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

FORM 10-Q

☒ QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
FOR THE QUARTERLY PERIOD ENDED JUNE 30, 2020
or
☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
FOR THE TRANSITION PERIOD FROM _ TO _

Commission file number 000-19319

Vertex Pharmaceuticals Incorporated
(Exact name of registrant as specified in its charter)

Massachusetts	**04-3039129**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
50 Northern Avenue, Boston, Massachusetts	**02210**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code **(617) 341-6100**

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

Title of each class	Trading Symbol	Name of each exchange on which registered
Common Stock, $0.01 Par Value Per Share	VRTX	The Nasdaq Global Select Market

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

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

Large accelerated filer ☒ Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☐ Emerging growth company ☐

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practicable date.

Common Stock, par value $0.01 per share	260,467,334	Outstanding at July 23, 2020

VERTEX PHARMACEUTICALS INCORPORATED
FORM 10-Q
FOR THE QUARTER ENDED June 30, 2020

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"We," "us," "Vertex" and the "Company" as used in this Quarterly Report on Form 10-Q refer to Vertex Pharmaceuticals Incorporated, a Massachusetts corporation, and its subsidiaries.

"Vertex," "KALYDECO®," "ORKAMBI®," "SYMDEKO®," "SYMKEVI®" and "TRIKAFTA®" are registered trademarks of Vertex. The trademark for "KAFTRIO™" is pending in the United States and registered in the European Union. Other brands, names and trademarks contained in this Quarterly Report on Form 10-Q are the property of their respective owners.

We use the brand name for our products when we refer to the product that has been approved and with respect to the indications on the approved label. Otherwise, including in discussions of our cystic fibrosis development programs, we refer to our compounds by their scientific (or generic) name or VX developmental designation.

Part I. Financial Information

Item 1. Financial Statements

VERTEX PHARMACEUTICALS INCORPORATED
Condensed Consolidated Statements of Operations
(unaudited)
(in thousands, except per share amounts)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
Revenues:				
Product revenues, net	$ 1,524,485	$ 940,380	$ 3,039,592	$ 1,797,633
Collaborative and royalty revenues	—	913	—	2,095
Total revenues	1,524,485	941,293	3,039,592	1,799,728
Costs and expenses:				
Cost of sales	184,520	135,740	347,017	230,832
Research and development expenses	420,928	379,091	869,456	718,581
Sales, general and administrative expenses	191,804	156,502	374,062	303,547
Change in fair value of contingent consideration	9,200	—	10,800	—
Total costs and expenses	806,452	671,333	1,601,335	1,252,960
Income from operations	718,033	269,960	1,438,257	546,768
Interest income	4,243	18,076	16,819	33,691
Interest expense	(13,871)	(14,837)	(28,007)	(29,705)
Other income, net	116,365	53,939	55,235	96,549
Income before (benefit from) provision for income taxes	824,770	327,138	1,482,304	647,303
(Benefit from) provision for income taxes	(12,500)	59,711	42,281	111,245
Net income	$ 837,270	$ 267,427	$ 1,440,023	$ 536,058
Net income per common share:				
Basic	$ 3.22	$ 1.04	$ 5.54	$ 2.09
Diluted	$ 3.18	$ 1.03	$ 5.46	$ 2.06
Shares used in per share calculations:				
Basic	259,637	256,154	260,013	255,941
Diluted	263,403	259,822	263,746	260,015

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

VERTEX PHARMACEUTICALS INCORPORATED
Condensed Consolidated Statements of Comprehensive Income
(unaudited)
(in thousands)

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	**2019**	**2020**	**2019**
Net income	$ 837,270	$ 267,427	$ 1,440,023	$ 536,058
Other comprehensive loss:				
Unrealized holding gains on marketable securities, net	2,714	451	1,950	1,047
Unrealized losses on foreign currency forward contracts, net of tax of $4.7 million, $1.8 million, $(0.3) million and $3.3 million, respectively	(19,680)	(5,776)	(898)	(5,998)
Foreign currency translation adjustment	(10,538)	(3,876)	(13,200)	1,091
Total other comprehensive loss	(27,504)	(9,201)	(12,148)	(3,860)
Comprehensive income	$ 809,766	$ 258,226	$ 1,427,875	$ 532,198

