2019

QIAGEN N.V. IFRS ANNUAL REPORT

Sample to Insight

QIAGEN

QIAGEN N.V.

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Annual Report 2019

Report of the Supervisory Board

QIAGENers – the name we use proudly for our more than 5,100 employees worldwide – are the reason for our success. The members of the Supervisory Board wish to thank all QIAGENers for their contributions during 2019 toward achieving our vision of making improvements in life possible. We would also like to thank our shareholders, customers, business partners and other stakeholders for honoring QIAGEN with their continued collaboration and trust.

Agreement for Thermo Fisher Scientific Inc. to acquire QIAGEN

As an important subsequent event to 2019, QIAGEN and Thermo Fisher Scientific Inc. (NYSE: TMO) announced on March 3, 2020, that their boards of directors, as well as the Managing Board of QIAGEN N.V., have unanimously approved Thermo Fisher's proposal to acquire QIAGEN for €39 per share in cash. The offer price represents a premium of approximately 23% to the closing price of QIAGEN's common stock on the Frankfurt Prime Standard on March 2, 2020, the last trading day prior to the announcement of the transaction. Thermo Fisher will commence a tender offer to acquire all of the ordinary shares of QIAGEN. At the time of the announcement, the transaction valued QIAGEN at approximately $11.5 billion, which includes the assumption of approximately $1.4 billion of net debt. The transaction, which is expected to be completed in the first half of 2021, is subject to the satisfaction of customary closing conditions, including the receipt of applicable regulatory approvals, the adoption of certain resolutions relating to the transaction at an Extraordinary General Meeting of QIAGEN's shareholders, and completion of the tender offer. Thermo Fisher has obtained committed bridge financing. Permanent funding is expected to come from cash on hand and the issuance of new debt. The transaction is not subject to any financing condition.

The members of the Supervisory Board unanimously support this agreement, which will enable QIAGEN to enter a promising new era and will give our employees the opportunity to have an even greater impact. The combination is designed to deliver significant cash value to our shareholders, while enabling QIAGEN to accelerate the expansion of its solutions to provide customers worldwide with breakthroughs that advance our knowledge about the science of life and improve health outcomes.

2019: A challenging year in terms of performance

A key role of the Supervisory Board is to monitor the performance and progress of QIAGEN's business on a regular basis, and this was done during the course of 2019 with detailed written and oral reports from the Managing Directors, members of the Executive Committee and other senior leaders.

QIAGEN had a challenging year in 2019. During the second half, QIAGEN had to update its outlook to the capital markets to take into account a decision to stop a joint venture for the GeneReader NGS System in China and expectations for a continued reduction in revenues from companion diagnostic co-development projects as a result of the decision to gain access to the clinical next-generation sequencers of Illumina, Inc. through a new partnership. In the end, QIAGEN achieved the revised targets for net sales growth and improvements in adjusted earnings per share (EPS), which excludes purchased intangibles amortization, long-lived asset impairments and other items such as business integration, acquisition-related costs, litigation costs and restructuring. Our teams completed projects during the year to reallocate resources to support business expansion while also improving profitability.

CEO leadership transition

QIAGEN announced in October 2019 that Peer M. Schatz notified the Supervisory Board that, after 27 years with the Company, had decided to step down as Chief Executive Officer and Chairman of the Managing Board, and would remain with QIAGEN as a Special Advisor to the Supervisory Board. Thierry Bernard, Senior Vice President, Head of Molecular Diagnostics Business Area, was appointed in October 2019 as Interim CEO and worked in tandem with Roland Sackers, Chief Financial Officer and Member of the Managing Board. Mr. Bernard was named CEO in March 2020, and will be proposed for election as a Managing Director, along with Mr. Sackers, at the next Annual General Meeting scheduled for June 2020.

The members of the Supervisory Board would like to thank Mr. Schatz for his exceptional contributions and dedication to QIAGEN. We all owe him tremendous gratitude for his outstanding leadership and track record that contributed to the creation of a true success story in the life sciences industry and enabled such great advances in science and healthcare. We respect his decision to pursue other interests.

Composition of the Supervisory Board

The composition of the Supervisory Board did not change during 2019.

All current members of the Supervisory Board will stand for re-election at the upcoming Annual General Meeting in June 2020. Additionally, all members, with the exception of Metin Colpan and Elizabeth E. Tallett, have served in the Supervisory Board for less than eight years as recommended by the Dutch Corporate Governance Code. QIAGEN values the profound industry experience of Dr. Colpan and Ms. Tallett for their in-depth knowledge, and supports their reappointments.

The target profile of the Supervisory Board can be found on QIAGEN's website, as well as in the Governance section of this Annual Report. The current composition fully complies with this profile. Further information on the individual members of the

Supervisory Board, such as gender, age, nationality and other positions relevant to the performance of their duties as Supervisor Board member, date of initial appointment and current term of office is set forth in the Corporate Governance Report and on our website at www.qiagen.com.

QIAGEN has a commitment to developing a diverse leadership team, with a broad range of backgrounds, experience, skills and capabilities. In nominating candidates, QIAGEN is committed to increasing diversity while pursuing individuals to join QIAGEN with a unique blend of scientific and commercial expertise and experience that will contribute to our future business success. Management development programs support the career advancement of leaders regardless of gender and other factors. As a result, a number of women are in key leadership roles around the world, and QIAGEN currently has 29% of management roles held by women. In line with this commitment, the Supervisory Board continues to take diversity into account when proposing members for election or re-election without compromising QIAGEN's commitment to hiring the best individuals for positions without any discrimination. The current governance structure has led to the size of the Managing Board of two members, so achieving a diversity goal as measured solely by a percentage of overall membership is difficult to achieve. At the same time, QIAGEN has significantly increased the diversity of its senior leadership team and will continue to do so in the future.

Principal topics discussed by the Supervisory Board

As empowered by the Dutch Corporate Governance Code, the Supervisory Board devoted considerable time during 2019 to discussing and assessing QIAGEN's corporate strategy, main risks and opportunities, and an annual assessment by the Managing Board of the design and effectiveness of internal risk management and control systems as well as any significant changes in them. In addition, the Supervisory Board discussed and reviewed the functioning of its committees and individual members, its current composition, competence, succession schedule and desired profile in various meetings and through written surveys.

The Supervisory Board met seven times during 2019, and conducted 15 telephone conference calls. These meetings also included regular attendance of the members of the Managing Board for certain agenda items. The Supervisory Board also met to review and discuss agenda items in the absence of the Managing Board members, such as performance and strategy as well as to discuss compensation matters. Information about the Supervisory Board members, including positions held on other boards, is included in the Corporate Governance Report. All members of the Supervisory Board had adequate time available to give sufficient attention to the concerns of the Company. The Supervisory Board further discussed the performance of the Managing Board and concluded that it and the Managing Board were functioning properly, especially in view of the regulations set forth in the Dutch Corporate Governance Code.

Committees of the Supervisory Board

The Supervisory Board has established an Audit Committee (Chair Lawrence Rosen), a Compensation Committee (Chair Elizabeth E. Tallett), a Selection and Appointment Committee (Chair Håkan Björklund), and a Science and Technology Committee (Chair Metin Colpan) from among its members. The Supervisory Board reserves the right to establish other committees as deemed beneficial, and has approved charters under which each of these committees operates. Charters are available on our website at www.QIAGEN.com.

The deliberations and findings of the committees were reported by the committee chairs to the Supervisory Board in its meetings on a regular basis. All committee members attended all committee meetings in 2019 physically or by phone. Further detailed information on the composition of the Supervisory Board and its committees, the number of committee meetings held in 2019 and the main topics of discussion, the remuneration of its members, as well as other information on the Supervisory Board, can be found in the Corporate Governance Report, which is an integral part of this Annual Report.

Through its Compensation Committee, the Supervisory Board executed and monitored compliance with the Remuneration Policy approved at the Annual General Meeting held on June 25, 2014. Compensation of Managing Board members consists of a fixed salary and variable components. Variable compensation includes one-time and annual payments linked to business performance (bonuses) as well as long-term incentives, such as share-based compensation, and pension plans. The Remuneration Policy and the various aspects of compensation, including the detailed remuneration of individual Managing Board members, are described in the Remuneration Report, which is available on QIAGEN's website. Information on QIAGEN's activities was communicated by the Managing Board to the Supervisory Board through regular meetings and business reports.

Corporate governance

All members of the Supervisory Board fulfill the independence criteria as defined by the Dutch Corporate Governance Code. The Supervisory Board follows the principle of increasing shareholder value as the members represent the interests of all stakeholders, including shareholders, and has always pursued the highest standards in corporate governance.

QIAGEN is committed to a corporate governance structure that best suits its business and stakeholders, and that complies with relevant rules and regulations. QIAGEN follows the principles described in the Dutch Corporate Governance Code, although

some minor deviations, which are explained in detail in our Corporate Governance Report, may result from the impact of factors such as legal requirements imposed on QIAGEN or industry standards.

QIAGEN's common shares are registered and traded in the U.S. on the New York Stock Exchange (NYSE) as of January 2018 (formerly on the NASDAQ Global Select Market) and in Germany on the Frankfurt Stock Exchange in the Prime Standard segment. Shareholders in Europe and the U.S. hold the majority of common shares. As a result of these listings for its Global Shares, QIAGEN is subject to the rules regarding corporate governance set by the NYSE. QIAGEN believes all of its operations are carried out in accordance with legal frameworks, including Dutch Corporate Law, U.S. laws and regulations, EU regulations and applicable German capital market laws.

Financial statements and audits

In this Annual Report, the financial statements for 2019 are presented as prepared by the Managing Board and audited by KPMG (Independent Registered Public Accounting Firm). We examined the financial statements, the proposal for the use of the distributable profit, the consolidated financial statements and the Management report. We have no objections, thus we concur with the results of the audit, and it has been approved by the Supervisory Board. In closing, the Supervisory Board would like to again thank all QIAGEN employees for the outstanding performance and commitment during an eventful year.

Venlo, the Netherlands, April 2020

The Supervisory Board:

Dr. Håkan Björklund

Chairman of the Supervisory Board

Management Report

Operations and Business Environment

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.

We serve more than 500,000 customers in two broad customer groups: Molecular Diagnostics (human healthcare) and Life Sciences (academia, pharma R&D and industrial applications, primarily forensics). 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.

QIAGEN 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, QIAGEN has 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. QIAGEN's industry-leading Digital Insights solutions allow users to analyze and interpret data with bioinformatics software and knowledge bases to provide relevant, actionable insights. Our automation systems tie these technologies together in seamless and cost-effective molecular testing workflows - from Sample to Insight.

Net sales of $1.53 billion in 2019 consisted of consumable kits and other revenues (89% of sales) and automation systems and instruments (11% of sales). Approximately 48% of net sales in 2019 were in Molecular Diagnostics, and 52% in Life Sciences customer classes in the Academia / Applied Testing and Pharma markets.

QIAGEN has 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 QIAGEN's portfolio of molecular testing products for customers across the continuum of life science research and molecular diagnostics totals more than $10 billion.

We have funded our growth through internally generated funds, debt offerings, and private and public sales of equity securities. QIAGEN's 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.

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 per share in cash. The offer price represents a premium of approximately 23% to the closing price of QIAGEN's common stock on the Frankfurt Prime Standard on March 2, 2020, the last trading day prior to the announcement of the transaction. Thermo Fisher will commence a tender offer to acquire all of the ordinary shares of QIAGEN. The transaction values QIAGEN at approximately $11.5 billion at current exchange rates, which includes the assumption of approximately $1.4 billion of net debt.

The transaction, which is expected to be completed in the first half of 2021, is subject to the satisfaction of customary closing conditions, including the receipt of applicable regulatory approvals, the adoption of certain resolutions relating to the transaction at an Extraordinary General Meeting of QIAGEN's shareholders, and completion of the tender offer.

Recent Developments

QIAGEN has recently achieved a number of milestones by continuing to focus on strategic growth initiatives:

Sustaining the rapid growth of our QuantiFERON-TB franchise:

- QIAGEN's QuantiFERON-TB tests play an increasingly central role in the global fight against tuberculosis (TB), a contagious bacterial infection that strikes more than 10 million new patients and kills about 1.7 million annually. Guidelines from the World Health Organization (WHO) and leading clinical organizations now recommend screening of high-risk individuals for latent TB infection and preventive treatment as a component of TB control programs.
- Sales of the QuantiFERON-TB franchise, including the fourth-generation QuantiFERON-TB Gold Plus (QFT-Plus), grew 8% in 2019 to $240 million.
- In November 2019 QIAGEN and DiaSorin announced the U.S. launch of the LIAISON QuantiFERON-TB Gold Plus test as a streamlined, highly automated option for latent TB screening programs from small-scale to high-throughput. QIAGEN and DiaSorin introduced QFT-Plus on LIAISON analyzers in Europe in late 2018, added the U.S. market following the recent FDA approval, and are planning availability for China in 2020.
- In October 2019 the Stop TB Partnership's Global Drug Facility (GDF) added QFT-Plus to its diagnostic catalog, opening a new channel to reach countries with a high incidence of TB but limited resources. The GDF helps match global demand with funding from donors, governments and non-governmental organizations.
- QIAGEN continues to innovate in latent tuberculosis testing. In partnership with Ellume, QIAGEN is developing QuantiFERON-TB Access, a simplified, low-cost test offering ultrasensitive digital detection in a workflow designed for cost-efficiency and use in areas lacking laboratory infrastructure. The product will further advance global TB control efforts, particularly in low-resource and high-burden regions. Commercialization is expected to begin in 2020.

Driving growth in next-generation sequencing (NGS) with greater focus:

- QIAGEN continues to expand our global presence in the fast-growing market for next-generation sequencing (NGS). In 2019 we shifted our strategy and reoriented our NGS activities to focus on opportunities to build upon our strengths as a leader in "universal" technologies for preparing samples, analyzing genomic variations and interpreting sequencing data.
- NGS-related sales in 2019 achieved QIAGEN's goal of more than $180 million, compared to over $140 million in 2018. Demand for our universal NGS technologies and Digital Insights from bioinformatics applications drove this growth.
- In October 2019 QIAGEN and Illumina, Inc. announced a 15-year partnership to broaden the use of NGS-based in vitro diagnostic kits to deliver insights for clinical decision-making, including companion diagnostics for precision medicine. Illumina and QIAGEN will cooperate to commercialize a menu of clinically validated workflows that combine QIAGEN's proprietary content and digital solutions for use with Illumina's MiSeq Dx, NextSeq 550Dx and future diagnostic systems. In the coming years we expect the partnership with Illumina, whose sequencing instruments are in widespread use worldwide, to expand our global presence in clinical decision-making using NGS technology.
- QIAGEN also announced in October 2019 that we have discontinued development of new NGS instruments. We will focus NGS-related development resources on maximizing the new Illumina partnership for NGS-based diagnostic kits, as well as expanding our offering of universal NGS consumables for use with any sequencer. QIAGEN intends to continue supporting and servicing customers of the GeneReader NGS System, which is available as a complete system for the processing of smaller targeted gene panels, but we do not expect to develop new sequencing platforms at this time.
- We continue to expand QIAGEN's broad portfolio of universal, or platform-agnostic, NGS solutions. Among the new products introduced in 2019 are QIAseq Multimodal Panels, the industry's only consolidated workflow to simultaneously detect DNA variants, RNA fusions and gene expression levels from a single sample; QIAseq FastSelect kits to remove unwanted RNA from samples, addressing critical bottlenecks in research into RNA and gene expression; and the QIAseq Expanded Carrier Screening Panel, enabling identification of genetic drivers of more than 200 rare and inherited diseases.

Reaping the value of genomic insights for Precision Medicine:

- QIAGEN continues to lead our industry in precision medicine, collaborating with more than 25 pharmaceutical and biotech companies to develop companion and complementary diagnostics to guide clinical decision-making. These partnerships feed a deep pipeline of Sample to Insight tests supporting clinical trials and, with regulatory approvals, patient care.
- In 2019 three of our co-development partnerships bore fruit in newly approved companion diagnostics in oncology. We introduced the therascreen PIK3CA RGQ PCR Kit in the U.S. as a companion diagnostic to aid in identifying patients for a new breast cancer therapy developed by Novartis (launched in Europe in early 2020); the therascreen FGFR RGQ RT-PCR Kit to help identify U.S. urothelial cancer patients for Janssen Biotech's newly

approved FGFR kinase inhibitor; and the therascreen EGFR RGQ PCR Kit in Japan - our first companion diagnostic approval there - to help guide the use of a new Pfizer therapy in non-small cell lung cancer (NSCLC). All three run on the Rotor-Gene Q, a module in our QIAsymphony system.

- A partnership with Inovio Pharmaceuticals, launched in May 2019, will co-develop a liquid-biopsy companion diagnostic for Inovio's DNA-based immunotherapy compound, which has potential to be the first treatment for human papillomavirus (HPV) infection of the cervix and first non-surgical treatment for precancerous lesions associated with the virus.
- A new collaboration with Amgen announced in early 2020 will develop tissue-based companion diagnostics to identify non-small cell lung cancer patients who would benefit from Amgen's investigational cancer treatment AMG 510. The test will identify patients with cancers that have the KRAS G12C genetic mutation, a common cause of cancer.
- We expanded our Day-One Lab Readiness network in 2019 through collaborations with CLIA-certified laboratories to ensure immediate patient access to QIAGEN companion diagnostics upon approval of new oncology drugs. Among the clinical labs now participating to accelerate patient access are LabCorp, Quest, NeoGenomics, SRL in Japan, and others.

Expanding QIAGEN automation solutions to serve growing market needs:

- QIAGEN has strategically expanded our offering of automation solutions to enter growing segments of the life science and molecular diagnostics markets, as well as to meet the diverse, rapidly evolving needs of customers.
- The QIAsymphony system, a cost-effective modular automation solution that integrates PCR molecular testing from sample processing to final insights, surpassed our goal of 2,500 cumulative placements by year-end 2019. Related consumables grew globally, including an extensive menu of in vitro diagnostic tests in infectious disease, oncology and transplant care. The sample processing module, QIAsymphony SP, is a market-leading "front end" solution for reliable automated handling of samples, including liquid biopsies, for PCR and next-generation sequencing.
- The QIAstat-Dx system is approaching 1,000 cumulative placements, providing fast, cost-effective and easy-to-use syndromic testing with novel Sample to Insight solutions. In May 2019, we launched the platform in the United States with an FDA-cleared multiplex panel for differential diagnosis of respiratory infections. QIAstat-Dx was introduced in Europe in 2018 with CE-IVD marked panels for respiratory and gastrointestinal infections. The system produced $15 million of sales in 2019. In early 2020, QIAGEN created a version of the QIAstat-Dx respiratory panel for potential use in testing of patients for COVID-19 in China and other markets using the QIAstat-Dx platform. Additional diagnostic panels are planned to launch in 2020 to enhance the value to clinics and physician offices.
- The NeuMoDx 96 and 288 Molecular Systems are providing fully integrated, mid- to high-throughput PCR analysis systems for clinical laboratories, and now have eight CE-IVD cleared diagnostic kits covering a range of infectious diseases. QIAGEN has the right to commercialize these platforms in Europe and other markets outside the U.S.
- Our development of disruptive new systems for digital PCR is on track to begin commercialization in 2020, combining proprietary QIAGEN technologies with assets acquired from Formulatrix in early 2019. Our digital PCR initiative aims to provide fully-integrated solutions that simplify workflows for laboratories, offer higher throughput and multiplexing, and provide customers with favorable costs for instruments and consumables.

Digital Insights solutions transforming raw data into valuable insights:

- As genomic data increasingly influences decisions in science and healthcare, QIAGEN's Digital Insights solutions are driving growth with content-enabled bioinformatics that transform raw NGS data into actionable insights for customers.
- Researchers worldwide use our software and industry-leading knowledge bases to accelerate innovation, guide experiments and translate genomic results into actions that enhance clinical care. Starting in 2014, QIAGEN has built a comprehensive, easy-to-use toolbox through acquisitions of Ingenuity, CLC bio, BIOBASE and OmicSoft. Digital Insights solutions are marketed as standalone products and integrated into QIAGEN Sample to Insight workflows to meet customer needs.
- In June 2019, our industry-leading QIAGEN Clinical Insight (QCI), a clinical decision support platform for interpretation and reporting of next-generation sequencing data, achieved a milestone of more than 1 million patient test cases analyzed and interpreted. We continually update and expand the content available through QCI. After acquiring N-of-One, Inc. in January 2019, we integrated N-of-One's services and somatic cancer database, including medical interpretation and real-world evidence from more than 125,000 anonymized patient samples, into QIAGEN Clinical Insight.

Pioneering differentiated sample technologies and liquid biopsy solutions:

- As a leader in sample technologies enabling laboratories to obtain highest-quality DNA and RNA for molecular testing, QIAGEN continues to innovate with front-end solutions in growing fields. QIAGEN technologies process an estimated 50,000 biological samples a day. In 2019 we rolled out several new products solving tough challenges for customers, such as new tools to accelerate RNA sequencing for research and liquid biopsies for efficient, less-invasive diagnosis.
- Our QIAcube Connect system, launched in January 2019 to amplify the benefits of automated sample processing for customers, reached more than 660 placements by year-end, with strong Life Sciences demand. Building on over 8,000 placements of our first-generation QIAcube instrument, QIAcube Connect delivers a new level of digitization and ease of use with thousands of protocols, assuring full standardization and freeing customers from repetitive manual processing.
- QIAGEN offers an innovative portfolio of liquid biopsy technologies for research and clinical applications. Liquid biopsies extract and purify DNA and RNA from blood or other body fluids, as an alternative to costly and sometimes impractical tissue biopsies. In 2019, our therascreen PIK3CA RGQ PCR Kit became the first FDA-approved liquid biopsy test using blood plasma to guide treatment decisions in breast cancer.
- In October 2019, we launched innovative new QIAseq FastSelect kits for customers in Life Sciences to remove unwanted RNA from biological samples for faster, simpler library preparation. The solutions address critical bottlenecks in RNA sequencing, enabling scientists to achieve more on-target NGS reads and more efficient use of resources.

Executing initiatives to prioritize resource allocation and create value:

- QIAGEN implemented several organizational changes and portfolio initiatives in 2019 with the aim of driving future growth, efficiency and profitability. These actions prioritized resource allocation to streamline operations, strengthen the focus on execution and improve operating margins.
- In October 2019, QIAGEN stopped internal development of new instruments for next-generation sequencing, restructuring to allocate resources from work on new proprietary NGS systems to QIAGEN's partnership with Illumina to commercialize in vitro diagnostic kits running on Illumina’s clinical NGS platforms, as well as to universal NGS portfolio.
- Streamlining initiatives in 2019 aimed to create a more focused, agile and efficient global operation. Changes included shifting worldwide production into a regional structure, integrating global sales resources into the three Business Areas (Life Sciences, Molecular Diagnostics and QIAGEN Digital Insights), and moving additional activities to QIAGEN Business Services centers in Poland and the Philippines.
- Digitization of a wide range of customer interactions continues to progress, with approximately 43% of 2019 sales coming via the QIAGEN website and other online channels.

Our Products

QIAGEN's leadership in Sample to Insight solutions for molecular testing leverages our product portfolio across a wide range of applications and customer classes. We provide more than 500 core consumable products (sample and assay kits), instruments and automation systems, and digital insight solutions (or bioinformatics) for analysis and interpretation.

These diverse revenue streams comprise two main categories: **Consumables and related revenues**, approximately 89% of net sales in 2019, including sample and assay kits, digital insights, royalties, co-development milestone payments and services; and **Automation platforms and instruments**, approximately 11% of net sales in 2019, including related services and contracts.

QIAGEN automation systems streamline molecular testing using consumables in efficient workflows and carrying customers through the process from Sample to Insight. Some QIAGEN consumables are designed to run on QIAGEN instruments, while others are universal kits designed for use with any molecular testing platform.

Major types of QIAGEN solutions and related brands

Sample Technologies

Our broad portfolio of sample technologies isolate and process DNA, RNA and proteins from blood, tissue and other biological materials to prepare for a wide variety of molecular testing needs in research and clinical applications.

Sample Technologies	Selected QIAGEN brands		
Primary sample technology consumables • Nucleic stabilization and purification kits designed for primary sample materials (DNA, RNA, proteins), manual and automated processing for genotyping, gene expression, viral and bacterial analysis • Mainly based on silica membranes and buffers	• QIAamp • PAXgene • Gentra Puregene	• DNeasy • AdnaTest • Oligotex • BioSprint	• RNeasy • Tiangen • AllPrep
Secondary sample technology consumables • Kits and components for purification of nucleic acids and proteins from secondary sample materials (e.g. gel, plasmid DNA, proteins) • Molecular biology reagents	• QIAprep • Qproteome • QIAGEN Plasmid Plus • HiSpeed	• QIAquick • BioMag • QIAfilter • EndoFree	• DyeEx • Ni-NTA • R.E.A.L.
Sample technology instruments • Instruments for nucleic acid purification and accessories	• QIAsymphony SP • QIAscout	• QIAcube Connect • Centrifuges	• QIAcube HT • TissueLyser

Assay Technologies

Targeted or multiplex assay technologies deploy a variety of methods to amplify biomolecules and make them visible and ready for molecular analysis using different techniques.

Assay Technologies	Selected QIAGEN brands		
Assay content consumables • Kits, assays, reagents and controls for identification and analysis of sequence-specific targets (such as DNA, methylated DNA, bacterial DNA, RNA, miRNA) with different technologies (such as PCR, Pyrosequencing, hybridization) in assay and array format • Oligonucleotide synthesis, siRNAs, bisulfite conversion	• EpiTect • GapmeR • miScript	• ADNATest • qBiomarker • AllStars	• miCURY • RT2 • FlexiTube/ FlexiPlate
Enzymatics consumables • Custom-developed and configured enzymes and products which are sold to OEM customers	• EnzScript • ZipScript	• Phoenix Hot Start	• VeraSeq
Assay foundation consumables • Different generations of PCR, qPCR, 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 • Similar product portfolio developed and sold through QIAGEN second brands (Quanta, Tiangen) • QIAxpert consumables, cloning kits and transfection reagents	• QuantiTect • OneStep RT-PCR • Type-it • OmniScript • PolyFect	• QuantiFast • Rotor-Gene • QIAGEN Multiplex • SuperScript • SuperFect	• QuantiNova • HotStarTaq • TopTaq • HiPerFect
Assay instruments • Modular PCR system with Sample to Insight laboratory automation • One-step molecular analysis of hard-to-diagnose syndromes • Fully integrated medium- to high-throughput PCR test analysis • Specialized instruments for assay setup and analysis	• QIAsymphony RGQ • QIAstat-Dx • PyroMark • QIAgility	• QIAsymphony AS • NeuMoDx 96 • QIAxpert	• Rotor-Gene-Q • NeuMoDx 288 • QIAxcel
Custom laboratory and genomic services • Custom services such as DNA sequencing, qPCR service, whole genome amplification, and non-cGMP DNA production	• Provided on an individualized contract basis		

Next-Generation Sequencing (NGS)

High-throughput or next-generation sequencing (NGS) enables analysis of multiple sequences in parallel, using massive analytical and computing power to generate data for a profile of a whole genome or portion of a genome.

Next-Generation Sequencing (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	• GeneRead
Digital Insights solutions • Bioinformatics solutions to deliver actionable insights from NGS data, sold as freestanding software or cloud-based solutions, also integrated into many QIAGEN consumables and instruments	• QIAGEN Clinical Insight • N-of-One • Ingenuity Variant Analysis	• CLC Genomics Workbench • QIAGEN Knowledge Base • HGMD	• OmicSoft • Ingenuity Pathway Analysis

Forensics and Human Identification

Genetic analysis used for forensics and human identification can positively identify or rule out identification of individuals or biological substances for purposes such as law enforcement investigation, paternity testing or food safety screening.

Forensics and Human Identification	Selected QIAGEN brands	
Human ID / Forensics sample collection consumables • Sample cards and collection swabs	• FTA	• Other consumables
Human ID / Forensics consumables • STR assays for Human ID, additional assays for food contamination	• Investigator (human ID / forensics)	• mericon (food safety)

Customers

With a growing portfolio of innovative products for molecular testing, QIAGEN has built customer relationships across the entire value chain of Life Sciences and Molecular Diagnostics. Discoveries often surface in universities and research institutes, then are licensed for development by pharmaceutical and biotech companies, and finally move into widespread commercial use in healthcare and other areas of life. We organize our business to serve the needs of major customer classes:

- **Molecular Diagnostics** - healthcare providers engaged in patient care including hospitals, public health organizations, reference laboratories and physician practices
- **Life Sciences** - researchers in universities, research institutes and industry customers using molecular testing to achieve new insights into disease or other biological processes, as well as applying molecular testing in non-healthcare fields
    - *Academia / Applied Testing* - exploring the secrets of life such as disease mechanisms and pathways, translating findings into drug targets or other products, or serving purposes such as forensics and human identification
    - *Pharma* - pharmaceutical and biotechnology companies engaging in the R&D process from drug discovery to translational medicine and then clinical development

Molecular Diagnostics

QIAGEN offers one of the broadest portfolios of molecular technologies for healthcare, and Molecular Diagnostics customers accounted for $737 million of our sales in 2019. 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 must process tests reliably and efficiently, often handling hundreds of samples concurrently. The range of assays for diseases and biomarkers, convenience and ease of laboratory workflow, and standardization of lab procedures also influence success.

The molecular diagnostics market generates total sales estimated by industry experts at approximately $7 billion in 2019, including about $5 billion potentially addressable with QIAGEN's product portfolio. 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. Given the advantages of precise genetic information over traditional tests, QIAGEN expects the healthcare market to continue to provide significant growth opportunities.

In QIAGEN’s Molecular Diagnostics business we focus on three priorities for fighting disease:

- **Oncology** - accurately diagnosing cancer, enabling prevention or early detection, as well as guiding selection of therapies with individualized molecular insights for precision medicine.

  QIAGEN's oncology test portfolio includes a broad range of technologies and biomarkers for Precision Medicine, including regulator-approved companion diagnostics for oncogenes such as KRAS, EGFR BRCA1/2, JAK2, PIK3CA and others, as well as comprehensive gene panels for research applications in next-generation sequencing. We also provide industry-leading tests to screen for human papillomavirus (HPV) and protect women from cervical cancer.

  We have a deep pipeline of oncology tests for PCR and NGS analysis under development. In addition to our portfolio of molecular technologies and automation systems, QIAGEN offers Pharma partners a full infrastructure for co-development programs, intellectual property on platforms and content, regulatory experience, global marketing reach, and independence as a company focusing exclusively on these types of technologies.

- **Immune monitoring** - using advanced tests to detect immune-system markers as a preventive strategy, such as screening patients for latent tuberculosis infection to guard against active TB disease, or to monitor immune function, for example in transplant patients. Our sensitive QuantiFERON technology accurately detects infection and measures immune response.

  Our lead products in this field, QuantiFERON-TB Gold Plus and QuantiFERON-TB Gold, are used in tuberculosis control efforts worldwide to detect latent TB infection (LTBI) by screening vulnerable populations, including close contacts of patients with active TB disease, immunocompromised persons or patients on immunosuppressive drugs. Individuals with LTBI can then be treated, preventing the infection from becoming active and contagious. As modern blood tests analyzed in a laboratory, the QuantiFERON-TB assays are faster, less labor-intensive and more accurate than the century-old tuberculin skin test. The potential global market for latent TB infection testing is estimated at up to $1 billion.

  In transplantation, our QuantiFERON Monitor provides monitoring of immune function in solid organ transplant patients and QuantiFERON-CMV Kit tests immunity for infection with cytomegalovirus (CMV) in at-risk patients.

- **Infectious diseases** - detecting and differentiating viral and bacterial infections - such as HIV, hepatitis, influenza, sexually transmitted diseases and healthcare-associated infections, as well as respiratory and gastrointestinal syndromes - can be useful in guiding treatment, such as selection of appropriate antibiotic or antiviral therapies.

  QIAGEN offers an extensive range of kits for diagnosing infectious diseases, including a broad menu of reliable tests on the QIAsymphony and NeuMoDx automation systems, as well as QIAstat-Dx panels for respiratory and gastrointestinal syndromes. We are expanding this portfolio by seeking regulatory approvals of new assays across these platforms.

  QIAGEN remains a global leader in screening technologies for HPV, a viral infection that is the primary cause of cervical cancer, which kills about 270,000 women a year. Our gold standard digene HC2 HPV Test and our careHPV Test for use in low-resource regions lead the market in HPV screening around the world. In the United States, vigorous price competition has reduced QIAGEN’s HPV business to about 1% of total sales.

Life Sciences

QIAGEN partners with customers across diverse disciplines in academia and industry, providing sample technologies, assay technologies, Digital Insights and services to universities and institutes, Pharma and biotech companies, government and law enforcement agencies. Life Sciences customers accounted for $789 million of our sales in 2019.

Academia / Applied Testing

QIAGEN provides 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. QIAGEN often partners with leading institutions in research projects and develops customized solutions such as NGS panels for digital sequencing of multiple gene targets. As academic institutions increasingly embrace translational research, bridging from discoveries to practical applications in medicine, our relationships in Academia also support our presence in the Pharma and Molecular Diagnostics markets.

Applied Testing customers make up the growing market for molecular testing beyond research and human healthcare. QIAGEN is 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 food safety and veterinary diagnostics. QIAGEN provides 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.

Pharma

QIAGEN has 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 most likely to respond to particular therapies. We estimate that about half of QIAGEN sales to these companies support research, while the other half supports clinical development, including stratification of patient populations based on genetic information. QIAGEN Digital Insights solutions also are widely used to guide pharmaceutical research.

In Precision Medicine, we have built a position as the industry's preferred partner to co-develop companion diagnostics paired with targeted drugs. QIAGEN's more than 25 master collaboration agreements with Pharma customers, some with multiple co-development projects, 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.

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.

(in thousands)	2019	2018	2017
Net Sales			
Consumables and related revenues	**$ 1,354,147**	$ 1,315,459	$ 1,242,715
Instrumentation	**172,277**	186,389	174,821
Total	**$ 1,526,424**	$ 1,501,848	$ 1,417,536

Geographical Information

QIAGEN currently markets 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):

(in thousands)	2019	2018	2017
Net Sales			
Americas:			
United States	**$ 663,869**	$ 632,660	$ 579,906
Other Americas	**58,121**	60,359	73,478
Total Americas	**721,990**	693,019	653,384
Europe, Middle East and Africa	**487,476**	490,301	462,980
Asia Pacific and Rest of World	**316,958**	318,528	301,172
Total	**$ 1,526,424**	$ 1,501,848	$ 1,417,536

QIAGEN has built an increasing presence in key emerging markets as a growth strategy. The top seven emerging markets - Brazil, Russia, India, China, South Korea, Mexico and Turkey - contributed approximately 16% of net sales in 2019, 2018 and 2017.

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 to 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. About 950 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 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 QIAGEN in fast-growing fields of molecular testing, as well as generating 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 2019, we launched novel companion diagnostics on the QIAsymphony platform for breast, lung and urothelial cancers. We also added the FDA approved respiratory panel for infectious diseases to the menus for QIAstat-Dx and the NeuMoDx 96 and 288 platforms.

QIAGEN collaborates with many institutions and companies to create innovative molecular solutions. In May 2019, partnering with U.K.-based organizations, we launched APIS Assay Technologies Ltd., a new company aiming to accelerate biomarker commercialization by bridging the translational gap between genomic discoveries and the development of new diagnostics.

Our 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 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.

QIAGEN has 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.

Our GeneGlobe Design & Analysis Hub (www.geneglobe.com), upgraded in September 2019, 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 Digital Insights solutions with ordering of assays to accelerate research.

QIAGEN uses 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.

Seasonality

Our business does not experience significant, predictable seasonality. Historically, a significant portion of our sales have 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 their activities are impacted by public health concerns such as the timing and severity of flu season.

Intellectual Property, Proprietary Rights and Licenses

We have made and expect to continue to make investments in intellectual property. In 2019, our purchases of intangible assets totaled $214.3 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, 2019, we owned 352 issued patents in the United States, 275 issued patents in Germany and 1,700 issued patents in other major industrialized countries. We had 558 pending patent applications. Our policy is to file patent applications in Western Europe, the United States and Japan. U.S. patents have a term of 17 years from the date of issue (for patents issued from applications submitted prior to June 8, 1995), or 20 years from the date of filing (in the case of patents issued from applications submitted on or after June 8, 1995). Patents in most other 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 "Principle of Risks and Uncertainties" included below for details regarding risks related to our reliance on patents and proprietary rights.

Competition

In the Academic and Pharma markets, we believe our primary competition in sample technology products involves traditional separation and purification methods, such as phenol extraction, cesium chloride density gradient centrifugation, and precipitation. These methods utilize widely available reagents and other chemicals supplied by companies in these markets. We compete with these methods 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.

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 believe our proprietary technologies and products offer significant advantages over competitors' products with regard to purity, speed, reliability 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 do not believe our competitors typically have the same comprehensive approach to sample to insight solutions as we do or 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.

Suppliers

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 assess 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.

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, however, this Directive will be replaced by the In Vitro Diagnostic Device Regulation (IVDR) in May 2022. The IVD Directive requires that medical devices meet the essential requirements set out in an annex of the directive. These requirements include 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 relevant 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.

Under the IVDR, which was enacted by the European Commission (EC) on May 25, 2017, in vitro diagnostics will be subject to additional legal regulatory requirements after the IVDR comes into full effect on May 26, 2022. Once implemented, the entire EU IVD industry will have to comply with these new requirements, which will bring the EU regulatory landscape on par with other highly regulated markets such as the US. Many Guidance Documents and other regulatory mechanisms will need to be established during this transition period and it is anticipated that it will be late in 2020 before the infrastructure is established to begin the new approvals process.

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. Failure to comply with applicable U.S. requirements may subject a company to a variety of administrative or judicial

sanctions, such as FDA refusal to approve pending PMAs, warning letters, product recalls, product seizures, total or partial suspension of production or distribution, injunctions, fines, civil penalties and criminal prosecution.

In Vitro Diagnostics

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.

The FDA generally issues a decision letter within 90 days of receipt of the 510(k) if it has no additional questions or sends a first action letter requesting additional information within 75 days. Most 510(k)s do not require clinical data for clearance, but a minority will. Requests for additional data, including clinical data, will increase the time necessary to review the notice. 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 issued a proposed rule which if finalized is intended to provide structure, clarity and transparency on the de novo classification process. We cannot predict what if any changes will occur or how they will affect our current or future products.

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.

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, or IVD. IVDs are regulated by the FDA as medical devices. The 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 expects that the therapeutic sponsor will address the need for an approved or cleared IVD companion diagnostic device in its therapeutic product development plan and that, in most cases, the therapeutic product and its corresponding IVD companion diagnostic will be developed contemporaneously.

It also issued a draft guidance on July 15, 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 and on December 7, 2018, it published another draft guidance, "Developing and Labeling In Vitro Companion Diagnostic Devices for a Specific Group or Class of Oncology Therapeutic Products" which, if finalized, is intended to facilitate class labeling on diagnostic tests for oncology therapeutic products, where scientifically appropriate.

The FDA also 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 developed for use with our drug candidates 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.

PMAs must be supported by valid scientific evidence, which typically requires extensive data, including technical, preclinical, clinical and manufacturing data, to demonstrate to the FDA's satisfaction the safety and effectiveness of the device. For diagnostic tests, a PMA typically includes data regarding analytical and clinical validation studies. As part of its review of the PMA, the FDA will conduct a pre-approval inspection of the manufacturing facility or facilities to ensure compliance with the Quality System Regulation, or QSR, which requires manufacturers to follow design, testing, control, documentation and other quality assurance procedures. FDA review of an initial PMA may require several years to complete.

If the FDA evaluations of both the PMA and the manufacturing facilities are favorable, the FDA will either issue an approval order or an approvable letter, which usually contains a number of conditions that must be met in order to secure the final approval of the PMA. If the FDA's evaluation of the PMA or manufacturing facilities is not favorable, the FDA will send the applicant a not approvable letter or an order denying approval. A not approvable letter will outline the deficiencies in the application and, where practical, will identify what is necessary to make the PMA approvable. The FDA may also determine that additional clinical trials are necessary, in which case the PMA approval may be delayed for several months or years while the trials are conducted and then the data submitted in an amendment to the PMA. Once granted, PMA approval may be withdrawn by the FDA if compliance with post approval requirements, conditions of approval or other regulatory standards is not maintained or problems are identified following initial marketing.

After approval, the use of an IVD companion diagnostic device with a therapeutic product will be stipulated in the instructions for use in the labeling of both the diagnostic device and the corresponding therapeutic product. In addition, a diagnostic test that

was approved through the PMA process or one that was cleared through the 510(k) process and placed on the market will be subject to many of the same regulatory requirements that apply to approved drugs. The FDA has approved a number of drug/diagnostic device companions in accordance with the Guidance.

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, Scott Gottlieb, M.D., 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

Numerous privacy and data security laws apply to personal information, including health information. These laws vary in their application. For example, the Health Insurance Portability and Accountability Act of 1996, as amended by the Health Information Technology for Economic and Clinical Health Act, and their implementing regulations (collectively, HIPAA), regulate the uses, disclosures and security of identifiable health information (protected health information or PHI) in the hands of certain health care providers, health plans or health care clearing houses (covered entities). HIPAA regulates and limits covered entities' uses and disclosures of PHI and requires the implementation of administrative, physical and technical safeguards to keep PHI secure. HIPAA also applies to organizations that create, receive, maintain or transmit PHI to provide services to or for or on behalf of covered entities (business associates). Business associates and certain of their subcontractors are required to comply with certain privacy and all of the security standards of HIPAA. Business associates and covered entities must also comply with breach notification standards established by HIPAA. The HIPAA breach notification standards require covered entities to notify affected individuals, the government, and in some cases, local and national media in the event of a breach of PHI that has not been secured in accordance with HIPAA standards, such as by encryption. The breach notification standards require business associates to notify covered entity customers of their own breaches of unsecured PHI so that the relevant covered entity may make required notifications. In the ordinary course, HIPAA does not apply to us directly, but if we were to act as a HIPAA covered entity or business associate, we would be subject to these obligations. Most of our institutional and physician customers are covered entities under HIPAA and must obtain proper authorization, de-identify information or take some other step so that we may provide services involving PHI. When PHI is de-identified in accordance with HIPAA or when the disclosure of PHI is authorized by a patient, HIPAA does not impose any compliance obligations on the recipient, but our use and disclosure of the information may be limited by contract or the terms of the authorization.

