in thousands) as of December 31, 2020	December 31, 2019
EUR	€11.5 million	Fixed 0.4%	March 2021	**$ 14,115**	$ 12,905
EUR	€23.0 million	Floating EURIBOR + 0.4%	March 2021	**28,224**	25,811
EUR	€21.5 million	Fixed 0.68%	October 2022	**26,361**	24,112
EUR	€64.5 million	Floating EURIBOR + 0.5%	October 2022	**79,083**	72,335
USD	$45.0 million	Floating LIBOR + 1.2%	October 2022	**44,948**	44,919
EUR	€25.0 million	Floating EURIBOR + 0.5%	October 2022	**30,642**	28,026
EUR	€64.0 million	Fixed 1.09%	June 2024	**78,429**	71,747
EUR	€31.0 million	Floating EURIBOR + 0.7%	June 2024	**37,989**	34,753
EUR	€14.5 million	Fixed 1.61%	June 2027	**17,760**	16,249
				$ 357,551	$ 330,857

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.

Revolving Credit Facility

Our credit facilities available and undrawn at December 31, 2020 total €427.0 million (approximately $524.0 million). This includes a €400.0 million syndicated ESG-linked revolving credit facility expiring December 2023 and three other lines of credit amounting to €27.0 million with no expiration date. The €400.0 million facility can be utilized in Euro and bears interest of 0.525% to 1.525% above EURIBOR, and is offered with interest periods of one, three or six months. The commitment fee is calculated based on 35% of the applicable margin. In 2020, $0.9 million of commitment fees were paid. 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 December 31, 2020. The credit facilities are for general corporate purposes and no amounts were utilized at December 31, 2020.

17. Income Taxes

Income (loss) before income taxes for the years ended December 31, 2020, 2019 and 2018 consisted of:

(in thousands)	2020	2019	2018
Pretax (loss) income in The Netherlands	**$ (16,640)**	$ 17,455	$ (1,675)
Pretax income (loss) from foreign operations	**456,112**	(95,231)	227,412
	$ 439,472	$ (77,776)	$ 225,737

Income tax expense (benefit) for the years ended December 31, 2020, 2019 and 2018 are as follows:

(in thousands)	2020	2019	2018
Current—The Netherlands	**$ 270**	$ 5,670	$ 5,794
—Foreign	**86,720**	13,371	52,835
	86,990	19,041	58,629
Deferred—The Netherlands	**(6,921)**	4,177	2,551
—Foreign	**215**	(59,539)	(25,823)
	(6,706)	(55,362)	(23,272)
Total income tax expense (benefit)	**$ 80,284**	$ (36,321)	$ 35,357

The Netherlands statutory income tax rate was 25% for the years ended December 31, 2020, 2019 and 2018. Income from foreign subsidiaries is generally taxed at the statutory income tax rates applicable in the respective countries of domicile. The principal items comprising the differences between income taxes computed at The Netherlands statutory rate and our effective tax rate for the years ended December 31, 2020, 2019 and 2018 are as follows:

	2020	2019	2018
Income taxes at The Netherlands statutory rate	**25.0%**	25.0%	25.0%
Unrecognized tax benefits[1]	**8.2**	(14.1)	6.0
Valuation allowance[2]	**(8.1)**	(26.9)	1.5
Taxation of foreign operations, net[3]	**(2.1)**	33.1	(15.1)
Prior year taxes	**(1.6)**	(1.4)	0.2
Tax impact from intangible property transfer	**(0.8)**	27.2	—
Tax impact from (deductible) nondeductible items	**(0.8)**	(10.3)	1.3
Excess tax benefit related to share-based compensation	**(0.6)**	5.1	(2.1)
Government incentives and other deductions[4]	**(0.6)**	9.7	(1.2)
Changes in tax laws and rates	**(0.3)**	(0.4)	0.8
Other items, net	**0.0**	(0.3)	(0.7)
Effective tax rate	**18.3%**	46.7%	15.7%

(1) During 2020, we analyzed accruals for tax contingencies, primarily related to the potential nondeductibility of the $95.0 million expense reimbursement paid in connection with the unsuccessful acquisition attempt by Thermo Fisher and ongoing income tax audits.