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

VERTEX PHARMACEUTICALS INCORPORATED
Condensed Consolidated Balance Sheets
(unaudited)
(in thousands, except per share amounts)

	June 30, 2020	December 31, 2019
Assets		
Current assets:		
Cash and cash equivalents	$ 4,831,332	$ 3,109,322
Marketable securities	619,437	698,972
Accounts receivable, net	791,768	633,518
Inventories	219,218	167,502
Prepaid expenses and other current assets	232,565	213,515
Total current assets	6,694,320	4,822,829
Property and equipment, net	728,357	745,080
Goodwill	1,002,158	1,002,158
Intangible assets	400,000	400,000
Deferred tax assets	1,214,968	1,190,815
Other assets	176,564	157,583
Total assets	$ 10,216,367	$ 8,318,465
Liabilities and Shareholders' Equity		
Current liabilities:		
Accounts payable	$ 101,451	$ 87,610
Accrued expenses	1,545,407	1,116,912
Other current liabilities	151,782	130,305
Total current liabilities	1,798,640	1,334,827
Long-term finance lease liabilities	522,067	538,576
Long-term contingent consideration	187,300	176,500
Other long-term liabilities	189,118	183,318
Total liabilities	2,697,125	2,233,221
Commitments and contingencies	—	—
Shareholders' equity:		
Preferred stock, $0.01 par value; 1,000 shares authorized; none issued and outstanding	—	—
Common stock, $0.01 par value; 500,000 shares authorized, 260,124 and 258,993 shares issued and outstanding, respectively	2,601	2,589
Additional paid-in capital	7,943,717	7,937,606
Accumulated other comprehensive loss	(14,121)	(1,973)
Accumulated deficit	(412,955)	(1,852,978)
Total shareholders' equity	7,519,242	6,085,244
Total liabilities and shareholders' equity	$ 10,216,367	$ 8,318,465

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

VERTEX PHARMACEUTICALS INCORPORATED
Condensed Consolidated Statements of Shareholders' Equity
(unaudited)
(in thousands)

	Three Months Ended					
	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Shareholders' Equity
	Shares	Amount				
Balance at March 31, 2019	256,351	$ 2,561	$ 7,475,909	$ 6,000	$ (2,761,157)	$ 4,723,313
Other comprehensive loss, net of tax	—	—	—	(9,201)	—	(9,201)
Net income	—	—	—	—	267,427	267,427
Repurchase of common stock	(296)	(3)	(52,007)	—	—	(52,010)
Issuance of common stock under benefit plans	616	7	50,494	—	—	50,501
Stock-based compensation expense	—	—	89,935	—	—	89,935
Balance at June 30, 2019	256,671	$ 2,565	$ 7,564,331	$ (3,201)	$ (2,493,730)	$ 5,069,965
Balance at March 31, 2020	259,079	$ 2,591	$ 7,695,905	$ 13,383	$ (1,250,225)	$ 6,461,654
Other comprehensive loss, net of tax	—	—	—	(27,504)	—	(27,504)
Net income	—	—	—	—	837,270	837,270
Common stock withheld for employee tax obligations	(11)	—	(3,080)	—	—	(3,080)
Issuance of common stock under benefit plans	1,056	10	132,771	—	—	132,781
Stock-based compensation expense	—	—	118,121	—	—	118,121
Balance at June 30, 2020	260,124	$ 2,601	$ 7,943,717	$ (14,121)	$ (412,955)	$ 7,519,242