All 50 states have adopted data breach notification laws relating to the “personal information” of their residents. Personal information typically includes an individual’s name or initials coupled with social security, financial account, debit, credit or state-issued identification number or other information that could lead to identity theft. An increasing number of states are broadly including "health information" as personal information protected under the law. There is significant variability under these laws, but most require notification to affected individuals and to the government in the event of breach. Other laws of some states require that that we comply with data security obligations. These laws may apply to us when we receive or maintain personal information regarding individuals, including our employees.

We are subject to enforcement by state attorneys general who have authority to enforce state data privacy or security laws. Accordingly, we maintain an active privacy and data security program designed to address applicable regulatory compliance requirements.

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.

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 Statue 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.

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 of the major markets are adopting regulations and requirements similar to 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.

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 Note 30 "Consolidated Companies" of the Consolidated Financial Statements.

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 AG. Worldwide, we use SAP software to integrate most of our operating subsidiaries. Capital expenditures for property, plant and equipment and software totaled $60.6 million, $55.8 million and 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. Our most recent expansion to these facilities was in 2018 and included approximately 6,400 square feet of clean room space for Stat-DX integration. 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.
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 digital insights and 19,000 square feet in Minden, Nevada for Service Solutions. We have shared service centers which lease facilities in Wroclaw, Poland (48,600 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.

Operating and Financial Review and Prospects for the Period from January 1, 2019 to December 31, 2019

Results of Operations, Financial Position

Results of Operations

Overview

We are a leading global provider of Sample to Insight solutions to transform biological materials into valuable molecular insights. QIAGEN sample technologies isolate and process DNA, RNA and proteins from any biological sample, such as blood or tissue. Assay technologies make these biomolecules visible and ready for analysis, such as identifying the DNA of a virus or a mutation of a gene. 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 digital insights 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, 2019, we employed approximately 5,100 people in more than 35 locations worldwide.

Recent Acquisitions

We have made a number of strategic acquisitions and implemented other strategic transactions since 2016, 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 January 2019, QIAGEN began developing next-generation systems for digital PCR and acquired the digital PCR assets of Formulatrix, Inc., a developer of laboratory automation solutions. We expect to begin commercializing fully integrated digital PCR solutions in 2020, combining QIAGEN technologies and automation with the Formulatrix assets we acquired. Known as QIAcuity, the system will offer 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. QIGAEN paid Formulatrix $125 million in cash upon closing and agreed to future milestone payments of approximately $136 million in 2020.
- Also in January 2019, QIAGEN 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 QIAGEN's lead as the provider of the industry’s largest genomics knowledge base.
- In September 2018, QIAGEN announced a strategic partnership with NeuMoDx Molecular, Inc. 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. QIAGEN is initially distributing NeuMoDx systems and consumables in Europe and other markets outside the United States. The companies entered a merger agreement whereby QIAGEN will acquire remaining NeuMoDx shares that it does not currently own at a price of approximately $234 million (QIAGEN currently owns 19.9% of NeuMoDx), subject to the achievement of regulatory and operational milestones, by mid-2020.
- In April 2018, QIAGEN acquired STAT-Dx, a privately held company, and launched QIAstat-Dx, a next-generation multiplex PCR system developed by STAT-Dx, in Europe. The novel QIA-stat-Dx system enables fast, cost-effective and flexible syndromic testing from Sample to Insight. The first two CE-IVD marked assays provide differential diagnosis of serious respiratory and gastrointestinal infections. In May 2019, we received FDA clearance and launched QIAstat-Dx in the United States with the respiratory panel. A broad menu of tests is under development in infectious disease, oncology and other areas. QIAGEN acquired STAT-Dx for approximately $149 million in cash and additional future payments of up to about $44 million based on the achievement of regulatory and commercial milestones.

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

We determined that we operate as one business segment in accordance with IFRS 8 *Operating Segments*. Our chief operating decision maker (CODM) makes decisions on business operations and resource allocation based on evaluations of the QIAGEN Group as a whole. Considering the acquisitions made during 2019, we determined that we still operate as one business segment. We provide certain revenue information by customer class to allow better insight into our operations. This information is estimated using certain assumptions to allocate revenue among the customer classes.

Year Ended December 31, 2019, Compared to 2018

In 2019, net sales grew 2% to $1.53 billion compared to $1.50 billion in 2018 reflecting growth in consumables and related revenues which more than offset lower instrument revenues. Consumable and related revenues includes the contributions from our January 2019 acquisition of N-of-One, which provided net sales of approximately $5.0 million in 2019. We experienced increases across consumables and related revenues (+3% / 89% of sales) due to strong sales of the QuantiFERON-TB test as well as gains within Life Sciences customer classes. This more than outweighed decreases across the instruments portfolio (-8% / 11% of sales) including lower sales of platforms for assay technologies and the GeneReader NGS Systems despite higher placements of the QIAcube Connect, QIASymphony and QIAstat-Dx systems. Net sales were negatively impacted by two percentage points from adverse currency movements against the U.S. dollar.

Customer classes: An overview of net sales by product category and customer class:

Net sales by product category and customer class	**Year ended December 31, 2019**		
	Sales (In $ m)	**% change**	**% of sales**
Consumables and related revenues	$1,354	+3%	89%
Instruments	$172	-8%	11%
Molecular Diagnostics[(1)]	$737	+1%	48%
Life Sciences	$789	+2%	52%
Academia / Applied Testing	*$487*	*+2%*	*32%*
Pharma	*$302*	*+4%*	*20%*

(1) Includes companion diagnostic co-development revenues ($42 million, -28%).

Molecular Diagnostics grew 1% and represented 48% of sales in 2019. Molecular Diagnostics sales were adversely affected by three percentage points of adverse currency movements compared to 2018. Sales in 2019 included gains in consumables, in particular for the QuantiFERON-TB test compared to 2018 that was partially offset by significantly lower revenues from companion diagnostic co-development projects and instruments.

During 2019, Life Sciences sales grew 2% and reflected 52% of sales, while currency movements adversely impacted this customer class by three percentage point compared to 2018. Increased demand in consumables and related revenues across this customer class more than offset weaker instrument sales, which were affected by the focus on a new generation of products being prepared for launch and led by the new version of QIAcube Connect. Results for 2019 also absorbed the adverse effect of the April 2018 divestment of the Applied Testing veterinary testing assay portfolio.

Net sales by geographic region	**Full-year 2019**		
	Sales (In $ m)	**% change**	**% of sales**
Americas	$722	+4%	47%
Europe / Middle East / Africa	$487	-1%	32%
Asia-Pacific / Japan	$314	0%	21%

Top 7 emerging markets: Brazil, Russia, India, China, South Korea, Mexico and Turkey (250 million, +2%, 16% of sales)
Rest of world represented less than 1% of net sales.

The Americas led the geographic regions with 4% sales growth in 2019 with continued improvements within Life Sciences and overall gains in the United States, Brazil and Mexico against a decline in Canada. The Asia-Pacific / Japan region in 2019 was

flat due primarily to the weaker results in China and Japan against gains in India. The EMEA region experienced a 1% decline due in part to declines in France and Italy against improving trends in Germany, Turkey and the United Kingdom.

Gross Profit

Gross profit was $997.6 million, or 65% of net sales, in 2019, compared with $992.8 million, or 66% of net sales, in 2018. Generally, our consumables and related products have a higher gross margin than our instrumentation products and service arrangements. Fluctuations in the sales levels of these products and services can result in changes in gross margin between periods. The growth in consumables and related revenue during 2019 contributed favorably to the margin, which was negatively impacted by higher amortization expenses related to developed technology and patent and license rights that were acquired in business combinations or asset acquisitions. The amortization expense on acquisition-related intangibles within cost of sales increased to $71.7 million in 2019 from $56.9 million in 2018. The increase was due to the asset acquisuition from Formulatrix as further discussed in Note 5 "Acquisitions and Divestitures". We expect that our acquisition-related amortization will increase as a result of further acquisitions in the future.

Research and Development

Research and development expenses decreased by 9% to $144.0 million (9% of net sales) in 2019, compared to $157.9 million (11% of net sales) in 2018. The net decrease reflected higher investments in QIAstat-Dx and the planned launch of a digital PCR system against the significant reduction in costs following the decision to discontinue development of NGS-related instrument systems. 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, but to decline as a percentage of sales in 2020 compared to 2019.

Sales and Marketing

Sales and marketing expenses decreased to $421.6 million (28% of net sales) in 2019 from $431.3 million (29% of net sales) in 2018 primarily driven by the decrease in amortization expense on acquisition-related intangibles to $30.0 million from $39.0 million in 2018. Other sales and marketing expenses, including personnel, commissions, advertising, trade shows, publications, freight and logistics expenses, and other promotional expenses, were essentially unchanged in 2019 compared to 2018. Higher costs in 2019 related to an increase in sales personnel, which was partially offset by lower share-based compensation and reduced third-party marketing activities. We anticipate that absolute sales and marketing costs will increase along with new product introductions and growth in sales of our products, but decrease as a percentage of sales.

General and Administrative

General and administrative increased by 25% to $131.0 million (9% of net sales) in 2019 from $104.6 million (7% of net sales) in 2018. The increase in general and administrative expenses in 2019 was primarily due to higher licensing costs in connection with continued investments in information technology systems, including cyber security, across the organization as well as an increase in the number of administrative personnel and higher share-based compensation expenses. Additionally, in 2019 there was an increase in expected credit losses for financial instruments related to IFRS 9.

Restructuring, Acquisition, Integration and Other, net

Restructuring, acquisition, integration and other, net was expense of $199.7 million in 2019 as compared to $35.1 million in 2018. During 2019, $162.9 million of charges are included in the 2019 Restructuring program as further discussed in Note 6 "Restructuring and Impairments". We expect to incur additional restructuring cost in 2020 as disclosed therein. In addition, during 2019, we continued to incur acquisition and integration costs related to the acquisitions discussed in Note 5 "Acquisitions and Divestitures". In addition, a $7.4 million gain from the reduction in the fair value of contingent consideration was recognized during 2019 discussed in Note 25 "Fair Value Measurements". Further, as we further integrate acquired companies and pursue opportunities to gain efficiencies, we expect to continue to incur additional business integration costs in 2020.

Long-lived Asset Impairments

Impairments to intangible assets and property, plant and equipment in 2019 totaled $154.8 million, of which $153.5 million was incurred in connection with the 2019 Restructuring program as further discussed in Note 6 "Restructuring and Impairments". During 2018, impairments to intangible assets included $1.6 million related to the 2017 Restructuring program also discussed in Note 6 and $6.3 million related to strategic shifts in our business.

Financial Income (Expense)

For the year ended December 31, 2019, financial income increased to $22.1 million from $20.9 million in 2018. Financial income includes interest earned on cash, cash equivalents and short term investments, income related to certain interest rate derivatives as discussed in Note 26 "Financial Risk Factors and Use of Derivative Financial Instruments" in the accompanying consolidated financial statements and other components including the interest portion of lease transactions. Interest income in 2019 includes interest on higher cash balances following the issuances of cash convertible notes in November 2018.

Financial expense increased to $75.8 million in 2019, compared to $67.3 million in 2018. Financial expense primarily relates to debt, discussed in Note 16 "Financial Debts" in the accompanying consolidated financial statements and the increase in financial expense reflects the issuance of cash convertible notes in November 2018 which bear interest at a higher rate than the notes that matured in 2019.

QIAGEN N.V.'s presentation 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. For the year ended December 31, 2019, we recorded net losses on foreign currency of $5.7 million compared to $12.3 million in 2018 due to foreign currency rate fluctuations.

Gains from investments accounted for by the equity method in 2019, was $2.1 million compared to $2.6 million during the year December 31, 2018 as discussed further in Note 11 "Equity Accounted Investments" .

Other Financial Expense, net

Other financial expense, net was $10.0 million for the year ended December 31, 2019 and includes losses of $104.1 million related to the change in fair value of the Call Options and $17.4 million related to the fair value change in the Warrants partially offset by gains of $106.7 million related to the embedded cash conversion option and $3.7 million related to the change in fair value of interest rate derivatives, all discussed in Note 26 "Financial Risk Factors and Use of Derivative Financial Instruments". Other financial expense, net was $69.5 million for the year ended 2018 and includes losses of $65.7 million related to the change in the fair value change in the Warrants, $76.5 million related to the embedded cash conversion option and a loss of $2.1 million related to the change in fair value of interest rate derivatives partially offset by gains of $74.7 million related to the change in fair value of the Call Options, all discussed in Note 26 .

Provision for Income Taxes

Our effective tax rates differ from The Netherlands statutory tax rate of 25% due in part to our operating subsidiaries being exposed to tax rates ranging from zero to 35%. In 2019 and 2018, our effective tax rates were 38.1% and 28.6%, respectively. The comparison is impacted by pre-tax book income which was lower in 2019 at a pre-tax book loss of $116.7 million compared to pre-tax book income of $146.9 million in 2018. 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 2019 and 2018, tax expense on foreign operations was favorably impacted by lower income tax rates and partial tax exemptions on foreign income primarily derived from operations in Germany, Singapore, Switzerland, Ireland, Dubai and Luxembourg. These foreign tax benefits are due to a combination of favorable tax laws, regulations, rulings, and exemptions in these jurisdictions. In particular, intercompany foreign royalty income in Germany is statutorily exempt from trade tax. Further, we have intercompany financing arrangements through Luxembourg, Dubai and Ireland in which the intercompany income is partially exempt.

In future periods, our effective tax rate may fluctuate from similar or other factors as discussed in “Changes in tax laws or their application could adversely affect our results of operations or financial flexibility” in Principle Risks and Uncertainties.

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, 2019 and 2018, we had cash and cash equivalents of $622.5 million and $1.2 billion, respectively. We also had restricted cash of $5.7 million and current financial assets of $107.1 million at December 31, 2019. 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, 2019, cash and cash equivalents had decreased by $530.9 million from December 31, 2018, primarily as a result of cash used in financing activities of $661.7 million and cash used in investing activities of $237.0 million partially offset by cash provided by operating activities of $367.0 million. As of December 31, 2019 and 2018, we had working capital of $560.3 million and $1.14 billion, respectively.

Operating Activities. For the years ended December 31, 2019 and 2018, we generated net cash from operating activities of $367.0 million and $363.5 million, respectively. While net loss was $69.8 million in December 31, 2019, non-cash components

in income included $239.4 million of depreciation and amortization and $159.6 million of non-cash impairments primarily recorded in connection with the restructuring discussed in Note 6 "Restructuring and Impairments", $40.8 million of amortization of debt discount and issuance costs and $65.9 million of share-based compensation. Operating cash flows include a net decrease in working capital of $11.2 million excluding changes in fair value of derivative instruments. The current period change in working capital is primarily due to increased inventories and accounts receivable and decreased accrued and other current liabilities. Because we rely heavily on cash generated from operating activities to fund our business, a decrease in demand for our products, longer collection cycles or significant technological advances of competitors would have a negative impact on our liquidity.

Investing Activities. Approximately $237.0 million of cash was used in investing activities during December 31, 2019, compared to $215.3 million during 2018. Investing activities during 2019 consisted principally of $294.0 million for purchases of short-term investments, $214.3 million cash paid for intangible assets, $60.6 million cash paid for purchases of property and equipment and $5.2 million paid for strategic investments in privately held companies, partially offset by $396.1 million from the sale of short-term investments and $22.7 million received in connection with derivative collateral arrangements. Additionally, during 2019 cash paid for acquisitions, net of cash acquired, totaled $68.1 million.

Financing Activities. For the year ended December 31, 2019, cash used in financing activities was $661.7 million compared to cash provided in financing activities of $360.4 million in 2018. Financing activities during 2019 consisted primarily of $506.4 million repayments 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. In addition, repurchases of QIAGEN shares totaled $74.5 million during 2019.

In 2018, cash provided from financing activities totaled $360.4 million primarily due to $494.9 million net cash proceeds from the 2018 cash convertible offering. We used $97.3 million of the proceeds from the from the cash convertible offering to pay the premium for a call option related to the cash convertible notes, 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. Cash provided in 2018 was further offset by the repurchase of QIAGEN shares totaling $104.7 million.

Cash used in other financing activities during the year ended December 31, 2019 and 2018 consisted primarily of $10.5 million and $5.5 million paid for contingent consideration, respectively, together with $0.4 million cash received and $2.0 million cash paid in connection with derivative collateral arrangements, respectively.

Other Factors Affecting Liquidity and Capital Resources

In November 2018, we issued $500.0 million aggregate principal amount of Cash Convertible Senior Notes which is due in 2024 (2024 Notes). The net proceeds of the 2024 Notes were $470.0 million, after payment of the net cost of the Call Spread Overlay and transaction costs paid through December 31, 2019 as described more fully in Note 16 "Financial Debts". Interest on the 2024 Notes is payable semiannually in arrears at a rate of 1.000% per annum. The 2024 Notes will mature on November 13, 2024 unless repurchased or converted in accordance with their terms prior to such date.

In September 2017, we issued $400.0 million aggregate principal amount of Cash Convertible Senior Notes which are due in 2023 (2023 Notes), which are discussed fully in Note 16 "Financial Debts". Interest on the 2023 Notes is payable semiannually in arrears at a rate of 0.500% per annum. The 2023 Notes will mature on September 13, 2023 unless repurchased or converted in accordance with their terms prior to such date.

Additionally in 2017, we completed a German private placement of $329.9, net of issuance costs, consisting of several tranches denominated in either U.S. dollars or Euro at either floating or fixed rates and due at various dates through June 2027 as described in Note 16.

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

In March 2014, we issued $730.0 million aggregate principal amount of Cash Convertible Senior Notes of which $433.4 million was paid in 2019 (2019 Notes) and $296.6 million is due in 2021 (2021 Notes). The 2021 Notes will mature on March 19, 2021, unless repurchased or converted in accordance with their terms prior to such date.

In October 2012, we completed a U.S. private placement through the issuance of new senior unsecured notes at a total amount of $400 million with a weighted average interest rate of 3.66% (settled on October 16, 2012). The notes were issued in three

series: (1) $73 million 7-year term due in 2019 (3.19%); (2) $300 million 10-year term due in 2022 (3.75%); and (3) $27 million 12-year term due in 2024 (3.90%).

As of December 31, 2019, we carry $1.7 billion of long-term debt, of which $285.2 million is current. We also held $58.4 million of leases as of December 31, 2019.

In connection with certain acquisitions, we could be required to make additional contingent cash payments totaling up to $179.4 million based on the achievement of certain revenue and operating results milestones as further discussed in Note 20 "Commitments and Contingencies".

In January 2018, we announced our fifth share repurchase program of up to $200 million of our common shares. 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).

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

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

Quantitative and Qualitative Disclosures About Market Risk

Our market risk relates primarily to interest rate exposures on cash, 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 26 "Financial Risk Factors and Use of Derivative Financial Instruments" to the accompanying consolidated financial statements.

Interest Rate Risk

At December 31, 2019, we had $622.5 million in cash and cash equivalents as well as of $107.1 million of current financial assets. 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, 2019. A hypothetical adverse 10% movement in market interest rates would not have materially impacted our financial statements.

At December 31, 2019, we had $1.7 billion of financial 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, 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.

Our Culture

QIAGEN's culture is based on the "3I" framework that expresses the Company's culture, leadership principles and how employees are expected to act. The 3I principles are (1) Identity - reflecting our culture and the core values of passion, quality, integrity, engagement and innovation; (2) Inspire - reflecting our leadership style that transmits our values and inspires our employees, with particular focus on influence, motivation, stimulation and development; and (3) Impact - reflecting how we manage the Company and how our value-based actions make the difference, with particular focus on entrepreneurial decision-making, accountability and focus.

QIAGEN is committed to conducting business lawfully, ethically, and with high integrity. These fundamental values and principles are the undisputed key to the long-term success of our company. Our Corporate Code of Conduct and Ethics, which is available in 11 languages and which is accompanied by a number of specific corporate compliance policies, translates the legal, regulatory and ethical requirements which apply to our business into clear, precise and understandable guidelines for our employees. These policies, as the QIAGEN Anti-Corruption Policy, are collected in a Global Policy Manual which is physically provided to all employees worldwide. Each employee must acknowledge the acceptance and understanding of the policies included in the Global Policy Manual. Compliance awareness of our employees in all areas of the world is further increased by a global training program.

Employees

As of December 31, 2019, we employed 5,096 individuals, of which 19% worked in research and development, 40% in sales, 23% in production, 6% in marketing and 12% in administration

Region	Research & Development	Sales	Production	Marketing	Administration	Total
Americas	188	540	252	69	83	1,132
Europe, Middle East & Africa	718	798	777	161	366	2,820
Asia Pacific & Rest of World	47	732	135	79	151	1,144
December 31, 2019	**953**	**2,070**	**1,164**	**309**	**600**	**5,096**

At December 31, 2018, we employed 4,952 individuals. Management believes that its relations with regional labor unions and employees are good.

Our success depends, to a significant extent, on key members of our management and our scientific staff. The loss of such employees could have a material adverse effect on QIAGEN. Our ability to recruit and retain qualified skilled personnel to perform future research and development work will also be critical to our success. Due to the intense competition for experienced scientists from numerous Pharmaceutical and biotechnology companies and academic and other research institutions, there can be no assurance that we will be able to attract and retain such personnel on acceptable terms. Our planned activities will also require additional personnel, including management, with expertise in areas such as manufacturing and marketing, and the development of such expertise by existing management personnel. The inability to acquire such personnel or develop such expertise could have a material adverse impact on our operations.

Workforce Diversity

We have a long-standing commitment to developing a diverse leadership team, including the Managing Board and the Supervisory Board, with a broad range of experience, skills and capabilities. In nominating candidates for these boards, we support the trend toward higher participation of women. We are committed to expanding diversity while pursuing individuals for these boards with a unique blend of scientific and commercial expertise and experience that will contribute to the future success of its business. Internally, management development programs support the career advancement of leaders regardless of gender and other factors. As a result, a number of women are in key leadership roles, particularly in commercial and operational positions around the world. In line with this long-standing commitment, the Supervisory Board will take this into account in the future when proposing members for election or re-election to its Board without compromising QIAGEN's commitment to hiring the best individuals for positions without any discrimination. The current size of the Managing Board is two members, so achieving a diversity goal as measured solely by a percentage of overall membership is difficult to achieve. At the same time, QIAGEN has increased the diversity of its senior leadership team and will continue to do so in the future.

Compensation of Managing Board Members and Supervisory Directors

Remuneration policy

The objective of our remuneration policy is to attract and retain the talented, highly qualified international leaders and skilled individuals, who enable QIAGEN to achieve its short and long-term strategic initiatives and operational excellence. Our remuneration policy aligns remuneration with individual performance, corporate performance and fosters sustainable growth and long-term value creation in the context of QIAGEN’s social responsibility and stakeholders’ interest.

The remuneration policy and overall remuneration levels are regularly reviewed by an independent compensation consulting firm and benchmarked, against a selected group of companies and key markets in which QIAGEN operates, to ensure overall competitiveness. QIAGEN participates in various compensation benchmarking surveys that provide information on the level, as well as the structure, of compensation awarded by various companies and industries for a broad range of positions around the world. The companies in the peer group are selected on the basis of market capitalization, competitors for talent, similar complexity and international spread, operating in similar industries.

The performance of the Managing Board members is measured annually against a written set of goals. The remuneration of the Managing Board members is linked to the achievement of QIAGEN’s strategic and financial goals. To ensure that remuneration is linked to performance, a significant proportion of the remuneration package is variable and contingent on performance of the individual and the company. These goals are set at ambitious levels each year to motivate and drive performance, with a focus on achieving both long-term strategic initiatives and short-term objectives based on the annual operative planning. Performance metrics used for these goals include the achievement of financial and non-financial targets.

The remuneration package of the Managing Board members consists of a combination of base salary, short term variable cash award and several elements of long term incentives (together, 'total direct compensation'). In addition, the members of the Managing Board receive a pension arrangement and other benefits that are standard in our industry, such as a company car.

The total target remuneration package of the Managing Board members is appropriately set against a variety of factors which includes external and internal equity, experience, complexity of the position, scope and responsibilities. We aim to provide the members of the Managing Board a total direct compensation at market median level.

The structure of the remuneration package for the Managing Board is designed to balance short-term operational excellence with long-term sustainable value creation while taking into account the interests of its stakeholders. As such a significant part of the total remuneration of the Managing Board members consist of variable remuneration which can differ substantially from year to year depending on our corporate results and individual performance and may include equity-based compensation which may be subject to vesting conditions over a period of up to 10 years.

Reference is made to the additional disclosures in the Corporate Governance Report.

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.

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. 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 competitive 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 and software solutions. 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. Important new product programs underway 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 either for use either with QIAGEN instruments or for "universal" automation systems and instruments, and bioinformatics solutions to analyze and interpret complex genomic data. In addition, we are now developing next-generation systems for digital PCR, an emerging analytical technique in the life sciences, targeting a 2020 launch with fully-integrated solutions that simplify workflows and offer other advantages.

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 and NeuMoDx systems, and the planned digital PCR workflows, 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, with total net sales increasing to $1.53 billion in 2019 from $1.28 billion in 2015. We have made a series of acquisitions in recent years, including the acquisitions of 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 increased 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 pre-existing 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.

The global outbreak of COVID-19 will have a significant impact on QIAGEN in 2020. Extraordinary demand has emerged for molecular technologies involved in testing for the new pathogen. However, the overall impact is not predictable at this point, as the spike in demand is challenging the company's short-term capacity for certain products, while the pandemic also is disrupting broader economies and routine healthcare in 2020.

Potentially adverse changes that may come from the United Kingdom's exit from the European Union ("Brexit") are not well 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.

We may encounter delays in receipt, or limits in the amount, of reimbursement approvals and public health funding, which will impact our ability to grow revenues in the healthcare market or may 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. For example, in 2010, the Patient Protection and Affordable Care Act, or ACA, was enacted with the goal of expanding coverage, increasing quality of care and reducing costs through payment innovation, among other things. With evolving political realities in the United States, including divergent efforts by the Trump Administration and members of Congress, certain sections of the 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 extends 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 25% of our sales are generated from demand for our products used at universities, government laboratories and private foundations, and whose funding is dependent upon 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 assure you 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.

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 or financial flexibility.

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 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, will 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, Russia, India, China, South Korea, Mexico and Turkey, which together accounted for approximately 16% of total sales in 2019. 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 that include those arising out of 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 be faced with 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 which 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 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, it could have an adverse impact on our results of operations, particularly a negative impact on our gross profit.

We are subject to privacy and data security laws and rely on secure communication and information systems which, in the event of a breach or failure, expose us to significant risks.

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, and personally identifiable information of our customers and employees, in our data centers and on our networks. Our operations rely on the secure processing, storage and transmission of confidential and other information on our computer systems and networks. We are transforming to a digital, cloud-leveraging organization, which places our assets, customer data, and personally identifiable data at a higher risk than in previous years. 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 that 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 any of the 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. 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 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 implemented the requirements set forth by the European Union General Data Protection Regulation (GDPR), which took effect on May 25, 2018. As our activities continue to evolve and expand, we may be subject to additional laws which 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 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.

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 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 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 January 2020 eruption of the Taal volcano in the Philippines or the December 2019 outbreak of COVID-19 in China. 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 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 from casualties 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 timely or in sufficient quantities or qualities to produce certain products, and this could have an adverse impact on our results of operations.

We heavily rely 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 heavily rely 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.

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. We may face difficulties in hiring and retaining qualified personnel following our March 3, 2020 announcement of the proposed merger with Thermo Fisher Scientific Inc.

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.

The markets we serve are typically characterized by a high percentage of purchase orders being 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 upon 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, 2019, we had outstanding long-term debt of approximately $1.7 billion, of which $285.2 million was current. Furthermore, as of December 31, 2019, we had lease obligations, including the current portion, of $58.4 million, that expire in various years through 2020. We may need to refinance all or part of these liabilities before or at their contractual maturities.

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.

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 26 "Financial Risk Factors and Use of Derivative Financial Instruments" and Note 16 "Financial Debts", 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, 2019, our consolidated balance sheet reflected approximately $2.2 billion of goodwill and approximately $750.6 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. International Financial Reporting Standards (IFRS) 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, 2019, we owned 352 issued patents in the United States, 275 issued patents in Germany and 1,700 issued patents in other major industrialized countries. In addition, at December 31, 2019, we had 576 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.

Certain 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. Beginning January 10, 2018, our shares are 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 $43.16 to a low of $25.04. On the Frankfurt Stock Exchange our Common Shares have ranged from a high of €39.19 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, nor intends 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 continued stock repurchase programs.

QIAGEN has conducted share repurchase programs in the past through open-market transactions. Additionally, in January 2017, we completed a synthetic share repurchase that combined a direct capital repayment with a reverse stock split. The transaction was announced in August 2016 and involved an approach used by various large, multinational Dutch companies to provide returns to all shareholders in a faster and more efficient manner than traditional open-market purchases. $243.9 million was returned to shareholders through the transaction, which reduced the total number of issued common shares by approximately 3.7% or 8.9 million shares as of January 31, 2017.

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, 2019, a total of approximately 227.8 million Common Shares were outstanding along with approximately 6.0 million additional shares reserved for issuance upon exercise or release of outstanding stock options and awards, of which 0.8 million were vested. A total of approximately 15.7 million Common Shares are reserved and available for issuances under our stock plans as of December 31, 2019, 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, the Warrants issued in connection with the Cash Convertible Notes Call Spread Overlays cover an aggregate of 31.1 million shares of our common stock (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, 2019, 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. Notwithstanding the foregoing, in connection with the Business Combination Agreement that we entered into with Thermo Fisher Scientific Inc. (Thermo) on March 3, 2020 (BCA), we and the Foundation have agreed that (i) the Foundation shall not exercise the option in a way that would reasonably be expected to adversely affect the timely consummation of the acquisition contemplated by the BCA, unless and until the BCA has been terminated, (ii) if the Foundation exercises the option during the term of the BCA, the Foundation shall not exercise its voting rights as a shareholder in a manner that would reasonably be expected to adversely affect the timely consummation of the acquisition, unless and until the BCA has been terminated, (iii) the option shall be terminated subject only to the closing of the public tender offer (the "Closing") and (iv) to the extent any Preference Shares would be held by the Foundation as of the Closing, the Foundation shall transfer such shares to the wholly owned acquisition subsidiary of Thermo (Offeror) under the obligation for the Offeror to pay a cash consideration equal to the aggregate capital paid up on such Preference Shares plus any accrued dividends and to indemnify the Foundation for any claim by us.

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.

Significant direct and indirect shareholdings

The following table sets forth certain information as of December 31, 2019, 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	23,530,964	(2)	10.33 %
PRIMECAP Management Company, United States	14,917,178	(3)	6.55 %
Massachusetts Financial Services Company, United States	12,629,790	(4)	5.55 %
Wellington Management Group LLP, United States and United Kingdom	11,644,677	(5)	5.11 %

(1) The percentage ownership was calculated based on 227,752,280 Common Shares outstanding as of December 31, 2019.

(2) Of the 23,530,964 shares attributed to BlackRock, Inc., it has sole voting power over 21,724,692 and sole dispositive power over all 23,530,964 shares. This information is based solely on the Schedule 13G filed by BlackRock, Inc. with the Securities and Exchange Commission on February 4, 2020, which reported ownership as of December 31, 2019.

(3) Of the 14,917,178 shares attributed to PRIMECAP Management Company, it has sole voting power over 14,372,470 and sole dispositive power over all 14,917,178 shares. This information is based solely on the Schedule 13G filed by PRIMECAP Management Company with the Securities and Exchange Commission on February 12, 2020, which reported ownership as of December 31, 2019.

(4) Of the 12,629,790 shares attributed to Massachusetts Financial Services Company, it has sole voting power over 10,586,991 and sole dispositive power over all 12,629,790 shares. This information is based solely on the Schedule 13G

filed by Massachusetts Financial Services Company with the Securities and Exchange Commission on February 14, 2020, which reported ownership as of December 31, 2019.

(5) Information is based on a report on Schedule 13G jointly filed with the Securities and Exchange Commission on January 28, 2020 by Wellington Management Group LLP, Wellington Group Holdings LLP and Wellington Investment Advisors Holdings LLP. These shares are owned of record by clients of certain investment advisers including Wellington Management Company LLP (together, the "Wellington Investment Advisers"), of which Wellington Management Group LLP is the parent holding company. Wellington Investment Advisors Holdings LLP controls directly, or indirectly through Wellington Management Global Holdings, Ltd, the Wellington Investment Advisers. Wellington Investment Advisors Holding LLP is owned by Wellington Group Holdings LLP. Wellington Group Holdings LLP is owned by Wellington Management Group LLP. According to this Schedule 13 G, of these 11,644,677 shares, each of Wellington Management Group LLP, Wellington Group Holdings LLP and Wellington Investment Advisors Holdings LLP have shared voting power over 10,520,448 and shared dispositive power over all 11,644,677 shares as of December 31, 2019.

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, 2020, there were 106 shareholders of record of our Common Shares.

Holders of any securities with special control rights

Not applicable.

System of control of any employee share scheme where the control rights are not exercised directly by the employees

Not applicable.

Restrictions on voting rights

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.

Agreements between shareholders which are known to the Company and may result in restrictions on the transfer of securities and/or voting rights

Not applicable.

Rules governing the appointment and replacement of board members and the amendment of the articles of association

Supervisory Directors and 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 fiscal year.

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.

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.

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.

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.

Powers of board members and in particular the power to issue or buy back shares

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.

The members of our Supervisory Board have the powers assigned to them by Dutch law and the Articles. The Supervisory Board assists the Managing Board by providing advice relating to the business activities of QIAGEN. 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. In particular, the Supervisory Board has the authority to (i) issue common shares up to its presently authorized capital of 410 million, (ii) issue Financing Preference Shares up to its presently authorized capital of 40 million (iii) grant rights to subscribe for such common shares and Financing Preference Shares and (iv) exclude or limit the pre-emptive rights of existing shareholders relating to up to 50% of the number of common shares to be issued or rights to subscribe for common 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 19, 2018, 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 19, 2018 until December 21, 2019, 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.

Significant agreements to which the Company is a party and which take effect after or terminate upon a change of control of the Company following a takeover bid

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 (as amended in 2008), we granted an option to the Stichting Preferente Aandelen QIAGEN (the "Foundation" (Stichting)), whereby the exercise of the option by the Foundation is subject to the conditions described in the paragraph above and which option 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 right less one share. When exercising the option and exercising its voting rights on such 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 us and our stakeholders. An important restriction on the Foundation's ability to prevent or delay a change of control is that issuing (preference or other) protective shares enabling the Foundation to exercise 30% or more of the voting rights without the obligation to make a mandatory offer for all shares held by the remaining shareholders, is only allowed after a public offer has been announced by a third party. In addition, the holding of such a block of shares by the Foundation is restricted to two years and as a consequence, the size of the protective stake will need to be decreased below the 30% voting rights threshold before the two year period lapses. Notwithstanding the foregoing, in connection with the Business Combination Agreement that we entered into with Thermo Fisher Scientific Inc. (Thermo) on March 3, 2020 (BCA), we and the Foundation have agreed that (i) the Foundation shall not exercise the option in a way that would reasonably be expected to adversely affect the timely consummation of the acquisition contemplated by the BCA, unless and until the BCA has been terminated, (ii) if the Foundation exercises the option during the term of the BCA, the Foundation shall not exercise its voting rights as a shareholder in a manner that would reasonably be expected to adversely affect the timely consummation of the acquisition, unless and until the BCA has been terminated, (iii) the option shall be terminated subject only to the closing of the public tender offer (the "Closing") and (iv) to the extent any Preference Shares would be held by the Foundation as of the Closing, the Foundation shall transfer such shares to the wholly owned acquisition subsidiary of Thermo (Offeror) under the obligation for the Offeror to pay a cash consideration equal to the aggregate capital paid up on such Preference Shares plus any accrued dividends and to indemnify the Foundation for any claim by us.

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. It expired by its terms in April 2015, at which time no further awards will be able to 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 Stock Plan, subject to certain antidilution adjustments.

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. 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. A "Change of Control" means the occurrence of a merger or consolidation of QIAGEN, whether or not approved by the Board of Directors, other than a merger or consolidation which would result in the voting securities of QIAGEN outstanding immediately prior thereto continuing to represent (either by remaining outstanding or by being converted into voting securities of the surviving entity or the parent of such corporation) at least 50% of the total voting power represented by the voting securities of QIAGEN or such surviving entity or parent of such corporation, as the case may be, outstanding immediately after such merger or consolidation, or the stockholders of QIAGEN approve an agreement for the sale or disposition by QIAGEN of all or substantially all of QIAGEN's assets.

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, 2019, the commitment under these agreements totaled $16.5 million (2018: $16.9 million).

Agreements between the Company and its board members or employees providing for compensation if they resign or are made redundant without valid reason or if their employment ceases because of a takeover bid

The members of the Managing Board are appointed annually by the General Meeting of Shareholders based on the nomination of the Joint Meeting. Further, the members of the Managing Board have entered into employment agreements with QIAGEN N.V. and other QIAGEN affiliates. The term of these agreements varies for each Managing Board member due to individual arrangements and goes beyond the one year term of appointment by the General Meeting of Shareholders. These agreements cannot be terminated without cause and, absent such cause, have to be fulfilled during their stated term. These agreements contain provisions which guarantee the payments of certain amounts in the event of a change in control, as defined in the agreements. There are no arrangements for any extra compensation in case of resignation or redundancy.

The members of the Supervisory Board are also appointed annually by the General Meeting of Shareholders based on the nomination of the Joint Meeting. There are no additional employments in place and there are no arrangements for any extra compensation in case of resignation or redundancy. The General Meeting determines the remuneration of the members of the Supervisory Board.

Reporting in accordance with Directive 2004/25/EC of the European Parliament and of the Council of April 21. 2004, on takeover bids

Not applicable

Structure of our capital, including securities which are not admitted to trading on a regulated market in a Member State of the European Union

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.

As of December 31, 2019, a total of approximately 227.8 Common Shares were outstanding along with approximately 6.0 million additional shares reserved for issuance upon exercise or release of outstanding stock options and awards, of which 0.8 million were vested. A total of approximately 15.7 million Common Shares are reserved and available for issuances under our stock plans as of December 31, 2019, including the shares subject to outstanding stock options and awards. Additionally, holders of the Warrants issued as part of the Call Spread Overlays discussed further in Note 16 "Financial Debts", cover an aggregate of 31.1 million shares of our Common Stock (subject to adjustments under certain circumstances).

Common Shares - Restrictions on the transfer of securities

Common Shares are issued in registered form only. Until January 24, 2017, Common Shares were available either without issue of a share certificate, or Type I shares, or with issue of a share certificate, or Type II shares, in either case in the form of an entry in the share register. At the discretion of the Supervisory Board, Type I shares may be issued and the holders of such Type I shares will be 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 Netherlands. The Type II shares were registered with our New York Transfer Agent.

The transfer of registered shares requires that we issue a written instrument of transfer and the written acknowledgment of such transfer by us or the New York Transfer Agent (in our name). Until January 24, 2017 the corresponding share certificates of Type II Shares had to be delivered to us or to the New York Transfer Agent (in our name). Acknowledgement of the transfer of Type II shares took place by us or the New York Transfer Agent (in our name) by endorsement on the share certificate or by issuance of a new share certificate to the transferee, at the discretion of the Managing Board.

Non-Financial Statement

Our approach to sustainability

For QIAGEN, sustainability means long-term economic success combined with respect for the natural environment and healthy, high-performance workplaces, with the aim to make improvements in life possible as a good corporate citizen.

Our commitment to sustainability goes beyond formal regulations. As a market and innovation leader in life sciences and molecular diagnostics, we believe there is room for innovation in driving sustainable development in our industry, and we are resolved to continue moving forward.

In order to continuously address, monitor, and manage sustainability topics, QIAGEN has implemented a global function within our operations structure in 2019. This function will head QIAGEN’s global environmental, health and security topics. This position has responsibility and oversight for sustainability at QIAGEN and reports to the Head of Global Operations, which is part of QIAGEN’s Executive Board.

We pledge to continually evaluate the potential environmental impact of our business, saving energy and reducing negative environmental impacts of our operations. We look after the welfare of our employees, taking care of their developmental needs and supporting them in every way to become and remain committed and responsible. We extend our commitment to sustainability into the supply chain, committing our business partners to sign up to our environmental, social and human-rights related standards.

We recognize that ongoing success for QIAGEN also depends on the sustainability of society’s resources. This is why we engage in dialogue with our various stakeholders – employees, customers, patients, suppliers, shareholders, non-governmental organizations (NGOs) and communities – to gain a better understanding of our operating environment, including market developments and cultural dynamics through approaches ranging from standard questionnaires to one-on-one conversations.

Our employee-led volunteer sustainability committees drive progress by identifying areas for environmental improvement at all levels of the company, initiating projects, and providing input on environmental topics.

Please find information about our business model, organizational structure, products, customers, business strategy, as well as main trends and issues pertaining to the reporting year, in our Management Report.

Material non-financial information

For guidance on materiality and non-financial disclosure, we base our non-financial reporting on the Sustainability Reporting Standards (SRS) of the Global Reporting Initiative (GRI) Standards 2016 as well as on relevant sustainability accounting standards as issued by the Sustainability Accounting Standards Board (SASB).

In the reporting period, we reviewed the materiality analysis first conducted in 2017. As a first step, a long list of potentially relevant topics was drawn up, based on relevant sustainability frameworks, rating requirements and a competitive analysis. The five non-financial aspects prescribed in the European Commission's CSR Directive 2014/95/EU (environmental, social and employee matters, respect for human rights, anti-corruption and bribery) were also taken into account. In a second step, the topics were consolidated into a list of 17 topics and evaluated in an online survey of QIAGEN representatives with regard to their business relevance and their impact on the non-financial aspects. In a joint workshop with representatives from our different departments, the results of the survey were discussed and the various perspectives assessed. The final materiality matrix was validated by our senior management and resulted in the following material topics:

- **Environmental matters:** energy and emissions, water consumption, resource efficiency, sustainable procurement
- **Employee matters:** employee satisfaction, occupational safety and health protection, employee development, responsible employer, equal opportunities
- **Social matters:** access to healthcare, quality and product safety, customer satisfaction, data and cyber security
- **Respect for human rights:** conflict minerals
- **Anti-corruption and bribery matters:** antitrust, anti-corruption

Environment

At QIAGEN, we aim to save energy and reduce the environmental impact of our operations by driving long-term economic success with healthy, high performance workplaces and make improvements in life possible as a good corporate citizen. Reducing our environmental impact is a key corporate goal for 2020 and beyond that all employees are actively engaged in working towards.