(2) Due to increased taxable income and deferred tax liability position in 2020, we released a net $35.6 million valuation allowance primarily related to U.S. disallowed interest.

(3) Our effective tax rate reflects the benefit of our global operations where certain income or loss is taxed at rates higher or lower than The Netherlands' statutory rate of 25% as well as the benefit of some income being partially exempt from income taxes due to various intercompany operating and financing activities. These foreign tax benefits are due to a combination of favorable tax laws, regulations and exemptions in these jurisdictions. Partial tax exemptions exist on foreign income primarily derived from operations in Germany, The Netherlands and Singapore. Further, we have intercompany financing arrangements in which the intercompany income is nontaxable or partially exempt or subject to lower statutory tax rates. During 2020, we had intercompany arrangements through Dubai, and in 2018 through mid-2019 had arrangements through Luxembourg and Ireland.

(4) Government incentives include favorable tax regulations in the U.S. relating to research and development expense and other government incentives.

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 2008 for income tax examinations by tax authorities. The German group is open to audit for the tax years starting in 2014 and in 2019, the German tax authority commenced an audit for the 2014-2016 tax years. 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, 2017 through the current period. Our other subsidiaries, with few exceptions, are no longer subject to income tax examinations by tax authorities for years before 2016.

Changes in the amount of unrecognized tax benefits for the years ended December 31, 2020, 2019, and 2018 are as follows:

(in thousands)	2020	2019	2018
Balance at beginning of year	**$ 58,002**	$ 55,780	$ 44,033
Additions based on tax positions related to the current year	**31,758**	5,770	3,359
Additions for tax positions of prior years	**3,560**	14,532	11,984
Decrease for tax position of prior years	**(57)**	(9,073)	—
Decrease related to settlements	**—**	(7,605)	—
Decrease due to lapse of statute of limitations	**(520)**	(409)	(1,238)
Increase (decrease) from currency translation	**7,349**	(993)	(2,358)
Balance at end of year	**$ 100,092**	$ 58,002	$ 55,780

At December 31, 2020 and 2019, our net unrecognized tax benefits totaled approximately $100.1 million and $58.0 million, respectively, which, if recognized, would favorably affect our effective tax rate in any future period. It is reasonably possible that approximately $38.0 million of the unrecognized tax benefits may be released or utilized during the next 12 months due to lapse of statute of limitations or settlements with tax authorities; however, various events could cause our current expectations to change in the future. The above unrecognized tax benefits, if ever recognized in the financial statements, would be recorded in the statements of income (loss) as part of income tax expense (benefit).

Our policy is to recognize interest accrued related to an underpayment of income taxes in interest expense and penalties within income tax expense. For the years ended December 31, 2020, 2019 and 2018, we recognized a net expense for interest and penalties of $1.9 million, $1.6 million and $1.1 million, respectively. At December 31, 2020 and 2019, we have accrued interest of $4.4 million and $2.5 million, respectively, which are not included in the table above.

We have recorded net deferred tax assets of $15.7 million and $33.1 million at December 31, 2020 and 2019, respectively. The components of the net deferred tax asset and liability at December 31, 2020 and 2019 are as follows:

	2020		2019	
(in thousands)	Deferred Tax Asset	Deferred Tax Liability	Deferred Tax Asset	Deferred Tax Liability
Net operating loss and tax credit carryforward	**$ 67,856**	**$ —**	$ 50,274	$ —
Accrued and other liabilities	**22,926**	**—**	17,977	—
Inventories	**3,872**	**(2,269)**	4,726	(1,439)
Unrealized gain (loss) on investments	**—**	**(25,779)**	—	(4,973)
Property, plant and equipment	**6,099**	**(23,376)**	5,297	(20,332)
Intangible assets	**2,817**	**(55,999)**	1,078	(26,294)
Share-based compensation	**18,377**	**—**	13,787	—
Disallowed interest carryforwards	**42,090**	**—**	73,690	—
Convertible notes	**6,512**	**(13,513)**	7,104	—
Other	**9,428**	**(6,046)**	5,998	(6,174)
	179,977	**(126,982)**	179,931	(59,212)
Valuation allowance	**(37,332)**	**—**	(87,619)	—
	$ 142,645	**$ (126,982)**	$ 92,312	$ (59,212)
Net deferred tax assets		**$ 15,663**		$ 33,100

At December 31, 2020, we had $686.3 million in total net operating loss (NOL) carryforwards which included $318.6 million for Germany, $176.4 million for the U.S., $68.5 million for The Netherlands, $49.8 million for Spain, and $73.0 million for other foreign jurisdictions. The NOL carryforwards in Germany and Spain carryforward indefinitely and we expect them to be

fully utilized in future years. The entire NOL carryforward in the U.S. is subject to limitations under Section 382 of the U.S. Internal Revenue Code. The NOL carryforwards in the U.S. expire between 2024 and 2034 and in The Netherlands the NOL carryforwards expire between 2026 and 2028. NOL carryforwards of $25.3 million in other foreign jurisdictions expire between 2021 and 2030 while the remainder can be carried forward indefinitely. At December 31, 2020, we had $158.8 million of disallowed interest carryforwards which can be carried forward indefinitely. At December 31, 2020, tax credits total $3.0 million which expire between 2030 and 2039.

For the years ended December 31, 2020, 2019 and 2018, the changes in the valuation allowance charged to income tax expense totaled $36.8 million, $19.0 million and $0.8 million, respectively. For the year ended December 31, 2020, the changes in the valuation allowance charged to additional paid in capital totaled $13.5 million. The valuation allowance principally relates to disallowed interest carryforwards and net operating loss carryforwards. The Company can only recognize a deferred tax asset to the extent it is "more likely than not" that these assets will be realized. Judgments around realizability depend on the availability and weight of both positive and negative evidence.

As of December 31, 2020, a deferred tax liability has not been recognized for residual income taxes in The Netherlands on the undistributed earnings of the majority of our foreign subsidiaries as these earnings are considered to be either indefinitely reinvested or can be repatriated tax free under the Dutch participation exemption. The indefinitely reinvested earnings retained of our subsidiaries that would be subject to tax if distributed amounted to $538.3 million at December 31, 2020. Estimating the amount of the unrecognized deferred tax liability on indefinitely reinvested foreign earnings is not practicable. Should the earnings be remitted as dividends, we may be subject to taxes including withholding tax. We have $28.1 million of undistributed earnings that we do not consider indefinitely reinvested and have recorded a deferred tax liability at December 31, 2020 and 2019, of $1.6 million and $1.5 million, respectively.

18. Equity

Shares

The authorized classes of our shares consist of Common Shares (410 million authorized), Preference Shares (450 million authorized) and Financing Preference Shares (40 million authorized). All classes of shares have a par value of €0.01. No Financing Preference Shares or Preference Shares have been issued. Like all shareholders' equity accounts, common shares are translated to U.S. dollars at the foreign exchange rates in effect when the shares are issued.

Issuance and Conversion of Warrants

In connection with the issuance of the Cash Convertible Notes as described in Note 16 "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.

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).

Cash convertible notes	Issued on	Number of share warrants issued (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

During 2020, 0.8 million common shares were issued in connection with the early conversion of 4.2 million warrants related to the 2021 Notes which resulted in a $7.5 million decrease to additional paid in capital, a $22.7 million decrease in retained earnings, and a decrease of $30.3 million in treasury shares. The remaining warrants related to the 2021 Notes of 6.3 million were terminated in 2020, resulting in a cash payment of $174.6 million, a $30.3 million decrease to additional paid in capital and a $144.3 million decrease in retained earnings.