	Six Months Ended					
	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Total Shareholders' Equity
	Shares	Amount				
Balance at December 31, 2018	255,172	$ 2,546	$ 7,421,476	$ 659	$ (2,989,478)	$ 4,435,203
Cumulative effect adjustment for adoption of new accounting guidance	—	—	—	—	(40,310)	(40,310)
Other comprehensive loss, net of tax	—	—	—	(3,860)	—	(3,860)
Net income	—	—	—	—	536,058	536,058
Repurchase of common stock	(833)	(9)	(150,008)	—	—	(150,017)
Common stock withheld for employee tax obligations	(27)	—	(5,832)	—	—	(5,832)
Issuance of common stock under benefit plans	2,359	28	114,517	—	—	114,545
Stock-based compensation expense	—	—	184,178	—	—	184,178
Balance at June 30, 2019	256,671	$ 2,565	$ 7,564,331	$ (3,201)	$ (2,493,730)	$ 5,069,965
Balance at December 31, 2019	258,993	$ 2,589	$ 7,937,606	$ (1,973)	$ (1,852,978)	$ 6,085,244
Other comprehensive loss, net of tax	—	—	—	(12,148)	—	(12,148)
Net income	—	—	—	—	1,440,023	1,440,023
Repurchase of common stock	(1,404)	(14)	(300,012)	—	—	(300,026)
Common stock withheld for employee tax obligations	(586)	(6)	(139,241)			(139,247)
Issuance of common stock under benefit plans	3,121	32	210,343	—	—	210,375
Stock-based compensation expense	—	—	235,021	—	—	235,021
Balance at June 30, 2020	260,124	$ 2,601	$ 7,943,717	$ (14,121)	$ (412,955)	$ 7,519,242

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

VERTEX PHARMACEUTICALS INCORPORATED
Condensed Consolidated Statements of Cash Flows
(unaudited)
(in thousands)

	Six Months Ended June 30,	
	2020	**2019**
Cash flows from operating activities:		
Net income	$ 1,440,023	$ 536,058
Adjustments to reconcile net income to net cash provided by operating activities:		
Stock-based compensation expense	232,895	183,478
Depreciation expense	53,518	54,838
Increase in fair value of contingent consideration	10,800	—
Deferred income taxes	8,963	87,358
Gains on equity securities	(65,116)	(100,078)
Other non-cash items, net	16,307	6,006
Changes in operating assets and liabilities:		
Accounts receivable, net	(164,139)	(55,870)
Inventories	(64,386)	(25,174)
Prepaid expenses and other assets	(28,923)	(17,580)
Accounts payable	14,697	(28,074)
Accrued expenses	369,851	113,968
Other liabilities	29,735	33,603
Net cash provided by operating activities	1,854,225	788,533
Cash flows from investing activities:		
Purchases of available-for-sale debt securities	(126,577)	(263,636)
Maturities of available-for-sale debt securities	145,395	228,707
Sale of equity securities	127,874	—
Expenditures for property and equipment	(37,314)	(34,399)
Investment in equity securities	(5,800)	(20,000)
Net cash provided by (used in) investing activities	103,578	(89,328)
Cash flows from financing activities:		
Issuances of common stock under benefit plans	213,058	114,092
Repurchases of common stock	(300,026)	(150,017)
Payments in connection with common stock withheld for employee tax obligations	(139,247)	(5,832)
Payments on finance leases	(20,730)	(18,926)
Proceeds related to finance leases	5,833	1,002
Advance from collaborator	3,500	7,500
Repayments of advanced funding	(1,793)	(2,823)
Net cash used in financing activities	(239,405)	(55,004)
Effect of changes in exchange rates on cash	(3,379)	(808)
Net increase in cash and cash equivalents	1,715,019	643,393
Cash, cash equivalents and restricted cash—beginning of period	3,120,681	2,658,253
Cash, cash equivalents and restricted cash—end of period	$ 4,835,700	$ 3,301,646
Supplemental disclosure of cash flow information:		
Cash paid for interest	$ 27,347	$ 27,109
Cash paid for income taxes	$ 36,813	$ 10,902
Issuances of common stock from employee benefit plans receivable	$ 137	$ 539

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

VERTEX PHARMACEUTICALS INCORPORATED
Notes to Condensed Consolidated Financial Statements
(unaudited)

A. Basis of Presentation and Accounting Policies

Basis of Presentation

The accompanying condensed consolidated financial statements are unaudited and have been prepared by Vertex Pharmaceuticals Incorporated ("Vertex" or the "Company") in accordance with accounting principles generally accepted in the United States of America ("GAAP").

The condensed consolidated financial statements reflect the operations of the Company and its wholly-owned subsidiaries. All material intercompany balances and transactions have been eliminated. The Company operates in one segment, pharmaceuticals. The Company has reclassified certain items from the prior year's condensed consolidated financial statements to conform to the current year's presentation.