As an international pioneer in our industry when it comes to eliminating harmful substances and waste products in laboratories, we have seen the value of environmentally responsible solutions as a source of competitive advantage, as well as an act of corporate citizenship.

To support this commitment a new Global Environment, Health and Safety (EHS) function was initiated in 2019 to drive the implementation of international environmental management systems in our production and research and development facilitates, to set goals and objectives to set limits to reduce the consumption of energy and water and to reduce the amount of plastic used in our packaging, during transportation. With these efforts, we aim to operate in the most cost-efficient and environmentally friendly way possible.

QIAGEN recognizes risks resulting from climate change such as extreme weather events, changes in regulation or customer behavior. Operations could for example be negatively impacted by volatility in the cost of raw materials, components, freight and energy. New laws or regulations adopted in response to climate change could increase energy costs, the costs of certain raw materials, components, packaging and transportation.

To proactively minimize our contribution to climate change, QIAGEN has committed to reducing emissions in line with a 1.5 degree Celsius climate target. Our 2019 carbon footprint, which was calculated with market-based emissions factors, will serve as the base year. By the year 2022, QIAGEN will reduce scope 1 and 2 emissions by 12.6% and business travel emissions by 3.7% below the base year. QIAGEN will achieve these reductions by establishing an energy efficiency task force that will identify areas for energy efficiency across the company and through purchasing green energy attributed certificates and high-quality carbon credits.

Environmental Performance

To increase transparency regarding our own global energy consumption and greenhouse gas emissions, QIAGEN has extended the coverage of the energy consumption data by the integration of a centralized data collection process management for all production sites, research centers and major offices.

The expansion in the collection of our energy data enabled us to calculate our corporate carbon footprint (CCF) for scope 1, 2 and 3 emissions more accurately in the reporting year and report it following a location-based and market-based approach for our scope 2 emissions. Scope 1 covers direct greenhouse gas emissions (GHG emissions) from combustion of fossil fuels on our own premises; scope 2 are indirect emissions originating from external generation of electricity for our operations. A location-based calculation method for scope 2 emissions reflects the average emissions intensity of grids on which energy consumption occurs; a market-based method reflects emissions calculated with the particular energy source mix used by each QIAGEN site.

As of 2018, all relevant scope 1 and 2 emissions are included following a location-based approach. The additional calculation using a market-based approach for scope 2 emissions was introduced for 2019 as part of our climate strategy. Accordingly, we will report our KPIs for GHG emissions using the market-based approach from next reporting year on. In addition, we have started to collect data for calculating GHG emissions in scope 3. These emissions occur along our value chain, for example through transport services, suppliers or the use of our products. As a first Scope 3 category, we have integrated emissions resulting from business travel into our CCF for 2019.

In addition to our energy and climate management activities, we collect data regarding fresh water consumption and waste for all our production sites. The table below lists figures from 2019 and 2018, and expresses our consolidated environmental data in relation to our production volume sold to establish a basis for a long-term monitoring system.

Environmental Performance Indicators	**2019** [1]	**KPI 2019**	**2018**	**KPI 2018**
Energy (in MWh)	86,158	0.0188 MWh/unit	86,549 [2]	0.0248 MWh/unit
GHG emissions Scope 1 + 2 (in tCO_2; location-based)	29,347	6,429 g/unit	28,898 [2]	8,294 g/unit
Freshwater use (in m^3)	474,335	104 l/unit	119,621	34 l/unit
Total waste (in t)	1,155	253 g/unit	633	182 g/unit
Hazardous waste (in t)	330	72.3 g/unit	250	71.7 g/unit

[1] Extension of the scope in 2019: All sites reported energy and emissions data. 25 sites reported water consumption data.

[2] Figures for 2018 were adjusted due to improved data availability.

Our global data collection coverage of energy and emissions was increased from 30% in 2017 to 100 % in 2019. In 2019, we achieved a decrease of 0.3 GWh in our total energy consumption to 86.2 GWh compared to 86.5 GWh in 2018 as detailed in the table below.

Energy consumption by source (in kWh)	**2019**	**2018**
Natural gas	34,679,620	38,627,496
Petrol	8,677,185	7,910,565
Diesel	5,255,293	8,160,611
Liquefied Petroleum Gas (LPG)	50,179	72,702
Electricity procurement from conventional tariffs	36,130,248	30,346,347
Electricity procurement from green tariffs	1,142,240	1,238,345
Consumption from district heating, district cooling and steam	223,000	193,000
Total energy consumption	**86,157,765**	**86,549,066**

	Footprint 2019	
Emission category (in tCO_2)	**Location-based**	**Market-based**
Scope 1: Direct emissions	10,808	10,808
Scope 2: Indirect emissions	18,540	10,870
Scope 3: Business travel	19,431	19,431

With the help of these key performance indicators (KPIs), we are able to create reduction targets for energy and CO_2-emissions. We are furthermore working towards creating targets for fresh water and waste.

Product life cycle assessment

QIAGEN conducted a life cycle assessment (LCA) for one of its best-selling – and therefore representative – products, the QIAamp DNA Mini Kit. The studied product is part of the portfolio category "consumables & bioinformatics", which about 90% of QIAGEN's sales (by turnover) are filed under. At about 2.5 kg, the kit is marginally heavier than an "average" QIAGEN kit.

The scope of the study has been the full life cycle of the product, including extraction and processing of raw materials, transport to the customer, energy and material input required when using the product, as well as transport to the disposal facility and incineration of remaining materials. These system boundary settings are called "cradle to grave". The assessment was carried out in accordance to ISO 14040/14044 but has not been certified by an independent third party.

The results of the LCA show that the largest relative impacts result from the production of plastic, transport and electricity during production and use. Furthermore, cardboard and paper production play a role, as well as the incineration of plastics and the evaporation of alcohol during use.

A very relevant issue is ecotoxicity impacts to marine aquatic systems due to the production of polypropylene as well as electricity generation. The depletion of fossil resources is rated second in relevance since plastics have multifold impacts being made from fossil resources and depleting a large amount of fossil resources for meeting the energy demand during their production. Transport and electricity generation both use large amounts of fossil resources for fuel as well. Global Warming Potential is rated third in relevance and similarly is closely linked to energy demand due to transport, plastics and electricity production. Plastics also have multi-fold impacts here, since their embodied carbon is released to the atmosphere during incineration. Different assumptions regarding disposal could significantly change the overall impacts of the product system, ranging from recycling (likely to have beneficial impact) to landfilling (likely to have adverse impact). Although open dumps and landfills are the most prevalent form of solid waste disposal globally, incineration at the end of life is deemed an accepted and reasonably conservative approach for this product.

Overview of impact results

Impact Category	Result	Unit	Processes	Share
Toxic effects on marine water systems (MAETP)	941	kg DCB eq.	Polypropylene	44%
			Electricity	43%
			Transport	9%
			Polyethylene	1%
			Rest	2%
Depletion of fossil resources (ADP fossil)	289,0	MJ	Polypropylene	44%
			Transport	31%
			Electricity	13%
			Polyethylene	4%
			Rest	8%
Global warming potential, excluding biogenic carbon (GWPe)	21,7	kg CO2 eq.	Transport	30%
			Polypropylene	27%
			PP incineration	19%
			Electricity	16%
			Rest	8%
Photochemical creation of ozone ("summer smog") (POCP)	0,00638	kg Ethene eq.	Polypropylene	37%
			Alc. evaporation	30%
			Transport	23%
			Electricity	9%
			Rest	2%
Acidification of soil and water bodies (AP)	0,0549	kg SO2 eq.	Polypropylene	43%
			Transport	35%
			Electricity	16%
			Polyethylene	2%
			Rest	4%
Toxic effects on humans (HTP inf)	0,643	kg DCB eq.	Electricity	34%
			Transport	23%
			Polyethylene	20%
			Polypropylene	7%
			Rest	15%
Depletion of abiotic resources, e.g. minerals (ADP elements)	1,69E-06	kg Sb eq.	Electricity	57%
			Rest	43%
Eutrophication (over-enrichment of nutrients in water bodies) (EP)	0,00744	kg Phosphate eq.	Transport	54%
			Rest	46%
Toxicity to freshwater ecosystems (FAETP)	0,0731	kg DCB eq.	Transport	41%
			Rest	59%
Depletion of ozone (i.e. the ozone layer) (ODP)	8,37E-11	kg R11 eq.	Paper	94%
			Rest	6%
Toxic effects on terrestric systems, i.e. soil (TETP)	0,00563	kg DCB eq.	Electricity	52%
			Rest	48%

* Relevance is calculated as the share of weights and normalized impact of the respective category.

The detailed report on the LCA results can be found on QIAGEN's website in the Sustainability section.

Plastic Footprint Reduction

The environmental impact of plastic materials is increasingly becoming a major concern for customers. QIAGEN currently uses plastics in many of its products and production support materials, as well as for transport and packaging purposes. This year, QIAGEN has set the goal of reducing Plastic Transportation Packaging Material by 3% vs 2019 for 2020. The reduction of plastic materials presents us and our industry with a number of challenges: Due to the use of our products in laboratory or medical applications, these products are subject to strict functional and legal requirements so in many cases other materials cannot simply be substituted for plastics. In the case of packaging materials, we must ensure that appropriate safety and hygiene standards are met.

In 2018, we set up a global cross-departmental Plastic Footprint Reduction focus team for “Plastic Footprint Reduction” to analyze the use of plastics and specifically identify reduction potential for QIAGEN. Our approach is to completely avoid

unnecessary materials, develop more environmentally-friendly alternative materials, and where possible, optimize recyclability. Completed initiatives include reducing the thickness of blister film in packaging from 10 ml to 8 ml (reduction of 2.8 tonnes/ year), reducing the number of gel packs used in cold shipment of our products (reduction of 33.4 tonnes/year), reducing the size of polystyrene foam boxes by optimizing how the contents are structured, and developing a digital recycling card that explains to customers how to properly dispose of packaging components.

To identify starting points within our supply chain, we have initiated a query with suppliers about their use of plastic materials. We are still in the process of exploring a "box cycle" where supplies are packaged directly by our suppliers and the packaging material is returned to them, with results expected in 2020. In addition, we are in discussions with suppliers in order to achieve a better recyclability of their products. Scrap plastics produced as part of the component production process are already recycled at major supplier sites.

Employees

QIAGEN's long-term success and growth are shaped decisively by the knowledge, skill and passion of our employees. Focusing on human capital therefore drives our economic performance and considerably influences the sustainability of our operations. We are convinced that the professional and personal development of our employees is an integral factor in creating value for our customers, patients, colleagues, partners and shareholders. Being the industry's employer of choice by attracting and developing top talent is one of our global goals. To achieve that, QIAGEN creates a work environment that empowers and involves employees at all levels.

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. We don't have significant operations (more than 100 employees) in countries with severe legal limitations to freedom of association and collective bargaining. In all regions where we operate, we respect local laws and regulations concerning labor relations.

Among all QIAGEN guidelines, the following policies aim to incorporate QIAGEN's culture and values into all of our internal and external relationships. These are available internally for all employees.

Our Ethical Standards Policy: QIAGEN's cultural norms and values are defined in the "3I's: Identity, Inspire, Impact." Our values form the basis of our business success and every employee is expected to treat everyone in an open, honest, and respectful manner.

All our employees in the various regions of the world are covered by the relevant local laws or by our voluntary corporate guidelines to the greatest possible extent, which guarantee freedom of association and/or collective bargaining mechanisms.

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 2019, we employed 3.03% part-time employees (2018: 5.57%) and 1.24 % temporary employees with QIAGEN contract / fixed-term work contract (2018: 1.26%).

Employee training

As a fast-growing technology and knowledge-based company, we consider high-quality training and career development to be an integral part of our success. The QIAGEN Academy provides 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, competencies and leadership development.

In 2019, we ran a mix of internal instructor-led, virtual instructor-led and e-learning courses attended by 3,951 of 4,193 employees. 12% of these courses were attended by management level employees. In addition, 46 employees participated in our advanced leadership development programs.

As part of our talent and succession management, we have established transparent career paths with the QIAGEN Profile Navigator (QPN). It defines jobs, core competencies and approaches to advancement across the global organization.

In addition, QIAGEN's global Performance Enhancement System (PES) creates a clear framework of regular, one-on-one review sessions for each employee and their manager to discuss career development. These include discussions of goals and achievement levels, assessment of relevant competencies, as well as training needs and career planning steps.

The supervisor feedback process provides the opportunity for employees to provide anonymized feedback to their supervisors. For 2019, as in previous years, employees provided overall very positive feedback.

Diversity

Our Diversity & Inclusion Philosophy: At QIAGEN, we are committed to creating an environment rich in diversity. Diverse teams strengthen our organization through the variety of ideas of opinions. In addition, teams outperform and succeed when

they are composed of individuals with the widest possible range of personalities, backgrounds and traits. Therefore, one of our goals is to maintain an environment where all individuals have the opportunity to grow and contribute to our progress.

We are committed to providing an environment where all individuals have the equal opportunity to grow and contribute to our progress; regardless of their age, educational background, sex (including gender identity and sexual orientation), nationality, veteran status, physical abilities, neurotype, race, ethnic background, or religion. Strategic consideration of diversity not only makes QIAGEN a better place to work. We also consider it to be a key success factor on the path to achieving our mission and goals.

As in 2018, the gender split across the whole company remained at 51% men and 49% women. The participation of women in leadership roles was at 29% (2018: 28%). We aim to achieve 30% women in leadership roles in 2020. Specific information about the diversity policy for the composition of the Managing Board and the Supervisory Board can be found in the Corporate Governance Report.

In 2019, we launched the QIAGEN Executive Council of Equal Opportunity, made up of senior representatives from different sectors across the company. The committee works closely with the Diversity Ambassador program, that was set up in 2018 and includes more than 20 employees from across the world to champion diversity in the sites and countries they are based in. Training has been developed to help address unconscious bias, including an online assessment, and is aimed at all managers of people. QIAGEN remains committed to diversity, and we continue to develop and implement additional programs to promote awareness and are working to implement additional procedures to enable improvements in measurement and monitoring of diversity in future periods. In 2019, this included an update to our parental leave in the United States, which was a direct result of the diversity forums led by our ambassadors in conjunction with the executive committee members.

Employee satisfaction and retention

Recognizing that QIAGEN's employees are the key to our success, we seek to be a great place to work. QIAGEN offers 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 life everywhere in the world. Internal and external ratings have improved significantly and show QIAGEN's reputation and preferred position in the global working environment.

A prudent work-life balance is an important measure to create and maintain employee satisfaction. We provide services to help employees balance their personal lives with the company's dynamic work environment, including in-house childcare, sabbatical programs, and flexible working hours.

QIAGEN has implemented frameworks for performance-based compensation, equity-based compensation, and incentive programs for new ideas and innovation. These programs aim to ensure fair and attractive compensation and to encourage each employee to work for the company's long-term benefit.

An essential component of QIAGEN's efforts to maintain a high level of satisfaction at work is our corporate health and safety management. We offer a wide range of measures and tools, from annual "health days" with free counseling, screening and medical check-ups to sports opportunities in the form of in-house gyms, on-site soccer fields and beach volleyball courts.

QIAGEN's commitment to being an employer of choice is also reflected in the high number of applications for open positions, which exceeded 27,000 applications in 2019 (2018: > 40,000). At the same time, the average voluntary annual turnover rate has decreased year over year.

Occupational safety and health protection

QIAGEN recognizes its responsibilities with respect to health and occupational safety in all our operations and meets all applicable regulatory requirements. In the third quarter of 2019, a leading position for EHS (environment, health, safety) was appointed to provide direction and implementation of a global health and safety management system compliant with ISO45001, which will be implemented within the manufacturing facilities, research and development as well as business service centers over the next three years. All QIAGEN facilities operate health and safety procedures at local level, which include accident reporting, risk assessments and hazard analyses, and occupational safety and health audits, which lead to the implementation of improvement measures. All employees of the company are required to adhere to local health and safety procedures and practices. Safety, orderliness and cleanliness are demanded by management as a key success factor.

QIAGEN committed to an all company goal to reduce the number of lost days due to injuries by 10% vs 2019 over 2020, to drive and encourage initiatives to improve the safety culture in QIAGEN.

The table below table shows the total number of recordable incidents, (recordable accidents include lost workdays, restricted work, and medical treatment beyond first aid) and lost workdays for 2019, 2018 and 2017. The data is obtained from key QIAGEN manufacturing sites in Germany, US, China, Sweden and Tokyo. It also includes the research and development site in

Manchester UK and the large business service center located in Poland. Thus data is equates to 60% of the total average number of employees. There were no reported fatalities for 2019 at any of the QIAGEN sites.

	Total Recordable Incidents			Days Lost due to Injuries		
	2019	2018	2017	2019	2018	2017
Europe / Middle East / Africa	17	28	21	121	261	52
Americas	3	26	23	5	16	18
Asia-Pacific / Japan	0	0	0	0	0	0

Human rights

QIAGEN believes that the respect for human rights is an essential component of promoting sustainability in our global business. As a publicly listed company with international operations, we regard ourselves as a responsible corporate citizen in all the countries and regions where we do business. This role includes rights and obligations governed by international and national law, with human rights as one of the foundations of international law.

In this sense, we acknowledge and endorse the UN Universal Declaration of Human Rights, the European Convention on Human Rights, and the business-related Organisation for Economic Cooperation and Development (OECD) Guidelines for Multinational Enterprises, the ILO Declaration on Fundamental Principles and Rights at Work, and the UN Guiding Principles on Business and Human Rights and its application in National Actions Plans of our relevant jurisdictions.

In 2019, QIAGEN adopted a new Human Rights Policy, which is designed to provide guidance on all human rights issues in our sphere of influence such as in our relationship with customers, on the employee level, and in our supply chain. For more information on our due diligence processes with regard to human rights in our supply chain, please refer to the "Sustainable supply chain management" section.

Sustainable supply chain management

QIAGEN strives to ensure that its 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. Our procurement policy includes specific requirements for corporate governance, environmental and social standards, which we expect from our suppliers as minimum standards. Among other issues, it includes the obligations to reduce the use of substances of concern, to ensure collective bargaining and freedom of association among employees, fair wages, and regulations concerning maximum working time. The policy is publicly available on the QIAGEN Website.

In alignment with QIAGEN’s Compliance Program (especially QIAGEN’s Corporate Code of Conduct and Ethics), every QIAGEN employee must conduct themselves honestly, fairly, and objectively in all business relationships with suppliers and all others with whom QIAGEN maintains business relationships. Regular online training in the QIA-Academy ensures that employees in the procurement organization understand our guidelines and comply with them.

Structure of our supply chain

QIAGEN operates in over 35 locations worldwide. Our sites are supported by a global supplier network that includes approximately 9,000 suppliers in over 60 countries, supplying resources such as chemicals and bioreagents, plastics, packaging materials, as well as other materials and services essential to our business. In 2019, 83% of our overall purchasing volume came from OECD countries.

Region of origin of suppliers

Region of origin	%
Europe	53 %
North America	24 %
Asia	19 %
Australia	3 %
South America	1 %
Africa	0 %
Total	100 %

Due diligence process

In order to minimize compliance, environmental and social risks in our supply chain, we apply a multi-stage vendor selection process. Suppliers are subjected to a risk analysis with regard to environmental and social criteria based on their geographic location. These criteria were supported by information from the MVO Nederlands platform financed by the Dutch Foreign Ministry as well as the Bertelsmann Stiftung's Sustainable Development Goals Index. As a result, 70 suppliers were identified for whom potential risks exist due to geographic location and sales to QIAGEN.

In 2019 all identified suppliers have signed QIAGEN's procurement policy. All new suppliers will need to sign the policy as part of the contracting process. The policy 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. QIAGEN provides a whistleblower hotline which can be used by all employees. The contact details can be found on QIAGEN's website within the section Corporate Code of Conduct and Ethics.In addition, first-tier suppliers must confirm REACH, RoHS and SEC compliance as appropriate.

As part of our supplier selection process, we additionally assess the suppliers' policy with a perspective on QIAGEN's requirements. Supplier audits are conducted if non-compliance is suspected. Audits are conducted on-site, at least every three years for all "A"-categorized direct suppliers. Audits are documented and results are being shared with audited suppliers. To our knowledge, there were no violations regarding corporate governance, environmental and social standards in the reporting period.

Conflict minerals

The sourcing of certain minerals (known as "conflict minerals") has been linked with human rights abuses in the Democratic Republic of Congo ("DRC") and other conflict zones. QIAGEN has performed an extensive inquiry into the company's supply chain to confirm that the products supplied to us are either DRC conflict-free or that the suppliers are not aware of any non-compliance in their supply base. QIAGEN has no indication that any conflict minerals from the Democratic Republic of Congo or adjoining countries are used in the company's laboratory instruments.

Our products consist of sample and assay kits, known as consumables, and automated instrumentation systems. We do not believe that any conflict minerals are necessary to the production or functionality of any of our consumable products. We conduct due diligence measures annually to determine the presence of conflict minerals in our instrumentation 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 conflict minerals findings to the U.S. Securities and Exchange Commission ("SEC") for the calendar year ending December 31, 2019, on Form SD on March 27, 2020, and will provide updated disclosure to the SEC annually.

Data and cyber security

As the external threat landscape continues to evolve, managing cyber security risk is a priority for QIAGEN. The company continues to make investments in its capabilities to enhance cyber resilience of our organization, products, services and preserve the trust of our customers, partners and employees.

In 2019, QIAGEN further improved cyber security governance by establishing a dedicated cyber security function with global responsibilities and leadership. Building on our Information Security Framework, QIAGEN's cyber security program continues to ensure that security governance efforts and initiatives reflect evolving business requirements, regulatory guidance, and emerging threats. Our membership in private and public cyber security organizations (such as Health Information Sharing and Analysis Center, BSI Alliance for Cyber Security) facilitates close collaboration with peer organizations and government authorities to share industry-relevant best practices and threat information.

Business ethics

For QIAGEN, conducting business in a responsible way includes looking beyond our day-to-day business operations into the ethical foundations of our company. This means, in particular, the respect for human rights and legally compliant business behavior.

Payments received from government

QIAGEN occasionally received grants for specified development activities from governments to support research and development activities. These grants are further discussed in section 3.7 Government Grants of Note 3 "Summary of Significant Accounting Policies, Estimates and Judgments."

Payments to governments

We pay income tax related to the value added by QIAGEN's operational activities to the governments in the global regions of operations as follows:

	Year ended December 31,		
($ in thousands)	2019	2018	2017
Europe / Middle East / Africa	$ 18,186	$ 14,120	$ 19,595
Americas	10,346	4,025	11,767
Asia-Pacific / Japan	12,942	11,172	9,137
Total income taxes paid, net	$ 41,474	$ 29,317	$ 40,499

Income taxes paid exclude government incentives due to favorable tax regulations in the U.S., Spain and the U.K. relating to research and development expense.

Financial assistance from governments

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 states and foreign jurisdictions.

Governments and public institutions do not hold any major shares in QIAGEN.

For additional information on the Group’s income taxes please refer to Note 17 Income Tax.

Compliance

As a publicly listed company with international operations, QIAGEN is subject to regulation in various jurisdictions. Unethical behavior and non-compliance with laws and regulations have the potential to seriously harm our business, our reputation and our shareholders and to expose our employees to personal liability. QIAGEN has established a comprehensive Compliance Program, which translates legal and regulatory requirements as well as our fundamental values into clear, precise and understandable guidelines in our Corporate Code of Conduct and Ethics and supplementing specific policies for our employees. The policies include, but are not limited to, aspects as conflicts of interest, insider trading, revenue recognition, interactions with healthcare professionals, confidentiality and social media. QIAGEN does not make any payments to political parties or political action committees.

Special attention is paid to antitrust and anti-corruption laws (see http://financialreport.qiagen.com/management-report/opportunities-and-risks). Our specific antitrust and anti-corruption policies set forth our commitment to ensure that QIAGEN and its subsidiaries abide by the antitrust and anti-corruption laws of the countries in which we operate.

We extend our Compliance Program not only to our management and employees, but also to third-party intermediaries as distributors or agents. Third-party due diligence lies in the remit of the Sales Compliance Manager. This contains the following five elements:

1. Anti-corruption questionnaire and certification for new distributors, resellers and agents;
2. Annual risk assessment based on a calculated risk score, which factors location of business (Transparency International Index Score, TIIS) and annual sales revenue for distributing QIAGEN products by multiplying total revenues of the prior calendar year with the inverse of the TIIS;
3. Training;
4. Contractual obligations;

5. Due diligence (including selected background checks); also including payment monitoring.

All our policies are available to employees through the company's Compliance@QIAGEN intranet pages. Compliance awareness of our employees in all areas of the world is increased by regular trainings, which are held by external as well as inhouse legal and regulatory experts. In addition, QIAGEN has entered into a long-term online training program focusing on topics such as antitrust and competition, bribery and corruption, conflicts of interest, data protection, gifts and entertainment, harassment, insider trading, reporting as well as respectful communication. Online training reaches all employees in local language, supported by multiple communication resources. New employees are required to take online training on our Corporate Code of Conduct and Ethics at a minimum. Additional trainings which are customized to the specific area of responsibility are mandatory. Employees in Sales and Marketing as well as Upper Management are required to take training on anti-corruption and antitrust laws. These basic trainings are followed by refresher courses on a regular basis. In 2019, our employees completed more than 10,000 online training modules. In addition, employees are informed through the company's Compliance@QIAGEN intranet page and regular updates on compliance topics via the company's internal communication platform Yammer.

We have established a hotline for reporting accounting-related concerns on an anonymous basis in good faith. In accordance with the U.S. Sarbanes-Oxley Act of 2002 and the listing standards of NYSE, QIAGEN follows as strict non-retaliation policy. QIAGEN will diligently investigate all such complaints and will protect the anonymity of the complainant. We also offer a direct e-mail and telephone hotline for employees to address questions or make suggestions for our Compliance Program.

Our Compliance Program is overseen by the Compliance Committee under the leadership of the Head of Global Legal Affairs and Compliance, who reports in this function directly to the Audit Committee of the Supervisory Board. The Compliance Committee consists of managers from Legal, Internal Audit, Human Resources, Commercial Operations, Trade Compliance and Regulatory functions.

In the reporting period, QIAGEN had no legal actions pending or completed with regard to antitrust or corruption.

Social matters

QIAGEN's mission is to make improvements in life possible by enabling our customers to achieve outstanding success and breakthroughs in life sciences, applied testing, pharma and molecular diagnostics. We are committed to customers and their patients to deliver innovative solutions that unlock new insights for scientific research, forensics, food safety or better treatment decisions. We understand and live up to our responsibility to customers and patients who depend on us for reliable, efficient and safe workflows.

Customer satisfaction

Customer satisfaction is an integral part of the QIAGEN mission of making improvements in life possible, which is therefore the direct responsibility of the Chief Executive Officer. Our customers have high expectations on reliability, safety and the environment-friendly manufacturing of our products. We develop our products and services in close contact with our customers and incorporate their feedback into our processes.

Our commitment is to continually improve the customer experience, taking into account their evolving needs and expectations. QIAGEN has established a global systematic approach to measure customer experience in the form of an aggregated Customer Experience Indicator (CEI). The CEI is measured on a monthly basis through a set of internal KPIs (product and delivery performance, phone support, etc.) and external customer feedback that are directly linked to customer experience in our transactions. Thus, we are able to identify quickly and systematically areas for improvement while staying closely connected with our customers. Departmental and employee contribution to the CEI performance is embedded into our annual goal setting process. After a reworking of the CEI logic and KPI definitions in 2018 and the launch of a revised CEI 2.0 in January 2019, a Full Year score of 96.331 points (out of a maximum 100 points) was achieved. This corresponds to 1,517 points with the former CEI logic (2018 score was 1,515 points out of 2,000 maximum). It is a testimony to our continued efforts to increase customer satisfaction.

Quality and product safety

QIAGEN stands for quality. Since QIAGEN's founding 30 years ago, we have always been committed to the highest quality, and we always strive to exceed our customers' expectations. QIAGEN's reputation as a quality supplier is best-in-class in our industry and the foundation of our loyal global customer base. Therefore, we offer a 100% satisfaction guarantee to all our customers. It means that if our customers are not entirely satisfied with the performance of a QIAGEN product we will exchange or refund it free of charge for the customer.

To achieve and maintain our quality standards, we established Total Quality Management (TQM) systems in all of our manufacturing facilities around the globe. These assure constant high quality as well as safe and effective medical devices.

QIAGEN's TQM systems are certified according ISO 9001, ISO 13485, ISO 18385, as well as 21 CFR 820 and all other applicable medical device standards around the globe (see section "Government Regulations" in the Management Report).

QIAGEN products and their components are safe to use by customers as well by our employees in Research and Development (R&D). We use a list of qualified substances (the "MDx Toolbox"), specifically excluding any substances of concern. Our transparent and responsible product and development policy also includes the communication and marketing of products. As with all companies in the medical device/in vitro diagnostics industry, product claims and product properties are verified and validated during development and approved by regulatory bodies around the world as part of the product submission process.

QIAGEN, like other companies, is exposed to the financial implications of potential recalls and other adverse events due to equipment failures, manufacturing defects, design flaws, or inadequate disclosure of product-related risks. In the event of a recall, QIAGEN has established global procedures applicable to all QIAGEN sites that aim at avoiding the further use of the product and at guaranteeing cost-neutral procedures for our customers. Processes, responsibilities and improvement programs are defined as required by regulating authorities to avoid the reoccurrence of recalls. There is full traceability of each product to the final customer; therefore, any recalls are executed by direct customer notifications. Due to QIAGEN's stringent quality management, recalls rarely occur: 2019 (3), 2018 (4), 2017 (0), 2016 (3), 2015 (1). The percentage of affected product is low as well: 2019 (15%), 2018 (0.09%), 2017 (0%), 2016 (0.21%), 2015 (0.022%). In past recalls, 90% to 100% of customers have been reached and confirmed recall notification.

Access to healthcare

QIAGEN is aware of the importance of providing access to healthcare and research products around the world. In developing countries with scarce resources, new ways are needed to ensure access to affordable diagnostics that play a critical role in helping to prevent and treat diseases. In particular, infectious diseases and various malignancies can be treated much more cost-effectively through early and precise detection – and with improved patient outcomes. However, many emerging countries lack properly trained lab personnel and technical infrastructure to utilize the latest molecular testing technologies.

For QIAGEN, a strategic approach to providing access to diagnostic technologies can yield opportunities for growth, innovation and unique public-private partnerships. To support our growth strategy in emerging markets, we are expanding our presence in these markets and adapting our products to local needs, where necessary.

One example is our global effort to advance diagnostics for tuberculosis (TB) in low-resource, high disease burden countries. Based on a five-year memorandum of understanding signed in 2015, QIAGEN is cooperating with FIND, an NGO, to develop innovative and affordable tests to detect people with latent TB infections who are at risk of developing active TB. In October 2019, we also announced the addition of QuantiFERON TB Gold Plus (QFT-Plus) to the diagnostic catalogue of the Stop TB Partnership's Global Drug Facility (GDF). The GDF facilitates access and helps match demand for TB diagnostics and drugs with funding from donors, governments and NGOs on a global scale. The acceptance of QFT-Plus to the GDF catalogue advances our strategy to help expand screening with modern blood-based assays for latent TB infection in regions with high disease burden but limited resources.

To reach the highest risk populations needing TB testing, QIAGEN is building upon our high-volume state-of-the-art QuantiFERON-TB Gold Plus assay with the development QuantiFERON-TB Access, a field-friendly test with ultrasensitive digital detection on a portable device. Launching in 2020, this public health solution has already gained recognition by the Joint United Nations Program on HIV/AIDS.

A further example is the development of careHPV as an adaptation of our gold standard digene HC2 test for detection of high-risk human papillomavirus (HPV), which has been shown to be the primary cause of cervical cancer. In cooperation with PATH, an NGO, and support from the Bill & Melinda Gates Foundation, QIAGEN developed this dedicated testing system for use in regions with limited healthcare resources. The main advantages of decentralized HPV testing are:

- immediate analysis at the point of care
- instant treatment decisions
- higher compliance of patients

Our careHPV Test is currently available in more than 25 countries worldwide. Since its launch through the end of 2019, more than 3 million tests have been distributed.

Outlook

QIAGEN Perspectives for 2020

The COVID-19 pandemic will have a significant impact on QIAGEN in 2020. Extraordinary demand has emerged for molecular technologies involved in testing for the new pathogen. However, the overall impact is not predictable at this point, as the spike in demand comes at the same time as demand for other products has waned due to the quarantines and other actions in many countries around the world that have disrupted the broader economy and routine healthcare.

Global Economic Perspectives for 2020

The world's economic perspectives for 2020 are impossible to predict at this time given the COVID-19 pandemic.

Industry Perspectives for 2020

Molecular testing solutions are seen as an essential component of the broad medical response to the COVID-19 pandemic. QIAGEN is committed to dramatically ramping up production capacity of its solutions that can be used for testing and support the overall response to this public health emergency.

Subsequent Events

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 per share in cash. The offer price represents a premium of approximately 23% to the closing price of QIAGEN's common stock on the Frankfurt Prime Standard on March 2, 2020, the last trading day prior to the announcement of the transaction. Thermo Fisher will commence a tender offer to acquire all of the ordinary shares of QIAGEN. The transaction values QIAGEN at approximately $11.5 billion at current exchange rates, which includes the assumption of approximately $1.4 billion of net debt. The transaction, which is expected to be completed in the first half of 2021, is subject to the satisfaction of customary closing conditions, including the receipt of applicable regulatory approvals, the adoption of certain resolutions relating to the transaction at an Extraordinary General Meeting of QIAGEN's shareholders, and completion of the tender offer. Thermo Fisher has obtained committed bridge financing. Permanent funding is expected to come from cash on hand and the issuance of new debt. The transaction is not subject to any financing condition.

In March 2020, the Supervisory Board and the Managing Board resolved in a Joint Meeting to propose Thierry Bernard, who has been with QIAGEN since 2015, for election as Chief Executive Officer and a Managing Director at the next Annual General Meeting, which is set to take place in June 2020, along with the re-election of Roland Sackers as Chief Financial Officer and a Managing Director. The Joint Meeting further resolved to propose the current members of the Supervisory Board to all stand for re-election: Håkan Björklund, Stéphane Bancel, Metin Colpan, Elaine Mardis, Lawrence Rosen and Elizabeth Tallett.

Venlo, the Netherlands, April 29, 2020

QIAGEN N.V.

Roland Sackers
Chief Financial Officer

Corporate Governance Report

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 public 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 and is expected to act in a sustainable manner by focusing on long-term value creation in the performance of their work. 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. Under Dutch Law, QIAGEN's Managing Board, which has two members, has chosen to work with an Executive Committee and is accountable for the actions and decisions of the Executive Committee, which is comprised of the CEO, the CFO and certain experienced leaders who have responsibilities for the operational management of the Company and the achievement of its objectives and results. The Managing Board has ultimate responsibility for the Company's external reporting and is answerable to shareholders of the Company at the Annual General Meeting of Shareholders. Pursuant to the two-tier corporate structure, the Managing Board is required to render account 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.

Our Managing Directors and interim CEO for the year ended December 31, 2019 and their ages as of January 31, 2020, are as follows:

Interim Chief Executive Officer and Managing Director:

Name[(1)]	Age	Position
Thierry Bernard	55	Interim Chief Executive Office and Senior Vice President, Head of Molecular Diagnostics Business Area
Roland Sackers	51	Managing Director, Chief Financial Officer

(1) The contract for Peer M. Schatz as Managing Director and Chief Executive Officer concluded effective September 30, 2019. Mr. Schatz continues as a Senior Advisor until June 30, 2021.

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

Thierry Bernard, 55, 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. In October 2019, Mr. Bernard was named Interim Chief Executive Officer in addition to his prior role as Senior Vice President, Head of Molecular Diagnostics Business Area. In March 2020, Mr. Bernard was named Chief Executive Officer. 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 member of the boards of directors of three privately held U.S. companies, First Light Biosciences, HepatoChem and more recently, 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, 51, 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.

Peer M. Schatz, 54, joined QIAGEN in 1993 and served as Chief Executive Officer from January 1, 2004 until September 30, 2019. He was Chief Financial Officer between 1993 and 2003 and became a member of the Managing Board in 1998. Mr. Schatz's contract as Managing Director and Chief Executive Officer concluded effective September 30, 2019 and he continues as a Senior Advisor until June 30, 2021.

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 2019. 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.

Supervisory Board

General

The Supervisory Board supervises the policies of the Managing Board, the general course of QIAGEN's affairs and the manner in which the Managing Board implements the long-term value creation 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 December 31, 2019, 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 Managing Board and the Supervisory Board in which case a simple majority of votes cast is sufficient.

Our Supervisory Directors for the year ended December 31, 2019 and their ages as of January 31, 2020, are as follows:

Supervisory Directors:

Name	Age	Nationality	Gender	Position
Stéphane Bancel	47	French	Male	Supervisory Director, Member of the Compensation Committee, Audit Committee and Science and Technology Committee
Dr. Håkan Björklund	63	Swedish	Male	Chair of the Supervisory Board, Member of the Compensation Committee and Selection and Appointment Committee
Dr. Metin Colpan	65	German	Male	Supervisory Director, Chair of the Science and Technology Committee and Member of the Selection and Appointment Committee
Dr. Ross L. Levine	48	U.S.	Male	Supervisory Director and Member of the Science and Technology Committee
Dr. Elaine Mardis	57	U.S.	Female	Supervisory Director and Member of the Science and Technology Committee
Lawrence A. Rosen	62	U.S.	Male	Supervisory Director and Chair of the Audit Committee
Elizabeth E. Tallett	70	U.S.	Female	Supervisory Director, Chair of the Compensation Committee, Member of the Audit Committee and Member of the Selection and Appointment Committee

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

Stéphane Bancel, 47, joined the Supervisory Board as well as the Compensation Committee in 2013 and joined the Audit Committee and Science and Technology Committee in 2014. 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, 63, was appointed as a Supervisory Board Member in March 2017 and as Chair of the Supervisory Board in June 2018. He is a member of the Compensation Committee and the Selection and Appointment Committee. Dr.

Björklund brings an extensive international background in the life science industry to QIAGEN, in particular through his current role as Operating Executive at Avista Capital Partners, as well as through previous roles as CEO of the global pharmaceutical company Nycomed, Regional Director at Astra (now AstraZeneca), President of Astra Draco and Operating Executive at Avista Capital Partners. Under Dr. Björklund's leadership, Nycomed grew from a predominantly Scandinavian business into a global pharmaceutical company. In addition to QIAGEN, he currently serves as Chairman of the Board of Directors of OneMed Top Holding AB and Swedish Orphan Biovitrum AB (Sobi) and as a Member of the Board of Directors of BONESUPPORT AB and Tellacq AB. Dr. Björklund earlier served as Chairman of the Board of Directors of Acino International AG and Lundbeck A/S, and was also a Member of the Board of Directors of several international life science companies, including Alere, Atos, Coloplast and Danisco. Dr. Björklund has a Ph.D. in Neuroscience from Karolinska Institutet in Sweden.

Dr. Metin Colpan, 65, 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, 48, 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, 57, joined the Supervisory Board and its Science and Technology Committee in 2014. 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 a board member of the American Association for Cancer Research, and has scientific advisory roles at Kiadis Pharmaceuticals N.V., PACT Pharma LLC, and Interpreta 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.

Lawrence A. Rosen, 62, joined the Supervisory Board as well as the Audit Committee in 2013, and has served as the committee's Chair since 2014. 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, 70, joined the Supervisory Board, as well as the Audit Committee and Compensation Committee, in 2011. She has served since 2016 as Chair of the Compensation Committee. She is a member of the Selection and Appointment 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., and Meredith Corp. 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.

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. A Supervisory Director that has a personal conflict of interest will not participate in the decision making process regarding such item. In December 31, 2019 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.

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 are comprised of the following members:

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. Håkan Björklund		•	• (Chairman)	
Dr. Metin Colpan			•	• (Chairman)
Dr. Ross L. Levine				•
Dr. Elaine Mardis				•
Lawrence A. Rosen	• (Chairman)			
Elizabeth E. Tallett	•	• (Chairwoman)	•	

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 currently consists of three members, Mr. Rosen (Chair), Ms. Tallett and Mr. Bancel, 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 defined in provisions III.3.2 and III.5.7 of the Dutch Code. 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 Managing 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 as well as the half-year and annual reports filed with The Netherlands Authority for the Financial Markets. The Audit Committee met seven times in 2019 and met with the external auditor excluding members of the Managing Board in July and October 2019. 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 currently consists of three members, Ms. Tallett (Chair), Mr. Bancel and Dr. Björklund. Members are appointed by the Supervisory Board and serve for a term of one year. The Compensation Committee met five times in December 31, 2019.

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. Current members of the Selection and Appointment Committee are Dr. Björklund (Chair), Dr. Colpan and Ms. Tallett. Members are appointed by the Supervisory Board and serve for a one-year term. In the context of the 2019 departure of the Chief Executive Officer, the Chair of the Supervisory Board invited all members of the Supervisory Board to participate in the resulting succession process. Consequently, these matters were discussed during Supervisory Board meetings and teleconferences and not in the forum of the Selection and Appointment committee, which did not formally meet in December 31, 2019.

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 current members of the Science and Technology Committee are Dr. Colpan (Chair), Dr. Levine, Mr. Bancel and Dr. Mardis. Members are appointed by the Supervisory Board and serve for a term of one year. The Science and Technology Committee met four times in December 31, 2019.

Diversity within the Managing Board and Supervisory Board

The Dutch Civil Code provided for statutory provisions to ensure a balanced representation of men and women on the Managing Board and Supervisory Boards until January 1, 2016. These statutory rules have expired, but a new bill entered into force on April 13, 2017, extending the provision on gender balance to December 31, 2019. Balanced representation of men and women is deemed to exist if at least 30 percent of the seats were filled by men and at least 30 percent are filled by women. Within the meaning of the new legislation, our Managing Board and Supervisory Board currently do not qualify as balanced.