During 2019, 2.1 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 $31.1 million decrease to additional paid in capital, a $37.7 million decrease in retained earnings, a decrease of $68.8 million in treasury shares and an approximately $4 thousand cash payment for fractional shares.

Share Repurchase Programs

On May 6, 2019, we announced our sixth share repurchase program of up to $100 million of our common shares. During 2020, we repurchased 1.3 million QIAGEN shares for $64.0 million (including transaction costs). This program ended on December 17, 2020.

On January 31, 2018, we announced our fifth share repurchase program of up to $200 million of our common shares. During 2018, we repurchased 2.9 million QIAGEN shares for $104.7 million (including transaction costs). During 2019, we repurchased 2.0 million QIAGEN shares for $74.5 million (including transaction costs), bringing the total shares repurchased under this program to 4.9 million for $179.1 million (including transaction costs). This program ended on June 30, 2019.

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 December 31, 2020 and 2019:

(in thousands)	2020	2019
Net unrealized loss on hedging contracts, net of tax	**$ (23,268)**	$ (2,289)
Net unrealized loss on pension, net of tax	**(599)**	(561)
Foreign currency effects from intercompany long-term investment transactions, net of tax of $10.7 million and $9.7 million in 2020 and 2019, respectively	**(25,717)**	(22,587)
Foreign currency translation adjustments	**(194,238)**	(284,182)
Accumulated other comprehensive loss	**$ (243,822)**	$ (309,619)

19. Earnings per Common Share

We present basic and diluted earnings per share. Basic earnings per share is calculated by dividing the net income (loss) 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 schedule summarizes the information used to compute earnings per common share for the years ended December 31, 2020, 2019 and 2018:

(in thousands, except per share data)	2020	2019	2018
Net income (loss)	**$ 359,188**	$ (41,455)	$ 190,380
Weighted average number of common shares used to compute basic net income per common share	**228,427**	226,777	226,640
Dilutive effect of stock options and restrictive stock units	**3,350**	—	4,613
Dilutive effect of outstanding warrants	**2,437**	—	2,203
Weighted average number of common shares used to compute diluted net income per common share	**234,214**	226,777	233,456
Outstanding options and awards having no dilutive effect, not included in above calculation	**11**	107	272
Outstanding warrants having no dilutive effect, not included in above calculation	**26,438**	32,938	35,939
Basic earnings (loss) per common share	**$ 1.57**	$ (0.18)	$ 0.84
Diluted earnings (loss) per common share	**$ 1.53**	$ (0.18)	$ 0.82

For purposes of considering the 2027 Notes in determining diluted earnings (loss) per common share, only an excess of the conversion value over the principal amount would have a dilutive impact using the treasury stock method. Since the 2027 Notes were out of the money and anti-dilutive during the period from December 17, 2020 through December 31, 2020, they were excluded from the diluted earnings (loss) per common share calculation in 2020.

Due to the net loss for the year ended December 31, 2019, stock options and restricted stock units representing approximately 3.9 million weighted-average shares of common stock and warrants representing 1.7 million shares of common stock were excluded from the computation of diluted net loss because the impact would have been antidilutive.

20. Commitments and Contingencies

Licensing and Purchase Commitments

We have licensing agreements with companies, universities and individuals, some of which require certain up-front payments. Royalty payments are required on net product sales ranging from 0.45 percent to 25 percent of covered products or based on quantities sold. Several of these agreements have minimum royalty requirements. The accompanying consolidated balance sheets include accrued royalties relating to these agreements in the amount of $7.4 million and $5.5 million at December 31, 2020 and 2019, respectively. Royalty expense relating to these agreements amounted to $12.2 million, $13.5 million, and $14.0 million for the years ended December 31, 2020, 2019 and 2018, respectively. Royalty expense is primarily recorded in cost of sales, with a small portion recorded as research and development expense depending on the use of the technology under license. Some of these agreements also have minimum raw material purchase requirements and requirements to perform specific types of research.