Certain information and footnote disclosures normally included in the Company's 2019 Annual Report on Form 10-K have been condensed or omitted. These interim financial statements, in the opinion of management, reflect all normal recurring adjustments necessary for a fair presentation of the financial position and results of operations for the interim periods ended June 30, 2020 and 2019.

The results of operations for the interim periods are not necessarily indicative of the results of operations to be expected for the full fiscal year. These interim financial statements should be read in conjunction with the audited financial statements for the year ended December 31, 2019, which are contained in the Company's 2019 Annual Report on Form 10-K.

Use of Estimates

The preparation of condensed consolidated financial statements in accordance with GAAP requires management to make certain estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the condensed consolidated financial statements, and the amounts of revenues and expenses during the reported periods. Significant estimates in these condensed consolidated financial statements have been made in connection with (i) determining the transaction price of revenues and (ii) accounting for intangible assets and contingent consideration. The Company bases its estimates on historical experience and various other assumptions, including in certain circumstances future projections that management believes to be reasonable under the circumstances. Actual results could differ from those estimates. Changes in estimates are reflected in reported results in the period in which they become known.

Recently Adopted Accounting Standards

Leases

On January 1, 2019, the Company adopted Accounting Standards Codification ("ASC") 842, *Leases* ("ASC 842") using the modified-retrospective method, which amended a number of aspects of lease accounting and required the Company to recognize right-of-use assets and liabilities on the balance sheet. As of January 1, 2019, the Company recorded a cumulative effect adjustment to increase its "Accumulated deficit" by $40.3 million, which related to its leases that were accounted for as build-to-suit leases under the previous accounting guidance.

Internal-Use Software

In 2018, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2018-15, *Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract* ("ASU 2018-15"), which clarifies the accounting for implementation costs in cloud computing arrangements. ASU 2018-15 became effective on January 1, 2020. The adoption of ASU 2018-15 resulted in an insignificant amount of additional assets recorded on the Company's condensed consolidated balance sheet.

Fair Value Measurement

In 2018, the FASB issued ASU 2018-13, *Fair Value Measurement (Topic 820): Disclosure Framework-Changes to the Disclosure Requirements for Fair Value Measurement* ("ASU 2018-13"), which modifies the disclosure requirements for fair value measurements. ASU 2018-13 became effective on January 1, 2020. The adoption of ASU 2018-13 resulted in additional disclosures related to the Company's Level 3 inputs. Please refer to Note E, "Fair Value Measurements," for further information.

Credit Losses

In 2016, the FASB issued ASU 2016-13, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* ("ASU 2016-13"), which requires entities to record expected credit losses for certain financial instruments, including trade receivables, as an allowance that reflects the entity's current estimate of credit losses expected to be incurred. For available-for-sale debt securities in unrealized loss positions, ASU 2016-13 requires allowances to be recorded instead of reducing the amortized cost of the investment. ASU 2016-13 became effective on January 1, 2020. The adoption of ASU 2016-13 did not have a significant impact on the Company's condensed consolidated financial statements.

Recently Issued Accounting Standards

Income Taxes

In 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740)* ("ASU 2019-12"), which simplifies the accounting for income taxes. ASU 2019-12 is effective on January 1, 2021. The Company is evaluating the impact the adoption of ASU 2019-12 may have on its condensed consolidated financial statements.

For a discussion of other recent accounting pronouncements please refer to Note A, "Nature of Business and Accounting Policies," in the Company's 2019 Annual Report on Form 10-K.

Summary of Significant Accounting Policies

The Company's significant accounting policies are described in Note A, "Nature of Business and Accounting Policies," in its 2019 Annual Report on Form 10-K.

B. Revenue Recognition

Disaggregation of Revenue

Revenues by Product

Product revenues, net consisted of the following:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
	(in thousands)			
TRIKAFTA	$ 917,715	$ —	$ 1,812,948	$ —
SYMDEKO/SYMKEVI	171,729	361,832	344,888	682,107
ORKAMBI	231,981	316,441	466,119	609,448
KALYDECO	203,060	262,107	415,637	506,078
Total product revenues, net*	$ 1,524,485	$ 940,380	$ 3,039,592	$ 1,797,633

* The preceding table does not include collaborative and royalty revenues.