QIAGEN recognizes the benefits of diversity, including gender balance. In nominating candidates for these boards, QIAGEN supports the trend toward higher participation of women. QIAGEN feels that gender is only one part of diversity and strives for a diverse composition in the Managing Board and Supervisory Board also in terms of other factors such as age, nationality, public reputation, industry or academic background. QIAGEN is committed to expanding diversity while pursuing individuals for these boards with a unique blend of scientific and commercial expertise and experience that will contribute to the future success of its business. Management development programs support the career advancement of leaders regardless of gender and other factors. As a result a number of women are in key leadership roles, particularly in leading commercial and operational positions around the world. In line with this commitment, QIAGEN's Selection and Appointment committee will continue selecting future members of the Managing Board and Supervisory Board with due observance of its aim to have a diverse leadership team on the basis of gender, but also on the basis of age, wide ranging experience, backgrounds, skills, knowledge and insight. This all without compromising QIAGEN's commitment to hiring the best individuals for those positions. More information about diversity within the Board other than gender, can be found in below under the section *Dutch Corporate Governance Code - Comply or explain*.

Compensation of Managing Board Members and Supervisory Directors

Remuneration policy

The objective of our remuneration policy is to attract and retain the talented, highly qualified international leaders and skilled individuals, who enable QIAGEN to achieve its short and long-term strategic initiatives and operational excellence. Our remuneration policy aligns remuneration with individual performance, corporate performance and fosters sustainable growth and long-term value creation in the context of QIAGEN's social responsibility and stakeholders' interest.

The remuneration policy and overall remuneration levels are regularly reviewed by an independent compensation consulting firm and benchmarked, against a selected group of companies and key markets in which QIAGEN operates, to ensure overall competitiveness. QIAGEN participates in various compensation benchmarking surveys that provide information on the level, as well as the structure, of compensation awarded by various companies and industries for a broad range of positions around the world. The companies in the peer group are selected on the basis of market capitalization, competitors for talent, similar complexity and international spread, operating in similar industries.

The performance of the Managing Board members is measured annually against a written set of goals. The remuneration of the Managing Board members is linked to the achievement of QIAGEN's strategic and financial goals. To ensure that remuneration is linked to performance, a significant proportion of the remuneration package is variable and contingent on performance of the individual and the company. These goals are set at ambitious levels each year to motivate and drive performance, with a focus on achieving both long-term strategic initiatives and short-term objectives based on the annual operative planning. Performance metrics used for these goals include the achievement of financial and non-financial targets.

The remuneration package of the Managing Board members consists of a combination of base salary, short term variable cash award and several elements of long term incentives (together, 'total direct compensation'). In addition, the members of the Managing Board receive a pension arrangement and other benefits that are standard in our industry, such as a company car.

The total target remuneration package of the Managing Board members is appropriately set against a variety of factors which includes external and internal equity, experience, complexity of the position, scope and responsibilities. We aim to provide the members of the Managing Board a total direct compensation at market median level.

The structure of the remuneration package for the Managing Board is designed to balance short-term operational excellence with long-term sustainable value creation while taking into account the interests of its stakeholders. As such a significant part of the total remuneration of the Managing Board members consist of variable remuneration which can differ substantially from year to year depending on our corporate results and individual performance and may include equity-based compensation which may be subject to vesting conditions over a period of up to 10 years.

The remuneration policies for the Managing Board and for other senior management members of QIAGEN are generally aligned and consistent.

Managing Board compensation

The compensation granted to the members of the Managing Board in December 31, 2019 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.

In 2014, the General Meeting of Shareholders approved a new remuneration policy for the Managing Board which provides that future 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.

The table below state the amounts earned on an accrual basis by our Managing Board members and interim CEO for the year ended December 31, 2019.

For the year ended December 31, 2019 (in US$ thousands, except for number of award grants)	**Thierry Bernard[1]**	**Peer M. Schatz[1]**	**Roland Sackers**
Fixed Salary	$ 650	$ 910	$ 560
Other [3]	34	6,571	40
Total fixed income 2019	$ 684	$ 7,481	$ 600
Short-term variable cash bonus[2]	500	—	249
Total short-term income 2019	$ 1,184	$ 7,481	$ 849
Defined contribution on benefit plan	24	$ 65	$ 76
Total cash remuneration	$ 1,208	$ 7,546	$ 925

(1) Mr. Schatz's contract as Managing Director and Chief Executive Officer concluded effective September 30, 2019 and he continues as a Senior Advisor until June 30, 2021. In October 2019, Mr. Bernard was named Interim Chief Executive Officer in addition to his prior role as Senior Vice President, Head of Molecular Diagnostics Business Area. Mr. Bernard is not a statutory director under Dutch law.

(2) The Performance Stock Units Granted amount includes the number of performance share units granted to each Managing Board member in 2019 for the conversion of 2018 cash bonus earned by each Managing Board member in 2018. In 2019, Mr. Schatz received 60,982 performance stock units and Mr. Sackers received 21,131 performance stock units.

(3) Amounts include, among others, car lease and reimbursed personal expenses such as tax consulting. Additionally, the amount for Mr. Schatz includes separation payments due upon the conclusion of his agreement. 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. Compensation for Mr. Schatz for 2019 is excluding €0.7 million to account for the tax levy payable to the Dutch tax authorities by the Company on termination benefits pursuant to Article 32bb of the Dutch wage tax act.

The total recognized compensation expense in accordance with IFRS 2 for share-based compensation in the year December 31, 2019 (2018) for long-term compensation of stock units amounted to $1.7 million for Mr. Bernard, $37.4 million ($12.3 million) for Mr. Schatz and $4.7 million ($3.6 million) for Mr. Sackers. Based on such valuations and including the tax levy on termination benefits, the total compensation including share-based compensation expenses in the year 2019 (2018) for members of the Managing Board and interim CEO was $54.3 million ($18.0 million), and amounts to $2.9 million for Mr. Bernard, $45.8 million ($13.7 million) for Mr. Schatz and $5.6 million ($4.3 million) for Mr. Sackers.

Further details on the composition of remuneration for the Managing Board, and the implementation of the Remuneration Policy during December 31, 2019, are disclosed in the Remuneration Report of the Compensation Committee as published on our website at www.qiagen.com.

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 2019 consists of fixed retainer compensation and additional retainer amounts for Chairman and Vice Chairman. Annual remuneration of the Supervisory Board members is as follows:

Fee payable to the Chairman 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:	
Chairman of the Audit Committee	$25,000
Chairman of the Compensation Committee	$18,000
Chairman 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.

The following table summarizes the total compensation paid to the members of the Supervisory Board in December 31, 2019:

For the year ended December 31, 2019 (in US$ thousands, except for number of share grants)	**Fixed remuneration**	**Chairman / Chairwoman**	**Committee membership**	**Total [1]**	***Number of restricted stock units granted***
Stéphane Bancel	$ 57.5	—	32.0	$ 89.5	*9,331*
Dr. Håkan Björklund	$ 150.0	12.0	11.0	$ 173.0	*9,331*
Dr. Metin Colpan	$ 57.5	12.0	6.0	$ 75.5	*9,331*
Dr. Ross L. Levine	$ 57.5	—	6.0	$ 63.5	*9,331*
Dr. Elaine Mardis	$ 57.5	—	6.0	$ 63.5	*9,331*
Lawrence A. Rosen	$ 57.5	25.0	—	$ 82.5	*9,331*
Elizabeth E. Tallett	$ 57.5	18.0	21.0	$ 96.5	*9,331*

(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.

The total recognized compensation expense in accordance with IFRS 2 for share-based compensation in the year 2019 (2018) for long-term compensation of restricted stock units amounted to $1.9 million ($1.5 million) and includes $321.3 thousand ($259.0 thousand) for Mr. Bancel, $150.8 thousand ($58.3 thousand) for Mr. Björklund, $327.6 thousand ($270.6 thousand) for Mr. Colpan, $235.8 thousand ($128.0 thousand) for Mr. Levine, $315.7 thousand ($227.6 thousand) for Ms. Mardis, $321.3 thousand ($259.0 thousand) for Mr. Rosen and $229.0 thousand ($201.4 thousand) for Ms. Tallett. $120.2 thousand in 2018 for Mr. Karobath, who did not stand for re-election at the Company's Annual General Meeting in June 2018.

The total recognized compensation expense, including share-based compensation expenses, for members of the Supervisory Board in 2019 (2018) totaled $2.5 million ($2.2 million) and includes amounts of $410.8 thousand ($348.5 thousand) for Mr. Bancel, $323.8 thousand ($182.1 thousand) for Mr. Björklund, $403.1 thousand ($346.1 thousand) for Mr. Colpan, $299.3 thousand ($191.5 thousand) for Mr. Levine, $379.2 thousand ($291.1 thousand) for Ms. Mardis, $403.8 thousand ($341.5 thousand) for Mr. Rosen, $325.5 thousand ($297.9 thousand) for Ms. Tallett and $209.7 thousand in 2018 for Mr. Karobath.

Share Ownership

The following table sets forth certain information as of January 31, 2020 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	47,526	(3)	*
Roland Sackers, Germany	139,476	(4)	*
Stéphane Bancel, United States	9.975	(5)	*
Dr. Håkan Björklund, Sweden	—		—
Dr. Metin Colpan, Germany	3,550,617	(6)	1.56 %
Dr. Ross L. Levine, United States	—	(7)	—
Dr. Elaine Mardis, United States	—	(8)	—
Lawrence A. Rosen, United States	—	(9)	—
Elizabeth Tallett, United States	22,167	(10)	*

* Indicates that the person beneficially owns less than 0.5% of the Common Shares issued and outstanding as of January 31, 2020.

(1) The number of Common Shares outstanding as of January 31, 2020 was 227,626,974. 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, 2020. 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 20,010 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 135,739 shares issuable upon the exercise of options now exercisable having exercise prices ranging from $15.59 to $22.25 per share. Options expire in increments during the period between February 2020 and February 2023. Does not include 88,917 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 11,037 shares issuable upon the release of unvested stock awards that could become releasable within 60 days from the date of this table.

(6) Does not include 4,567 shares issuable upon the exercise of options now exercisable having exercise prices ranging from $15.59 to $22.25 per share. Options expire in increments during the period between February 2020 and February 2022. Includes 2,741,579 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 11,479 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 4,292 shares issuable upon the release of unvested stock awards that could become releasable within 60 days from the date of this table.

(8) Does not include 11,037 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 11,037 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 11,037 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, 2020:

Name	Total Vested Options	Expiration Dates	Exercise Prices
Roland Sackers	135,739	2/26/2021 to 2/28/2023	$15.59 to $22.25
Dr. Metin Colpan	7,893	2/26/2021 to 2/28/2022	$15.59 to $22.25
Elizabeth E. Tallett	1,563	2/28/2022	$15.59

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 2019.

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 15.7 million Common Shares reserved and available for issuance under the 2005 and 2014 Plans at December 31, 2019.

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, 2020, there were 0.7 million options outstanding with exercise prices ranging between $14.91 and $22.25 and expiring between May 31, 2020 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 5.2 million stock unit awards outstanding as of January 31, 2020. These awards will be released between February 26, 2020 and May 31, 2028. As of January 31, 2020, options to purchase 0.1 million Common Shares and 1.0 million stock unit awards were held by the officers and directors of QIAGEN, as a group.

Further detailed information regarding stock options and awards granted under the plan can be found in Note 22 "Share-Based Payments" included in the Consolidated Financial Statements.

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.

Risk Management

Reference is made to the discussion in the section "Principle Risks and Uncertainties" above.

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. Based on that evaluation, they concluded that as of December 31, 2019, our disclosure controls and procedures were effective to ensure that information required to be disclosed by us in the reports that we file is recorded, processed, summarized and reported in a timely manner 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. 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 International Financial Reporting Standards.

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, 2019. 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, 2019, our internal control over financial reporting is effective**.**

Changes in Internal Control over Financial Reporting

There has been no change in our internal control over financial reporting during December 31, 2019 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

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 as adopted by the European Union 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 purpose both the Audit Committee and the Managing Board advise the Supervisory Board. At the Annual General Meeting in 2019, KPMG Accountants N.V. was appointed as external auditor for the Company for 2019 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, 2019 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. Further, Dr. Metin Colpan has joined the Supervisory Board in 2004. We value the profound industry experience of Dr. Colpan and his in-depth knowledge of QIAGEN. QIAGEN therefore supports the reappointment of Dr. Colpan 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 2019, our multicultural workforce was composed of at least 70 nationalities with an average age of 40.3. With 49% women, we are well balanced in terms of gender on an aggregate levelInformation on the composition of our Managing and Supervisory Boards can be found above and more information on gender diversity within the Managing and Supervisory Board can be found about under the section "*Diversity within the Managing Board and Supervisory Board*."

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. QIAGEN believes that these contractual arrangements are well justified due to the long tenures of the Managing Board members.

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.

Corporate Governance Statement

This is a statement concerning corporate governance as referred to in article 2a of the decree on additional requirements for annual reports (Vaststellingsbesluit nadere voorschriften inhoud jaarverslag) effective as of January 1, 2010 (the “Decree”). The information required to be included in this corporate governance statement as described in articles 3, 3a and 3b of the Decree can be found in the following sections of this Annual Report:

- The information concerning compliance with the Dutch Corporate Governance Code (published at www.commissiecorporategovernance.nl), as required by article 3 of the Decree, can be found in the relevant sections under "Corporate Governance Report" in this Annual Report;
- The information concerning QIAGEN's risk management and control frameworks relating to the financial reporting process, as required by article 3a sub a of the Decree, can be found in the relevant sections under "Corporate Governance Report" in this Annual Report;
- The information regarding the functioning of QIAGEN's General Meeting of Shareholders, and the authority and rights of QIAGEN's shareholders, as required by article 3a sub b of the Decree, can be found in the relevant sections under "Corporate Governance Report" in this Annual Report;
- The information regarding the composition and functioning of QIAGEN's Managing Board, the Supervisory Board and its committees, as required by article 3a sub c of the Decree, can be found in the relevant sections under "Corporate Governance Report " and the Report of the Supervisory Board in this Annual Report;
- The information concerning the inclusion of the information required by the Decree Article 10 EU Takeover Directive, as required by article 3b of the Decree, can be found in the relevant sections under "Corporate Governance Report" in this Annual Report;
- The information concerning the powers to issue and repurchase shares can be found under "Shareholdings and Other Information" in this Annual Report.

Requirements – Germany

QIAGEN is required, as a company of which the shares are listed on the Frankfurt Stock Exchange, to follow the applicable German capital market laws, in particular the Wertpapierhandelsgesetz.

Requirements – the United States

QIAGEN’s shares are listed on the New York Stock Exchange (NYSE) and must therefore comply with such of the requirements of US legislation, such as the Sarbanes-Oxley Act of 2002, regulations enacted under US securities laws and the listing standards of the NYSE as are applicable to foreign private issuers.

Responsibility Statement of the Managing Board

In accordance with best practice II.1.5 of the Dutch corporate governance code of December 2008, taking into account the recommendation of the Corporate Governance Code Monitoring Committee on the application thereof, the Managing Board confirms that internal controls over financial reporting provide a reasonable level of assurance that the financial reporting does not contain any material inaccuracies, and confirms that these controls functioned properly in the year under review and that there are no indications that they will not continue to do so. The financial statements fairly represent the Company's financial condition and the results of the Company's operations and provide the required disclosures.

It should be noted that the above does not imply that these systems and procedures provide absolute assurance as to the realization of operational and strategic business objectives, or that they can prevent all misstatements, inaccuracies, errors, fraud and non-compliances with legislation, rules and regulations.

In accordance with Article 5.25c of the Financial Markets Supervisory Act, and in view of all of the above the managing board confirms that, to the best of its knowledge, the financial statements give a true and fair view of the assets, liabilities, financial position and profit or loss of the Company and the annual report includes a fair review of the position at the balance sheet date and the development and performance of the business during the financial year together with a description of the principal risks and uncertainties that the Company faces.

QIAGEN N.V.

Roland Sackers
Chief Financial Officer

QIAGEN N.V.

CONSOLIDATED FINANCIAL STATEMENTS

QIAGEN N.V.
CONSOLIDATED BALANCE SHEETS
(in thousands)

	Note	December 31, 2019	December 31, 2018
Assets			
Current assets:			
Cash and cash equivalents	**(3)**	**$ 622,486**	$ 1,159,079
Restricted cash	**(3)**	**5,743**	—
Current financial assets	**(7)**	**107,118**	214,568
Trade accounts receivable	**(8)**	**376,281**	351,612
Income taxes receivable		**42,119**	34,936
Inventories	**(3)**	**170,704**	162,912
Fair value of derivative financial instruments	**(25, 26)**	**107,868**	102,754
Other current assets	**(9)**	**79,490**	89,795
Total current assets		**1,511,809**	2,115,656
Non-current assets:			
Property, plant and equipment	**(10)**	**356,100**	340,012
Goodwill	**(12)**	**2,166,213**	2,134,125
Other intangible assets	**(12)**	**750,599**	674,997
Right-of-use assets	**(13)**	**56,041**	—
Equity accounted investments	**(11)**	**9,729**	14,845
Non-current financial assets	**(7)**	**94,187**	81,639
Deferred tax assets	**(17)**	**77,610**	57,851
Fair value of derivative financial instruments	**(25, 26)**	**192,266**	295,363
Other non-current assets	**(9)**	**49,700**	83,329
Total non-current assets		**3,752,445**	3,682,161
Total assets		**$ 5,264,254**	$ 5,797,817

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

QIAGEN N.V.
CONSOLIDATED BALANCE SHEETS
(in thousands, except par value)

	Note	December 31, 2019	December 31, 2018
Liabilities and equity			
Current liabilities:			
Current financial debts	**(16)**	**$ 285,244**	$ 503,589
Trade and other accounts payable		**84,767**	69,415
Provisions	**(14)**	**8,129**	4,237
Income tax payable		**34,082**	30,047
Fair value of derivative financial instruments	**(25, 26)**	**103,175**	107,027
Other current liabilities	**(15)**	**436,097**	258,780
Total current liabilities		**951,494**	973,095
Non-current liabilities:			
Non-current financial debts	**(16)**	**1,418,634**	1,671,811
Deferred tax liabilities	**(17)**	**28,486**	70,617
Fair value of derivative financial instruments	**(25, 26)**	**435,592**	614,200
Other non-current liabilities	**(15)**	**106,201**	89,279
Total non-current liabilities		**1,988,913**	2,445,907
Equity:			
Common Shares, 0.01 EUR par value, authorized — 410,000 shares, issued — 230,829 shares in 2019 and 2018	**(18)**	**2,702**	2,702
Share premium		**1,790,504**	1,727,922
Retained earnings	**(18)**	**948,186**	1,133,682
Reserves		**(305,579)**	(306,588)
Less treasury shares, at cost — 3,077 and 5,320 shares in 2019 and 2018, respectively	**(18)**	**(111,966)**	(178,903)
Total equity		**2,323,847**	2,378,815
Total liabilities and equity		**$ 5,264,254**	$ 5,797,817

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

QIAGEN N.V.
CONSOLIDATED INCOME STATEMENTS
(in thousands, except per share data)

	Note	Years ended December 31, 2019	2018
Net sales	**(4, 21)**	**$ 1,526,424**	$ 1,501,848
Cost of sales:			
Cost of sales		**(457,093)**	(452,126)
Acquisition-related intangible amortization		**(71,689)**	(56,943)
Total cost of sales		**(528,782)**	(509,069)
Gross profit		**997,642**	992,779
Operating expenses:			
Other operating income		**12,542**	29,764
Research and development expense		**(144,013)**	(157,877)
Sales and marketing expense		**(421,571)**	(431,313)
General and administrative expense		**(130,999)**	(104,568)
Restructuring, acquisition, integration and other, net	**(6)**	**(199,722)**	(35,135)
Long-lived asset impairments	**(6)**	**(154,828)**	(7,987)
Other operating expense		**(8,585)**	(13,117)
Total operating expenses, net	**(10, 12, 23)**	**(1,047,176)**	(720,233)
(Loss) income from operations		**(49,534)**	272,546
Financial income		**22,113**	20,851
Financial expense	**(16)**	**(75,756)**	(67,293)
Foreign currency losses, net		**(5,667)**	(12,257)
Gain from equity accounted investments	**(11)**	**2,083**	2,592
Other financial expense, net	**(26)**	**(9,960)**	(69,544)
Total finance expense, net		**(67,187)**	(125,651)
(Loss) income before income taxes		**(116,721)**	146,895
Income taxes	**(17)**	**46,951**	(42,001)
Net (loss) income		**$ (69,770)**	$ 104,894
Basic (loss) earnings per common share	**(19)**	**$ (0.31)**	$ 0.46
Diluted (loss) earnings per common share	**(19)**	**$ (0.31)**	$ 0.45
Weighted average shares outstanding (in thousands)			
Basic	**(19)**	**226,777**	226,640
Diluted	**(19)**	**226,777**	233,456

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

QIAGEN N.V.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE (LOSS) INCOME
(in thousands)

	Note	Years ended December 31, 2019	2018
Net (loss) income		**$ (69,770)**	$ 104,894
Other comprehensive income (loss) not reclassified to profit or loss in subsequent periods:			
(Loss) gain on pensions, before tax		**(796)**	1,325
Other comprehensive income (loss) to be reclassified to profit or loss in subsequent periods:			
Foreign currency translation adjustments, before tax		**(12,172)**	(108,486)
Gains on cash flow hedges, before tax	**(26)**	**11,547**	11,368
Reclassification adjustments on cash flow hedges, before tax	**(26)**	**(3,888)**	(9,774)
Net investment hedge	**(26)**	**5,505**	13,839
Other comprehensive income (loss), before tax		**196**	(91,728)
Income tax relating to components of other comprehensive income (loss)		**813**	460
Total other comprehensive income (loss), after tax		**1,009**	(91,268)
Comprehensive (loss) income		**$ (68,761)**	$ 13,626

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

QIAGEN N.V.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)

	Note	Years ended December 31, 2019	2018
Net (loss) income		**$ (69,770)**	$ 104,894
Adjustments to reconcile net (loss) income to net cash provided by operating activities:			
Depreciation and amortization	**(10, 12)**	**239,361**	214,547
Non-cash impairments	**(6)**	**159,627**	17,020
Amortization of debt discount and issuance costs		**40,763**	36,393
Deferred income taxes	**(17)**	**(66,879)**	(12,990)
Share based compensation	**(23)**	**65,893**	40,113
Loss (gain) on financial assets	**(7)**	**2,867**	(2,725)
Reversals of contingent consideration		**(10,433)**	—
Other non-cash items, including fair value changes in derivatives	**(16, 26)**	**8,881**	58,470
Changes in operating assets and liabilities:			
Accounts receivable	**(8)**	**(30,742)**	(41,813)
Inventories	**(3)**	**(30,028)**	(36,918)
Other current assets		**28,345**	(9,942)
Other non-current assets		**(157)**	(29,883)
Accounts payable		**9,252**	6,993
Accrued and other liabilities	**(15)**	**52,611**	1,153
Other non-current liabilities		**(14,293)**	15,911
Income taxes	**(17)**	**31,805**	39,489
Interest paid		**(31,311)**	(25,902)
Interest received		**22,710**	17,978
Income taxes paid, net of refunds		**(41,474)**	(29,317)
Net cash provided by operating activities		**367,028**	363,471
Cash flows from investing activities:			
Purchases of property, plant and equipment	**(10)**	**(60,581)**	(55,774)
Purchases of intangible assets	**(12)**	**(214,303)**	(94,989)
Development expenses	**(12)**	**(13,342)**	(3,975)
Purchases of financial assets	**(7)**	**(293,959)**	(568,002)
Proceeds from financial assets	**(7)**	**396,098**	691,765
Purchase of investments	**(11)**	**(5,170)**	(9,398)
Cash paid for acquisitions, net of cash acquired	**(5)**	**(68,058)**	(172,832)
Proceeds from divestiture	**(5)**	**1,000**	16,394
Cash paid for collateral asset		**22,685**	(3,461)
Other investing activities		**(1,328)**	(15,059)
Net cash used in investing activities		**(236,958)**	(215,331)
Cash flows from financing activities:			
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	**(16)**	**—**	72,406
Proceeds from exercise of call option related to cash convertible notes	**(16)**	**134,737**	—
Payment of intrinsic value of cash convertible notes	**(16)**	**(133,763)**	—
Repayment of long-term debt	**(16)**	**(506,400)**	—
Principal payments on leases	**(13)**	**(22,666)**	(1,308)
Proceeds from issuance of common shares		**2,075**	4,412
Tax withholding related to vesting of stock awards		**(49,998)**	—
Purchase of treasury shares	**(18)**	**(74,450)**	(104,685)
Other financing activities		**(11,281)**	(8,019)
Net cash (used in) provided by financing activities		**(661,746)**	360,408
Effect of exchange rate changes on cash and cash equivalents and restricted cash		**826**	(7,183)
Net (decrease) increase in cash and cash equivalents and restricted cash		**(530,850)**	501,365
Cash and cash equivalents, beginning of period		**1,159,079**	657,714
Cash and cash equivalents and restricted cash, end of period		**$ 628,229**	$ 1,159,079

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

QIAGEN N.V.
CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(in thousands)

	Note	Common Shares		Share premium	Retained earnings	Cash flow hedge reserve	Revaluation reserve	Pension reserve	Foreign currency translation	Treasury Shares		Total equity
		Shares	Amount							Shares	Amount	
Balance at JANUARY 1, 2018		230,829	$ 2,702	$ 1,687,564	$ 1,071,393	$(30,487)	$ (942)	$ (878)	$ (183,955)	(4,272)	$ (118,987)	$ 2,426,410
IFRS 9 impact of change in accounting policy		—	—	—	(942)	—	942	—	—	—	—	—
IFRS 15 impact of change in accounting policy		—	—	—	(1,306)	—	—	—	—	—	—	(1,306)
Net income		—	—	—	104,894	—	—	—	—	—	—	104,894
Other comprehensive income (loss)		—	—	—	—	15,034	—	754	(107,056)	—	—	(91,268)
Total comprehensive income		—	—	—	104,894	15,034	—	754	(107,056)	—	—	13,626
Purchase of treasury shares	**(18)**	—	—	—	—	—	—	—	—	(2,871)	(104,685)	(104,685)
Tax benefit of employee stock plans	**(22)**	—	—	245	—	—	—	—	—	—	—	245
Share-based payments	**(22)**	—	—	40,113	—	—	—	—	—	—	—	40,113
Employee stock plans	**(22)**	—	—	—	(40,357)	—	—	—	—	1,823	44,769	4,412
Balance at DECEMBER 31, 2018		230,829	$ 2,702	$ 1,727,922	$ 1,133,682	$(15,453)	$ —	$ (124)	$ (291,011)	(5,320)	$ (178,903)	$ 2,378,815
Balance at JANUARY 1, 2019		**230,829**	**$ 2,702**	**$ 1,727,922**	**$ 1,133,682**	**$(15,453)**	**$ —**	**$ (124)**	**$ (291,011)**	**(5,320)**	**$ (178,903)**	**$ 2,378,815**
IFRS 16 impact of change in accounting policy	**(13)**	—	—	—	**(1,322)**	—	—	—	—	—	—	**(1,322)**
Net loss		—	—	—	**(69,770)**	—	—	—	—	—	—	**(69,770)**
Other comprehensive income (loss)		—	—	—	—	**13,164**	—	**(437)**	**(11,718)**	—	—	**1,009**
Total comprehensive loss		—	—	—	**(69,770)**	**13,164**	—	**(437)**	**(11,718)**	—	—	**(68,761)**
Purchase of treasury shares	**(18)**	—	—	—	—	—	—	—	—	**(1,987)**	**(74,450)**	**(74,450)**
Tax benefit of employee stock plans	**(22)**	—	—	**(3,307)**	—	—	—	—	—	—	—	**(3,307)**
Issuance of common shares in connection with conversion of the 2019 Notes and early redemption of 2021 Notes	**(22)**	—	—	**(4)**	**7,294**	—	—	—	—	**2,056**	**68,761**	**76,051**
Share-based payments	**(22)**	—	—	**65,893**	—	—	—	—	—	—	—	**65,893**
Employee stock plans	**(22)**	—	—	—	**(121,698)**	—	—	—	—	**3,622**	**123,773**	**2,075**
Tax withholding related to vesting of stock awards	**(22)**	—	—	—	—	—	—	—	—	**(1,448)**	**(51,147)**	**(51,147)**
Balance at DECEMBER 31, 2019		**230,829**	**$ 2,702**	**$ 1,790,504**	**$ 948,186**	**$ (2,289)**	**$ —**	**$ (561)**	**$ (302,729)**	**(3,077)**	**$ (111,966)**	**$ 2,323,847**

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

QIAGEN N.V.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

FOR THE YEAR ENDED December 31, 2019

1. Corporate Information, Basis of Presentation and Statement of Compliance

QIAGEN N.V. is a public limited liability company ('naamloze vennootschap') under Dutch law with registered office at Hulsterweg 82, 5912 PL Venlo, The Netherlands. QIAGEN N.V., a Netherlands holding company, and subsidiaries (we, our or the Company) is the leading global provider of Sample to Insight solutions that are used by over 500,000 customers worldwide to transform biological materials into valuable molecular insights. Our sample technologies isolate and process DNA, RNA and proteins - the building blocks of life - from blood, tissue and other materials. Assay technologies are used to make these biomolecules visible and ready for analysis. Bioinformatics software and knowledge bases are used to analyze and interpret complex genomic data to report relevant, actionable insights. Automation solutions are used to tie these together in seamless and cost-effective workflows. We provide this portfolio to two major customer classes: Molecular Diagnostics (human healthcare) and Life Sciences comprised of Academia / Applied Testing (life sciences research, forensics and food safety) and Pharma. With approximately 5,100 employees in over 35 locations worldwide, we market our products in more than 130 countries.

The accompanying consolidated financial statements were prepared in accordance with International Financial Reporting standards as endorsed by the European Union (IFRS) 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 financial assets that have been measured at fair value. The financial statements of the Company have been prepared on the basis of the going concern assumption. Based on our current knowledge and available information, we do not expect COVID-19 to have an impact on our ability to continue as a going concern in the future. The consolidated financial statements also comply with the financial reporting requirements included in Section 9 in Book 2 of the Netherlands Civil Code, as far as applicable.

We undertake acquisitions to complement our own internal product development activities. 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. On April 27, 2018, we acquired all shares in STAT-Dx Life, S.L. (STAT-Dx), a privately-held company located in Barcelona, Spain and on April 19, 2018, we acquired all remaining shares of a privately held entity in which we held a minority interest. Accordingly, at their respective acquisition dates, all the assets acquired and liabilities assumed were recorded at their respective fair values and our consolidated results of operations include the operating results from the acquired companies from the acquisition dates.

Certain prior year amounts have been reclassified to conform to the current year presentation. Beginning in 2019 in the Consolidated Income Statements, the line item "Acquisition-related intangible amortization" in cost of sales is presented separately. Previously, these amounts were presented together in one line in cost of sales. Additionally beginning in 2019, "Restructuring, acquisition, integration and other, net" and "Long-lived asset impairments" within operating expenses are presented separately. Previously, these amounts were presented together with general and administrative expenses in one line as "General and administrative, restructuring, integration and other, net." These reclassifications had no effect on (loss) income from operations.

The consolidated financial statements of QIAGEN for the year ended December 31, 2019, were authorized for issue in accordance with a resolution of the Supervisory Board on April 29, 2020.

2. Effects of New Accounting Policies and Disclosures

Adoption of New and Amended Standards and Interpretations

Effective January 1, 2019, we adopted both the *Annual Improvements to IFRS Standards 2015-2017 Cycle* and IFRIC 23, *Uncertainty over Income Tax Treatments*, without impact.

In January 2016, the IASB (International Accounting Standards Board) published IFRS 16 *Leases.* Under the new guidance, lessees are required to present right-of-use assets and lease liabilities on the balance sheet. This new lease guidance requires that a lessee recognize the following for leases at the commencement date:

- A lease liability, which is a lessee‘s obligation to make lease payments arising from a lease, measured on a discounted basis; and
- A right-of-use asset, which is an asset that represents the lessee’s right to use, or control the use of, a specified asset for the lease term.

We adopted IFRS 16 as per the effective date of January 1, 2019, using the modified retrospective approach and did not restate the 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 leases. We 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 IFRS 16. Our initial lease liabilities and right- of-use assets totaled $56.4 million and $57.7 million, respectively, as recorded in our condensed consolidated balance sheet as of January 1, 2019, primarily relating to leased office space. The difference between the additional right-of-use assets and lease liabilities was recorded as a $1.3 million adjustment to retained earnings. The standard did not materially impact our consolidated net earnings or cash flows. Further disclosure is found in Note 13 "Leases".

Effective January 1, 2019, we adopted IFRIC 23, *Uncertainty over Income Tax Treatments*, without impact. IFRIC 23 clarifies the application of the recognition and measurement requirements of IAS 12 when there is uncertainty about the income tax treatment. For recognition and measurement, estimates and assumptions must be made, e.g. whether an estimate is made separately or together with other uncertainties, a most likely amount or expected amount for the uncertainty is used and whether changes have occurred compared to the previous period. The risk of detection from tax authorities is irrelevant for the recognition of uncertain balance sheet items. Accounting is based on the assumption that the tax authorities are investigating the matter in question and that they have all relevant information at their disposal.

New and amended standards and interpretations not yet adopted:

We have not early adopted the following new and amended standards. We intend to adopt the new and amended standards at their effective dates.

The IASB refined its definition of material to make it easier to understand and issued amendments to IAS 1 and IAS 8, *Definition of Materi*al. The amendments are effective from 1 January 2020 but may be applied earlier. However, the IASB does not expect significant change – the refinements are not intended to alter the concept of materiality.

Effective January 1, 2020, we will prospectively adopted the IASB issued amendments to IFRS 3, *Definition of a Business,* to provide more guidance on the definition of a business. The amendments include an election to use a concentration test. This is a simplified assessment that results in an asset acquisition if substantially all of the fair value of the gross assets is concentrated in a single identifiable asset or a group of similar identifiable assets.

3. Summary of Significant Accounting Policies, Estimates and Judgments

Significant Accounting Policies

3.1 Consolidation Principles

The consolidated financial statements comprise the financial statements of the Company and its subsidiaries as at December 31, 2019 and for the year then ended.

Subsidiaries are fully consolidated from the date of acquisition, being the date on which the Company obtains control, and continue to be consolidated until the date that such control ceases. An entity is controlled when the Company has power over the entity, exposure or rights to variable returns from its involvement with the entity, and the ability to affect those returns through its power over the entity. In determining whether control exists, potential voting rights must be taken into account if those rights are substantive, in other words they can be exercised on a timely basis when decisions about the relevant activities of the entity are to be taken. Entities consolidated by the Company are referred to as "subsidiaries." The financial statements of the subsidiaries are prepared for the same reporting period as the parent company, using consistent accounting policies. All

intra-Company balances, income and expenses, unrealized gains and losses and dividends resulting from intra-Company transactions are eliminated in full.

Profit or loss and each component of other comprehensive income are attributed to the owners of the parent and to the noncontrolling interest. Total comprehensive income is attributed to the owners of the parent and to the noncontrolling interest even this results in a deficit balance.

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

If the Company loses control over a subsidiary, it derecognizes the assets (including goodwill) and liabilities of the subsidiary, the carrying amount of any noncontrolling interest, the cumulative translation differences, recorded in equity, recognizes the fair value of the consideration received, recognizes the fair value of any investment retained, any surplus or deficit in profit or loss and reclassifies the parent's share of components previously recognized in other comprehensive income to profit or loss.

3.2 Business Combinations and Goodwill

Business combinations are accounted for using the acquisition method. The cost of an acquisition is measured as the aggregate of the consideration transferred, measured at acquisition date fair value and the amount of any noncontrolling interest in the acquiree. The Company measures the noncontrolling interest in the acquiree at fair-value. Acquisition related costs incurred are expensed.

When the Company acquires a business, it assesses the financial assets and liabilities assumed for appropriate classification and designation in accordance with the contractual terms, economic circumstances and pertinent conditions as at the acquisition date.

Any contingent consideration to be transferred by the acquirer will be recognized at fair value at the acquisition date. Subsequent changes to the fair value of the contingent consideration which is deemed to be an asset or liability will be recognized either in profit or loss or as change to other comprehensive income. If the contingent consideration is classified as equity, it shall not be remeasured until it is finally settled within equity.

Goodwill is initially measured at cost being the excess of the consideration transferred and the amount recognized for noncontrolling interest over the Company's net identifiable assets acquired and liabilities assumed. If this consideration is lower than the fair value of the net assets of the subsidiary acquired, the difference is recognized as profit.

After initial recognition, goodwill is measured at cost less any accumulated impairment losses. For the purpose of impairment testing, goodwill acquired in a business combination is, from the acquisition date, allocated to each of the Company's cash generating units that are expected to benefit from the combination, irrespective of whether other assets or liabilities of the acquiree are assigned to those units.

Where goodwill forms part of a cash-generating unit and part of the operation within that unit is disposed of, the goodwill associated with the operation disposed of is included in the carrying amount of the operation when determining the gain or loss on disposal of the operation. Goodwill disposed of in this circumstance is measured based on the relative values of the operation disposed of and the portion of the cash-generating unit retained.

Management monitors and makes decisions regarding the Company's operations on a functional specific and global level. Therefore, we concluded that the consolidated Company as a whole qualifies as one cash generating unit.

3.3 Equity Accounted Investments

Investments in entities in which the Company has significant influence, generally participations of 20% or more of the voting power, but over which it does not exercise management control are accounted for using the equity method.

Under the equity method, the investment is carried in the statement of financial position at cost plus post acquisition changes in the Company's share of net assets of the associate.

After application of the equity method, the Company determines whether it is necessary to recognize an additional impairment loss on the Company's investment. The Company determines at each reporting date whether there is any objective evidence that the investment is impaired. If this is the case the Company calculates the amount of impairment as the difference between the recoverable amount of the investment and its carrying value and recognizes the amount in the income statement.

Upon loss of significant influence over the associate, the Company measures and recognizes any retaining investment at its fair value.

3.4 Foreign Currency Translation

The Company's presentation currency is the U.S. dollar (US$) which is also the parent company's functional currency. The subsidiaries' functional currencies are the local currency of the respective country with the exception of QIAGEN U.S. Finance Holdings (Luxembourg) SARL and QIAGEN Finance (Ireland) Ltd. which functional currencies are the U.S. dollar. Statements

of financial position prepared in the functional currencies are translated to the presentation currency at exchange rates in effect at the end of the accounting period except for shareholders' equity accounts, which are translated at rates in effect when these balances were originally recorded. Revenue and expense accounts are translated at a weighted average of exchange rates during the period. The cumulative effect of translation is included in shareholders' equity. On disposal of a subsidiary, such translation differences are recognized in the income statement as part of the gain or loss on sale.

Foreign currency transactions involving monetary assets and liabilities denominated in a currency other than the functional currency of the entity are translated using the exchange rate prevailing at the dates of the transactions. Foreign currency transaction gains and losses realized until settlement are included in the income statement, except for those related to intercompany transactions of a long-term investment nature which represent in substance part of the reporting entity's net investment in a foreign entity; such gains and losses are included in the cumulative foreign currency translation adjustments component of shareholders' equity. The net loss on foreign currency transactions in 2019 was $5.7 million, and in 2018 was $12.3 million.

The exchange rates of key currencies affecting the Company were as follows:

	Closing rate as at December		Annual average rate	
(US$ equivalent for one)	**2019**	**2018**	**2019**	**2018**
Euro (EUR)	**1.1234**	1.1450	**1.1196**	1.1813
Pound Sterling (GBP)	**1.3204**	1.2800	**1.2768**	1.3356
Swiss Franc (CHF)	**1.0350**	1.0161	**1.0062**	1.0228
Australian Dollar (AUD)	**0.7023**	0.7059	**0.6954**	0.7478
Canadian Dollar (CAD)	**0.7696**	0.7337	**0.7535**	0.7719
Japanese Yen (JPY)	**0.0092**	0.0091	**0.0092**	0.0091
Chinese Yuan (CNY)	**0.1437**	0.1454	**0.1448**	0.1514

3.5 Revenue Recognition

Beginning January 1, 2018, we recognize revenues 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 continues to be recognized when products are shipped to the customers. See Note 4 "Revenue".

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, 2019 and 2018, shipping and handling costs totaled $27.9 million and $28.4 million, respectively.

3.6 Operating Expenses

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, 2019 and 2018 were $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 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. 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), facility closure and contract termination costs. Termination benefits 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. Facility closure and other costs 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. See Note 6 "Restructuring and Impairments" for the details.

Research and Development

Research costs are expensed as incurred. Development expenditures on an individual project are recognized as an intangible asset when the Company can demonstrate:

- The technical feasibility of completing the intangible asset so that it will be available for use or sale.
- Its intention to complete and its ability to use or sell the asset.
- How the asset will generate probable future economic benefits.
- The availability of resources to complete the asset and to use or sell the intangible asset.
- The ability to measure reliably the expenditure during development.

Following initial recognition of the development expenditure as an asset, the cost model is applied requiring the asset to be carried at cost less any accumulated amortization and accumulated impairment losses.

Amortization of the asset begins when development is complete and the asset is available for use. It is amortized over the period of expected future benefit. Amortization is recorded in cost of sales. During the period of development, the asset is tested for impairment annually. The capitalized expenses are amortized on a straight-line basis over their estimated useful lives (between three and five years).

3.7 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 statement of financial position. When the grant relates to an asset, the value of the grant is deducted from the carrying amount of the asset and recognized over the same period that the related asset is depreciated or amortized.

The Company has received cost grants and investment grants. In 2019, the Company recorded income from government grants in the amount of $1.4 million (2018: $1.2 million). As of December 31, 2019, liabilities in the amount of $0.3 million (2018: $1.0 million) are recorded with respect to grants which have been received but for which not all conditions have been met.

3.8 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.

3.9 Post-Employment Benefits

The Company operates a number of defined benefit and defined contribution plans. For defined benefit plans, the Company provides for benefits payable to their employees on retirement by charging current service costs to income. The defined benefit liability comprises the present value of the defined benefit obligation less past service cost and actuarial gains and losses not yet recognized and less the fair value of plan assets out of which the obligations are to be settled directly. The Company's contributions to the defined contribution pension plans are charged to the income statement in the year to which they relate. Refer to Note 23 "Employee Benefits and Personnel Costs" for more details.

3.10 Share-Based Payments

The Company has a stock option plan, which is described in detail under Note 22 "Share-Based Payments". A compensation charge is calculated at the date the options are granted. This charge is recognized over the stock option's vesting period. When the option is exercised, the proceeds received net of any transaction costs are credited to share capital and share premium.