At December 31, 2020, we had commitments to purchase goods or services, and for future license and royalty payments. They are as follows:

Years ending December 31, (in thousands)	Purchase Commitments	License & Royalty Commitments
2021	**$ 199,843**	**$ 10,003**
2022	**42,628**	**7,217**
2023	**5,364**	**4,483**
2024	**3,000**	**2,623**
2025	**—**	**2,349**
Thereafter	**—**	**3,364**
	$ 250,835	**$ 30,039**

As of December 31, 2020, $28.4 million of the total purchase commitments are with companies in which we hold an interest and are considered related parties.

Contingent Consideration Commitments

Pursuant to the purchase agreements for certain acquisitions and other contractual arrangements, we could be required to make additional contingent cash payments totaling up to $26.6 million based on the achievement of certain revenue and operating results milestones as follows:

Years ending December 31, (in thousands)	
2021	**$ 8,850**
2022	**17,700**
	$ 26,550

Of the $26.6 million total contingent obligation as discussed further in Note 9 "Financial Instruments and Fair Value Measurements," we have assessed the fair value at December 31, 2020 to be $23.6 million which is included in accrued and other current liabilities in the accompanying consolidated balance sheet.

Employment Agreements

Certain of our employment contracts contain provisions which guarantee the payments of certain amounts in the event of a change in control, as defined in the agreements, or if the executive is terminated for reasons other than cause, as defined in the agreements. At December 31, 2020, the commitment under these agreements totaled $21.2 million.

Contingencies

In the ordinary course of business, we provide a warranty to customers that our products are free of defects and will conform to published specifications. Generally, the applicable product warranty period is one year from the date of delivery of the product to the customer or of site acceptance, if required. Additionally, we typically provide limited warranties with respect to our

services. We provide for estimated warranty costs at the time of the product sale. The changes in the carrying amount of warranty obligations for the years ended December 31, 2020 and 2019 are as follows:

(in thousands)	2020	2019
Balance at beginning of year	**$ 3,141**	$ 2,848
Provision charged to cost of sales	**5,645**	3,229
Usage	**(3,978)**	(2,921)
Adjustments to previously provided warranties, net	**(125)**	(1)
Currency translation	**130**	(14)
Balance at end of year	**$ 4,813**	$ 3,141

Litigation

From time to time, we may be party to legal proceedings incidental to our business. As of December 31, 2020, 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 $5.2 million as of December 31, 2020 and $0.8 million as of December 31, 2019. The estimated amount of a range of possible losses as of December 31, 2020, is between $4.7 million and $16.3 million. During the year ended December 31, 2020, $0.3 million was paid. 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.

21. Segment Information

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. Considering the acquisitions made during 2020 and our continued restructuring and streamlining of the growing organization, our chief operating decision maker (CODM) continues to make decisions with regards to business operations and resource allocation based on evaluations of QIAGEN as a whole. Accordingly, we operate and make decisions as one business segment. Product category and geographic information follows below.

Product Category Information

Net sales for the product categories are attributed based on those revenues related to sample and assay products and similarly related revenues including bioinformatics solutions, and revenues derived from instrumentation sales. Refer to Note 4 "Revenue" for disaggregation of revenue based on product categories and customer class.

Geographical Information

Net sales are attributed to countries based on the location of the customer. QIAGEN operates manufacturing facilities in Germany, China, and the United States that supply products to customers as well as QIAGEN subsidiaries in other countries. The intersegment portions of such net sales are excluded to derive consolidated net sales. No single customer represents more than ten percent of consolidated net sales. Our country of domicile is The Netherlands, which reported net sales of $17.8 million, $15.8 million and $15.9 million for the years ended 2020, 2019 and 2018, respectively, and these amounts are included in the line item Europe, Middle East and Africa as shown in the table below.