Revenues by Geographic Location

Net product revenues are attributed to countries based on the location of the customer. Collaborative and royalty revenues are attributed to countries based on the location of the Company's subsidiary associated with the collaborative arrangement related to such revenues. Total revenues from external customers and collaborators by geographic region consisted of the following:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
	(in thousands)			
United States	$ 1,210,314	$ 700,618	$ 2,397,902	$ 1,341,721
Outside of the United States				
Europe	257,681	180,196	515,072	347,947
Other	56,490	60,479	126,618	110,060
Total revenues outside of the United States	314,171	240,675	641,690	458,007
Total revenues	$ 1,524,485	$ 941,293	$ 3,039,592	$ 1,799,728

Contract Liabilities

The Company recorded contract liabilities of $70.7 million and $62.3 million as of June 30, 2020 and December 31, 2019, respectively, related to annual contracts with government-owned and supported customers in international markets that limit the amount of annual reimbursement the Company can receive. Upon exceeding the annual reimbursement amount, products are provided free of charge, which is a material right. These contracts include upfront payments and fees. The Company defers a portion of the consideration received for shipments made up to the annual reimbursement limit as a portion of "Other current liabilities." The deferred amount is recognized as revenue when the free products are shipped. The Company's product revenue contracts include performance obligations that are one year or less.

The Company's contract liabilities at the end of each fiscal year relate to contracts with annual reimbursement limits in international markets in which the annual period associated with the contract is not the same as the Company's fiscal year. In these markets, the Company recognizes revenues related to performance obligations satisfied in previous years; however, these revenues do not relate to any performance obligations that were satisfied more than 12 months prior to the beginning of the current year.

C. Collaborative Arrangements

The Company has entered into numerous agreements pursuant to which it collaborates with third parties on research, development and commercialization programs, including in-license and out-license agreements.

The Company's in-license and out-license agreements that had a significant impact on its financial statements for the three and six months ended June 30, 2020 and 2019, or were new during the three and six months ended June 30, 2020, are described below. Additional in-license and out-license agreements were described in Note B, "Collaborative Arrangements," of the Company's 2019 Annual Report on Form 10-K.

In-license Agreements

The Company has entered into a number of license agreements in order to advance and obtain access to technologies and services related to its research and early-development activities. The Company is generally required to make an upfront payment upon execution of the license agreement; development, regulatory and commercialization milestones payments upon the achievement of certain product research, development and commercialization objectives; and royalty payments on future sales, if any, of commercial products resulting from the collaboration.

Pursuant to the terms of its in-license agreements, the Company's collaborators typically lead the discovery efforts and the Company leads all preclinical, development and commercialization activities associated with the advancement of any drug candidates and funds all expenses.

The Company typically can terminate its in-license agreements by providing advance notice to its collaborators; the required length of notice is dependent on whether any product developed under the license agreement has received marketing approval. The Company's license agreements may be terminated by either party for a material breach by the other, subject to notice and cure provisions. Unless earlier terminated, these license agreements generally remain in effect until the date on which the royalty term and all payment obligations with respect to all products in all countries have expired.

CRISPR Therapeutics AG

In 2015, the Company entered into a strategic collaboration, option and license agreement (the "CRISPR Agreement") with CRISPR Therapeutics AG and its affiliates ("CRISPR") to collaborate on the discovery and development of potential new treatments aimed at the underlying genetic causes of human diseases using CRISPR-Cas9 gene-editing technology. The Company had the exclusive right to license certain targets. In the fourth quarter of 2019, the Company elected to exclusively license three targets, including cystic fibrosis, pursuant to the CRISPR Agreement. For each of the three targets that the Company elected to license, CRISPR has the potential to receive up to an additional $410.0 million in development, regulatory and commercial milestones as well as royalties on net product sales.