3.11 Taxation

Taxes reported in the consolidated income statements include current and deferred income taxes.

Current income tax

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

Current income tax relating to items recognized directly in equity is recognized in equity and not in the income statement. Management periodically evaluates positions taken in the tax returns with respect to situations in which applicable tax regulations are subject to interpretation and establishes provisions where appropriate.

Deferred tax

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

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

Deferred tax relating to items recognized outside profit or loss is recognized outside profit or loss. Deferred tax items are recognized in correlation to the underlying transaction either in other comprehensive income or directly in equity.

Deferred tax assets and deferred tax liabilities are offset, if a legally enforceable right exists to set off current tax assets against current income tax liabilities and the deferred taxes relate to the same taxable entity and the same taxation authority.

Income tax exposure

Uncertainties exist with respect to the interpretation of complex tax regulations, changes in tax laws, and the amount and timing of future taxable income. Given the wide range of international business relationships and the long-term nature and complexity of existing contractual agreements, differences arising between the actual results and the assumptions made, or future changes to such assumptions, could necessitate future adjustments to tax income and expense already recorded.

The Company establishes provisions, based on reasonable estimates, for possible consequences of audits by the tax authorities of the respective counties in which it operates. The amount of such provisions is based on various factors, such as experience of previous tax audits and differing interpretations of tax regulations by the taxable entity and the responsible tax authority. Such differences of Interpretation may arise on a wide variety of issues depending on the conditions prevailing in the respective Company's domicile.

3.12 Financial Instruments

Recognition and initial measurement

The Company's financial assets include cash and short-term deposits, trade and other receivables, loan and other receivables, quoted and unquoted financial instruments, and derivative financial instruments. The Company's financial liabilities include trade and other payables, bank overdraft, loans and borrowings, and derivative financial instruments.

Trade receivables and debt securities issued are initially recognized when they are originated. All other financial assets and financial liabilities are initially recognized when the Company becomes a party to the contractual provisions of the instrument.

A financial asset (unless it is a trade receivable without a significant financing component) or financial liability is initially measured at fair value plus, for an item not at FVTPL, transaction costs that are directly attributable to its acquisition or issue. A trade receivable without a significant financing component is initially measured at the transaction price.

3.13 Financial Instruments - Classification and Subsequent Measurement

Financial assets

On initial recognition, a financial asset is classified as measured at: amortized costs; FVOCI - debt investment; FVOCI - equity investment; or FVTPL.

Financial assets are not reclassified subsequent to their initial recognition unless the Company changes its business model for managing financial assets, in which case all affected financial assets are reclassified on the first day of the first reporting period following the change in the business model.

A financial asset is measured at amortized cost if if meets both of the following conditions and is not designated as an FVTPL:

- it is held within a business model whose objective is to hold assets to collect contractual cash flows; and
- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

A debt investment is measured at FVOCI if it meets both of the following conditions and is not designated as at FVTPL:

- it is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets; and

- its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

On initial recognition of an equity investment that is not held for trading, the Company may irrevocably elect to present subsequent changes in the investment's fair value in OCI. This election is made on an investment-by-investment basis.

All financial assets not classified as measured at amortized cost or FVOCI as described above are measured at FVTPL. This includes all derivative financial assets (see Note 26). On initial recognition, the Company may irrevocably designate a financial asset that otherwise meets the requirements to be measured at amortized cost or at FVOCI as at FVTPL if doing so eliminates or significantly reduces an accounting mismatch that would otherwise arise.

Financial assets - Business model assessment

The Company makes an assessment of the objective of the business model in which a financial asset is held at a portfolio level because this best reflects the way the business is managed and information is provided to management. The information considered includes:

- the stated policies and objectives for the portfolio and the operation of those policies in practice. These include whether management's strategy focuses on earning contractual interest income, maintaining a particular interest rate profile, matching the duration of the financial assets to the duration of any related liabilities or expected cash outflows or realizing cash flows through the sale of the assets;
- how the performance of the portfolio is evaluated and reported to the Company's management;
- the risks that affect the performance of the business model (and the financial assets held within that business model) and how those risks are managed;
- how managers of the business are compensated - e.g. whether compensation is based on the fair value of the assets managed or the contractual cash flows collected; and
- the frequency, volume and timing of sales of financial assets in prior periods, the reasons for such sales and expectations about future sales activity.

Transfers of financial assets to third parties in transactions that do not qualify for derecognition are not considered sales for this purpose, consistent with the Company's continuing recognition of the assets.

Financial assets that are held for trading or are managed and whose performance is evaluated on a fair value basis are measured at FVTPL.

Financial assets - Assessment whether contractual cash flows are solely payments of principal and interest

For the purposes of this assessment, 'principal' is defined as the fair value of the financial asset on initial recognition. 'Interest' is defined as consideration for the time value of money and for the credit risk associated with the principal amount outstanding during a particular period of time and for other basic lending risks and costs (e.g. liquidity risk and administrative costs), as well as a profit margin.

In assessing whether the contractual cash flows are solely payments of principal and interest, the Company considers the contractual terms of the instrument. This includes assessing whether the financial asset contains a contractual term that could change the timing or amount of contractual cash flows such that it would not meet this condition. In making this assessment, the Company considers:

- contingent events that would change the amount or timing of cash flows;
- terms that may adjust the contractual coupon rate, including variable-rate features;
- prepayment and extension features; and
- terms that limit the Company's claim to cash flows from specified assets (e.g. non-recourse features).

A prepayment feature is consistent with the solely payments of principal and interest criterion if the prepayment amount substantially represents unpaid amounts of principal and interest on the principal amount outstanding, which may include reasonable additional compensation for early termination of the contract. Additionally, for a financial asset acquired at a discount or premium to its contractual par amount, a feature that permits or requires prepayment at an amount that substantially represents the contractual par amount plus accrued (but unpaid) contractual interest (which may also include reasonable additional compensation for early termination) is treated as consistent with this criterion if the fair value of the prepayment feature is insignificant at initial recognition.

Financial assets - Subsequent measurement and gains and losses

Financial assets at FVTPL	These assets are subsequently measured at fair value. Net gains and losses, including any interest or dividend income, are recognized in profit or loss. However, see Note 26 for derivatives designated as hedging instruments.
Financial assets at amortised cost	These assets are subsequently measured at amortized cost using the effective interest method. The amortized cost is reduced by impairment losses. Interest income, foreign exchange gains and losses and impairment are recognized in profit or loss. Any gain or loss on derecognition is recognized in profit or loss.
Debt investments at FVOCI	These assets are subsequently measured at fair value. Interest income calculated using the effective interest method, foreign exchange gains and losses and impairment are recognized in profit or loss. Other net gains and losses are recognized in OCI. On derecognition, gains and losses accumulated in OCI are reclassified to profit or loss.
Equity investments at FVOCI	These assets are subsequently measured at fair value. Dividends are recognized as income in profit or loss unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognized in OCI and are never reclassified to profit or loss.

The Company does not hold any debt or equity investments at FVOCI as of December 31, 2019.

Financial liabilities - Classification, subsequent measurement and gains and losses

Financial liabilities are classified as measured at amortized cost or FVTPL. A financial liability is classified as at FVTPL if it is classified as held-for-trading, it is a derivative or it is designated as such on initial recognition. Financial liabilities at FVTPL are measured at fair value and net gains and losses, including any interest expense, are recognized in profit or loss. Other financial liabilities are subsequently measured at amortized cost using the effective interest method. Interest expense and foreign exchange gains and losses are recognized in profit or loss. Any gain or loss on derecognition is also recognized in profit or loss.

See Note 26 for financial liabilities designated as hedging instruments.

3.14 Derecognition

Financial assets

The Company derecognizes a financial asset when the contractual rights to the cash flows from the financial asset expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all of the risks and rewards of ownership of the financial asset are transferred or in which the Company neither transfers nor retains substantially all of the risks and rewards of ownership and it does not retain control of the financial asset.

The Company enters into transactions whereby it transfers assets recognized in its statement of financial position, but retains either all or substantially all of the risks and rewards of the transferred assets. In these cases, the transferred assets are not derecognized.

Financial liabilities

The Company derecognizes a financial liability when its contractual obligations are discharged or canceled, or expire. The Company also derecognizes a financial liability when its terms are modified and the cash flows of the modified liability are substantially different, in which case a new financial liability based on the modified terms is recognized at fair value.

On derecognition of a financial liability, the difference between the carrying amount extinguished and the consideration paid (including any non- cash assets transferred or liabilities assumed) is recognized in profit or loss.

3.15 Offsetting

Financial assets and financial liabilities are offset and the net amount presented in the statement of financial position when, and only when, the Company currently has a legally enforceable right to set off the amounts and it intends either to settle them on a net basis or to realize the asset and settle the liability simultaneously.

3.16 Derivative Financial Instruments and Hedge Accounting

The Company holds derivative financial instruments to hedge its foreign currency and interest rate risk exposures. Embedded derivatives are separated from the host contract and accounted for separately if the host contract is not a financial asset and certain criteria are met.

Derivatives are initially measured at fair value. Subsequent to initial recognition, derivatives are measured at fair value, and changes therein are generally recognized in profit or loss.

At inception of designated hedging relationships, the Company documents the risk management objective and strategy for undertaking the hedge. The Company also documents the economic relationship between the hedged item and the hedging instrument, including whether the changes in cash flows of the hedged item and hedging instrument are expected to offset each other.

Cash flow hedges

When a derivative is designated as a cash flow hedging instrument, the effective portion of changes in the fair value of the derivative is recognised in OCI and accumulated in the hedging reserve. The effective portion of changes in the fair value of the derivative that is recognised in OCI is limited to the cumulative change in fair value of the hedged item, determined on a present value basis, from inception of the hedge. Any ineffective portion of changes in the fair value of the derivative is recognized immediately in profit or loss.

The Company designates only the change in fair value of the spot element of forward exchange contracts as the hedging instrument in cash flow hedging relationships. The change in fair value of the forward element of forward exchange contracts ('forward points') is separately accounted for as a cost of hedging and recognized in a costs of hedging reserve within equity.

When the hedged forecast transaction subsequently results in the recognition of a non-financial item such as inventory, the amount accumulated in the hedging reserve and the cost of hedging reserve is included directly in the initial cost of the non-financial item when it is recognized.

For all other hedged forecast transactions, the amount accumulated in the hedging reserve and the cost of hedging reserve is reclassified to profit or loss in the same period or periods during which the hedged expected future cash flows affect profit or loss.

If the hedge no longer meets the criteria for hedge accounting or the hedging instrument is sold, expires, is terminated or is exercised, then hedge accounting is discontinued prospectively. When hedge accounting for cash flow hedges is discontinued, the amount that has been accumulated in the hedging reserve remains in equity until, for a hedge of a transaction resulting in the recognition of a non-financial item, it is included in the non-financial item's cost on its initial recognition or, for other cash flow hedges, it is reclassified to profit or loss in the same period or periods as the hedged expected future cash flows affect profit or loss.

If the hedged future cash flows are no longer expected to occur, then the amounts that have been accumulated in the hedging reserve and the cost of hedging reserve are immediately reclassified to profit or loss.

Net investment hedges

When a derivative instrument or a non-derivative financial liability is designated as the hedging instrument in a hedge of a net investment in a foreign operation, the effective portion of, for a derivative, changes in the fair value of the hedging instrument or, for a non-derivative, foreign exchange gains and losses is recognised in OCI and presented in the translation reserve within equity. Any ineffective portion of the changes in the fair value of the derivative or foreign exchange gains and losses on the non-derivative is recognized immediately in profit or loss. The amount recognised in OCI is reclassified to profit or loss as a reclassification adjustment on disposal of the foreign operation.

Derivative financial instruments and hedge accounting - Policy applicable before 1 January 2018

The policy applied in the comparative information presented for 2017 is similar to that applied for 2018. However, for all cash flow hedges, including hedges of transactions resulting in the recognition of non-financial items, the amounts accumulated in the cash flow hedge reserve were reclassified to profit or loss in the same period or periods during which the hedged expected future cash flows affected profit or loss. Furthermore, for cash flow hedges that were terminated before 2017, forward points were recognized immediately in profit or loss.

Refer to Note 26 "Financial Risk Factors and Use of Derivative Financial Instruments" for more details.

3.17 Cash and Cash Equivalents and Restricted Cash

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.

(in thousands)	2019	2018
Cash at bank and on hand	**$ 188,408**	$ 208,083
Short-term bank deposits	**434,078**	950,996
Cash and Cash Equivalents	**$ 622,486**	$ 1,159,079

Restricted cash includes cash that is subject to legal restriction in connection with a tender offer and no available for general operating purposes. As of December 31, 2019, we have $5.7 million of restricted cash.

3.18 Inventories

Inventories are stated at the lower of cost and net realizable value. The moving average method of valuation is used. The cost of work in process and finished goods includes raw materials, direct labor and production overhead expenditure based upon normal operating capacity. Net realizable value is the estimated selling price in the ordinary course of business less the cost of completion and distribution expenses. Provisions are established for slow-moving and obsolete inventory.

(in thousands)	2019	2018
Raw materials	**$ 26,077**	$ 25,819
Work in process	**45,729**	38,659
Finished goods	**98,898**	98,434
Inventories	**$ 170,704**	$ 162,912

Included in inventories as of December 31, 2019, are $24.8 million (2018: $14.4 million) of inventory provisions. The movement in inventory provisions was recorded under cost of sales. During 2019, inventories in the amount of $187.9 million have been recognized as cost of sales (2018: $180.3 million).

3.19 Property, Plant and Equipment

Property, plant and equipment are stated at cost of acquisition or construction cost less accumulated depreciation and accumulated impairment in value. Depreciation is computed using the straight-line and declining balance methods over the following estimated useful lives of the assets:

Buildings and improvements	5-40 years
Machinery and equipment	3-10 years
Furniture and office equipment	3-10 years

Land is not depreciated. Construction costs include borrowing costs and operating expenses that are directly attributable to items of property, plant and equipment capitalized during construction. Subsequent expenditure on an item of property, plant and equipment is capitalized at cost only when it is probable that future economic benefits associated with the item will flow to the Company and the cost of the item can be measured reliably. Repair and maintenance costs are expensed as incurred. Gains and losses on disposal or retirement of items of property, plant and equipment are determined by comparing the proceeds received with the carrying amounts and are included in the consolidated income statements. The asset's residual values, useful lives and methods of depreciation are reviewed, and adjusted if appropriate, at each financial year end.

3.20 Leases

Company as a lessee

Prior to adoption of IFRS 16 on January 1, 2019, leases of property, plant and equipment were classified as either finance or operating leases. Payments made under operating leases, net of any incentive received from the lessor, were charged to earnings on a straight-line basis over the life of the lease.

Starting January 1, 2019, leases are recognized as a right-of-use asset and a corresponding liability at the date at which the leased asset is available for use by the company. The right-of-use asset is depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis.

Assets and liabilities arising from a lease are initially measured on a present value basis. Lease liabilities include the net present value of the following lease payments:

- fixed payments, including in-substance fixed payments, less any lease incentives received;
- variable lease payments that are based on an index or a rate;
- amounts expected to be payable to the lessee under residual value guarantees;
- the exercise price of a purchase option if the lessee is reasonably certain to exercise that option; and
- payments of penalties for terminating the lease, if the lease term reflects the lessee exercising that option.

The lease payments are discounted using the interest rate implicit in the lease. If that rate cannot be determined, the lessee's incremental borrowing rate at the lease commencement date is used, which is based on an assessment of interest rates the company would have to pay to borrow funds, including the consideration of factors such as the nature of the asset and location, collateral, market terms and conditions, as applicable. After the commencement date, the amount of lease liabilities is increased to reflect the accretion of interest and reduced for the lease payments made.

Each lease payment is allocated between the liability and finance charges. The interest element of the finance cost is recognized in the income statement over the lease period so as to produce a constant periodic rate of interest on the remaining balance of

the liability for each period. In addition, the carrying amount of lease liabilities is remeasured if there is a modification, a change in the lease term, a change in the in-substance fixed lease payments or a change in the assessment to purchase the underlying asset.

Right-of-use assets are measured at cost comprising the following:

- the amount of the initial measurement of the lease liability;
- any lease payments made at or before the commencement date less any lease incentives received;
- any initial direct costs; and
- restoration costs.

The company determines the lease term as the non-cancellable term of the lease, together with any periods covered by an option to extend the lease if it is reasonably certain to be exercised, or any periods covered by an option to terminate the lease, if it is reasonably certain not to be exercised. The company applies judgement in evaluating whether it is reasonably certain to exercise the option to renew. That is, it considers all relevant factors that create an economic incentive for it to exercise the renewal.

The company leases various items of real estate, vehicles and other equipment. Rental contracts are typically made for fixed periods but may have extension or termination options.

Company as a lessor

When the company acts as a lessor, it determines at lease inception whether a lease is a finance lease or an operating lease. Leases in which the company does not transfer substantially all the risks and rewards incidental to ownership of an asset are classified as operating leases. The company recognizes lease payments received under operating leases as income on a straight-line basis over the lease terms in the Income Statement.

3.21 Intangible Assets

Intangible assets acquired separately are measured on initial recognition at cost. The cost of intangible assets acquired in a business combination is its fair value as at the date of acquisition. Expenditure on acquired technology rights, patents, trademarks and licenses are capitalized as intangible assets when it is probable that future economic benefits will flow to the Company and the cost can be measured reliably. Following initial recognition, intangible assets are carried at cost less any accumulated amortization and any accumulated impairment losses.

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 sales and marketing expense. 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 nature and use of the asset.

The useful lives of intangible assets are assessed as either finite or indefinite. Intangible assets with finite lives are amortized over the useful economic life and assessed for impairment whenever there is an indication that the intangible asset may be impaired. The amortization period and the amortization method for an intangible asset with a finite useful life are reviewed at least at each financial year end. Changes in the expected useful life or the expected pattern of consumption of future economic benefits embodied in the asset is accounted for by changing the amortization period or method, as appropriate, and are treated as changes in accounting estimates. The amortization expense on intangible assets with finite lives is recognized in the income statement in the expense category consistent with the function of the intangible asset.

Developed technology, patents and license rights, computer software, development costs and other intellectual properties are amortized on a straight-line basis over their estimated useful lives as follows:

Developed technology, patents and license rights	5-15 years
Computer software	3-7 years
Development costs	3-5 years
Other intellectual properties	5-15 years

3.22 Impairment

Impairment of financial assets

The Company recognizes an allowance for expected credit losses (ECLs) for trade receivables, contract assets, and debt investments carried and amortized cost. ECLs are based on the difference between the contractual cash flows due in accordance with the contract and all the cash flows that the company expects to receive, discounted at an approximation of the original effective interest rate.

ECLs are recognized in two stages. For credit risk exposures for which there has not been a significant increase in credit risk since initial recognition, ECLs are provided for credit losses that result from default events that are possible within the next 12

months (12-month ECLs). The company considers a financial asset to be in default when the counterparty is unlikely to pay its credit obligations to the company in full or when the financial asset is past due. For those credit exposures for which there has been a significant increase in credit risk since initial recognition, a loss allowance is required for credit losses expected over the remaining life of the exposure, irrespective of the timing of the default (lifetime ECLs). When determining whether the credit risk of a financial asset has increased significantly since initial recognition, the Company considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis, based on the company's historical experience and informed credit assessment and including forward-looking information, such as forecast economic conditions.

The Company assess the trade receivables allowance by applying the IFRS 9 simplified approach to measuring expected credit losses (ECLs), which uses the lifetime ECL allowance. To measure the ECLs on trade receivables, the Company considers any credit-risk concentration, collective debt risk based on historical losses, specific circumstances considering the market information on a country specific basis, and other forward looking information. Trade receivables are written off when there is no reasonable expectation of recovery of the asset (for example because of bankruptcy).

Impairment of non-financial assets

The Company assesses at each reporting date whether there is an indication that an asset may be impaired. If any indication exists, or when annual impairment testing for an asset is required, the Company estimates the asset's recoverable amount. An asset's recoverable amount is the higher of an asset's or cash-generating unit's (CGU) fair value less costs to sell and its value in use and is determined for an individual asset, unless the asset does not generate cash inflows that are largely independent of those from other assets or the Company's assets. Where the carrying amount of an asset or CGU exceeds its recoverable amount, the asset is considered impaired and is written down to its recoverable amount. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. In determining fair value less costs to sell, an appropriate valuation model is used. These calculations are corroborated by valuation multiples, quoted share prices for publicly traded subsidiaries or other available fair value indicators.

Impairment losses are recognized in the income statement in those expense categories consistent with the function of the impaired asset, except for property previously revalued where the revaluation was taken to other comprehensive income. In this case, the impairment is also recognized in other comprehensive income up to the amount of any previous revaluation.

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

Goodwill

Goodwill is subject to impairment tests annually, as of October 1, or earlier if indicators of potential impairment exist. We assess goodwill for impairment at least annually in the absence of an indicator of possible impairment and immediately upon an indicator of possible impairment.

Impairment is determined for goodwill by assessing the recoverable amount of each cash-generating unit (or Company of cash-generating units) to which the goodwill relates. Where the recoverable amount of the cash generating unit is less than their carrying amount an impairment loss is recognized. Impairment losses relating to goodwill cannot be reversed in future periods.

Intangible assets

Intangible assets with indefinite useful lives are tested for impairment annually as of October 1 either individually or at the cash generating unit level, as appropriate and when circumstances indicate that the carrying value may be impaired.

3.23 Provisions

Provisions are recognized by the Company when a present legal or constructive obligation exists as a result of past events, it is probable that an outflow of resources embodying economic benefits will be required to settle the obligation and a reliable estimate of the amount of the obligation can be made. Where the effect of the time value of money is material, the amount of a provision is the present value of the expenditures expected to be required to settle the obligation. Where discounting is used, the increase in the provision due to the passage of time is recognized as a financing cost.

Restructuring provisions are recorded in the period in which management has committed to a detailed formal plan, has raised a valid expectation in those affected that it will carry out the restructuring and it becomes probable that a liability will be incurred and the amount can be reasonably estimated. Restructuring provisions comprise lease termination penalties, other penalties and employee termination payments.

3.24 Segment Reporting

We determined that we operate as one operating segment. 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 cash generating unit.

3.25 Cash Flow Statement

The cash flow statement provides an explanation of the changes in cash and cash equivalents and restricted cash. It is prepared on the basis of a comparison of the statements of financial position as of January 1 and December 31 using the indirect method. Investing and financing transactions that do not require the use of cash or cash equivalents and restricted cash have been excluded from the cash flow statement. In 2019 and 2018 such eliminations primarily related to non-cash impacts from the convertible bonds.

Significant Accounting Estimates and Judgments

The preparation of the consolidated financial statements in conformity with IFRS requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are described below.

Purchase Price Allocation

The purchase price allocation for acquisitions 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. Additionally, we must determine whether an acquired entity is considered to be a business or a set of net assets, because a portion of the purchase price can only be allocated to goodwill in a business combination.

We have made several acquisitions 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 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 future cash flows, 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.

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.

Impairment of Intangible Assets

Assets are tested or reviewed for impairment in accordance with the accounting policy stated under Note 3.22 "Impairment".

In the fourth quarter of 2019, we performed our annual impairment assessment of goodwill (using data as of October 1, 2019). We performed our goodwill impairment testing on a single cash generating unit basis which is consistent with our reporting structure. Differences in assumptions used in projecting future operating cash flows and cost of funds could have a significant impact on the determination of impairment amounts. In estimating future cash flows, we used our internal five-year projections. Our projections were based on recent sales data for existing products, planned timing of new product launches or capital projects, and customer commitments related to new and existing products. These projections also included assumptions of future production volumes and pricing. Based on the sensitivity analysis performed, we determined that in the event that our estimates of projected future cash flows, growth rates and weighted average cost of capital were too high by 10%, there would still be no impact on the reported value of goodwill. We concluded that no impairment existed at October 1, 2019 or through December 31, 2019.

Due to the numerous variables associated with our judgments and assumptions relating to the valuation of the cash generating unit and the effects of changes in circumstances affecting these valuations, both the precision and reliability of the resulting estimates are subject to uncertainty, and as additional information becomes known, we may change our estimates.

Development Costs

Development costs are capitalized in accordance with the accounting policy stated under Note 3.6 "Research and Development". Determining the amounts to be capitalized requires management to make assumptions regarding the expected future cash generation of the assets, discount rates to be applied and the expected period of benefits. At least annually, management reviews the carrying amount of projects and assessed whether they were impaired or not.

Income Taxes

The Company is subject to income taxes in numerous jurisdictions that require estimates to be made based on interpretations of laws or regulations. Various internal and external factors, such as changes in tax laws, regulations and rates, changing interpretations of existing tax laws or regulations, future level of research and development spending and changes in overall levels of pre-tax income may have favorable or unfavorable effects on the income tax and deferred tax provisions in the period in which such determination is made.

Deferred tax assets are recognized in accordance with the accounting policy stated in Note 3.11 "Taxation". Deferred tax assets are recognized for net operating loss carry-forwards to the extent that it is probable that taxable profit will be available against which the losses can be utilized. Significant management judgment is required to determine the amount of deferred tax assets that can be recognized based upon the likely timing and level of future taxable profits.

Share-Based Payments - Stock Options

The Company utilizes the Black-Scholes-Merton valuation model for estimating the fair value of its stock options as stated under Note 22 "Share-Based Payments". Option valuation models, including Black-Scholes-Merton, require the input of highly subjective assumptions, and changes in the assumptions used can materially affect the grant date fair value of an award.

Share-Based Payments - 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 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. We grant performance-based stock units subject to performance periods of one-year up to three years. Thus the estimates of performance achieved during the performance period may be subject to significant changes from period to period as the performance is completed.

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 IFRS 15, 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 8-10% 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 subscriptions. 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 11-12% 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, 2019, we had $20.4 million of remaining performance obligations for which the transaction price is not constrained related to these contracts which we expect to recognize over the next 12 to 18 months.

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

Contract Balances

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

Contract assets as of December 31, 2019 and 2018 totaled $5.5 million and $6.9 million, respectively, are included in other current assets in the accompanying condensed consolidated balance sheet and relate to the companion diagnostic co-development contracts discussed above.

Contract liabilities primarily relate to advances or deposits received from customers before revenue is recognized and is primarily related to instrument service and software subscription revenue. As of December 31, 2019 and 2018, contract liabilities totaled $56.2 million and $54.3 million, respectively, of which $48.5 million and $45.3 million is included in other current liabilities, respectively, and $7.7 million and $9.0 million in included in other non-current liabilities, respectively. During the year ended December 31, 2019 and 2018, we satisfied the associated performance obligations and recognized revenue of $48.3 million and $44.5 million, respectively, related to advance customer payments previously received.

Disaggregation of Revenue

We disaggregate our revenue based on product categories and customer class as shown in the tables below for the years ended December 31, 2019 and 2018:

	2019			2018		
(in thousands)	Consumables and related	Instruments	Total	Consumables and related	Instruments	Total
Molecular Diagnostics	**$ 665,866**	**$ 71,266**	**$ 737,132**	$ 649,602	$ 82,197	$ 731,799
Life Sciences	**688,281**	**101,011**	**789,292**	665,857	104,192	770,049
Academia / Applied Testing	***418,518***	***69,114***	***487,632***	*407,370*	*72,131*	*479,501*
Pharma	***269,763***	***31,897***	***301,660***	*258,487*	*32,061*	*290,548*
Total	**$ 1,354,147**	**$ 172,277**	**$ 1,526,424**	$ 1,315,459	$ 186,389	$ 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 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 IPR&D is recognized and measured based on its relative fair value in relation to the cost of the group of assets as a whole at the acquisition date.

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 are preliminary and are based upon preliminary estimates which used information that was available to management at the time the financial statements were prepared and these estimates and assumptions are subject to change within the measurement period, up to one year from the acquisition date. Accordingly, the allocation may change. We continue to gather information about the assets and liabilities acquired, including the acquired tax balance. 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, no pro forma information has been provided herein.

2018 Business Combination

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

The cash consideration totaled $148.8 million. The acquisition included contingent consideration which is recorded as part of the purchase price based on the acquisition date fair value. Potential contingent payments through 2024 under the purchase agreement total $44.3 million, of which the fair value of $37.4 million was recorded as purchase price using a probability-weighted analysis of the future milestones applying discount rates between 6.5% and 6.9%. Direct acquisition costs totaled $2.0 million.

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

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

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

In-process research and development relates to technologies that remain in development at the time of acquisition and which had not yet obtained regulatory approval. During 2019, one development project was completed and a portion of in-process research and development costs were reclassified into developed technology as further discussed in Note 12 "Goodwill and Intangible Assets". The remaining technologies within in-process research and development are expected to be completed within the next two years.

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

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 and a corresponding gain of $4.8 million was recorded in general and administrative, restructuring, integration and other expense in the accompanying condensed 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 and will pay an additional $135.9 million in 2020. As of December 31, 2019, $134.3 million is included in other current liabilities in the accompanying condensed consolidated balance sheet for the present value of the future expected 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 $16.4 million was

received in cash and the balance due in April 2020. An $8.0 million gain was recorded on the sale to other financial (expense) income, net in the accompanying condensed consolidated statement of income for the year ended period ended December 31, 2018.

6. Restructuring and Impairments

As part of our restructuring activities, we incur expenses that qualify as constructive obligations under IAS 37 arising from a restructuring program 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 costs (principally termination benefits) 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 constructive obligations under IAS 37, which consist of asset-related costs such as intangible asset impairments and other asset related write-offs.

Termination benefits 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. 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 machinery and equipment and future and office equipment. These 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 computer software, developed technology and other capitalized development costs related to the suspended projects as well as the termination of licenses which were used exclusively in connection with this program. 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. 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 income statement due to the assets being deemed excess and no longer utilized due to the discontinued development and related actions discussed above.

In addition, we have initiated 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

The following is a summary of the charges recorded during the year ended December 31, 2019.

Consolidated Income Statement Classification and Type of Charge (in thousands)	Note	Year ended December 31, 2019 Total
Restructuring, acquisition, integration and other, net		
Personnel related (of which $2,956 due to related parties)	(22)	**$ 70,503**
Contract termination costs (of which $15,676 due to related parties)		**42,099**
Consulting fees		**10,150**
Accounts receivable (of which $5,984 due from related parties)		**10,825**
Inventories		**12,336**
Other current assets (of which $12,915 was long-term and $2,270 due from related parties)		**17,012**
		162,925
Long-lived asset impairments		
Property, plant and equipment	(9)	**13,367**
Other intangible assets	(12)	**140,122**
		153,489
Other (expense) income, net		
Equity accounted investment impairment	(11)	**4,799**
Total		**$ 321,213**

Of the total costs incurred, $60.2 million are accrued as of December 31, 2019 in other current liabilities in the accompanying consolidated balance sheet 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	**$ 44,565**	**$ 42,099**	**$ 10,150**	**$ 96,814**
Payments	**(17,272)**	**(18,294)**	**(2,162)**	**(37,728)**
Foreign currency translation adjustment	**631**	**493**	**(53)**	**1,071**
Liability at December 31, 2019	**$ 27,924**	**$ 24,298**	**$ 7,935**	**$ 60,157**

Future pre-tax costs between $15 - $23 million are expected to be incurred primarily related to personnel, consulting and contract termination costs before completion of the program in 2020.

2017 Restructuring

We initiated restructuring initiatives in 2017 to mitigate the negative impacts stemming from the U.S. tax reform. Total pre-tax costs for the initiatives, which were concluded in 2018, were $24 million and no additional costs will be incurred related to this program. Cumulative costs for this program were as follows:

(in thousands)	Personnel Related	Contract and Other Costs	Inventory Write-offs & Asset Impairments	Total
Cost of sales	$ —	$ —	$ 3,039	$ 3,039
Restructuring, acquisition, integration and other, net	—	4,583	—	4,583
Total 2017 costs	—	4,583	3,039	7,622
Cost of sales	424	1,193	—	1,617
Restructuring, acquisition, integration and other, net	10,381	4,232	1,610	16,223
Total 2018 costs	10,805	5,425	1,610	17,840
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**

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

(in thousands)	Personnel Related	Contract and Other Costs	Total
Liability at December 31, 2017	$ —	$ 4,585	$ 4,585
Additional costs in 2018	12,642	5,554	18,196
Release of excess accrual	(1,837)	(129)	(1,966)
Payments	(6,892)	(7,149)	(14,041)
Foreign currency translation adjustment	(93)	(17)	(110)
Liability at December 31, 2018	3,820	2,844	6,664
Release of excess accrual	**(1,100)**	**—**	**(1,100)**
Payments	**(2,269)**	**(2,828)**	**(5,097)**
Foreign currency translation adjustment	**(49)**	**(16)**	**(65)**
Liability at December 31, 2019	**$ 402**	**$ —**	**$ 402**

During 2018, fixed asset impairments of $1.6 million were recorded in connection with this initiative and are included within restructuring, acquisition, integration and other, net in the accompanying consolidated income statement. As of December 31, 2019 and 2018, liabilities of $0.4 million and $6.7 million, respectively, are included in other current liabilities in the accompanying consolidated balance sheets.

2016 Restructuring

During 2016, we initiated a series of targeted actions to support faster sales momentum and improve efficiency and accountability. The objective with these actions is to ensure that we grow sustainably and consistently. Measures included simplifying our geographic presence with site reductions, focusing resources to shared service centers, and streamlining selected organizational structures. The cumulative cost for this program was $98.2 million and no additional costs will be incurred related to this program. During the years ended December 31, 2019 and 2018, releases of excess accruals as included in the table below were included in restructuring, acquisition, integration and other, net.

(in thousands)	Personnel Related	Facility Related	Contract and Other Costs	Total
Liability at December 31, 2017	$ 3,922	$ 1,052	$ 1,066	$ 6,040
Additional costs in 2018	372	—	—	372
Release of excess accrual	(343)	(838)	(546)	(1,727)
Payments	(3,648)	(214)	(494)	(4,356)
Foreign currency translation adjustment	(48)	—	(26)	(74)
Liability at December 31, 2018	255	—	—	255
Release of excess accrual	**(31)**	**—**	**—**	**(31)**
Payments	**(225)**	**—**	**—**	**(225)**
Foreign currency translation adjustment	**1**	**—**	**—**	**1**
Liability at December 31, 2019	**$ —**	**$ —**	**$ —**	**$ —**

7. Financial Assets

(in thousands)	December 31, 2019	December 31, 2018
Current financial assets:		
Unquoted debt securities	**$ 107,118**	$ 214,568
Quoted equity securities	**—**	350
Current Financial Assets	**$ 107,118**	$ 214,918
Non-current financial instruments:		
Unquoted debt securities	**$ 22,468**	$ 20,038
Quoted equity securities	**870**	2,117
Unquoted equity securities	**70,849**	59,484
Non-current Financial Assets	**$ 94,187**	$ 81,639
Total Financial Assets	**$ 201,305**	$ 296,557

Unquoted Debt Securities

At December 31, 2019 and 2018, we had $129.6 million ($65.0 million and €57.5 million) and $234.3 million ($134.1 million and €87.5 million), respectively, 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 measured at fair market value with gains and losses recorded in earnings. Instruments are classified as current financial assets if they have stated maturity of less than one year. Instruments that are redeemable at our discretion with stated maturity dates of more than one year are classified as non-current financial assets in the accompany balance sheets.

(in thousands)	2019	2018
Balance at beginning of the year	**$ 234,606**	$ 359,198
Unquoted debt securities acquired	**293,959**	568,002
Unquoted debt securities sold	**(396,098)**	(691,765)
(Loss) gain on sales of unquoted debt securities	**(2,867)**	2,725
Translation	**(14)**	(3,554)
Balance at end of the year	**$ 129,586**	$ 234,606

Quoted Equity Securities

A summary of our investments in quoted equity securities that have readily determinable fair values follows below. These investments are reported at fair value with gains and losses recorded in earnings beginning in January 2018 upon adoption of IFRS 9. Prior to adoption, these investments were reported at fair value with unrealized gains and losses recognized in accumulated other comprehensive income on the balance sheet. Accordingly, upon adoption, we recorded a cumulative effect adjustment to decrease opening retained earnings at January 1, 2018 by a net of tax amount of $0.9 million (pre-tax $1.1 million) for unrealized losses as of the adoption date.

(in thousands, except shares held)	As of December 31, 2019	
	HTG Molecular Diagnostics, Inc. (HTGM)	Oncimmune Holdings plc (Oncimmune)
Shares held	**833,333**	**560,416**
Cost basis	**$ 2,000**	**$ —**
Fair value	**$ 585**	**$ 285**
Total cumulative unrealized gain (loss)	**$ (1,415)**	**$ 285**

(in thousands, except shares held)	As of December 31, 2018	
	HTGM	Curetis N.V. (Curetis)
Shares held	833,333	204,000
Cost basis	$ 2,000	$ 1,444
Fair value	$ 2,117	$ 350
Total cumulative unrealized loss	$ 117	$ (1,094)

During the year ended December 31, 2019, we received 560,416 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 operating income in the accompanying consolidated income statement. Also during 2019, we sold the remaining 204,000 Curetis shares and recognized an immaterial loss in other operating expense.

During the year ended December 31, 2018, we sold 116,424 shares of Curetis and recognized a gain of $0.3 million in other operating income in the accompanying consolidated statement of income.

During the years ended December 31, 2019 and 2018, losses recognized for the change in fair market value of all quoted equity securities totaled $2.1 million and $0.1 million, respectively, in other operating expense in the accompanying consolidated income statement. These marketable securities are included in current financial assets and non-current financial assets, respectively, in the accompanying consolidate balance sheets.

Unquoted Equity Securities

At December 31, 2019 and 2018, we had investments in non-publicly traded companies that do not have readily determinable fair values with carrying amounts that totaled $70.8 million and $59.5 million, respectively. Upon adoption of IFRS 9 in 2018, these investments are required to be accounted for at fair value through profit and loss unless the investment is not held for trading, and the holder elects at initial recognition to account for it at fair value through other comprehensive income. As this election has not been made, these investments are accounted for at fair value through profit and loss.

Changes in these investments for the years ended December 31, 2019 and 2018 are as follows:

(in thousands)	2019	2018
Balance at beginning of year	**$ 59,484**	$ 33,605
Cash investments in equity securities	**3,619**	9,633
Net increases due to observable price changes	**7,760**	13,104
Conversion of note receivable to equity securities	**—**	11,369
Sale of equity securities	**—**	(5,400)
Full acquisition of equity securities	**—**	(2,710)
Foreign currency translation adjustments	**(14)**	(117)
Balance at end of year	**$ 70,849**	$ 59,484

During 2019, we made investments of $3.6 million in equity securities. During 2018, we made investments of $9.6 million in equity securities, of which $9.3 million was an additional investment in NeuMoDx Molecular, Inc. (NeuMoDx).

The investment with NeuMoDx is part of a strategic partnership to commercialize two new fully integrated systems for automation of PCR (polymerase chain reaction) testing. Under the agreement, we will initially distribute the NeuMoDx™ 288 (high-throughput version) and NeuMoDx™ 96 (mid-throughput version) in Europe and other major markets worldwide outside of the United States. NeuMoDx will distribute these instruments within the United States directly. The two companies have also entered into an agreement under which we can acquire all NeuMoDx shares not currently owned by QIAGEN at a predetermined price of approximately $234 million, subject to the achievement of certain regulatory and operational milestones. As of December 31, 2019 and 2018, this investment had a total carrying value of $41.0 million which is included in non-current financial assets in the consolidated balance sheets, representing our maximum exposure to loss.

For the year ended December 31, 2019 and 2018, we recognized gains of $7.8 million and $13.1 million, respectively, in other operating income in the accompanying consolidated statement of income due to upward adjustments resulting from observable price changes. 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.

During 2018, we converted a note receivable from a non-publicly traded company, considered a related party, into an equity interest in that company and is currently held at the value of the shares received. This note held a balance of $11.4 million including principal balance and accrued interest at conversion which was a non-cash investing activity and is therefore not

included in the consolidated statement of cash flows. Also during 2018, we sold our interest in a non-publicly traded company which had a book value of $5.4 million. Proceeds from the sale totaled $10.5 million in cash resulting in a corresponding gain of $5.1 million recorded in other operating income in the accompanying consolidated statement of income. Additionally during 2018, we acquired all remaining shares of a privately held entity in which we held a minority interest as discussed in Note 5 "Acquisitions and Divestitures".

8. Trade Accounts Receivable

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.

(in thousands)	2019	2018
Trade accounts receivable	**$ 368,427**	$ 342,849
Notes receivable	**28,805**	18,033
Allowance for doubtful accounts	**(20,951)**	(9,270)
Trade Accounts Receivable, net	**$ 376,281**	$ 351,612

The notes receivable represent a written promise from customers to pay definite amounts of money on specific future dates.

The changes in the allowance for doubtful accounts receivable are as follows:

(in thousands)	2019	2018
Balance as of January 1	**$ 9,270**	$ 8,008
Additions charged to expense	**17,537**	4,448
Deductions from allowance[(1)]	**(5,777)**	(2,827)
Currency translation adjustments and other	**(79)**	(359)
Balance as of December 31	**$ 20,951**	$ 9,270

[(1)] Write-offs for which an allowance was previously provided.

9. Other Current and Non-current Assets

Other current assets at December 31, 2019 and 2018 consist of the following:

(in thousands)	2019	2018
Current loans and other receivables	**$ 34,407**	$ 11,127
Prepaid expenses	**22,053**	28,884
Value added tax	**20,347**	24,416
Cash collateral	**2,683**	25,368
Other Current Assets	**$ 79,490**	$ 89,795

Other non-current assets at December 31, 2019 and 2018 consist of the following:

(in thousands)	2019	2018
Non-current loans receivable with related parties including interest	**$ 15,581**	$ 24,300
Other non-current assets	**14,855**	10,420
Prepaid licenses and royalties	**13,748**	39,697
Prepayment of intangibles	**4,337**	7,884
Non-current deposits and escrow payments	**1,179**	1,028
Other Non-current Assets	**$ 49,700**	$ 83,329

As of December 31, 2018, prepaid licenses and royalties included $30.0 million of prepaid royalties to Natera for a partnership to develop genetic assays for the GeneReader NGS System. As discussed in Note 6 "Restructuring and Impairments," in the second half of 2019 we suspended development of NGS-related instrument systems. Accordingly, $15.0 million of the prepaid royalties were expensed in 2019 and the refundable portion of $15.0 million is classified as current as of December 31, 2019.