Net sales (in thousands)	2020	2019	2018
Americas:			
United States	**$ 728,577**	$ 663,869	$ 632,660
Other Americas	**96,880**	58,121	60,359
Total Americas	**825,457**	721,990	693,019
Europe, Middle East and Africa	**682,289**	487,476	490,301
Asia Pacific, Japan and Rest of World	**362,600**	316,958	318,528
Total	**$ 1,870,346**	$ 1,526,424	$ 1,501,848

Long-lived assets include property, plant and equipment. The Netherlands, which is included in the balances for Europe, reported long-lived assets of $1.5 million and $1.3 million as of December 31, 2020 and 2019, respectively.

Long-lived assets (in thousands)	2020	2019
Americas:		
United States	**$ 154,843**	$ 147,027
Other Americas	**2,436**	3,507
Total Americas	**157,279**	150,534
Europe, Middle East and Africa:		
Germany	**304,571**	229,225
Other Europe, Middle East and Africa	**71,444**	49,004
Total Europe, Middle East and Africa	**376,015**	278,229
Asia Pacific and Japan	**26,078**	26,480
Total	**$ 559,372**	$ 455,243

22. Share-Based Compensation

We adopted the QIAGEN N.V. Amended and Restated 2005 Stock Plan (the 2005 Plan) in 2005 and the QIAGEN N.V. 2014 Stock Plan (the 2014 Plan) in 2014. The 2005 Plan expired by its terms in April 2015 and no further awards will be granted under the 2005 Plan. The plans allow for the granting of stock rights and incentive stock options, as well as non-qualified options, stock grants and stock-based awards, generally with terms of up to 5 or 10 years, subject to earlier termination in certain situations. The vesting and exercisability of certain stock rights will be accelerated in the event of a Change of Control, as defined in the plans. All option grants have been at the market value on the grant date or at a premium above the closing market price on the grant date. We issue Treasury Shares to satisfy option exercises and award releases and had approximately 14.4 million Common Shares reserved and available for issuance under the 2005 and 2014 Plans at December 31, 2020.

Stock Options

We have not granted stock options since 2013. A summary of the status of employee stock options as of December 31, 2020 and changes during the year then ended is presented below:

All Employee Options	Number of Shares (in thousands)	Weighted Average Exercise Price	Weighted Average Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding at January 1, 2020	**792**	**$ 20.06**		
Exercised	**(365)**	**$ 20.97**		
Outstanding at December 31, 2020	**427**	**$ 19.28**	**1.25**	**$ 14,338**
Vested at December 31, 2020	**427**	**$ 19.28**	**1.25**	**$ 14,338**
Vested and expected to vest at December 31, 2020	**427**	**$ 19.28**	**1.25**	**$ 14,338**

The total intrinsic value of options exercised during the years ended December 31, 2020, 2019 and 2018 was $6.5 million, $2.0 million and $5.0 million, respectively. The actual tax benefit for the tax deductions from option exercises totaled $1.3 million, $0.5 million, and $0.8 million during the years ended December 31, 2020, 2019 and 2018, respectively. At December 31, 2020, there was no unrecognized share-based compensation expense related to employee stock option awards.

At December 31, 2020, 2019 and 2018, 0.4 million, 0.8 million and 0.9 million options were exercisable at a weighted average price of $19.28, $20.06 and $20.04 per share, respectively. The options outstanding at December 31, 2020 expire in various years through 2023.