In 2017, the Company entered into a co-development and co-commercialization agreement with CRISPR pursuant to the terms of the CRISPR Agreement, under which the Company and CRISPR are co-developing and will co-commercialize CTX001 (the "CTX001 Co-Co Agreement") for the treatment of hemoglobinopathies, including treatments for sickle cell disease and beta thalassemia. As part of the collaboration, the Company and CRISPR share equally all development costs and potential worldwide revenues related to potential hemoglobinopathy treatments. The Company concluded that the CTX001 Co-Co Agreement is a cost-sharing arrangement, which results in the net impact of the arrangement being recorded in "Research and development expenses" in its condensed consolidated statements of operations. During the three and six months ended June 30, 2020, the net expense related to the CTX001 Co-Co Agreement was $9.8 million and $19.0 million, respectively. During the three and six months ended June 30, 2019, the net expense related to the CTX001 Co-Co Agreement was $7.5 million and $14.6 million, respectively.

In July 2019, the Company entered into a separate strategic collaboration and license agreement (the "CRISPR DMD/DM1 Agreement") with CRISPR. Pursuant to this agreement, the Company received an exclusive worldwide license to CRISPR's existing and future intellectual property for Duchenne muscular dystrophy ("DMD") and myotonic dystrophy type 1 ("DM1"). In the first quarter of 2020, the Company recorded $25.0 million to "Research and development expenses" related to a pre-clinical milestone earned by CRISPR under the CRISPR DMD/DM1 Agreement. CRISPR has the potential to receive up to an additional $800.0 million in research, development, regulatory and commercial milestones for the DMD and DM1 programs as well as royalties on net product sales. CRISPR has the option to co-develop and co-commercialize all DM1 products globally and forego the milestones and royalties associated with the DM1 program. The Company funds all expenses associated with the collaboration except for research costs for specified guide RNA research conducted by CRISPR, which the Company and CRISPR share equally.

Please refer to Note F, "Marketable Securities and Equity Investments," for further information regarding the Company's investment in CRISPR's common stock.

Out-license Agreements

The Company has entered into licensing agreements pursuant to which it has out-licensed rights to certain drug candidates to third-party collaborators. Pursuant to these out-license agreements, the Company's collaborators become responsible for all costs related to the continued development of such drug candidates and obtain development and commercialization rights to these drug candidates. Depending on the terms of the agreements, the Company's collaborators may be required to make upfront payments, milestone payments upon the achievement of certain product research and development objectives and may also be required to pay royalties on future sales, if any, of commercial products resulting from the collaboration. The termination provisions associated with these collaborations are generally the same as those described above related to the Company's in-license agreements. None of the Company's out-license agreements had a significant impact on the Company's condensed consolidated statement of operations during the three and six months ended June 30, 2020 and 2019.

VERTEX PHARMACEUTICALS INCORPORATED
Notes to Condensed Consolidated Financial Statements
(unaudited)

Cystic Fibrosis Foundation

The Company has a research, development and commercialization agreement that was originally entered into in 2004 with the Cystic Fibrosis Foundation ("CFF"), as successor in interest to the Cystic Fibrosis Foundation Therapeutics, Inc. This agreement was most recently amended in 2016. Pursuant to the agreement, as amended, the Company agreed to pay royalties ranging from low-single digits to mid-single digits on potential sales of certain compounds first synthesized and/or tested between March 1, 2014 and August 31, 2016, including elexacaftor, and tiered royalties ranging from single digits to sub-teens on covered compounds first synthesized and/or tested during a research term on or before February 28, 2014, including KALYDECO (ivacaftor), ORKAMBI (lumacaftor in combination with ivacaftor) and SYMDEKO/SYMKEVI (tezacaftor in combination with ivacaftor). For combination products, such as ORKAMBI, SYMDEKO/SYMKEVI and TRIKAFTA (elexacaftor/tezacaftor/ivacaftor and ivacaftor), sales are allocated equally to each of the active pharmaceutical ingredients in the combination product.

D. Earnings Per Share

Basic net income per common share is based upon the weighted-average number of common shares outstanding. Diluted net income per common share utilizing the treasury method is based upon the weighted-average number of common shares outstanding during the period plus additional weighted-average common equivalent shares outstanding during the period when the effect is dilutive.