10. Property, Plant and Equipment

Cost (in thousands)	Land and buildings	Machinery and equipment	Furniture and office equipment	Leasehold improvements	Construction in progress	Total
January 1, 2018	$ 309,753	$ 299,175	$ 103,257	$ 37,372	$ 8,627	$ 758,184
Currency adjustments	(8,091)	(15,892)	(3,354)	(1,348)	(206)	(28,891)
Additions	947	31,125	10,121	1,470	29,388	73,051
Business combinations	—	4,506	316	894	—	5,716
Disposals	—	(15,248)	(5,835)	(1,252)	(441)	(22,776)
Transfers	96	3,084	5,265	848	(9,293)	—
December 31, 2018	302,705	306,750	109,770	37,984	28,075	785,284
Currency adjustments	**(3,186)**	**(4,350)**	**(913)**	**175**	**(380)**	**(8,654)**
Additions	**6,594**	**41,762**	**9,164**	**4,603**	**21,958**	**84,081**
Business combinations	**—**	**2,208**	**34**	**20**	**—**	**2,262**
Disposals	**(632)**	**(57,410)**	**(20,059)**	**(2,570)**	**(37)**	**(80,708)**
Transfers	**7,495**	**3,334**	**4,905**	**5,527**	**(21,261)**	**—**
December 31, 2019	**$ 312,976**	**$ 292,294**	**$ 102,901**	**$ 45,739**	**$ 28,355**	**$ 782,265**

Depreciation (in thousands)	Land and buildings	Machinery and equipment	Furniture and office equipment	Leasehold improvements	Construction in progress	Total
January 1, 2018	$ (89,675)	$ (235,919)	$ (80,898)	$ (27,681)	—	$ (434,173)
Currency adjustments	2,882	12,365	2,702	959	—	18,908
Depreciation	(8,244)	(28,853)	(9,884)	(2,293)	—	(49,274)
Disposals	—	13,334	5,719	214	—	19,267
December 31, 2018	(95,037)	(239,073)	(82,361)	(28,801)	—	(445,272)
Currency adjustments	**1,124**	**2,849**	**627**	**(147)**	**1**	**4,454**
Depreciation	**(7,527)**	**(29,121)**	**(9,697)**	**(3,034)**	**—**	**(49,379)**
Impairment losses	**—**	**(9,177)**	**(4,030)**	**—**	**(160)**	**(13,367)**
Disposals	**472**	**53,233**	**21,182**	**2,512**	**—**	**77,399**
December 31, 2019	**(100,968)**	**(221,289)**	**(74,279)**	**(29,470)**	**(159)**	**(426,165)**
Net book value						
December 31, 2018	$ 207,668	$ 67,677	$ 27,409	$ 9,183	$ 28,075	$ 340,012
December 31, 2019	**$ 212,008**	**$ 71,005**	**$ 28,622**	**$ 16,269**	**$ 28,196**	**$ 356,100**

Impairments of $13.4 million during 2019 were related to the 2019 Restructuring program as further discussed in Note 6 "Restructuring and Impairments." No property, plant and equipment were pledged as security against non-current financial debts at December 31, 2019 and 2018. The net carrying amount of property, plant and equipment under finance lease contracts amounted to $0.1 million as of December 31, 2018.

The asset's residual values, useful lives and methods of depreciation are reviewed, and adjusted if appropriate, at each financial year end. For the years ended December 31, 2019 and 2018, interest capitalized in connection with construction projects was not significant.

11. Equity Accounted Investments

We have made strategic investments in certain companies that are accounted for using the equity method of accounting. The method of accounting for an investment depends on the level of influence. We monitor changes in circumstances that may require a reassessment of the level of influence. We periodically review the carrying value of these investments for impairment, considering factors such as the most recent stock transactions and book values from the recent financial statements.

Amounts from equity method investments considered in the financial statements are as follows:

		Equity investments as of December 31,		Share of income (loss) for the years ended December 31,	
($ in thousands)	Ownership Percentage	2019	2018	2019	2018
PreAnalytiX GmbH	50.00 %	**$ 5,452**	$ 5,405	**$ 3,971**	$ 4,062
Suzhou Fuda Business Management and Consulting Partnership	33.67 %	**3,100**	3,138	**—**	—
TVM Life Sciences Ventures III	4.80 %	**1,219**	—	**(330)**	**$ —**
Apis Assay Technologies Ltd	19.00 %	**719**	770	**(51)**	—
Hombrechtikon Systems Engineering AG	19.00 %	**(761)**	378	**(1,124)**	(668)
MAQGEN Biotechnology Co., Ltd	40.00 %	**—**	5,154	**(383)**	(579)
Biotype Innovation GmbH	0.00 %	**—**	—	**—**	(123)
Pyrobett	19.00 %	**—**	—	**—**	(100)
		$ 9,729	$ 14,845	**$ 2,083**	$ 2,592

These equity method investments are included in equity accounted investments in the consolidated balance sheets for the years ended December 31, 2019 and 2018.

Of the $9.7 million of non-marketable investments accounted for as equity method investments, $10.5 million is included in other long-term assets and $0.8 million, where we are committed to fund losses, is included in other long-term liabilities in the accompanying consolidated balance sheets as of December 31, 2019.

During 2019, we made an investment in TVM Life Science Ventures III and as of December 31, 2019 we hold a 4.8% ownership stake in this limited partnership that is accounted for under the equity method as we have the ability to exercise significant influence over the limited partnership. Also during the year ended December 31, 2019, we recorded an impairment of $4.8 million in other operating expense in the accompanying consolidated income statement, 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 operating expense in the accompanying consolidated income statements, following changes in the investees' circumstances that indicated the carrying value was no longer recoverable.

The below tables shows the changes in our equity method investments for the years ended December 31, 2019 and 2018:

(in thousands)	2019	2018
Equity method investments as at January 1st	**$ 14,845**	$ 18,462
Acquisition of shares	**1,549**	7,181
Impairment	**(4,799)**	(6,142)
Dividend distribution received	**(4,052)**	(6,059)
Share of profit	**2,083**	2,592
Exchange rate differences / other	**103**	(1,189)
Equity method investments as at December 31st	**$ 9,729**	$ 14,845

The following overview reflects 100% of the balances of the relating companies:

(in millions)	2019	2018
Total assets	**$ 99.4**	$ 57.0
Shareholders' equity	**$ 80.7**	$ 48.0
Net sales	**$ 50.2**	$ 30.9
Net result	**$ 10.7**	$ 10.4

12. Goodwill and Other Intangible Assets

The changes in the carrying amount of goodwill for the years ended December 31, 2019 and 2018 are as follows:

(in thousands)	2019	2018
Goodwill as at January1st	**$ 2,134,125**	$ 2,038,180
Goodwill acquired during the year	**34,807**	142,287
Purchase adjustments	**(236)**	—
Disposals	**(225)**	(5,682)
Currency adjustments	**(2,258)**	(40,660)
Goodwill as at December 31st	**$ 2,166,213**	$ 2,134,125

The changes in the carrying amount of goodwill during the years ended December 31, 2019 resulted primarily from the acquisition of N-of-One, Inc. and other acquisitions discussed in Note 5 "Acquisitions and Divestitures" and changes in foreign currency translation. The changes in goodwill during the year ended December 31, 2018 resulted primarily from acquisition of STAT-Dx and other acquisitions and divestitures also discussed in Note 5 "Acquisitions and Divestitures".

In the fourth quarter of 2019, we performed our annual impairment assessment of goodwill (using data as of October 1, 2019) in accordance with the provisions of IAS 36. No events or changes in circumstances indicated that the acquired goodwill might be impaired.

Management monitors and makes decisions regarding the Company's operations on a functional specific and global level. Therefore, we concluded that the goodwill impairment test needs to be performed on the level of the consolidated Group as a whole (one cash generating unit). In testing for potential impairment, we measured the estimated fair value of the cash generating unit based upon discounted future operating cash flows using a discount rate reflecting our estimated average cost of funds.

For impairment testing, the recoverable amount of goodwill allocated to the cash generating unit (higher of the cash generating unit's fair value less selling costs and its value in use) is compared to the carrying amount of the net assets employed (including goodwill) of the cash generating unit. Value in use is normally assumed to be higher than the fair value less selling costs; therefore, fair value less selling costs is only investigated when value in use is lower than the carrying amount of the cash generating unit.

Key assumptions used in the value in use calculations

The value in use is calculated based on estimated future cash flow projections expected to result from the use of the cash generating unit, discounted using an appropriate long-term pre-tax discount rate. The value in use calculations use cash flow projections based on financial budgets and models over the projection period (five years) as available for internal reporting purposes and in accordance with standard valuation practices. The growth rates used are based on industry growth forecasts for the projected period as well as for the subsequent period (long-term growth rate of 3% in 2019 and 2018). The discount rates used are based on the pre-tax weighted average cost of capital (2019: 6.70%; 2018: 7.70%) and are verified against external analyst reports.

Sensitivity to changes in assumptions

Changes in assumptions used in projecting future operating cash flows and cost of funds could have a significant impact on the determination of impairment amounts. In estimating future cash flows, we used our internal budgets. Our budgets were based on recent sales data for existing products, planned timing of new product launches or capital projects, and customer commitments related to new and existing products. These budgets also included assumptions of future production volumes and pricing. The calculation of value in use is most sensitive to discount rates and growth rates used.

Discount rates reflect management's estimate of the risks profile for the respective valuation object. The growth rates used are based on industry growth forecasts for the projected period as well as for the subsequent period.

We concluded that no impairment existed. We believe that any reasonably possible change in the key assumptions would not have an impact on reported goodwill. Even if our estimates of projected future cash flows in respect of discount and growth rates were too high by 10%, there would be no impact on the reported value of goodwill at December 31, 2019. Due to the numerous variables associated with our judgments and assumptions relating to the valuation of the cash generating unit and the effects of changes in circumstances affecting these valuations, both the precision and reliability of the resulting estimates are subject to uncertainty, and as additional information becomes known, we may change our estimates.

Other Intangible Assets

Cost (in thousands)	Developed technology, patent and license rights	Computer software	Development costs	Other intellectual properties	Total
January 1, 2018	$ 1,178,725	$ 300,724	$ 139,344	$ 438,018	$ 2,056,811
Currency adjustments	(27,695)	(11,327)	(3,103)	(10,224)	(52,349)
Additions	32,139	53,999	3,975	19	90,132
Business combinations	53,900	208	—	27,300	81,408
Disposals	(18,662)	(13,799)	—	(3,797)	(36,258)
December 31, 2018	1,218,407	329,805	140,216	451,316	2,139,744
Currency adjustments	**(6,989)**	**(4,666)**	**(1,575)**	**1,325**	**(11,905)**
Additions	**286,111**	**57,369**	**13,342**	**49**	**356,871**
Business combinations	**10,631**	**7**	**—**	**25,827**	**36,465**
Disposals	**(437,453)**	**(10,408)**	**(128,225)**	**(140,269)**	**(716,355)**
Transfers	**15,922**	**—**	**—**	**(15,922)**	**—**
December 31, 2019	**$ 1,086,629**	**$ 372,107**	**$ 23,758**	**$ 322,326**	**$ 1,804,820**

Amortization (in thousands)	Developed technology, patent and license rights	Computer software	Development costs	Other intellectual properties	Total
January 1, 2018	$ (824,264)	$ (130,414)	$ (105,959)	$ (293,160)	$ (1,353,797)
Currency adjustments	16,965	5,626	2,161	6,322	31,074
Amortization	(79,106)	(38,593)	(8,111)	(39,470)	(165,280)
Impairment losses	—	(7,890)	—	—	(7,890)
Disposals	15,519	13,113	—	2,514	31,146
December 31, 2018	(870,886)	(158,158)	(111,909)	(323,794)	(1,464,747)
Currency adjustments	**3,447**	**373**	**1,390**	**(149)**	**5,061**
Amortization	**(91,612)**	**(36,573)**	**(7,645)**	**(30,948)**	**(166,778)**
Impairment losses	**(40,298)**	**(86,363)**	**(14,797)**	**(3)**	**(141,461)**
Disposals	**437,453**	**7,757**	**128,225**	**140,269**	**713,704**
December 31, 2019	**(561,896)**	**(272,964)**	**(4,736)**	**(214,625)**	**(1,054,221)**
Net book value					
December 31, 2018	347,521	171,647	28,307	127,522	674,997
December 31, 2019	**$ 524,733**	**$ 99,143**	**$ 19,022**	**$ 107,701**	**$ 750,599**

In 2019, we recorded asset impairment charges totaling $141.5 million, of which $140.1 million related to the 2019 Restructuring program discussed in Note 6 "Restructuring and Impairments" and $1.4 million were related to other identified impairments during the year. In 2018, we recorded asset impairment charges of $7.9 million of computer software of which $1.6 million related to the 2017 Restructuring program also discussed in Note 6 "Restructuring and Impairments" and $6.3 million related to strategic shifts in our business.

Amortization expense on intangible assets is included in the line items cost of sales, research and development expense, sales and marketing expense or general and administrative expense in the accompanying consolidated statements of income depending on the nature and use of the asset. In 2019, purchased intangibles amortization related to developed technology and patent and license rights acquired in a business combination is included in cost of sales in the amount of $71.7 million (2018: $56.9 million) and purchased intangibles amortization of trademarks and customer base acquired in a business combination is recorded in sales and marketing expense in the amount of $30.0 million (2018: $39.0 million).

Amortization of capitalized development costs have been recorded to cost of sales in the amount of $7.6 million in 2019 (2018: $8.1 million).

Cash paid for purchases of intangible assets during the year ended December 31, 2019 totaled $214.3 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 non-current assets in the accompanying consolidated balance sheet. Intangible asset additions excluding development costs of $343.6 million includes $202.3 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.

Cash paid for intangible assets during the year ended December 31, 2018 totaled $95.0 million of which $11.9 million is related to current year payments for licenses that were accrued as of December 31, 2017 and $3.3 million is related to prepayments recorded in other non-current assets in accompanying consolidated balance sheet. Intangible asset additions excluding development costs of $86.2 million includes $79.8 million of cash paid during the year ended December 31, 2018, together with $4.2 million of additions which were previously recorded as prepayments and $2.2 million of additions which were previously recorded as prepayments.

13. Leases

In January 2016, the IASB published IFRS 16 *Leases.* The new standard increases transparency and comparability by requiring the recognition by lessee of right-of-use ("ROU") assets and lease liabilities arising from lease contracts on the balance sheet. Under the standard, disclosures are required to meet the objective of enabling users of financial statements to assess the amount, timing and uncertainty of cash flows arising from leases.

Accounting Policies

We adopted IFRS 16 *Leases* on its effective date on January 1, 2019 and the comparative information has not been adjusted and continues to be reported under IAS 17 *Leases*. As a result, we changed our accounting policy for leases as detailed below.

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

Adoption of the new standard resulted in the recording of additional right-of-use assets and lease liabilities of approximately $56.4 million and $57.7 million, respectively as of January 1, 2019. The difference between the additional right-of-use assets and lease liabilities was recorded as a $1.3 million adjustment to retained earnings. The standard did not materially impact our condensed consolidated income statements and had no impact on cash flows.

Nature of Existing Leases

We have leases for equipment, cars, machinery, other equipment, office and buildings. Our leases have remaining lease terms of 1 year to 9 years, some of which include options to extend or early renew the leases, and some of which include options to early terminate the leases. As of December 31, 2019, no such options have been recognized as part of the right-of-use assets and lease liabilities.

Leases can contain variable lease charges based on index like consumer prices or rates. During 2019, amounts recorded as variable lease payments not included in the lease liabilities were not material.

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

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

(in thousands, except lease term and discount rate)	Location in balance sheet	December 31, 2019
Right-of-use assets	Right-of-use assets	$ 56,041
Office and buildings		*43,909*
Cars and all others assets		*12,132*
Current lease liabilities	Other current liabilities	$ 18,739
Non-current lease liabilities	Other non-current liabilities	$ 39,631
Weighted Average Remaining Lease Term (in years)		3.71

The components of lease expense were as follows:

(in thousands)	Year ended December 31, 2019
Amortization of right-of-use assets	$ 23,046
Office and buildings	*15,930*
Cars and all others assets	*7,116*
Interest on lease liabilities	$ 1,590

Supplemental cash flow information related to leases was as follows:

(in thousands)	Year ended December 31, 2019
Cash paid for amounts included in the measurement of lease liabilities:	
Financing cash flows from principal portion of lease payments	$ (22,666)
Operating cash flows from interest portion of lease payments	(1,590)
Total cash outflow for leases	$ (24,256)

Maturities of lease liabilities were as follows:

(in thousands)	Leases
2020	$ 19,914
2021	16,009
2022	11,885
2023	7,119
2024	3,391
Thereafter	3,202
Total lease payments[(1)]	61,520
Less imputed interest	(3,150)
Total	$ 58,370

[(1)] Total lease payments exclude payments associated to the lease agreement discussed below that has not yet commenced.

As of December 31, 2019, we had an additional lease for a facility related primarily to research and development that has not yet commenced but will create significant rights and obligations for the Company. The agreement commences in 2020 with future undiscounted aggregate lease payments of $44.5 million to be paid over a lease term of 15 years.

14. Provisions

For the years ended December 31, 2019 and 2018, provisions as per the accompanying consolidated statements of financial position totaled $8.1 million and $4.2 million, respectively, and included amounts related to our warranty and acquisition related provisions.

Warranty provision

In the ordinary course of business, we provide a warranty to customers that our products are free of defects and will conform to published specifications. Generally, the applicable product warranty period is one year from the date of delivery of the product to the customer or of site acceptance, if required. Additionally, we typically provide limited warranties with respect to our services. From time to time, we also make other warranties to customers, including warranties that our products are manufactured in accordance with applicable laws and not in violation of third-party rights. We provide for estimated warranty costs at the time of the product sale. 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 provisions in the accompanying consolidated statement of financial position. We believe our warranty reserves as of December 31, 2019 and 2018 appropriately reflect the estimated cost of such warranty obligations. The changes in the carrying amount of warranty obligations are as follows:

(in thousands)	2019	2018
Warranty obligation as at January 1st	**$ 2,848**	$ 3,051
Provision charged to cost of sales	**3,229**	2,892
Usage	**(2,921)**	(2,760)
Adjustments to previously provided warranties, net	**(1)**	(243)
Currency translation	**(14)**	(92)
Warranty obligation as at December 31st	**$ 3,141**	$ 2,848

Acquisition related cost

The provision for acquisition and related costs primarily relates to personnel and consulting costs.

(in thousands)	2019	2018
Acquisition related costs as at January 1st	**$ 1,389**	$ 1,802
Provision charged to expenses	**6,884**	3,564
Usage	**(3,296)**	(3,938)
Currency adjustments and other	**11**	(39)
Acquisition related costs as at December 31st	**$ 4,988**	$ 1,389

For all provisions it is expected that the respective amounts will be utilized in the next financial year.

15. Other Current and Non-current Liabilities

Other current liabilities at December 31, 2019 and 2018 consist of the following:

(in thousands)	2019	2018
Accrued contingent consideration	**$ 142,604**	$ 27,820
Accrued expenses and other liabilities	**75,052**	88,701
Payroll and related accrued liabilities	**66,866**	66,871
Restructuring	**62,152**	6,850
Deferred revenue	**48,525**	45,358
Current lease liabilities	**18,739**	—
Future license payments	**10,021**	10,511
Royalties	**5,481**	5,469
Accrued interest on non-current financial debt	**5,257**	6,200
Cash collateral liability	**1,400**	1,000
Other current liabilities	**$ 436,097**	$ 258,780

Other non-current liabilities at December 31, 2019 and 2018 consist of the following:

(in thousands)	2019	2018
Non-current lease liabilities	**$ 39,631**	$ —
Accrued contingent consideration	**19,556**	21,466
Future license payments	**14,531**	24,266
Accrued expenses	**12,693**	24,542
Non-current employee benefit obligations	**12,103**	10,033
Deferred revenue	**7,687**	8,972
Other non-current liabilities	**$ 106,201**	$ 89,279

Please refer to Note 20 "Commitments and Contingencies" for additional information.

16. Financial Debts

Our credit facilities available and undrawn at December 31, 2019 total €426.6 million (approximately $479.2 million). This includes a €400.0 million syndicated multi-currency revolving credit facility expiring December 2021 of which no amounts were utilized at December 31, 2019 or at December 31, 2018, and three other lines of credit amounting to €26.6 million with no expiration date, none of which were utilized as of December 31, 2019 or as of December 31, 2018. The €400.0 million facility can be utilized in Euro, British pounds sterling, Swiss franc or U.S. dollar and bears interest of 0.4% to 1.2% above three months EURIBOR, or LIBOR in relation to any loan not in euro, and is offered with interest periods of one, two, three or six months. The commitment fee is calculated based on 35% of the applicable margin. In 2019 and 2018, $1.0 million of commitment fees were paid, respectively. 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, 2019. The credit facilities are for general corporate purposes.

During 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 and $3.4 million for a portion of the 2021 Cash Convertible Notes which was converted during the contingent conversion period as discussed further below.

At December 31, 2019 and December 31, 2018, total long-term debt, net of debt issuance costs of $10.8 million and $14.2 million, respectively, consists of the following:

(in thousands)	2019	2018
0.375% Senior Unsecured Cash Convertible Notes due 2019	**$ —**	$ 427,445
0.875% Senior Unsecured Cash Convertible Notes due 2021	**285,244**	279,492
0.500% Senior Unsecured Cash Convertible Notes due 2023	**347,995**	335,201
1.000% Senior Unsecured Cash Convertible Notes due 2024	**413,272**	397,793
3.19% Series A Senior Notes due October 16, 2019	**—**	72,956
3.75% Series B Senior Notes due October 16, 2022	**299,566**	299,412
3.90% Series C Senior Notes due October 16, 2024	**26,944**	26,933
German Private Placement (Schuldschein)	**330,857**	336,168
Total current and non-current financial debts	**1,703,878**	2,175,400
Less: current portion of financial debts	**285,244**	503,589
Total non-current financial debts	**$ 1,418,634**	$ 1,671,811
Total amount secured	**—**	—
Unused lines of credit for short-term financing	**479,242**	488,457

Beginning on January 1, 2020 and ending at the close of business on March 31, 2020, the 2021 Notes became convertible pursuant to the indenture as discussed below. The notes are all unsecured obligations that rank pari passu. Interest expense on non-current debt was $68.0 million for the year ended December 31, 2019 (2018: $61.2 million).

Future maturities (stated at the carrying values) and future interest as of December 31, 2019 and 2018 is as follows:

As of December 31, 2019 (in thousands)	Carrying value	Loans (fixed and floating-rate)	Convertible notes (fixed-rate)	Total future contractual cash obligations[1]
2020	$ 285,244	$ 15,813	$ 9,625	$ 25,438
2021	38,716	54,410	292,820	347,230
2022	468,958	481,883	7,000	488,883
2023	347,995	2,343	354,395	356,738
2024	546,716	135,031	417,605	552,636
Thereafter	16,249	16,952	—	16,952
Total financial debts 2019	**$ 1,703,878**	**$ 706,432**	**$ 1,081,445**	**$ 1,787,877**

[1]Future 2020 contractual cash obligations include only amounts due in cash. The 2021 Notes that became convertible pursuant to the indenture on January 1, 2020 and are classified as current as of December 31, 2019, are only convertible during the triggered conversion period and are thus not included as a cash payment until the 2021 date in the table above.

As of December 31, 2018 (in thousands)	Carrying value	Loans (fixed and floating-rate)	Convertible notes (fixed-rate)	Total future contractual cash obligations
2019	$ 503,589	$ 91,058	$ 440,612	$ 531,670
2020	—	16,259	9,625	25,884
2021	315,732	55,565	283,880	339,445
2022	471,092	484,380	7,000	491,380
2023	335,201	2,368	341,601	343,969
Thereafter	549,786	154,311	402,126	556,437
Total financial debts 2018	**$ 2,175,400**	**$ 803,941**	**$ 1,484,844**	**$ 2,288,785**

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 of which $430.0 million was due in March 19, 2019 (2019 Notes) and $300.0 million is due in 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. Additionally, we used $372.5 million of the net proceeds to repay other debt. During the first quarter of 2019, $430.0 million was paid at maturity (2019 Notes) and $3.4 million of the 2021 Notes was redeemed.

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

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 paid through December 31, 2019.

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

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

Cash Convertible Notes	Annual Interest Rate	Date of Interest Payments	Maturity Date	Contingent Conversion Period	Conversion Rate per $200,000 Principal Amount
2021 Notes	0.875%	March 19 and September 19	March 19, 2021	April 29, 2014 to September 18, 2020	7,063.1647
2023 Notes	0.500%	March 13 and September 13	September 13, 2023	October 24, 2017 to March 13, 2023	4,829.7279
2024 Notes	1.000%	May 13 and November 13	November 13, 2024	December 24, 2018 to August 2, 2024	4,360.3098

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

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

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

- if the last reported sale price of our common stock for at least 20-consecutive trading days during a period of 30-consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day;
- if we undergo certain fundamental changes, including a change of control, as defined in the agreement;
- during the five-business day period immediately after any 10-consecutive trading day period in which the quoted price for the 2021 Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of our common stock and the conversion rate on each such trading day;
- if parity event or trading price unavailability event, as the case maybe occurs for the 2023 Notes and 2024 Notes during the period of 10 days, including the first business day following the relevant trading price notification date.
- if we elect to distribute assets or property to all or substantially all the holders of our common stock and those assets or other property have a value of more than 25% of the average daily volume-weighted average trading price of our common stock for the prior 20-consecutive trading days;
- if we elect to redeem the Cash Convertible Notes; or
- if we experience certain customary events of default, including defaults under certain other indebtedness until such event has been cured or waived or the payment of the Notes have been accelerated.

The Contingent Conversion Conditions in the 2021 Notes, 2023 Notes and 2024 Notes noted above have been analyzed under IFRS 9, *Financial Instruments*, and, based on our analysis, we determined that each of the embedded features listed above are clearly and closely related to the 2021 Notes, 2023 Notes and 2024 Notes (i.e., the host contracts). As a result, pursuant to the accounting provisions of IFRS 9, *Financial Instruments*, these features noted above are not required to be bifurcated as separate instruments.

Beginning on January 1, 2020 and ending at the close of business on March 31, 2020, the 2021 Notes became convertible pursuant to the indenture. The 2021 Notes became convertible pursuant to Section 12.01(b)(iv) of the indenture because the arithmetic mean of the last reported sale prices of our common stock, in each trading day in at least one 20-consecutive trading day period during the 30-consecutive trading day period ending on the last trading day of the preceding fiscal quarter, was greater than 130% of the conversion price in effect on such last trading day.

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

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

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

Because the Cash Convertible Notes contain an embedded cash conversion option, we have determined that the embedded cash conversion option is a derivative financial instrument, which is required to be separated from the Cash Convertible Notes and accounted for separately as a derivative liability, with changes in fair value reported in our consolidated statements of income until the cash conversion option transaction settles or expires. The initial fair value liability of the embedded cash conversion options for the 2019 Notes and 2021 Notes was $51.2 million and $54.0 million, respectively, $74.5 million for the 2023 Notes, and $98.5 million for the 2024 Notes, which simultaneously reduced the carrying value of the Cash Convertible Notes (effectively an original issuance discount). For further discussion of the derivative financial instruments relating to the Cash Convertible Note, refer to Note 26 "Financial Risk Factors and Use of Derivative Financial Instruments".

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 of which $0.2 million was accrued as of December 31, 2019. Such costs have been allocated to the Cash Convertible Notes and deferred and are being amortized to interest expense over the terms of the Cash Convertible Notes using the effective interest method.

Interest expense related to the Cash Convertible Notes was comprised of the following:

	Year-Ended December 31	
(in thousands)	**2019**	**2018**
Coupon interest	**$ 9,954**	$ 6,890
Amortization of original issuance discount	**36,966**	32,114
Amortization of debt issuance costs	**3,014**	3,485
Total interest expense related to the Cash Convertible Notes	**$ 49,934**	$ 42,489

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. 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. Issuance costs incurred in connection with the Warrant and the Call Option were $0.3 million and $0.1 million respectively.

In November 2018, we used $97.3 million of the proceeds from the issuance of the 2024 Cash Convertible Notes to pay for the premium for the Call Option, and simultaneously received $72.4 million from the sale of Warrants, for a net cash outlay of $24.9 million for the Call Spread Overlay. Issuance costs incurred in connection with the Warrant and the Call Option were $0.5 million and $0.5 million respectively, of which 48.0 thousand was accrued as of December 31, 2019.

The Call Options and Warrants are derivative financial instruments and are discussed further in Note 26 "Financial Risk Factors and Use of Derivative Financial Instruments".

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

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

2019, we collected the $0.7 million receivable balance and received $0.4 million in cash upon the exercise of additional call options. As a result of these early conversions, we have recognized a $0.4 million gain in other financial expense, net.

We issued Warrants as summarized in the table below. The number of warrants and exercise prices are subject to customary adjustments under certain circumstances. The proceeds, net of issuance costs, from the sale of the Warrants are included as additional paid in capital in the accompanying consolidated balance sheets.

Cash convertible notes	Issued on	Number of share warrants (in millions)	Exercise price per share	Proceeds from issuance of warrants, net of issuance costs (in millions)	Warrants expire over a period of 50 trading days beginning on
2019	March 19, 2014	15.2	$32.0560	$40.6	December 27, 2018
2021	March 19, 2014	10.6	$32.0560	$28.3	December 29, 2020
2023	September 13, 2017	9.7	$50.9664	$45.3	June 26, 2023
2024	November 13, 2018	10.9	$52.1639	$72.4	August 27, 2024

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 $7.3 million increase in retained earnings, a decrease of $68.8 million in treasury shares and an approximately $4.0 thousand cash payment for fractional shares.

The Warrants that were issued with our Cash Convertible Notes discussed above, 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. The Warrants are exercisable only upon expiration and we will not receive any proceeds if the Warrants are exercised.

Private Placement

In October 2012, we completed a private placement through the issuance of new senior unsecured notes at a total amount of $400.0 million with a weighted average interest rate of 3.66% (settled on October 16, 2012). The notes were issued in three series: (1) 73.0 million 7-year term due and paid in 2019 (3.19%); (2) $300.0 million 10-year term due in October 16, 2022 (3.75%); and (3) $27.0 million 12-year term due in October 16, 2024 (3.90%). We paid $2.1 million in debt issue costs which will be amortized through interest expense 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. 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, 2019 and 2018 was approximately $329.2 million and $391.7 million, respectively.

German Private Placement (Schuldschein)

In 2017, we completed a German private placement bond ("Schuldschein") which was issued in several tranches totaling $331.1 million due in various periods through 2027. The Schuldschein consists of U.S. dollar and Euro denominated tranches. The Euro tranches are designated as a foreign currency non-derivative hedging instrument that qualifies as a net investment hedge as described in Note 26 "Financial Risk Factors and Use of Derivative Financial Instruments". 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, 2019 totaled $0.4 million of unrealized loss and is recorded in equity. We paid $1.2 million in debt issuance costs which are being amortized through interest expense over the lifetime of the notes. A summary of the tranches as of December 31, 2019 and 2018 is as follows:

				Carrying Value (in thousands) as of	
Currency	Notional Amount	Interest Rate	Maturity	December 31, 2019	December 31, 2018
EUR	€11.5 million	Fixed 0.4%	March 2021	**$ 12,905**	$ 13,143
EUR	€23.0 million	Floating EURIBOR + 0.4%	March 2021	**25,811**	26,286
EUR	€21.5 million	Fixed 0.68%	October 2022	**24,112**	24,561
EUR	€64.5 million	Floating EURIBOR + 0.5%	October 2022	**72,335**	73,684
USD	$45.0 million	Floating LIBOR + 1.2%	October 2022	**44,919**	44,891
EUR	€25.0 million	Floating EURIBOR + 0.5%	October 2022	**28,026**	28,543
EUR	€64.0 million	Fixed 1.09%	June 2024	**71,747**	73,097
EUR	€31.0 million	Floating EURIBOR + 0.7%	June 2024	**34,753**	35,406
EUR	€14.5 million	Fixed 1.61%	June 2027	**16,249**	16,557
				$ 330,857	$ 336,168

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

17. Income Tax

Major components of income tax expense as presented in the income statement for the years ended December 31, 2019 and 2018, are:

(in thousands)	2019	2018
Current income tax charge	**$ 18,838**	$ 54,497
Adjustment in respect of current income tax of previous years	**1,090**	494
Current Income Tax	**19,928**	54,991
Relating to origination and reversal of temporary differences	**(67,210)**	(14,897)
Relating to changes in tax rates	**331**	1,907
Deferred Income Tax	**(66,879)**	(12,990)
Total Income Tax	**$ (46,951)**	$ 42,001

Deferred tax related to items charged or credited directly to equity during 2019 and 2018 shown in the statement of comprehensive income totaled $0.8 million and $0.5 million, respectively.

The applicable statutory income tax rate in The Netherlands was 25% in 2019 and in 2018. The principal items comprising the differences between income taxes computed at the Netherlands statutory rate and the effective tax rate for the years ended December 31, 2019 and 2018 is as follows:

	2019		2018	
(in thousands)	Amount	Percent	Amount	Percent
Income before Tax	**$ (116,721)**	**—**	$ 146,895	—
At Dutch statutory income tax rate of 25.0%	**(29,180)**	**25.0 %**	36,724	25.0 %
Taxation of foreign operations, net[1]	**(25,490)**	**21.8 %**	(34,066)	(23.2)%
Tax impact from intangible property transfer	**(21,122)**	**18.1 %**	—	— %
Changes in tax rates impacting deferred taxes[2]	**331**	**(0.3)%**	1,907	1.3 %
Tax impact from non-deductible items[3]	**21,415**	**(18.3)%**	31,257	21.3 %
Other	**7,095**	**(6.1)%**	6,179	4.2 %
Total Income Tax	**$ (46,951)**	**40.2 %**	$ 42,001	28.6 %

[1] 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. The most significant tax benefits from these foreign operating and financing activities are attributable to subsidiaries in Germany, Singapore, Switzerland, Ireland, Dubai and Luxembourg. These foreign tax benefits are due to a combination of favorable tax laws, regulations, rulings, and exemptions in these jurisdictions.

[2] The Netherlands' top statutory corporate income tax rate will be reduced in steps to 21.7% from 25% beginning in 2021.

[3] During 2019, we reassessed accruals for tax contingencies totaling $10.9 million, primarily related to ongoing income tax audits.

We conduct business globally and, as a result, file numerous consolidated and separate income tax returns in the Netherlands, Germany, Switzerland 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 2007 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, 2016 through the current period. Our subsidiaries, with few exceptions, are no longer subject to income tax examinations by tax authorities for years before 2015.

Effective January 1, 2019, we adopted IFRIC 23, *Uncertainty over Income Tax Treatments.* As of December 31, 2019 and 2018, our recorded uncertain tax positions totaled $58.0 million and $55.8 million, respectively. Also, we have accrued interest of $2.5 million and $4.1 million related to these uncertain tax positions at December 31, 2019 and 2018, respectively.

We have recorded deferred tax assets of $49.1 million and had deferred tax liabilities of $12.8 million at December 31, 2019 and 2018, respectively. The components of the net deferred asset and liability at December 31, 2019 and December 31, 2018 are as follows:

(in thousands)	2019	2018	Change
Accrued liabilities	**$ 17,977**	$ 15,480	$ 2,497
Equity awards	**16,585**	22,857	(6,272)
Inventory	**19,905**	22,292	(2,387)
Net operating loss and credit carryforward	**27,692**	12,861	14,831
Intangibles	**1,078**	1,721	(643)
Depreciation and amortization	**5,297**	3,604	1,693
Disallowed interest carryforwards	**6,856**	—	6,856
Convertible debt	**7,104**	8,102	(998)
Other	**10,886**	9,134	1,752
Offsetting	**(35,770)**	(38,200)	2,430
Deferred Tax Asset	**77,610**	57,851	19,759
Intangibles	**(26,294)**	(71,196)	44,902
Depreciation and amortization	**(25,376)**	(25,448)	72
Other	**(12,586)**	(12,173)	(413)
Offsetting	**35,770**	38,200	(2,430)
Deferred Tax (Liability)	**$ (28,486)**	$ (70,617)	$ 42,131
Net Deferred Tax Asset / (Liability)	**$ 49,124**	$ (12,766)	$ 61,890

The movement in deferred income tax assets and liabilities during the year is as follows:

(in thousands)	2019	2018
Change in deferred tax recognized in income	**$ 66,880**	$ 12,990
Change in deferred tax related to business combinations [(1)]	**(1,511)**	(7,602)
Change in deferred tax recognized in equity [(2)]	**(3,479)**	(1,086)
Change in Deferred Tax	**$ 61,890**	$ 4,302

[(1)] The change in deferred tax related to business combinations represents the deferred tax liability on fair value of identifiable intangible assets acquired and deferred tax asset on tax loss carry forwards as discussed in Note 5 "Acquisitions and Divestitures".

[(2)] The change deferred tax recognized in equity represents changes in components of other comprehensive income or loss, equity awards and translation adjustment.

At December 31, 2019 and 2018, we had $682.5 million and $408.7 million in total worldwide net operating loss (NOL) carryforwards. Included in these amounts at December 31, 2019 and 2018, we had $92.2 million and $56.5 million of unused tax losses for which no deferred tax asset is recognized in the statement of financial position, most of which do not expire. At December 31, 2019 and 2018, we had $133.8 million and $112.2 million of U.S. federal (NOL) carryforwards. At December 31, 2019, the entire NOLs in the U.S. are subject to limitations under Section 382 of the Internal Revenue Code. The NOLs in the U.S. will expire beginning December 31, 2024 through December 31, 2034. Also included in the above amount as of December 31, 2019 and 2018, were other foreign NOL carryforwards totaling approximately $456.5 million and $240.0 million, respectively. As of December 31, 2019, we had NOL carryforwards in Germany of $394.0 million which we expect to be utilized due to sufficient future taxable income. The NOLs in Germany mainly result from non-profitable activities which

will not be continued. Of the total $456.5 million NOL carryforward, a portion of the foreign NOLs will be expiring beginning 2027.

At December 31, 2019, we had U.S. interest carryforwards of $255.0 million related to U.S. interest carryforwards which do not expire and for which no deferred taxes were recognized.

18. Equity

Common 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.

Appropriation of profit of 2018

The financial statements for the reporting year 2018 have been adopted by the Annual General Meeting on June 17, 2019. The Annual General meeting has adopted the appropriation of profit after tax as proposed by the Managing Board.

Proposal for Profit Appropriation

The General Meeting of Shareholders will be asked to approve the following appropriation of the 2019 net loss for the period: an amount of $69.8 million to be subtracted from retained earnings.

Share Repurchase Programs

On May 6, 2019, we announced our sixth share repurchase program of up to $100 million of our common shares. During 2019, no shares were repurchased under this program. We do not currently anticipate repurchasing any common under this program due to the announced Thermo Fisher merger transaction discussed in Note 29 "Subsequent Events."

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).

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.

19. Earnings per Common Share

We present basic and diluted earnings per share. Basic earnings per share is calculated by dividing the net income by the weighted average number of common shares outstanding. Diluted earnings per share reflect the potential dilution that would occur if all “in the money” securities to issue common shares were exercised. Due to the net loss for the year ended December 31, 2019, stock options and restricted stock units representing 3.9 million weighted-shares of common stock and warrants representing 1.7 million weighted-shares of common stock were excluded from the computation of diluted net loss because the impact would have been antidilutive.

The following table summarizes the information used to compute earnings per common share:

(in thousands, except per share data)	Years ended December 31, 2019	2018
Net (loss) income	**$ (69,770)**	$ 104,894
Weighted average number of common shares used to compute basic net income per common share	**226,777**	226,640
Dilutive effect of stock options and restricted stock units	**—**	4,613
Dilutive effect of outstanding warrants	**—**	2,203
Weighted average number of common shares used to compute diluted net income per common share	**226,777**	233,456
Outstanding options and awards having no dilutive effect, not included in above calculation	**107**	272
Outstanding warrants having no dilutive effect, not included in above calculation	**32,938**	35,939
Basic (loss) earnings per common share	**$ (0.31)**	$ 0.46
Diluted (loss) earnings per common share	**$ (0.31)**	$ 0.45

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 $5.5 million at December 31, 2019 and 2018. Royalty expense relating to these agreements amounted to $13.5 million and $14.0 million, for the years ended December 31, 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, 2019, we had commitments to purchase goods or services, and for future license and royalty payments. They are as follows:

(in thousands)	Purchase Commitments	License & Royalty Commitments
2020	$ 126,121	$ 11,434
2021	35,915	9,012
2022	26,337	6,507
2023	3,223	4,382
2024	3,000	1,823
Thereafter	—	4,297
Total licensing and purchase commitments at December 31, 2019	$ 194,596	$ 37,455

As of December 31, 2019, future license payments of $10.0 million and $14.5 million are included in other current liabilities and other non-current liabilities, respectively.

The information for the comparative period is provided below:

(in thousands)	Purchase Commitments	License & Royalty Commitments
2019	$ 93,214	$ 11,973
2020	20,804	11,613
2021	8,883	9,167
2022	2,690	6,731
2023	2,690	4,704
Thereafter	—	4,443
Total licensing and purchase commitments at December 31, 2018	$ 128,281	$ 48,631

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 $179.4 million based on the achievement of certain revenue and operating results milestones as follows:

(in thousands)	Contingent Cash Payments
2020	$ 152,750
2021	11,800
2022	5,900
2024	5,900
Anytime 12-month period from now until 2028	3,000
Total contingent cash payments at December 31, 2019	$ 179,350

Of the $179.4 million total contingent obligation as discussed further in Note 25 "Fair Value Measurements", we have assessed the fair value at December 31, 2019 to be $162.2 million, of which $142.6 million is included in other current liabilities and $19.6 million is included in other non-current liabilities in the accompanying consolidated balance sheets.

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, 2019 , the commitment under these agreements totaled $16.5 million (2018: $16.9 million).

Litigation

From time to time, we may be party to legal proceedings incidental to our business. As of December 31, 2019, certain claims, suits or legal proceedings arising out of the normal course of business have been filed or were pending against QIAGEN or our subsidiaries. These matters have arisen in the ordinary course and conduct of business, as well as through acquisition. Although it is not possible to predict the outcome of such litigation, we assess the degree of probability and evaluate the reasonably possible losses that we could incur as a result of these matters. We accrue for any estimated loss when it is probable that a liability has been incurred and the amount of probable loss can be estimated.