Stock Units

Stock units represent rights to receive Common Shares at a future date and include restricted stock units which are subject to time-vesting only and performance stock units which include performance conditions in addition to time-vesting. The final number of performance stock units earned is based on the performance achievement which for some grants can reach up to 200% of the granted shares. There is no exercise price and the fair market value at the time of the grant is recognized over the requisite vesting period, generally up to 5 or 10 years. The fair market value is determined based on the number of stock units granted and the market value of our shares on the grant date. Pre-vesting forfeitures were estimated to be approximately 6.2%. At December 31, 2020, there was $73.1 million remaining in unrecognized compensation cost including estimated forfeitures related to these awards, which is expected to be recognized over a weighted average period of 2.25 years. The weighted average grant date fair value of stock units granted during the years ended December 31, 2020, 2019 and 2018 was $36.92, $37.28 and $35.37, respectively. The total fair value of stock units that vested during the years ended December 31, 2020, 2019 and 2018 was $29.3 million, $123.9 million and $54.3 million, respectively.

A summary of stock units as of December 31, 2020 and changes during the year are presented below:

Stock Units	Stock Units (in thousands)	Weighted Average Contractual Term (in years)	Aggregate Intrinsic Value (in thousands)
Outstanding at January 1, 2020	**5,183**		
Granted	**1,035**		
Vested	**(720)**		
Forfeited	**(365)**		
Outstanding at December 31, 2020	**5,133**	**2.25**	**$ 261,458**
Vested and expected to vest at December 31, 2020	**3,881**	**2.02**	**$ 205,097**

Beginning in 2019, we began net share settlement for the tax withholding upon the vesting of awards. Shares are issued on the vesting dates net of the applicable statutory tax withholding to be paid by us on behalf of our employees. As a result, fewer shares are issued than the number of stock units outstanding. We record a liability for the tax withholding to be paid by us as a reduction to treasury shares.

Compensation Expense

Share-based compensation expense before taxes for the years ended December 31, 2020, 2019 and 2018 totaled approximately $40.9 million, $65.9 million and $40.1 million, respectively, as shown in the table below.

(in thousands)	2020	2019	2018
Cost of sales	**$ 2,897**	$ 2,493	$ 2,879
Research and development	**7,014**	5,810	6,457
Sales and marketing	**15,889**	7,947	9,372
General and administrative	**15,136**	23,705	21,405
Restructuring, acquisition, integration and other, net	**—**	25,938	—
Share-based compensation expense	**40,936**	65,893	40,113
Less: income tax benefit [(1)]	**9,552**	12,153	8,277
Net share-based compensation expense	**$ 31,384**	$ 53,740	$ 31,836

[(1)] Does not include the excess tax benefit realized for the tax deductions of the share-based payment arrangements which totaled $2.5 million, $4.0 million and $4.7 million, respectively, for the years ended December 31, 2020, 2019 and 2018.

Share-based compensation expense includes amounts related to the restructuring programs discussed in Note 6 "Restructuring and Impairments", including accelerated expense in 2019. No share-based compensation costs were capitalized for the years ended December 31, 2020, 2019 or 2018 as the amounts were not material.

23. Employee Benefits

We maintain various benefit plans, including defined contribution and defined benefit plans. Our U.S. defined contribution plan is qualified under Section 401(k) of the Internal Revenue Code, and covers substantially all U.S. employees. Participants may

contribute a portion of their compensation not exceeding a limit set annually by the Internal Revenue Service. This plan includes a provision for us to match a portion of employee contributions. Total expense under the 401(k) plans, including the plans acquired via business acquisitions, was $3.6 million, $4.0 million and $4.0 million for the years ended December 31, 2020, 2019 and 2018, respectively. We also have a defined contribution plan which covers certain executives. We make matching contributions up to an established maximum. Matching contributions made to the plan, and expensed, totaled approximately $0.2 million in each of the years ended December 31, 2020, 2019 and 2018.

We have five defined benefit, non-contributory retirement or termination plans that cover certain employees in Germany, France, Japan, Italy and the United Arab Emirates. These defined benefit plans provide benefits to covered individuals satisfying certain age and/or service requirements. For certain plans, we calculate the vested benefits to which employees are entitled if they separate immediately. The benefits accrued on a pro-rata basis during the employees' employment period are based on the individuals' salaries, adjusted for inflation. The liability under the defined benefit plans was $9.3 million at December 31, 2020 and $8.2 million at December 31, 2019, and is included as a component of other long-term liabilities on the accompanying consolidated balance sheets.