The following table sets forth the computation of basic and diluted net income per common share for the periods ended:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
	(in thousands, except per share amounts)			
Net income	$ 837,270	$ 267,427	$ 1,440,023	$ 536,058
Basic weighted-average common shares outstanding	259,637	256,154	260,013	255,941
Effect of potentially dilutive securities:				
Stock options	2,054	2,225	1,961	2,405
Restricted stock and restricted stock units (including PSUs)	1,704	1,440	1,752	1,655
Employee stock purchase program	8	3	20	14
Diluted weighted-average common shares outstanding	263,403	259,822	263,746	260,015
Basic net income per common share	$ 3.22	$ 1.04	$ 5.54	$ 2.09
Diluted net income per common share	$ 3.18	$ 1.03	$ 5.46	$ 2.06

The Company did not include the securities in the following table in the computation of the net income per common share because the effect would have been anti-dilutive during each period:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
	(in thousands)			
Stock options	7	3,207	443	3,022
Unvested restricted stock and restricted stock units (including PSUs)	5	3	218	4

E. Fair Value Measurements

The following fair value hierarchy is used to classify assets and liabilities based on observable inputs and unobservable inputs used in order to determine the fair value of the Company's financial assets and liabilities:

Level 1: Quoted prices in active markets for identical assets or liabilities. An active market for an asset or liability is a market in which transactions for the asset or liability occur with sufficient frequency and volume to provide pricing information on an ongoing basis.

Level 2: Observable inputs other than Level 1 inputs. Examples of Level 2 inputs include quoted prices in active markets for similar assets or liabilities and quoted prices for identical assets or liabilities in markets that are not active.

Level 3: Unobservable inputs based on the Company's assessment of the assumptions that market participants would use in pricing the asset or liability.

The Company's investment strategy is focused on capital preservation. The Company invests in instruments that meet the credit quality standards outlined in the Company's investment policy. This policy also limits the amount of credit exposure to any one issue or type of instrument. The Company maintains strategic investments separately from the investment policy that governs its other cash, cash equivalents and marketable securities as described in "Note F, "Marketable Securities and Equity Investments." Additionally, the Company utilizes foreign currency forward contracts intended to mitigate the effect of changes in foreign exchange rates on its condensed consolidated statement of operations.

During the three and six months ended June 30, 2020 and 2019, the Company did not record any other-than-temporary impairment charges related to its financial assets.

The following tables set forth the Company's financial assets and liabilities subject to fair value measurements by level within the fair value hierarchy (and does not include $2.3 billion and $2.3 billion of cash as of June 30, 2020 and December 31, 2019, respectively):

	As of June 30, 2020				As of December 31, 2019			
	Total	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3
	(in thousands)							
Financial instruments carried at fair value (asset positions):								
Cash equivalents:								
Money market funds	$ 2,476,713	$ 2,476,713	$ —	$ —	$ 791,039	$ 791,039	$ —	$ —
Corporate debt securities	4,835	—	4,835	—	6,070	—	6,070	—
Commercial paper	93,107	—	93,107	—	29,472	—	29,472	—
Marketable securities:								
Corporate equity securities	219,327	209,214	10,113	—	282,084	261,797	20,287	—
Government-sponsored enterprise securities	11,253	11,253	—	—	12,733	12,733	—	—
Corporate debt securities	293,976	—	293,976	—	301,799	—	301,799	—
Commercial paper	94,881	—	94,881	—	102,356	—	102,356	—
Prepaid expenses and other current assets:								
Foreign currency forward contracts	8,054	—	8,054	—	9,725	—	9,725	—
Other assets:								
Foreign currency forward contracts	44	—	44	—	—	—	—	—
Total financial assets	$ 3,202,190	$ 2,697,180	$ 505,010	$ —	$ 1,535,278	$ 1,065,569	$ 469,709	$ —
Financial instruments carried at fair value (liability positions):								
Other current liabilities:								
Foreign currency forward contracts	$ (4,871)	$ —	$ (4,871)	$ —	$ (5,533)	$ —	$ (5,533)	$ —
Long-term contingent consideration	(187,300)	—	—	(187,300)	(176,500)	—	—	(176,500)
Other long-term liabilities:								
Foreign currency forward contracts	(1,462)	—	(1,462)	—	(1,821)	—	(1,821)	—
Total financial liabilities	$ (193,633)	$ —	$ (6,333)	$ (187,300)	$ (183,854)	$ —	$ (7,354)	$ (176,500)

Please refer to Note F, "Marketable Securities and Equity Investments," for the carrying amount and related unrealized gains (losses) by type of investment.