Litigation accruals recorded in accrued and other current liabilities totaled $0.8 million as of December 31, 2019 (2018: $6.0 million). The estimated amount of a range of possible losses is between $0.3 million and $2.2 million. During the year ended December 31, 2019, payments of $5.4 million related to previous matters were made. Based on the facts known to QIAGEN and after consultation with legal counsel, management believes that such litigation will not have a material adverse effect on our financial position or results of operations above the amounts accrued. However, the outcome of these matters is ultimately uncertain, thus any settlements or judgments against us in excess of management's expectations could have a material adverse effect on our financial position, results of operations or cash flows.

21. Segment Information

Considering the acquisitions made during 2019, we determined that we still operate as one business segment in accordance with IFRS 8 *Operating Segments*. As a result of 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 as one business segment. Summarized product category and geographic information and operating income is shown in the tables 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 $15.8 million and $15.9 million for the years ended 2019 and 2018, respectively, and these amounts are included in the line item Europe, Middle East and Africa as shown in the table below.

(in thousands)	2019	2018
Net Sales		
Americas:		
United States	**$ 663,869**	$ 632,660
Other Americas	**58,121**	60,359
Total Americas	**721,990**	693,019
Europe, Middle East and Africa	**487,476**	490,301
Asia Pacific, Japan and Rest of World	**316,958**	318,528
Total	**$ 1,526,424**	$ 1,501,848

Long-lived assets include property, plant and equipment, goodwill, other intangible assets, equity accounted investments, non-current financial assets and other non-current assets. The Netherlands, which is included in the balances for Europe, reported long-lived assets of $48.6 million and $47.6 million for the years ended 2019 and 2018, respectively.

(in thousands)	2019	2018
Long-lived assets		
Americas:		
United States	**$ 2,088,363**	$ 1,923,019
Other Americas	**10,770**	9,833
Total Americas	**2,099,133**	1,932,852
Germany	**515,377**	540,227
Other Europe, Middle East and Africa	**611,235**	616,782
Asia Pacific, Japan and Rest of World	**256,824**	239,086
Total	**$ 3,482,569**	$ 3,328,947

Operating Income Information

Our chief operating decision maker (CODM) makes decisions with regard to business operations and resource allocation considering many measures, the primary income measure being adjusted operating income. Adjusted results are financial measures that are considered to provide insight into our core business performance. The table below provides details regarding adjustments from the primary metric used by the CODM to income from operations for the years ended 2019 and 2018.

(in thousands)	2019	2018
Adjusted income from operations	**$ 421,792**	$ 403,315
Purchased intangible amortization	**(101,484)**	(95,755)
Business integration and acquisition related items	**(346,444)**	(40,979)
Development costs	**(9,100)**	(4,136)
Other income and expense	**(14,298)**	10,101
(Loss) Income from operations	**$ (49,534)**	$ 272,546

22. Share-Based Payments

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 15.7 million Common Shares reserved and available for issuance under the 2005 and 2014 Plans at December 31, 2019.

Stock Options

We have not granted stock options since 2013. A summary of the status of employee stock options as of December 31, 2019 and 2018, and changes during the years then ended is presented below:

	Stock Options (in thousands)	Weighted Average Exercise Price US$
Outstanding at January 1, 2019	**898**	**$ 20.04**
Exercised	**(104)**	**$ 19.95**
Expired	**(2)**	**$ 17.51**
Outstanding at December 31, 2019	**792**	**$ 20.06**
Vested at December 31, 2019	**792**	**$ 20.06**
Vested and expected to vest at December 31, 2019	**792**	**$ 20.06**
Outstanding at January 1, 2018	1,149	$ 19.54
Exercised	(249)	$ 17.77
Expired	(2)	$ 15.84
Outstanding at December 31, 2018	898	$ 20.04
Vested at December 31, 2018	898	$ 20.04
Vested and expected to vest at December 31, 2018	898	$ 20.04

The total intrinsic value of options exercised during the years ended December 31, 2019 and 2018 was $2.0 million and $5.0 million, respectively. The actual tax benefit for the tax deductions from option exercises totaled $0.5 million and $0.8 million during the years ended December 31, 2019 and 2018, respectively. At December 31, 2019, there was no unrecognized share-based compensation expense related to employee stock option awards.

At December 31, 2019 and 2018, 0.8 million and 0.9 million options were exercisable at a weighted average price of $20.06 and $20.04 per share, respectively. The options outstanding at December 31, 2019 will 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 120% 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% (2018: 6.6%). At December 31, 2019, there was $60.1 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 2.57 years (2018: $95.2 million over a weighted average of 2.40 years). The weighted average grant date fair value of restricted stock units

granted during the year ended December 31, 2019 was $37.28 (2018: $35.37). The total fair value of restricted stock units released during the years ended December 31, 2019 and 2018 was $123.9 million and $54.3 million, respectively.

A summary of stock units as of December 31, 2019 and 2018, and changes during the year then ended are presented below:

(in thousands)	2019	2018
Outstanding at January 1st	**8,343**	8,102
Granted	**1,618**	2,344
Released	**(3,517)**	(1,575)
Forfeited	**(1,261)**	(528)
Outstanding at December 31st	**5,183**	8,343
Vested and expected to vest at December 31st	**3,972**	7,238

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 for the years ended December 31, 2019 and 2018 totaled approximately $65.9 million and $40.1 million, respectively as shown in the table below.

(in thousands)	2019	2018
Cost of sales	**$ 2,493**	$ 2,879
Research and development	**5,810**	6,457
Sales and marketing	**7,947**	9,372
General and administrative	**23,705**	21,405
Restructuring, acquisition, integration and other, net	**25,938**	—
Share-based compensation expense before taxes	**65,893**	40,113
Less: Income tax benefit [(1)]	**13,399**	7,869
Net share-based compensation expense	**$ 52,494**	$ 32,244

[(1)] Does not include the excess tax benefit realized for the tax deductions of the share-based payment arrangements totaled $4.0 million and $4.7 million for the years ended December 31, 2019 and 2018, respectively.

Share-based compensation includes amounts related to restructuring programs discussed in Note 6 "Restructuring and Impairments", including accelerated expense in 2019 and net forfeitures in 2017. No share-based compensation cost was capitalized in inventory in 2019 and 2018 as the amounts were not material.

23. Employee Benefits and Personnel Costs

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 $4.0 million for the years ended December 31, 2019 and 2018. We also have defined contributions up to an established maximum. We make matching contributions up to an established maximum. Matching contributions made to the plan, and expensed, totaled approximately 0.2 million for the years ended December 31, 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 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 $8.2 million at December 31, 2019 and $7.4 million at December 31, 2018, and is included as a component of other non-current liabilities on the accompanying consolidated balance sheets.

Personnel Costs

Personnel costs amounted to $484.7 million in 2019 (2018: $483.6 million). As of December 31, 2019, there were 5,096 employees within the Group (2018: 4,952).

(in thousands)	2019	2018
Salaries and wages	**$ 232,398**	$ 283,192
Social security	**76,472**	84,670
Share-based payment expense	**39,956**	40,113
Termination costs	**68,544**	10,834
Other	**67,298**	64,765
Personnel Costs	**$ 484,668**	$ 483,574

The personnel costs are allocated to the functional areas in which the respective employees are working or in the case of the incremental termination benefits which are the result of restructuring activities as discussed in Note 6 "Restructuring and Impairments" are recorded in restructuring, acquisition, integration and other costs. Termination costs include accelerated expense for share-based payments related to the 2019 Restructuring activities also discussed in Note 6.

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:

	For the years ended December 31,	
(in thousands)	2019	2018
Net sales	**$ 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,	
(in thousands)	2019	2018
Trade accounts receivable	**$ 7,589**	$ 10,109
Other current assets	**$ 13,697**	$ 3,873
Other non-current assets	**$ 16,830**	$ 24,300
Trade and other accounts payable	**$ 1,775**	$ 4,888
Other current liabilities	**$ 15,404**	$ 5,488

Other current assets includes short-term loan receivables and suppliers advances from companies with which we have an investment or partnership interest.

In connection with the 2019 Restructuring further discussed in Note 6 "Restructuring and Impairments", we entered into a agreement with a non-publicly traded company considered a related party to reduce future purchase commitments to $25.2 million through 2022. The commitment was reduced by $12.8 million which will be paid in 2020 and is included in other current liabilities as of December 31, 2019, in the accompanying consolidated balance sheet.

During 2018, we purchased a convertible note for $15.0 million from a privately held company. The note is due in December 2021 and bears interest at 8%. In the event the company goes public, the note will convert into common shares in the company ranking pari-passu with existing common shares. As of December 31, 2019, the principal and accrued interest of this note totals $16.3 million and is included in other non-current assets.

Compensation of Directors and Officers

Remuneration of the Managing Board

The tables below state the amounts earned on an accrual basis by our Managing Board members in 2019 and 2018.

For the year ended December 31, 2019 (in thousands, except for number of award grants)	Thierry Bernard[3]	Peer M. Schatz[3]	Roland Sackers
Fixed Salary	$ 650	$ 910	$ 560
Other [1]	34	6,571	40
Total fixed income 2019	**684**	**7,481**	**600**
Short-term variable cash bonus [2]	500	—	249
Total short-term income 2019	**1,184**	**7,481**	**849**
Defined contribution on benefit plan	24	65	76
Total cash compensation	**$ 1,208**	**$ 7,546**	**$ 925**

(1) Amounts include, among others, car lease and reimbursed personal expenses such as tax consulting. Additionally, amounts for Mr. Schatz include separation payments due upon the conclusion of his agreement. We 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. Compensation for Mr. Schatz for 2019 is excluding €0.7 million to account for the tax levy payable to the Dutch tax authorities by the Company on termination benefits pursuant to Article 32bb of the Dutch wage tax act.

(2) The Performance Stock Units Granted amount includes the number of performance share units granted to each Managing Board member in 2019 for the conversion of 2018 cash bonus earned by each Managing Board member in 2018. In 2019, Mr. Schatz received 60,982 performance stock units and Mr. Sackers received 21,131 performance stock units.

(3) Mr. Schatz's contract as Managing Director and Chief Executive Officer concluded effective September 30, 2019 and he continues as a Senior Advisor until June 30, 2021. In October 2019, Mr. Bernard was named Interim Chief Executive Officer in addition to his prior role as Senior Vice President, Head of Molecular Diagnostics Business Area. Mr. Bernard is not a statutory director under Dutch law.

For the year ended December 31, 2018 (in thousands, except for number of option and award grants)	Peer M. Schatz	Roland Sackers
Fixed Salary	$ 1,281	$ 575
Other [1]	5	37
Total fixed income 2018	**1,286**	**612**
Short-term variable cash bonus [3]	—	—
Total short-term income 2018	**1,286**	**612**
Defined contribution on benefit plan	78	80
Total compensation	**$ 1,364**	**$ 692**

(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.

(2) The Performance Stock Units Granted amount includes the number of performance stock units granted to each Managing Board member under the Company's Commitment Program as discussed further in the Corporate Governance Report within this Annual Report. Of the total performance shares granted in 2018, 307,000 were granted to Mr. Schatz and 97,000 were granted to Mr. Sackers under this Commitment Program.

(3) The Variable Cash Bonus does not include values which were converted to equity-based compensation for each Managing Board member at his election in lieu of the value of the cash bonus earned by such Managing Board member in 2018. In 2019, Mr. Schatz will receive a grant of 60,982 performance stock units and Mr. Sackers will receive a grant of 21,131 performance stock units. The performance stock units will vest 40% over three years and 60% over five years from the date of grant, with the final performance measurement aligned to achievement of 2019 performance goals.

The total recognized compensation expense in accordance with IFRS 2 for share-based compensation in the year December 31, 2019 (2018) for long-term compensation of stock units amounted to $37.4 million ($12.3 million) for Mr. Schatz and $4.7 million ($3.6 million) for Mr. Sackers. Based on such valuations and including the tax levy on termination benefits, the total compensation including share-based compensation expenses in the year 2019 (2018) for members of the Managing Board was $54.3 million ($18.0 million), and amounts to $45.8 million ($13.7 million) for Mr. Schatz and $5.6 million ($4.3 million) for Mr. Sackers.

Remuneration of the Supervisory Board

The tables below state the amounts earned on an accrual basis by the members of the Supervisory Board in 2019 and 2018:

For the year ended December 31, 2019 (in thousands, except for number of share grants)	Fixed remuneration	Committee Chairman / Chairwoman	Committee membership	Total [1]	*Number of restricted stock units granted*
Stéphane Bancel	$ 57.5	—	32.0	$ 89.5	*9,331*
Dr. Håkan Björklund	$ 150.0	12.0	11.0	$ 173.0	9,331
Dr. Metin Colpan	$ 57.5	12.0	6.0	$ 75.5	*9,331*
Dr. Ross L. Levine	$ 57.5	—	6.0	$ 63.5	*9,331*
Dr. Elaine Mardis	$ 57.5	—	6.0	$ 63.5	*9,331*
Lawrence A. Rosen	$ 57.5	25.0	—	$ 82.5	*9,331*
Elizabeth E. Tallett	$ 57.5	18.0	21.0	$ 96.5	*9,331*

(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.

For the year ended December 31, 2018 (in thousands, except for number of share grants)	Fixed remuneration	Committee Chairman / Chairwoman	Committee membership	Total[2]	*Number of restricted stock units granted*
Stéphane Bancel	$ 57.5	—	32.0	$ 89.5	*9,866*
Dr. Håkan Björklund	$ 103.8	6.0	14.0	$ 123.8	*9,866*
Dr. Metin Colpan	$ 57.5	12.0	6.0	$ 75.5	*9,866*
Prof. Dr. Manfred Karobath [1]	$ 75.0	6.0	8.5	$ 89.5	*9,866*
Dr. Ross L. Levine	$ 57.5	—	6.0	$ 63.5	*9,866*
Dr. Elaine Mardis	$ 57.5	—	6.0	$ 63.5	*9,866*
Lawrence A. Rosen	$ 57.5	25.0	—	$ 82.5	*9,866*
Elizabeth E. Tallett	$ 57.5	18.0	21.0	$ 96.5	*9,866*

(1) Prof. Dr. Manfred Karobath was a member of the Supervisory Board since 2000 and did not stand for re-election at the Company's Annual General Meeting in June 2018.

(2) 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.

The total recognized compensation expense in accordance with IFRS 2 for share-based compensation in the year 2019 (2018) for long-term compensation of restricted stock units amounted to $1.9 million ($1.5 million) and includes $321.3 thousand ($259.0 thousand) for Mr. Bancel, $150.8 thousand ($58.3 thousand) for Mr. Björklund, $327.6 thousand ($270.6 thousand) for Mr. Colpan, $235.8 thousand ($128.0 thousand) for Mr. Levine, $315.7 thousand ($227.6 thousand) for Ms. Mardis, $321.3 thousand ($259.0 thousand) for Mr. Rosen and $229.0 thousand ($201.4 thousand) for Ms. Tallett. $120.2 thousand in 2018 for Mr. Karobath, who did not stand for re-election at the Company's Annual General Meeting in June 2018.

The total recognized compensation expense, including share-based compensation expenses, for members of the Supervisory Board in 2019 (2018) totaled $2.5 million ($2.2 million) and includes amounts of $410.8 thousand ($348.5 thousand) for Mr. Bancel, $323.8 thousand ($182.1 thousand) for Mr. Björklund, $403.1 thousand ($346.1 thousand) for Mr. Colpan, $299.3 thousand ($191.5 thousand) for Mr. Levine, $379.2 thousand ($291.1 thousand) for Ms. Mardis, $403.8 thousand ($341.5 thousand) for Mr. Rosen, and $325.5 thousand ($297.9 thousand) for Ms. Tallett. $209.7 thousand in 2018 for Mr. Karobath.

Supervisory Board and Managing Board members' interests in QIAGEN N.V. shares

Share Ownership

The following table sets forth certain information as of January 31, 2020 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.

Name and Country of Residence	Shares Beneficially Owned	Percent Ownership
Thierry Bernard, United States	47,526	*
Roland Sackers, Germany	139,476	*
Stéphane Bancel, United States	9,975	*
Dr. Håkan Björklund, Sweden	—	— %
Dr. Metin Colpan, Germany	3,550,617	1.56 %
Dr. Ross L. Levine, United States	—	—
Dr. Elaine Mardis, United States	—	—
Lawrence A. Rosen, United States	—	—
Elizabeth Tallett, United States	22,167	*

* Indicates that the person beneficially owns less than 0.5% of the Common Shares issued and outstanding as of January 31, 2020.

25. Fair Value Measurements

Financial Instruments are measured at fair value according the following 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 financial assets, which are classified in Level 1 and Level 2 of the fair value hierarchy, derivative contracts used to hedge currency and interest rate risk and derivative financial instruments entered into in connection with the Cash Convertible Notes discussed in Note 26 "Financial Risk Factors and Use of Derivative Financial Instruments", which are classified in Level 2 of the fair value hierarchy, and contingent consideration accruals which are classified in Level 3 of the fair value hierarchy, and are shown in the tables below. There have been no transfers between levels.

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, the Warrants liability and the embedded conversion option liability. See Note 16 "Financial Debts" and Note 26 "Financial Risk Factors and Use of Derivative Financial Instruments" 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 as of December 31, 2019 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 contingent consideration liabilities. We value contingent consideration liabilities using unobservable inputs, applying the income approach, such as the discounted cash flow technique, or the probability-weighted scenario method. Contingent consideration arrangements obligate us to pay the sellers of an acquired entity if specified future events occur or conditions are met such as the achievement of technological or revenue milestones. We use various key assumptions, such as the probability of achievement of the milestones (0% to 100%) and the discount rate (between 2.4% and 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 in the line items commensurate with the underlying nature of milestone arrangements. If minor changes were made in the key assumptions on which these valuations are based, there would be no material effect on the fair value of contingent consideration

on the statement of financial position or the corresponding effect in the consolidated statement of income for the years ended December 31, 2019 and 2018. The maximum amount of contingent consideration relating to business combinations is disclosed in Note 20 "Commitments and Contingencies".

Our Level 3 instruments also include unquoted equity securities for which we estimate the value based on valuation methods using the observable transaction price at the transaction date and other unobservable inputs. These investments are carried at fair value which is considered to be 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.

As of December 31, 2019, we held the following financial instruments carried at fair value on the statement of financial position:

(in thousands)	2019	Level 1	Level 2	Level 3
Financial assets, current	$ 107,118	$ —	$ 107,118	$ —
Financial assets, non-current	94,187	870	22,468	70,849
Call option	290,971	—	290,971	—
Foreign exchange contracts	6,689	—	6,689	—
Interest rate contracts	2,474	—	2,474	—
Assets	**$ 501,439**	**$ 870**	**$ 429,720**	**$ 70,849**
Foreign exchange contracts	(1,814)	—	(1,814)	—
Interest rate contracts	(6,027)	—	(6,027)	—
Cash conversion option	(292,263)	—	(292,263)	—
Warrants	(238,663)	—	(238,663)	—
Contingent consideration	(162,160)	—	—	(162,160)
Liabilities	**$ (700,927)**	**$ —**	**$ (538,767)**	**$ (162,160)**

As of December 31, 2018, we held the following financial instruments carried at fair value on the statement of financial position:

(in thousands)	2018	Level 1	Level 2	Level 3
Financial assets, current	$ 214,918	$ 350	$ 214,568	$ —
Financial assets, non-current	81,639	2,117	20,038	59,484
Call option	395,095	—	395,095	—
Foreign exchange contracts	2,673	—	2,673	—
Assets	**$ 694,325**	**$ 2,467**	**$ 632,374**	**$ 59,484**
Foreign exchange contracts	(5,957)	—	(5,957)	—
Interest rate contracts	(18,768)	—	(18,768)	—
Cash conversion option	(399,262)	—	(399,262)	—
Warrants	(297,240)	—	(297,240)	—
Contingent consideration	(48,971)	—	—	(48,971)
Liabilities	**$ (770,198)**	**$ —**	**$ (721,227)**	**$ (48,971)**

Refer to Note 7 "Financial Assets" for the change in unquoted equity securities with Level 3 inputs during the year ended December 31, 2019 included in financial assets, non-current in the table above. For liabilities with Level 3 inputs, the following table summarizes the activity as of December 31, 2019 and 2018:

Fair Value Measurements Using Significant Unobservable Inputs (Level 3) Contingent Consideration (in thousands)	2019	2018
Contingent consideration as at January 1st	**$ (48,971)**	$ (11,539)
Additions from acquisitions	**(132,422)**	(53,962)
Payments	**11,800**	16,530
Gain included in earnings	**7,433**	—
Contingent consideration as at December 31st	**$ (162,160)**	$ (48,971)

As of December 31, 2019, the liability for contingent consideration totals $162.2 million, of which $142.6 million is included in other current liabilities and $19.6 million is included in other non-current liabilities in the accompanying consolidated balance sheet. During 2019, gains for the reduction in the fair value of contingent consideration related to unmet milestones of $7.4 million was recognized in restructuring, integration and other, net in the accompanying consolidated income statement.

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, 2019			As of December 31, 2018		
(in thousands)	Carrying Amount	Level 1	Level 2	Carrying Amount	Level 1	Level 2
Long-term debt including current portion:						
Cash convertible notes	**$ 1,046,511**	**$ 1,296,334**	**$ —**	$ 1,439,931	$ 1,794,000	$ —
U.S. Private placement	**326,510**	**—**	**329,157**	399,301	—	391,700
German private placement	**330,857**	**—**	**334,371**	336,168	—	337,768
	$ 1,703,878	**$ 1,296,334**	**$ 663,528**	$ 2,175,400	$ 1,794,000	$ 729,468

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

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

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

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

The estimated fair values may not represent actual values of the financial instruments that could be realized as of the balance sheet date or that will be realized in the future. There were no adjustments in the twelve-month periods ended December 31, 2019 and 2018 for nonfinancial assets or liabilities required to be measured at fair value on a nonrecurring basis.

26. Financial Risk Factors and Use of Derivative Financial Instruments

26.1. Financial Risks

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 respective counterparties.

Foreign currency exchange rates

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

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 exchange 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.

For the presentation of market risks, IFRS 7 requires sensitivity analyses that show the effects of hypothetical changes of relevant risk variables on profit or loss and shareholders' equity. Currency risks as defined by IFRS 7 arise on account of financial instruments being denominated in a currency that is not the functional currency and being of a monetary nature; differences resulting from the translation of financial statements into the Company's presentation currency are not taken into consideration. Relevant risk variables are generally all non-functional currencies in which QIAGEN has financial instruments.

QIAGEN is exposed to currency risks from financial derivatives. If each of the respective currency pairs for which the Company has financial derivatives in place, which do not qualify for hedge accounting in accordance with IFRS 9, varied from the rates used for the preparation of the consolidated financial statements, this would have had an effect on the net income of the Company. Any effect would have been almost fully off-set by corresponding valuation adjustments in the positions, which economically had been hedged by these financial derivatives. Accordingly, the net effect of such variance in currency rates would not have been material.

If, at December 31, 2019, the U.S. dollar had gained or lost 10% against all identified major currencies, the estimated effect on the fair value of the financial derivatives would have been as follows:

	As of December 31, 2019		As of December 31, 2018	
(in thousands)	**10% higher**	**10% lower**	**10% higher**	**10% lower**
Currency				
Euro (EUR)	**12,010**	**(12,038)**	(5,947)	5,947
Australian Dollar (AUD)	**11,655**	**(11,760)**	9,493	(9,493)
Swedish Krona (SEK)	**(395)**	**483**	(345)	422
Japanese Yen (JPY)	**(82)**	**101**	—	—
Canadian Dollar (CAD)	**(275)**	**334**	(399)	488
Singapore Dollar (SGD)	**(587)**	**704**	(1,795)	2,196
Swiss Franc (CHF)	**(1,818)**	**2,205**	(8,478)	10,389
Pound Sterling (GBP)	**388**	**(391)**	895	(895)
Turkish Lira (TRY)	**2,369**	**(2,909)**	1,393	(1,699)
South Korean Won (KRW)	**621**	**(756)**	529	(647)
Chinese Yuan (CNY)	**952**	**(1,159)**	263	(321)
Norwegian Krone (NOK)	—	—	209	(256)
Polish Zloty (PLN)	**402**	**(488)**	362	(443)
Total	**25,240**	**(25,674)**	(3,820)	5,688

Interest rates

The Company is exposed to interest rate risk by floating rate financial debt and floating rate financial assets. This exposure is managed by varying the proportion of fixed and floating rate debt, while all non-derivative financial assets pay interest on floating rates. Net financial income earned on the Company's net financial assets is generally affected by changes in the level of interest rates, principally the Euro and the U.S. dollar interest rate.

At December 31, 2019, we had $622.5 million in cash and cash equivalents (2018: $1.2 billion). 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 impact 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, 2019 and 2018. A hypothetical adverse 10% movement in market interest rates would not have materially impacted our financial statements.

At December 31, 2019, we had $1.7 billion in current and non-current financial debt (2018: $2.2 billion). A hypothetical adverse 10% movement in market interest rates would not have materially impacted our financial statements.

Liquidity risk

To date, we have funded our business primarily through internally generated funds, debt and the 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, 2019 and 2018, we had cash and cash equivalents of $622.5 million and $1.16 billion, respectively. We also had current financial assets of $107.1 million and $214.6 million, respectively. Cash and cash equivalents are primarily held in Euros and U.S. dollars, other than those cash balances maintained in the local currency of subsidiaries to meet local working capital needs. As of December 31, 2019 and 2018, we had working capital of $560.3 million and $1.1 billion, respectively.

In October 2016, we extended the maturity of our €400.0 million syndicated revolving credit facility, which now has a contractual lifetime until December 2021 of which no amounts were utilized at December 31, 2019. We have additional credit lines totaling €26.6 million with no expiration date, none of which were utilized as of December 31, 2019. We also have finance lease obligations, including interest, in the amount of $0.1 million as of December 31, 2018 and repayment obligations of $1.7 billion of financial debt (2018: $2.2 billion), of which $285.2 million is current as of December 31, 2019.

As of December 31, 2019, our future contractual cash obligations are as follows:

Contractual Obligations (in thousands)	Payments Due by Period						
	Total	2020	2021	2022	2023	2024	Thereafter
Financial debt [1]	$ 1,787,877	$ 25,438	$ 347,230	$ 488,883	$ 356,738	$ 552,636	$ 16,952
Purchase obligations	194,596	126,121	35,915	26,337	3,223	3,000	—
Lease obligations	61,520	19,914	16,009	11,885	7,119	3,391	3,202
License and royalty payments [2]	37,455	11,434	9,012	6,507	4,382	1,823	4,297
Total contractual cash obligations	**$ 2,081,448**	**$ 182,907**	**$ 408,166**	**$ 533,612**	**$ 371,462**	**$ 560,850**	**$ 24,451**

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

[2] As of December 31, 2019, $10.0 million and $14.5 million are included in other current liabilities and other non-current liabilities, respectively.

In addition to the above and pursuant to purchase agreements for several of our recent acquisitions, we could be required to make additional contingent cash payments totaling up to $179.4 million based on the achievement of certain revenue and operating results milestones as follows:

(in thousands)	Contingent Cash Payments
2020	$ 152,750
2021	11,800
2022	5,900
2024	5,900
Anytime 12-month period from now until 2028	3,000
Total	**$ 179,350**

Of the $179.4 million total contingent obligation, we have assessed the fair value at December 31, 2019 to be $162.2 million, of which $142.6 million is included in other current liabilities and $19.6 million is included in other non-current liabilities.

We believe that funds from operations, existing cash and cash equivalents, together with the proceeds from our public and private sales of equity, and availability of financing facilities, will be sufficient to fund our planned operations and expansion during the coming year. However, any global economic downturn may have a greater impact on our business than currently expected, and we may experience a decrease in the sales of our products, which could impact our ability to generate cash. The recent outbreak of COVID-19 continues to impact the global economy and markets. At this time, the impact of the outbreak on our business has been mixed as production at our plants is uninterrupted and supply chains and distribution channels are intact yet our production is focused on those products most needed to fight the outbreak. At present, our liquidity remains healthy. However, going forward the COVID-19 outbreak may negatively impact, amongst other things, our supply chain, workforce, operations of our plants, and market demand and liquidity. 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.

Credit risk

Financial instruments that potentially subject us to concentrations of credit risk are cash and cash equivalents, financial assets, and accounts receivable. We attempt to minimize the risks related to cash and cash equivalents and financial assets 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. There were no significant concentrations of credit risk during the reporting period. The maximum exposure to credit risk is represented by the carrying amount of each financial asset in the statement of financial position.

Credit risk is managed on a Company basis, except for credit risk relating to accounts receivable balances. Each local entity is responsible for managing and analyzing the credit risk for each of their new clients before standard payment and delivery terms and conditions are offered.

Counterparty risk

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. To the extent that derivatives are not subject to mutual collateralization 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 and therefore do not expect to record any losses as a result of counterparty default. In order to minimize our exposure with any single counterparty, we have entered into all derivative agreements, with the exception of the Call Spread Overlay, under master agreement which allow us to manage the exposure with the respective counterparty on a net basis. Most of these master agreements, include bilateral collateral agreements.

Fair values

The fair values of financial assets and financial liabilities are determined in accordance with the accounting policies stated under Notes 3.12 "Financial Instruments" and 3.13 "Financial Instruments - Classification and Subsequent Measurement".

Equity prices

The Warrants issued as part of the Call Spread Overlay discussed in Note 16 "Financial Debts" and Note 26.2 "Use of Derivative Financial Instruments" expose us to income statement volatility due to changes in our own equity price. Changes in the fair value of the Warrants are recognized in other financial expense, net. Assuming a hypothetical 10% increase or decrease in equity prices at December 31, 2019, the estimated effect would have been approximately $61.5 million loss or $55.7 million gain, respectively (2018: $108.3 million loss or $89.0 million gain).

Commodities

The Company has exposures to price risk related to anticipated purchases of certain commodities used as raw materials in its business. A change in commodity prices may alter the gross margin, but due to the limited exposure to any single raw material, a price change is unlikely to have a material unforeseen impact on the Company's earnings.

26.2 Use of Derivative Financial Instruments

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 enter into cross-currency swaps, interest rate swaps or foreign exchange contracts, to enter into bilateral collateralization contracts under which we receive or provide cash collateral, as the case may be, for the net position with each of these counterparties. As of December 31, 2019, cash collateral positions consisted of $1.4 million recorded in other current liabilities and $2.7 million recorded in other current assets in the accompanying consolidated balance sheet. As of December 31, 2018, we had a liability position of $1.0 million recorded in other current liabilities and $25.4 million recorded in other current assets in the accompanying consolidated balance sheet.

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 "Financial Debts". Of the $331.1 million, which is held in both U.S. dollars and Euro, €255.0 million is designated as the hedging instrument against a portion of our Euro net investments in our foreign operations. The relative changes in both the hedged item and hedging instrument are calculated by applying the change in spot rate between two assessment dates against the respective notional amount. The effective portion of the hedge is recorded in the cumulative translation adjustment account within other accumulated comprehensive income (loss). Based on the spot rate method, the unrealized gain and loss recorded in equity as of December 31, 2019 and 2018 is $0.4 million and $5.9 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, 2019 and 2018.

Derivatives Designated as Hedging Instruments

Cash Flow Hedges

As of December 31, 2019 and 2018, we held derivative instruments that are designated and qualify as cash flow hedges where the effective portion of the gain or loss on the derivative is reported as a component of other comprehensive income (loss) and reclassified into earnings in the same period or periods during which the hedged transaction affects earnings. Gains and losses on the derivative representing either hedge ineffectiveness or hedge components excluded from the assessment of effectiveness are recognized in current earnings. In 2019 and in 2018, we did not record any hedge ineffectiveness related to any cash-flow hedges in earnings. Based on their valuation as of December 31, 2019, we expect approximately $1.9 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 sheet 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, 2019 and 2018, interest receivables of $1.5 million and $1.4 million, respectively are recorded in other current assets in the accompanying consolidated balance sheets.

Fair Value Hedges

As of December 31, 2019 and 2018, we held derivative instruments that qualify for hedge accounting as fair value hedges. For derivative instruments that are designated and qualify as a fair value hedge, the effective portion of the gain or loss on the derivative is reflected in earnings. This earnings effect is offset by the change in the fair value of the hedged item attributable to the risk being hedged that is also recorded in earnings. In 2019 and 2018, we concluded there was 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 sheet account of the underlying item.

We hold interest rate swaps which effectively fixed 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, 2019, an interest receivable of $0.1 million is recorded in other current assets and as of December 31, 2018, accrued and unpaid interest of $0.1 million, is recorded in accrued and other liabilities, respectively, in the accompanying condensed consolidated balance sheets.

Derivatives Not Designated as Hedging Instruments

Call Options

We entered into Call Options during 2014 which, along with the sale of the Warrants, represent the Call Spread Overlay entered into in connection with the 2019 and 2021 Cash Convertible Notes and which are more fully described in Note 16 "Financial Debts".In these transactions, the Call Options are intended to address the equity price risk inherent in the cash conversion feature of each instrument by offsetting cash payments in excess of the principal amount due upon any conversion of the Cash Convertible Notes.

Aside from the initial payment of a 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 require 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 25 "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 in other financial expense, 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 those 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 "Financial Debts" 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 in other financial expense, 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 25 "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 is required to be separated from the convertible note and accounted for separately as derivative liability, with changes in fair value reported in our consolidated statements of income in other financial income (expense), net. 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 25 "Fair Value Measurements".

Foreign Currency Derivatives

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

We are party to various foreign exchange forward, option and swap arrangements which had, at December 31, 2019 and 2018 aggregate notional value of $701.4 million and $792.7 million which expire at various dates through March 2020. 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 financial expense, 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, 2019 and 2018:

	As of December 31, 2019		As of December 31, 2018	
(in thousands)	Current Asset	Non-current Asset	Current Asset	Non-current Asset
Assets:				
Derivative instruments designated as hedges				
Interest rate contracts - cash flow hedge [1]	**$ —**	**$ —**	$ —	$ —
Interest rate contracts - fair value hedge [1]	**—**	**2,474**	—	—
Total derivative instruments designated as hedges	**$ —**	**$ 2,474**	**$ —**	**$ —**
Undesignated derivative instruments				
Embedded conversion option	**$ —**	**$ —**	$ —	$ 349
Call options	**101,179**	**189,792**	100,081	295,014
Foreign exchange contracts	**$ 6,689**	**$ —**	2,673	—
Total undesignated derivative instruments	**$ 107,868**	**$ 189,792**	$ 102,754	$ 295,363
Total Derivative Assets	**$ 107,868**	**$ 192,266**	$ 102,754	$ 295,363

	As of December 31, 2019		As of December 31, 2018	
(in thousands)	Current Liability	Non-current Liability	Current Liability	Non-current Liability
Liabilities:				
Derivative instruments designated as hedges				
Interest rate contracts - cash flow hedge [1]	**$ —**	**$ (6,027)**	$ —	$ (17,574)
Interest rate contracts - fair value hedge [1]	**—**	**—**	(473)	(721)
Total derivative instruments designated as hedges	**$ —**	**$ (6,027)**	$ (473)	$ (18,295)
Undesignated derivative instruments				
Cash convertible notes embedded conversion option	**$ (101,361)**	**$ (190,902)**	$ (100,164)	$ (299,098)
Cash conversion options	**—**	**(238,663)**	(433)	(296,807)
Foreign exchange contracts	**(1,814)**	**—**	(5,957)	—
Total undesignated derivative instruments	**$ (103,175)**	**$ (429,565)**	$ (106,554)	$ (595,905)
Total Derivative Liabilities	**$ (103,175)**	**$ (435,592)**	$ (107,027)	$ (614,200)

[1] The fair value amounts for the interest rate contracts do not include accrued interest.

Gains and Losses on Derivative Instruments

The following table summarize the classification and gains and losses on derivative instruments for the years ended December 31, 2019 and 2018:

(in thousands)	Year ended December 31, 2019 Other financial expense, net	2018 Other financial expense, net
Total amounts presented in the Consolidated Statements of Income in which the effects of cash flow and fair value hedges are recorded	**$ (9,960)**	$ (69,544)
Gains (Losses) on Derivatives in Cash Flow Hedges		
Interest rate contracts		
Amount of (loss) gain reclassified from accumulated other comprehensive income	**$ (3,888)**	$ (9,774)
Amounts excluded from effectiveness testing	**—**	—
Gains (Losses) on Derivatives in Fair Value Hedges		
Interest rate contracts		
Hedged item	**(3,668)**	2,051
Derivatives designated as hedging instruments	**3,668**	(2,051)
Gains (Losses) Derivatives Not Designated as Hedging Instruments		
Embedded conversion option	**(349)**	131
Call options	**(104,125)**	74,682
Cash convertible notes embedded cash conversion option	**106,998**	(76,500)
Cash conversion option	**(17,479)**	(138,093)
Foreign exchange contracts	**1,835**	(19,857)
Total losses	**$ (17,008)**	**$ (169,411)**

Balance Sheet Line Items in which the Hedged Item is Included

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

(in thousands)	Carrying Amount of the Hedged Assets (Liabilities) December 31, 2019	December 31, 2018
Current portion of long-term debt	**$ —**	$ (72,956)
Long-term debt	**$ (126,816)**	$ (126,751)

27. Additional Information for Financial Instruments

The tables below present the carrying amounts, fair values and measurements in accordance with IFRS 9 as of December 31, 2019 and 2018, respectively.

December 31, 2019 (US$ thousands)	IFRS 9 Category	Total Carrying Amount	Amortized Cost	At Fair Value
Assets				
Cash and cash equivalents	AC	622,486	622,486	—
Financial assets	FVTPL	201,305	—	201,305
Trade accounts receivable	AC	376,281	376,281	—
Derivatives designated as hedges	N/A	2,474	—	2,474
Undesignated derivatives	FVTPL	297,660	—	297,660
Liabilities				
Financial debts	FLAC	(1,703,878)	(1,703,878)	(1,959,862)
Lease liabilities[(1)]	FLAC	(58,370)	(58,370)	—
Trade accounts payable	FLAC	(84,767)	(84,767)	—
Derivatives in effective hedges	N/A	(6,027)	—	(6,027)
Undesignated derivatives	FVTPL	(532,740)	—	(532,740)
Contingent consideration	FVTPL	(162,160)	—	(162,160)
Aggregated by category				
Financial assets measured at amortized cost (AC)		998,767	998,767	—
Financial liabilities measured at amortized Cost (FLAC)		(1,847,015)	(1,847,015)	(1,959,862)
Instruments at fair value through profit or loss (FVTPL)		(195,935)	—	(195,935)

(1) Separate disclosure of fair value of lease liabilities is not required.

December 31, 2018 (US$ thousands)	IFRS 9 Category	Total Carrying Amount	Amortized Cost	At Fair Value
Assets				
Cash and cash equivalents	AC	1,159,079	1,159,079	—
Financial assets	FVTPL	296,207	—	296,207
Trade accounts receivable	AC	351,612	351,612	—
Derivatives designated as hedges	N/A	—	—	—
Undesignated derivatives	FVTPL	398,117	—	398,117
Liabilities				
Financial debts	FLAC	(2,175,400)	(2,175,400)	(2,523,468)
Finance lease obligations	N/A	(83)	(83)	—
Trade accounts payable	FLAC	(69,415)	(69,415)	—
Derivatives in effective hedges	N/A	(18,768)	—	(18,768)
Undesignated derivatives	FVTPL	(702,459)	—	(702,459)
Contingent consideration	FVTPL	(48,971)	—	(48,971)
Aggregated by category				
Financial assets measured at amortized cost (AC)		1,510,691	1,510,691	—
Financial liabilities measured at amortized cost (FLAC)		(2,244,815)	(2,244,815)	(2,523,468)
Instruments at fair value through profit or loss (FVTPL)		(57,106)	—	(57,106)

As of December 31, 2019 and 2018, fair values of financial debts amount to $2.0 billion and $2.5 billion, respectively. The carrying amounts of all other financial assets and financial liabilities approximate their fair values.

As of December 31, 2019 and 2018, there are no significant concentrations of risks arising from financial instruments.

Net Results by Category

December 31, 2019		Subsequent Measurement			
(in thousands)	From interest	At fair value	Allowances / Impairments	De-recognition	Net result
Loans and receivables (LaR)	$ 14,618	—	—	—	$ 14,618
Financial assets	—	(1,597)	—	—	(1,597)
Financial liabilities measured at amortized cost (FLAC)	(69,515)	—	—	—	(69,515)
Net result	**$ (54,897)**	**$ (1,597)**	**$ —**	**$ —**	**$ (56,494)**

Interest from financial instruments is recognized in financial expense.

The Company recognizes the other components of net gain/loss in other financial income/expense, except for impairments of trade receivables that are classified as “loans and receivables” which are reported under general and administrative, restructuring, integration and other expense.

The information for the comparative period is provided below:

December 31, 2018		Subsequent Measurement			
(in thousands)	From interest	At fair value	Allowances / Impairments	De-recognition	Net result
Loans and receivables (LaR)	$ 15,061	$ —	$ —	$ —	$ 15,061
Financial assets	—	(147)	—	—	(147)
Financial liabilities measured at amortized cost (FLAC)	(62,766)	—	—	—	(62,766)
Net result	$ (47,705)	$ (147)	$ —	$ —	$ (47,852)

28. Capital Management

The primary objectives of the Group's capital management are to safeguard the Group's ability to continue as a going concern and to ensure financial flexibility to execute the Group's strategic growth targets. We regularly review our capital structure to ensure a low cost of capital to enhance shareholder value. The Group's overall strategy remains unchanged from 2018 and we are not subject to any externally imposed capital requirements. All common shares issued are fully paid.

During 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 and $3.4 million for a portion of the 2021 Cash Convertible Notes which was converted during the contingent conversion period.