24. Related Party Transactions

From time to time, we have transactions with other companies in which we hold an interest, all of which are individually and in the aggregate immaterial, as summarized in the table below.

Net sales to related parties for the years ended December 31, 2020, 2019, and 2018 are as follows:

(in thousands)	2020	2019	2018
Net sales	**$ 6,025**	$ 20,002	$ 23,358

Net sales with related parties primarily reflects our ventures in China including our partnership to externalize the HPV test franchise for cervical cancer screening in China as well as our joint venture with Sichuan Maccura Biotechnology Co., Ltd which was terminated in conjunction with the 2019 restructuring activities discussed further in Note 6 "Restructuring and Impairments" which also details related party restructuring charges.

As of December 31, 2020 and 2019 balances with related parties are as follows:

(in thousands)	2020	2019
Accounts receivable	**$ 3,961**	$ 7,589
Prepaid expenses and other current assets	**$ 25,429**	$ 13,697
Other long-term assets	**$ 9,594**	$ 16,830
Accounts payable	**$ 4,050**	$ 1,775
Accrued and other current liabilities	**$ 1,380**	$ 15,404

Prepaid expenses and other current assets include supplier advances from companies with which we have an investment or partnership interest. As of December 31, 2019, this also included short-term loan receivables that were collected during 2020.

During 2018, we purchased a convertible note for $15.0 million from a privately held company due in December 2021. During 2020, we purchased an additional convertible note from the same company for $10.0 million due in August 2023. Both notes bear interest at 8%. In the event the company goes public, the notes will convert into common shares in the company ranking pari passu with existing common shares. As of December 31, 2020, $17.1 million is included in prepaid expenses and other current assets and $9.0 million is included in other long-term assets in the accompanying consolidated balance sheets related to the principal, accrued interest and allowance for credit loss upon adoption of ASC 326 on January 1, 2020. As of December 31, 2019, $16.3 million is included in other long-term assets related to the principal and accrued interest due from this company related to the convertible note.

In connection with the 2019 Restructuring further discussed in Note 6 "Restructuring and Impairments", we entered into an agreement with a non-publicly traded company considered a related party to reduce future purchase commitments. As of December 31, 2019 due to this agreement, $12.8 million was included in accrued and other current liabilities in the accompanying consolidated balance sheet. Payment occurred during the year ended December 31, 2020.

SCHEDULE II

QIAGEN N.V. AND SUBSIDIARIES
SCHEDULE II—VALUATION AND QUALIFYING ACCOUNTS
FOR THE YEARS ENDED DECEMBER 31, 2020, 2019 AND 2018

(in thousands)	Balance at Beginning of Period	Charged to Costs and Expense	Deductions	Foreign Exchange and Other[1]	Balance at End of Period	
Year Ended December 31, 2018:						
Allowance for doubtful accounts	$ 8,008	$ 4,448	$ (2,827)	$ (359)	$ 9,270	
Year Ended December 31, 2019:						
Allowance for doubtful accounts	$ 9,270	$ 8,701	$ (5,777)	$ (79)	$ 12,115	
Year Ended December 31, 2020:						
Allowance for credit losses	$ 12,115	$ 17,764	$ (13,784)	$ 20,089	$ 36,184	(2)

On January 1, 2020, we adopted ASU 2016-13, *Financial Instruments-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* on a modified retrospective basis. Allowance for credit losses includes allowances for accounts receivable, loans receivable and other receivables for the year ended December 31, 2020

(1) Includes the ASC 326 adoption impact of $19.6 million in the year ended December 31, 2020.

(2) Of this amount, $1.2 million in 2020 is classified as long-term.