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

An important indicator of capital management efforts is the ratio of shareholders' equity compared to total assets as shown in the consolidated statement of financial position:

(in thousands, except of ratio)	2019	2018
Shareholders' equity attributable to equity holders of the parent	**$ 2,323,847**	$ 2,378,815
Total assets	**$ 5,264,254**	$ 5,797,817
Shareholders' equity ratio in %	**44 %**	41 %

Total financial debt consists of cash convertible notes and private placements as discussed in Note 16 "Financial Debts". The changes in financial debts reconciled to the cash flows arising from financing activities as follows:

Reconciliation of Liabilities Arising from Financing Activities

Total financial debt consists of cash convertible notes and private placements as discussed in Note 16. The changes in financial debts reconciled to the cash flows arising from financing activities as follows:

(in thousands)	12/31/2018	Cash flows	Amortization of debt discount and issuance costs [1]	Foreign currency and other[2]	12/31/2019
Cash convertible notes	$1,439,931	$ (433,400)	$ 39,980	$ —	**$1,046,511**
Private Placement	399,301	(73,000)	209	—	**326,510**
German Private Placement (Schuldschein)	336,168	—	193	(5,504)	**330,857**
Total non-current debt	2,175,400	(506,400)	40,382	(5,504)	**1,703,878**
Lease liability including recognition of IFRS 16 lease liability	83	(24,256)	—	82,543	**58,370**
Total liabilities from financing activities	$2,175,483	$ (530,656)	$ 40,382	$ 77,039	**$1,762,248**

(in thousands)	12/31/2017	Cash flows	Amortization of debt discount and issuance costs [1]	Embedded derivative	Foreign currency and other[3]	12/31/2018
Cash convertible notes	$1,008,507	$ 494,879	$ 35,599	$ (98,475)	(579)	$1,439,931
Private Placement	399,083	—	218	—	—	399,301
German Private Placement (Schuldschein)	349,812	—	195	—	(13,839)	336,168
Total non-current debt	1,757,402	494,879	36,012	(98,475)	(14,418)	2,175,400
Finance leases	1,416	(1,308)	—	—	(25)	83
Total liabilities from financing activities	$1,758,818	$ 493,571	$ 36,012	$ (98,475)	$ (14,443)	$2,175,483

[1] Total amortization of debt discount and issuance costs for the years ended December 31, 2019 and 2018 totaled $40.8 million and $36.4 million, respectively which included costs related to the syndicated multi-currency revolving credit facility expiring December 2021 of which no amounts were utilized at December 31, 2019 or at 2018.

[2] For the year ended December 31, 2019, the German Private Placement experienced unrealized foreign currency gains totaling $5.5 million. Other includes recognition of lease liability upon adoption of IFRS 16 and current year additions to lease liability.

[3] For the year ended December 31, 2018, the Cash Convertible Notes are net of debt issuance costs, of which $0.6 million were unpaid as of year-end and the German Private Placement experienced unrealized foreign currency gains totaling $13.8 million. Finance leases for the year end included non-cash charges of less than $0.1 million of foreign currency impacts.

29. Subsequent Events

Events that occurred after the balance sheet date that provide no information on the actual situation at the balance sheet date are not recognized in the financial statements. When those events are relevant for the economic decisions of users of the financial statements, the nature and the estimated financial effects of the events are disclosed in the financial statements.

On March 3, 2020, QIAGEN N.V. and Thermo Fisher Scientific, Inc. 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 per share in cash. The offer price represents a premium of approximately 23% to the closing price of QIAGEN's common stock on the Frankfurt Prime Standard on March 2, 2020, the last trading day prior to the announcement of the transaction. Thermo Fisher will commence a tender offer to acquire all of the ordinary shares of QIAGEN.

30. Consolidated Companies

The following is a list of the Company's subsidiaries as of December 31, 2019, other than certain subsidiaries that did not in the aggregate constitute a significant subsidiary:

Company Name	Jurisdiction of Incorporation
Amnisure International LLC	USA
Cellestis Pty. Ltd.	Australia
STAT-Dx Life S.L.	Spain
QIAGEN Aarhus A/S	Denmark
QIAGEN AB	Sweden
QIAGEN AG	Switzerland
QIAGEN Australia Holding Pty. Ltd.	Australia
QIAGEN Benelux B.V.	Netherlands
QIAGEN Beverly LLC	USA
QIAGEN China (Shanghai) Co. Ltd.	China
QIAGEN Deutschland Holding (Luxembourg) SARL	Luxembourg
QIAGEN Deutschland Holding GmbH	Germany
QIAGEN Finance (Malta) Ltd.	Malta
QIAGEN France S.A.S.	France
QIAGEN Gaithersburg LLC	USA
QIAGEN GmbH	Germany
QIAGEN Hamburg GmbH	Germany
QIAGEN Healthcare Biotechnologies Limited[(1)]	UK
QIAGEN Healthcare Biotechnologies Systems Limited[(1)]	UK
QIAGEN Inc. (Canada)	Canada
QIAGEN Instruments AG	Switzerland
QIAGEN K.K.	Japan
QIAGEN Lake Constance GmbH	Germany
QIAGEN LLC	USA
QIAGEN Ltd.	UK
QIAGEN Manchester Ltd.	UK
QIAGEN Marseille S.A.S.	France
QIAGEN North American Holdings Inc.	USA
QIAGEN Pty. Ltd.	Australia
QIAGEN Redwood City Inc.	USA
QIAGEN Sciences LLC	USA
QIAGEN S.r.l.	Italy
QIAGEN TRM Services Ltd.	UAE
QIAGEN U.S. Finance Holdings (Luxembourg) SARL	Luxembourg
QIAGEN U.S. Finance LLC	USA
QIAGEN U.S. Finance Ltd	Ireland

(1) QIAGEN Healthcare Biotechnologies Limited (registration # 11561466) and QIAGEN Healthcare Biotechnologies Systems Limited (registration # 11562019) are exempt from the audit of individual accounts requirements under Section 479A of the 2006 UK Companies Act.

31. Fees Paid to External Auditors

At our 2019 Annual General Meeting of Shareholders on June 17, 2019, 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 ended December 31, 2019. Set forth below are the total fees billed (or expected to be billed), on a consolidated basis, by the independent public accounting firm or their affiliates for providing audit and other professional services in each of the last two years:

(in thousands)	2019		2018	
	KPMG Network	KPMG Accountants N.V.	KPMG Network	KPMG Accountants N.V.
Audit fees	**$ 2,439**	**$ 217**	$ 2,555	$ 219
Audit related fees	**224**	**—**	324	—
Tax and all other fees	**14**	**—**	93	—
Service fees to external auditors	**$ 2,677**	**$ 217**	$ 2,972	$ 219

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.

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.

QIAGEN N.V.

COMPANY FINANCIAL STATEMENTS

QIAGEN N.V.
COMPANY FINANCIAL STATEMENTS
BALANCE SHEETS
(before profit appropriation)
(in thousands)

	Note	December 31, 2019	December 31, 2018
Assets			
Fixed assets:			
Intangible fixed assets:			
Goodwill	(3)	**$ 313,696**	$ 307,116
Other intangible assets	(2)	**1**	1
Tangible fixed assets:			
Property, plant and equipment	(4)	**731**	938
Financial fixed assets:			
Non-current financial assets	(5)	**26,022**	23,592
Financial fixed assets	(6)	**3,376,424**	3,411,757
Fair value of derivative financial instruments	(11)	**192,266**	295,015
Other fixed assets		**4,578**	2,027
Total fixed assets		**3,913,718**	4,040,446
Current assets:			
Trade and other receivables:			
Receivables from group companies		**721,873**	624,882
Prepaid and other current assets		**9,068**	31,620
Securities:			
Current financial assets	(5)	**107,118**	214,568
Fair value of derivative financial instruments	(11)	**107,868**	102,754
Cash and cash equivalents:			
Cash and cash equivalents		**532,924**	1,032,716
Total current assets		**1,478,851**	2,006,540
Total assets		**5,392,569**	6,046,986
Liabilities and equity			
Shareholders' equity:			
Common shares	(8)	**2,584**	2,727
Share premium	(10)	**1,790,504**	1,727,922
Legal reserves	(10)	**(277,976)**	(270,322)
Other reserves	(10)	**(561)**	(124)
Treasury shares		**(111,966)**	(178,903)
Retained earnings		**991,032**	992,621
Net (loss) income for the period		**(69,770)**	104,894
Total shareholders' equity		**2,323,847**	2,378,815
Non-current liabilities:			
Non-current financial debts	(7)	**1,418,633**	1,671,811
Deferred tax liabilities		**—**	1,200
Fair value of derivative financial instruments	(11)	**435,592**	614,200
Other non-current liabilities		**20,847**	14,431
Total non-current liabilities		**1,875,072**	2,301,642
Current liabilities:			
Current portion of non-current financial debts	(7)	**285,244**	503,589
Accounts payable trade		**930**	1,839
Payables to group companies		**777,528**	717,430
Fair value of derivative financial instruments	(11)	**103,175**	107,027
Accrued liabilities		**26,773**	36,644
Total current liabilities		**1,193,650**	1,366,529
Total liabilities and shareholders' equity		**$ 5,392,569**	$ 6,046,986

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

QIAGEN N.V.
COMPANY FINANCIAL STATEMENTS
INCOME STATEMENTS
(in thousands)

	Note	Years ended December 31, 2019	2018
Other expense		**$ 65**	$ (47)
Operating expenses:			
Sales and marketing expense		**(332)**	(352)
General and administrative		**(8,815)**	(7,986)
Restructuring, acquisition, integration and other		**(13,521)**	(3,160)
Other operating income		**(53)**	352
Total operating expenses, net		**(22,721)**	(11,146)
Loss from operations		**(22,656)**	(11,193)
Financial income		**19,569**	17,545
Financial expense	(7)	**(69,480)**	(64,504)
Other financial expense, net	(11)	**(24,362)**	(106,706)
Total finance expense, net		**(74,273)**	(153,665)
Loss before income taxes		**(96,929)**	(164,858)
Income taxes		**1,247**	(2,598)
Loss after income tax		**(95,682)**	(167,456)
Share in results from participating interests, after tax		**25,912**	272,350
Net (loss) income for the period		**$ (69,770)**	$ 104,894

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

QIAGEN N.V.
COMPANY FINANCIAL STATEMENTS
STATEMENTS OF CHANGES IN EQUITY
(in thousands)

	Note	Common shares		Share premium	Retained earnings	Net Income	Legal reserves	Other reserves	Treasury shares		Total shareholders' equity
		Shares	Amount						Shares	Amount	
Balance at January 1, 2018, as previously reported		**230,829**	**$ 2,606**	**$ 1,687,564**	**$ 964,053**	**$ 67,378**	**$ (174,384)**	**$ (1,820)**	**(4,272)**	**$ (118,987)**	**$ 2,426,410**
IFRS 9 impact of change in accounting policy		—	—	—	(942)	—	—	942	—	—	—
IFRS 15 impact of change in accounting policy		—	—	—	(1,306)	—	—	—	—	—	(1,306)
Adjusted balance at January 1, 2018		**230,829**	**2,606**	**1,687,564**	**961,805**	**67,378**	**(174,384)**	**(878)**	**(4,272)**	**(118,987)**	**2,425,104**
Appropriation of prior year net income		—	—	—	67,378	(67,378)	—	—	—	—	—
Net income for the period		—	—	—	—	104,894	—	—	—	—	104,894
Effect from capitalized development costs	(10)	—	—	—	3,916	—	(3,916)	—	—	—	—
Effect from foreign currency translation	(10)	—	121	—	(121)	—	(107,056)	—	—	—	(107,056)
Effect from cash flow hedge		—	—	—	—	—	15,034	—	—	—	15,034
Effect from pension reserve		—	—	—	—	—	—	754	—	—	754
Purchase of treasury shares		—	—	—	—	—	—	—	(2,871)	(104,685)	(104,685)
Stock awards and options		—	—	40,358	(40,357)	—	—	—	1,823	44,769	44,770
Balance at December 31, 2018		**230,829**	**$ 2,727**	**$ 1,727,922**	**$ 992,621**	**$104,894**	**$ (270,322)**	**$ (124)**	**(5,320)**	**$ (178,903)**	**$ 2,378,815**

	Note	Common shares		Share premium	Retained earnings	Net loss	Legal reserves	Other reserves	Treasury shares		Total shareholders' equity
		Shares	Amount						Shares	Amount	
Balance at January 1, 2019, as previously reported		**230,829**	**2,727**	**1,727,922**	**992,621**	**104,894**	**(270,322)**	**(124)**	**(5,320)**	**(178,903)**	**2,378,815**
IFRS 16 impact of change in accounting policy		—	—	—	**(1,322)**	—	—		—	—	**(1,322)**
Adjusted balance at January 1, 2019		**230,829**	**$ 2,727**	**$ 1,727,922**	**$ 991,299**	**$104,894**	**$ (270,322)**	**$ (124)**	**(5,320)**	**$ (178,903)**	**$ 2,377,493**
Appropriation of prior year net income		—	—	—	**104,894**	**(104,894)**	—	—	—	—	—
Net loss for the period		—	—	—	—	**(69,770)**	—	—	—	—	**(69,770)**
Effect from capitalized development costs	**(10)**	—	—	—	**9,100**	—	**(9,100)**	—	—	—	—
Effect from foreign currency translation	**(10)**	—	**(143)**	—	**143**	—	**(11,718)**	—	—	—	**(11,718)**
Effect from cash flow hedge		—	—	—	—	—	**13,164**	—	—	—	**13,164**
Effect from pension reserve		—	—	—	—	—	—	**(437)**	—	—	**(437)**
Purchase of treasury shares		—	—	—	—	—	—	—	**(1,987)**	**(74,450)**	**(74,450)**
Issuance of common shares in connection with conversion of 2019 Notes and early redemption of 2021 Notes		—	—	**(4)**	**7,294**	—	—	—	**2,056**	**68,761**	**76,051**
Stock awards and options		—	—	**62,586**	**(121,698)**	—	—	—	**3,622**	**123,773**	**64,661**
Tax withholding related to vesting of stock awards		—	—	—	—	—	—	—	**(1,448)**	**(51,147)**	**(51,147)**
Balance at December 31, 2019		**230,829**	**$ 2,584**	**$ 1,790,504**	**$ 991,032**	**$ (69,770)**	**$ (277,976)**	**$ (561)**	**(3,077)**	**$ (111,966)**	**$ 2,323,847**

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

QIAGEN N.V.

NOTES TO THE COMPANY FINANCIAL STATEMENTS

FOR THE YEAR ENDED December 31, 2019

1. Accounting Policies

These company financial statements have been prepared in accordance with Title 9, Book 2 of the Dutch Civil Code. For setting the principles for the recognition and measurement of assets and liabilities and determination of results for its separate financial statements, the Company makes use of the option provided in section 2:362(8) of the Dutch Civil Code. This means that the principles for the recognition and measurement of assets and liabilities and determination of the result (hereinafter referred to as principles for recognition and measurement) of the separate financial statements of the Company are the same as those applied for the consolidated EU-IFRS financial statements. These principles also include the classification and presentation of financial instruments, being equity instruments or financial liabilities. In case no other principles are mentioned, refer to the accounting principles as described in the consolidated financial statements. For an appropriate interpretation of these statutory financial statements, the company financial statements should be read in conjunction with the consolidated financial statements.

Information on the use of financial instruments and on related risks for the group is provided in the notes to the consolidated financial statements of the group.

All amounts are presented in U.S. dollars rounded to the nearest thousand, unless otherwise indicated.

Participating interests in group companies

Group companies are all entities in which the Company has directly or indirectly control. The Company controls an entity when it is exposed, or has rights, to variable returns from its involvement with the group company and has the ability to affect those returns through its power over the group company. Group companies are recognized from the date on which control is obtained by the Company and derecognized from the date that control by the Company over the group company ceases. Participating interests in group companies are accounted for in the company financial statements according to the net equity value, with separate presentation of the goodwill component under intangible fixed assets, with the principles for the recognition and measurement of assets and liabilities and determination of results as set out in the notes to the consolidated financial statements.

Participating interests with a negative net asset value are valued at nil. This measurement also covers any receivables provided to the participating interests that are, in substance, an extension of the net investment. In particular, this relates to loans for which settlement is neither planned nor likely to occur in the foreseeable future. A share in the profits of the participating interest in subsequent years will only be recognized if and to the extent that the cumulative unrecognized share of loss has been absorbed. If the Company fully or partially guarantees the debts of the relevant participating interest, or if has the constructive obligation to enable the participating interest to pay its debts (for its share therein), then a provision is recognized accordingly to the amount of the estimated payments by the Company on behalf of the participating interest.

Share of result of participating interests

The share in the result of participating interests consists of the share of the Company in the result of these participating interests. Results on transactions involving the transfer of assets and liabilities between the Company and its participating interests and mutually between participating interests themselves, are eliminated to the extent that they can be considered as not realized

2. Other Intangible Assets

Intangible assets represent developed technology, computer software, patent rights and licenses. As of December 31, 2019 and 2018, the historic cost of intangibles assets amounted to $8.1 million and accumulated amortization amounted to $8.1 million. No amortization expense on intangible assets during the year ended December 31, 2019 (2018: $0.1 million).

3. Goodwill

The changes in the carrying amount of goodwill for the years ended December 31, 2019 and 2018 are as follows:

(in thousands)	2019	2018
Goodwill as at January 1st	**$ 307,116**	$ 194,126
Goodwill acquired during the year	**7,551**	117,621
Goodwill transferred from (to) indirectly owned Group companies	**—**	6,780
Currency adjustments	**(971)**	(11,411)
Goodwill as at December 31st	**$ 313,696**	$ 307,116

In 2019, the changes in goodwill resulted from goodwill acquired during the year partially offset by foreign currency translation. In 2018, the changes in goodwill resulted from goodwill acquired during the year and transferred from indirectly owned Group companies partially offset by foreign currency translation.

4. Property, Plant and Equipment

The changes in property, plant and equipment for the years ended December 31, 2019 and 2018 are as follows:

(in thousands)	2019	2018
Property. plant and equipment as at January 1st	**$ 938**	$ 1,123
Additions	**6**	27
Depreciation	**(213)**	(212)
Property, plant and equipment as at December 31st	**$ 731**	$ 938

The historic cost as of December 31, 2019 and 2018 for property, plant and equipment was $1.9 million and $1.8 million, respectively. As of December 31, 2019 and 2018, accumulated amortization was $1.1 million and $0.9 million, respectively.

5. Financial Assets

At December 31, 2019, the Company had investments in unquoted debt securities which had a fair market value and cost of approximately $129.6 million (2018: $234.3 million). At December 31, 2019, the Company holds investments of $3.6 million for noncontrolling interests in privately-held companies which are considered unquoted equity securities (2018: $3.6 million). At December 31, 2018, the Company holds an investment of $0.4 million for noncontrolling interests in a publicly-held company which is classified as quoted equity securities. Information on the accounting for these financial assets is provided in Note 7 "Financial Assets" to the Consolidated Financial Statements of the Group.

(in thousands)	2019	2018
Unquoted equity securities	**$ 3,554**	$ 3,554
Quoted equity securities	**—**	350
Unquoted debt securities	**129,586**	234,256
Financial assets	**$ 133,140**	$ 238,160
thereof current financial assets	**$ 107,118**	$ 214,568
thereof non-current financial assets	**$ 26,022**	$ 23,592

6. Financial Fixed Assets

The financial fixed assets are presented in the statements of financial position based on either their net equity value in accordance with the aforementioned accounting principles of the Consolidated Financial Statements, or at amortized cost. There are no indications the fair value of the financial assets are lower than the values as presented in the statements of financial position as of December 31, 2019.

(in thousands)	Total	Participating interests in group companies	Other participating interests	Loans receivable
January 1, 2018	**$ 3,496,959**	**$ 2,656,773**	**$ 6,097**	**$ 834,089**
Increases	269,273	217,267	3,970	48,036
Decreases	(203,525)	—	(2,539)	(200,986)
Dividends received	(150,410)	(150,410)	—	—
Share of net profit	(620)	59	(679)	—
Translation adjustments	80	—	—	80
December 31, 2018	**$ 3,411,757**	**$ 2,723,689**	**$ 6,849**	**$ 681,219**

(in thousands)	Total	Participating interests in group companies	Other participating interests	Loans receivable
January 1, 2019	**$ 3,411,757**	**$ 2,723,689**	**$ 6,849**	**$ 681,219**
Increases	397,126	188,246	1,549	207,331
Decreases	(224,031)	—	(5,724)	(218,307)
Dividends received	(207,401)	(207,401)	—	—
Share of net profit	279	1,015	(736)	—
Translation adjustments	(1,306)	—	—	(1,306)
December 31, 2019	**$ 3,376,424**	**$ 2,705,549**	**$ 1,938**	**$ 668,937**

7. Financial Debts

Information on the financial debts of $285.2 million related to the Cash Convertible Notes due in 2021, $348.0 million related to the Cash Convertible Notes due in 2023, $413.3 million related to the Cash Convertible Notes due in 2024, $326.5 million related to the Private Placement and $330.9 million related to the German private placement bond ("Schuldschein") are provided under Note 16 "Financial Debts" to the Consolidated Financial Statements of the Group. Our revolving facility agreement and private placement contains certain financial and non-financial covenants, including but not limited to, restrictions on the encumbrance of assets, restrictions on priority indebtedness and maintenance of certain financial ratios. We were in compliance with these covenants at December 31, 2019.

Of the total $1.7 billion financial debts as of December 31, 2019, $285.2 million is included in current liabilities and $1.4 billion is included in non-current liabilities in the accompanying balance sheet of QIAGEN N.V. During the years ended December 31, 2019 and 2018, financial expense of $69.5 million and $64.5 million, respectively, is included in the accompanying income statement of QIAGEN N.V. and is primarily associated with these financial debts.

8. Common Shares

The authorized classes of our shares consist of Common Shares, Preference Shares and Financing Preference Shares. No Financing Preference Shares or Preference Shares have been issued. The Company had the following authorized shares issued and outstanding as of December 31, 2019 and 2018:

Authorized, (in thousands)	2019	2018
Common shares	410,000	410,000
Preference shares	450,000	450,000
Financing preference shares	40,000	40,000
At December 31st	**900,000**	**900,000**

Issued and outstanding, (in thousands)	2019	2018
Common shares issued	230,829	230,829
Treasury shares	(3,077)	(5,320)
Outstanding at December 31st	**227,752**	**225,509**

Par value in EUR per share	2019	2018
Common shares	0.01	0.01
Preference shares	0.01	0.01
Financing preference shares	0.01	0.01

Par value (in thousands)	2019	2018
Common shares issued at December 31st in EUR	2,308	2,308
Common shares issued at December 31st in USD	2,584	2,727

9. Subsidiaries

The following is a list of the Company's subsidiaries as of December 31, 2019, other than certain subsidiaries that did not in the aggregate constitute a significant subsidiary:

Company Name	Jurisdiction of Incorporation	Ownership	Voting Rights
Amnisure International LLC	USA	100 %	100 %
Cellestis Pty. Ltd.	Australia	100 %	100 %
STAT-Dx Life S.L.	Spain	100 %	100 %
QIAGEN Aarhus A/S	Denmark	100 %	100 %
QIAGEN AB	Sweden	100 %	100 %
QIAGEN AG	Switzerland	100 %	100 %
QIAGEN Australia Holding Pty. Ltd.	Australia	100 %	100 %
QIAGEN Benelux B.V.	Netherlands	100 %	100 %
QIAGEN Beverly LLC	USA	100 %	100 %
QIAGEN China (Shanghai) Co. Ltd.	China	100 %	100 %
QIAGEN Deutschland Holding (Luxembourg) SARL	Luxembourg	100 %	100 %
QIAGEN Deutschland Holding GmbH	Germany	100 %	100 %
QIAGEN Finance (Malta) Ltd.	Malta	100 %	100 %
QIAGEN France S.A.S.	France	100 %	100 %
QIAGEN Gaithersburg LLC	USA	100 %	100 %
QIAGEN GmbH	Germany	100 %	100 %
QIAGEN Hamburg GmbH	Germany	100 %	100 %
QIAGEN Inc. (Canada)	Canada	100 %	100 %
QIAGEN Instruments AG	Switzerland	100 %	100 %
QIAGEN K.K.	Japan	100 %	100 %
QIAGEN Lake Constance GmbH	Germany	100 %	100 %
QIAGEN LLC	USA	100 %	100 %
QIAGEN Ltd.	UK	100 %	100 %
QIAGEN Manchester Ltd.	UK	100 %	100 %
QIAGEN Marseille S.A.S.	France	100 %	100 %
QIAGEN North American Holdings Inc.	USA	100 %	100 %
QIAGEN Pty. Ltd.	Australia	100 %	100 %
QIAGEN Redwood City Inc.	USA	100 %	100 %
QIAGEN Sciences LLC	USA	100 %	100 %
QIAGEN S.r.l.	Italy	100 %	100 %
QIAGEN TRM Services Ltd.	UAE	100 %	100 %
QIAGEN U.S. Finance Holdings (Luxembourg) SARL	Luxembourg	100 %	100 %
QIAGEN U.S. Finance LLC	USA	100 %	100 %
QIAGEN U.S. Finance Ltd	Ireland	100 %	100 %

10. Equity

Share Premium

The share premium concerns the income from the issuing of shares in so far as this exceeds the nominal value of the shares (above par income). Of share premium, no legal restrictions apply to the distribution thereof and therefore can be considered freely distributable.

Legal Reserves

Legal reserves as of December 31, 2019 and 2018 were $(278.0) million and $(270.3) million, respectively, and include the amounts as shown in the table below:

(in thousands)	2019	2018
Cumulative foreign currency translation adjustment	**$ (302,729)**	$ (291,011)
Capitalized development costs related to subsidiaries	**27,042**	36,142
Cash flow hedge reserve	**$ (2,289)**	$ (15,453)
Legal reserves	**$ (277,976)**	$ (270,322)

The legal reserves set up in connection with the capitalized development costs related to subsidiaries as described in Note 12 "Goodwill and Intangible Assets" to the Consolidated Financial Statements of the Group. As a result of the capitalization and subsequent amortization of these capitalized development costs, the net impact on the legal reserves was $(9.1) million and $(3.9) million for the years ended December 31, 2019 and 2018, respectively.

Other Reserves

Other reserves as of December 31, 2019 and 2018 were $(0.6) million and $(0.1) million, respectively, and include the amounts as shown in the table below.

(in thousands)	2019	2018
Pension reserve	**$ (561)**	$ (124)

The amounts noted in the table above for other reserves include adjustment for the impact of deferred income taxes.

11. Financial Instruments

Information on the use of financial instruments and on related risks is provided in Note 26 "Financial Risk Factors and Use of Derivative Financial Instruments" to the Consolidated Financial Statements of the Group and includes information about the Group's exposure to these risks, the Group's objectives, policies and processes for measuring and managing risk, and the Group's management of capital.

These risks, objectives, policies and processes for measuring and managing risk, and the management of capital apply also to the separate financial statements of QIAGEN N.V.

In the ordinary course of business, we use derivative instruments to manage potential losses from foreign currency exposures and interest bearing assets or liabilities as further described in Note 26 to the Consolidated Financial Statements. For the years ended December 31, 2019 and 2018, gains and losses on these derivatives instruments are included in Other financial (expense) income, net in the accompanying income statements of QIAGEN N.V.

12. Income Tax

Together with Life Biotech Partners B.V., the Company forms a fiscal unity for corporate income tax purposes. For value-added tax purposes, the fiscal unity includes all Dutch subsidiaries of the Company. The standard conditions of fiscal unity stipulate that each of the companies is liable for the tax payable of all companies belonging to the fiscal unity.

13. Employee Information

Average Number of Employees	2019	2018
Research & Development	**1,005**	1,005
Sales	**2,030**	1,938
Production	**1,116**	1,074
Marketing	**309**	293
Administration	**566**	511
Total	**5,026**	4,821

The average number of employees working outside the Netherlands during the year ended December 31, 2019 was 4,979 (2018: 4,772).

The pension plans applicable to the employees are financed through contributions to external pension insurance companies. The contribution due is accounted for in the profit and loss as an expense. Prepaid contributions are recognized as deferred assets if these lead to a refund or reduction of future payments. Contributions that are due but have not yet been paid are presented as liabilities. Information on personnel costs is provided under Note 23 "Employee Benefits and Personnel Costs" to the Consolidated Financial Statements of the Group.

14. Related Party Transactions

Information on related party transactions including remuneration of the members of the Managing and Supervisory Board is provided under Note 24 "Related Party Transactions" to the Consolidated Financial Statements of the Group. Information on the remuneration policy is provided in the Corporate Governance Report.

15. Auditor Fees

Information on auditor fees is provided under Note 31 "Fees Paid External Auditors" to the Consolidated Financial Statements of the Group.

16. Subsequent Events

Based on the Company’s review, no events or transactions have occurred subsequent to December 31, 2019 other than those described in Note 29 "Subsequent Events" to the Consolidated Financial Statements, that would have a material impact on the financial statements as presented.

Signatures

Venlo, the Netherlands, April 29, 2020

QIAGEN N.V.

Roland Sackers
Chief Financial Officer

OTHER INFORMATION

Provisions in the Articles of Association Governing the Appropriation of Net Income

According to Article 40 till 42 of the Articles of Association, the allocation of net income will be as follows. Subject to certain exceptions, dividends may only be paid out of profits as shown in our annual report as adopted by the General Meeting of Shareholders. Distributions may not be made if the distribution would reduce the shareholders' equity below the sum of the paid-up capital and any reserves required by Dutch Law or the 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 amount (call) paid up on such shares at the beginning of the fiscal 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 made 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. 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 fiscal 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 such amounts shall be kept in reserve as determined by the Supervisory Board. Out of any remaining profits not allocated to reserve, a dividend shall be paid on the Financing Preference Shares in a percentage over the par value, increased by the amount of share premium that was paid upon the first issue of Financing Preference Shares, which percentage is related to the average effective yield on the prime interest rate on corporate loans in the United States as quoted in the Wall Street Journal. 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 the reserves as specified above, they are at the free disposal of the General Meeting of Shareholders, 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.

Independent auditor's report

To: the General Meeting of Shareholders and the Supervisory Board of QIAGEN N.V.

Report on the audit of the financial statements 2019 included in the annual report

Our opinion

In our opinion:

- the accompanying consolidated financial statements give a true and fair view of the financial position of QIAGEN N.V. as at December 31, 2019 and of its result and its cash flows for the year then ended, in accordance with International Financial Reporting Standards as adopted by the European Union (EU-IFRS) and with Part 9 of Book 2 of the Dutch Civil Code.
- the accompanying company financial statements give a true and fair view of the financial position of QIAGEN N.V. as at December 31, 2019 and of its result for the year then ended in accordance with Part 9 of Book 2 of the Dutch Civil Code.

What we have audited

We have audited the financial statements 2019 of QIAGEN N.V. ('the Company') based in Venlo, Netherlands. The financial statements include the consolidated financial statements and the company financial statements.

The consolidated financial statements comprise:

1 the consolidated balance sheet as at December 31, 2019;

2 the following consolidated statements for 2019: the income statement, the statement of comprehensive income (loss), statement of cash flows and statement of changes in equity; and

3 the notes comprising a summary of the significant accounting policies and other explanatory information.

The company financial statements comprise:

1 the company balance sheet as December 31, 2019;

2 the company income statement for 2019;

3 the company statement of changes in equity for 2019; and

4 the notes comprising a summary of the accounting policies and other explanatory information.

Basis for our opinion

We conducted our audit in accordance with Dutch law, including the Dutch Standards on Auditing. Our responsibilities under those standards are further described in the 'Our responsibilities for the audit of the financial statements' section of our report.

We are independent of the Company in accordance with the 'Verordening inzake de onafhankelijkheid van accountants bij assurance-opdrachten' (ViO, Code of Ethics for Professional Accountants, a regulation with respect to independence) and other relevant independence regulations in the Netherlands. Furthermore, we have complied with the 'Verordening gedrags- en beroepsregels accountants' (VGBA, Dutch Code of Ethics).

We believe the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Audit approach

Summary

Materiality
– Materiality of USD 9.5 million – 4% of normalized income before income taxes

Group audit
– 90% of total assets – 85% of net sales

Key audit matters
– Evaluation of the Formulatrix asset purchase agreement as an asset acquisition – NGS related restructuring costs and impairments – Assessment of (un)recognized tax benefits

Opinion
Unqualified

Materiality

Based on our professional judgement we determined the materiality for the financial statements as a whole at USD 9.5 million (2018: USD 8.5 million). The materiality is determined with reference to normalized income before income taxes (4%, 2018: 5%). The income before income taxes is normalized by excluding one-time income and expenses, which mainly include the restructuring and impairment charges and the fair value adjustment of the cash conversion option within the convertible note. We consider normalized income before income taxes as the most appropriate benchmark because of the nature of the business and the fact that the main stakeholders are primarily focused on income before income tax. We have also taken into account misstatements and/or possible misstatements that in our opinion are material for the users of the financial statements for qualitative reasons.

We agreed with the Supervisory Board that misstatements in excess of USD 475,000 which are identified during the audit, would be reported to them, as well as smaller misstatements that in our view must be reported on qualitative grounds.

Scope of the group audit

QIAGEN N.V. is at the head of a group of components. The financial information of this group is included in the financial statements of the Company.

Our group audit is mainly focused on significant components. Decisive were the size and/or the risk profile of the group entities or operations. Based on the size and the risk profile of the components, we determined the scope of the audit procedures to be performed. KPMG Germany was engaged to perform the majority of the group audit procedures and the audit procedures for both the German and some foreign components. In addition, other KPMG offices were involved to perform specified audit procedures on selected accounts of foreign components.

We have:

- performed part of the audit procedures at group level by ourselves;
- made use of the work of the component auditors who performed full scope audit procedures and specified audit procedures at the parent and component level; and

– performed analytical procedures with assistance of KPMG Germany on the remaining components, considering their significance and/or their risk profile.

The group audit team set materiality levels for the audits of components, which ranged from USD 1.0 million to USD 6.0 million, based on the judgement of the group audit team given the mix of size and risk profile of these entities within the group.

The group audit team has sent detailed instructions to the auditors of the components which includes the significant risk areas that should be covered and sets out the information required to be reported to the group audit team. The group audit team visited the entity location and component auditor in Germany, and held telephone conferences with other component auditors.

During these visits and telephone conferences, the audit approach, the findings and observations reported to the group audit team were discussed in detail. For certain components a file review has also been performed.

By performing the procedures mentioned above at components, together with additional procedures at group level, we have been able to obtain sufficient and appropriate audit evidence about the group's financial information to provide an opinion about the financial statements.

The procedures as described above can be summarized as follows:

Our key audit matters

Key audit matters are those matters that, in our professional judgement, were of most significance in our audit of the financial statements. We have communicated the key audit matters to the Supervisory Board. The key audit matters are not a comprehensive reflection of all matters discussed.

These matters were addressed in the context of our audit of the financial statements as a whole and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

Compared to last year the 'revenue recognition for milestone contracts', 'Cash convertible notes and call spread overlay' and 'Investments in NeuMoDx' are no longer key audit matters, since the situation qualifying them as a key audit matter last year did not occur this year.

Evaluation of the Formulatrix asset purchase agreement as an asset acquisition

Description

As disclosed in Note 5 of the financial statements, the Company acquired the digital polymerase chain reaction (PCR) assets of Formulatrix Inc. (Formulatrix) on January 31, 2019. Consistent with other business combination type transactions, the Company has to determine whether an acquisition is considered to be a business, or an asset or group of assets, including whether substantially all of the fair value of the acquired gross assets is concentrated in a single asset or group of similarly identifiable assets. The purchase price of the digital PCR assets was USD 260.9 million, of which USD 125.0 million was paid at acquisition date.

Given the significant amounts related to the acquisition, the assessment required by management to determine if it is a business combination or an asset acquisition and the impact on the financial statements of the outcome of this assessment by management, we identified the evaluation of the acquisition of the digital PCR assets of Formulatrix Inc. as a key audit matter.

Our response

The primary procedures we performed to address this key audit matter included the following:

- We tested certain internal controls over the Company's acquisition-date evaluation process including controls to (1) identify assets acquired and (2) assess the application of the substantially all threshold in determining whether the asset acquisition criterion is met.
- We inspected the Formulatrix asset purchase agreement, including the transaction terms and specific assets listed in the agreement, to evaluate the Company's identification of assets acquired and its determination if it is a business combination or an asset acquisition.
- We evaluated the Company's assessment by inspecting the nature of these assets and comparisons to external cost and external market research studies to assess for indications of dissimilar characteristics.
- In addition, we involved valuation professionals with specialized skills and knowledge, who assisted in:
  - evaluating the identification of the intangible assets acquired from the Formulatrix asset purchase transaction by inspecting and evaluating legal terms that would give rise to identifiable intangible assets; and
  - assessing the Company's determination of combining the Formulatrix intangible assets into a single developed technology intangible asset.
- Finally, we assessed the adequacy of the disclosures in Note 5 to the financial statements.

Our observation

The results of our procedures on the accounting of the Formulatrix acquisition were satisfactory and we found the disclosures in Note 5 to the financial statements to be adequate.

NGS-related restructuring costs and impairments

Description

As disclosed in Note 6 of the financial statements, the Company began a restructuring initiative as a result of the suspended development of the next-generation sequencers ("NGS")-related instrument systems in the second half of 2019.

Due to the suspended development, intangible assets were also assessed for recoverability and an impairment review was conducted of inventory and prepaid and other assets.

In total, the Company recorded approximately USD 290 million as impairment, personnel related and other charges in 2019 as restructuring and impairment charges.

We identified the evaluation of the accounting for the restructuring charges as a key audit matter due to the material impact of the restructuring charges on the financial statements and the level of management judgement applied.

Our response

We involved experienced team members, in performing the audit procedures and performed our procedures close to year-end and continued after year-end.

The primary procedures we performed to address this key audit matter included the following:

- We tested certain internal controls over the Company's restructuring and impairment assessment process for long-lived assets, including the control related to the assessment of alternative highest and best uses for these assets.
- For a selection of assets within the long-lived asset group, we evaluated the Company's conclusion over their alternative uses through a combination of (1) inspecting application descriptions and uses in underlying license agreements, software documentation and other contracts, (2) inquiring with operational management and performing independent research into the potential use of patents and other intangible assets outside of the Company's other product areas.
- We performed detailed audit procedures on the impairments related to inventory and other assets and tested impairment of prepaid assets and contract termination costs with underlying contracts.
- Further, we recalculated payroll restructuring charges for a sample of employees terminated as part of the restructuring.
- Finally, we assessed the adequacy of the disclosures in Note 6 to the financial statements.

Our observation

Overall we assess the assumptions applied resulted in a balanced outcome and found the disclosures in Note 6 to be adequate.

Assessment of (un)recognized tax benefits

Description

As disclosed in Note 17 of the financial statements, the Company has net unrecognized tax benefits of USD 58.0 million as at December 31, 2019. 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. Since the recognition and measurement of these (un)recognized tax benefits requires judgement and may have a material impact on the financial statements we identified this as a key audit matter.

Our response

The primary procedures we performed to address this key audit matter included the following:

- We tested certain internal controls over the Company's unrecognized tax benefit process, including controls over (1) its identification and application of tax statutes and legislation, and changes thereto, in the various jurisdictions in which it operates and (2) its application in the process to estimate the associated unrecognized tax benefit.
- We have performed a retrospective analysis to evaluate the historical accuracy of management's estimates.
- We inspected the Company's legal composition to identify and assess changes in operating structures and financing arrangements.

- We inquired of the Group's tax department in combination with inspecting correspondence with the responsible tax authorities.
- We involved tax specialists, who assisted in:
  - evaluating the Company's interpretation and application of multi-jurisdictional tax laws, and changes thereto, and its impact on the unrecognized tax benefit;
  - inspecting the lapse of statute of limitations and settlements with tax authorities over a selection of unrecognized tax benefits to compare the amount in the settlement documents 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.
- Finally, we assessed the adequacy of the disclosure in Note 17.

Our observation

The results of our procedures on the accounting for unrecognized tax benefits were satisfactory and found the disclosure in Note 17 to be adequate.

Report on the other information included in the annual report

In addition to the financial statements and our auditor's report thereon, the annual report contains other information. Additionally other information includes the remuneration report.

Based on the following procedures performed, we conclude that the other information:

- is consistent with the financial statements and does not contain material misstatements; and
- contains the information as required by Part 9 of Book 2 of the Dutch Civil Code.

We have read the other information. Based on our knowledge and understanding obtained through our audit of the financial statements or otherwise, we have considered whether the other information contains material misstatements.

By performing these procedures, we comply with the requirements of Part 9 of Book 2 of the Dutch Civil Code and the Dutch Standard 720. The scope of the procedures performed is less than the scope of those performed in our audit of the financial statements.

Management is responsible for the preparation of the other information, including the information as required by Part 9 of Book 2 of the Dutch Civil Code.

Report on other legal and regulatory requirements

Engagement

We were engaged by the General Meeting of Shareholders as auditor of QIAGEN N.V. on June 23, 2015 as of the audit for the year 2015 and have operated as statutory auditor ever since that financial year.

No prohibited non-audit services

We have not provided prohibited non-audit services as referred to in Article 5(1) of the EU Regulation on specific requirements regarding statutory audits of public-interest entities.

Description of responsibilities regarding the financial statements

Responsibilities of the Managing Board and the Supervisory Board for the financial statements

The Managing Board is responsible for the preparation and fair presentation of the financial statements in accordance with EU-IFRS and Part 9 of Book 2 of the Dutch Civil Code. Furthermore, the Managing Board is responsible for such internal control as management determines is necessary to enable the preparation of the financial statements that are free from material misstatement, whether due to fraud or error.

As part of the preparation of the financial statements, the Managing Board is responsible for assessing the Company's ability to continue as a going concern. Based on the financial reporting frameworks mentioned, the Managing Board should prepare the financial statements using the going concern basis of accounting unless the Managing Board either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so. The Managing Board should disclose events and circumstances that may cast significant doubt on the Company's ability to continue as a going concern in the financial statements.

The Supervisory Board is responsible for overseeing the Company's financial reporting process.

Our responsibilities for the audit of the financial statements

Our objective is to plan and perform the audit engagement in a manner that allows us to obtain sufficient and appropriate audit evidence for our opinion.

Our audit has been performed with a high, but not absolute, level of assurance, which means we may not detect all material errors and fraud during our audit.

Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements. The materiality affects the nature, timing and extent of our audit procedures and the evaluation of the effect of identified misstatements on our opinion.

A further description of our responsibilities for the audit of the financial statements is located at the website of the 'Koninklijke Nederlandse Beroepsorganisatie van Accountants' (NBA, Royal Netherlands Institute of Chartered Accountants) at: http://www.nba.nl/ENG_oob_01. This description forms part of our independent auditor's report.

Eindhoven, April 29 2020

KPMG Accountants N.V.

M.J.A. Verhoeven RA