Fair Value of Corporate Equity Securities

The Company maintains strategic investments in corporate equity securities separately from the investment policy that governs its other cash, cash equivalents and marketable securities. The Company classifies its investments in publicly traded companies as “Marketable securities” on its condensed consolidated balance sheets. Generally, the Company’s investments in the common stock of these publicly traded companies are valued based on Level 1 inputs because they have readily determinable fair values. However, certain of the Company’s investments in publicly traded companies have been or continue to be valued based on Level 2 inputs due to transfer restrictions associated with these investments. Please refer to Note F, “Marketable Securities and Equity Investments,” for further information on these investments.

Fair Value of Contingent Consideration

In 2019, the Company acquired Exonics Therapeutics, Inc. (“Exonics”), a privately-held company focused on creating transformative gene-editing therapies to repair mutations that cause DMD and other severe neuromuscular diseases, including DM1. The Company’s Level 3 contingent consideration liabilities are related to $678.3 million of development and regulatory milestones potentially payable to Exonics’ former equity holders. The Company bases its estimates of the probability of achieving the milestones relevant to the fair value of contingent payments on industry data attributable to rare diseases. The discount rates used in the valuation model for contingent payments, which were between 0.7% and 2%, represent a measure of credit risk and market risk associated with settling the liabilities. Significant judgment is used in determining the appropriateness of these assumptions at each reporting period. Due to the uncertainties associated with development and commercialization of a drug candidate in the pharmaceutical industry, the Company's estimates regarding the fair value of contingent consideration will change in the future, resulting in adjustments to the fair value of the Company’s contingent consideration liabilities, and the effect of any such adjustments could be material.

The following table represents a rollforward of the fair value of the Company’s contingent consideration liabilities:

	Six Months Ended June 30, 2020
	(in thousands)
Balance at December 31, 2019	$ 176,500
Increase in fair value of contingent payments	10,800
Balance at June 30, 2020	$ 187,300

The “Increase in fair value of contingent payments” in the table above was primarily due to changes in market interest rates.

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F. Marketable Securities and Equity Investments

A summary of the Company's cash equivalents and marketable securities, which are recorded at fair value (and do not include $2.3 billion and $2.3 billion of cash as of June 30, 2020 and December 31, 2019, respectively), is shown below:

	As of June 30, 2020				As of December 31, 2019			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
	(in thousands)							
Cash equivalents:								
Money market funds	$ 2,476,713	$ —	$ —	$ 2,476,713	$ 791,039	$ —	$ —	$ 791,039
Corporate debt securities	4,836	—	(1)	4,835	6,070	—	—	6,070
Commercial paper	93,084	23	—	93,107	29,470	3	(1)	29,472
Total cash equivalents	2,574,633	23	(1)	2,574,655	826,579	3	(1)	826,581
Marketable securities:								
Government-sponsored enterprise securities	11,198	55	—	11,253	12,689	44	—	12,733
Corporate debt securities	292,085	1,897	(6)	293,976	301,458	391	(50)	301,799
Commercial paper	94,396	492	(7)	94,881	102,240	121	(5)	102,356
Total marketable debt securities	397,679	2,444	(13)	400,110	416,387	556	(55)	416,888
Corporate equity securities	67,054	152,273	—	219,327	113,829	168,255	—	282,084
Total marketable securities	$ 464,733	$ 154,717	$ (13)	$ 619,437	$ 530,216	$ 168,811	$ (55)	$ 698,972

Available-for-sale debt securities were classified on the Company's condensed consolidated balance sheets at fair value as follows:

	As of June 30, 2020	As of December 31, 2019
	(in thousands)	
Cash and cash equivalents	$ 2,574,655	$ 826,581
Marketable securities	400,110	416,888
Total	$ 2,974,765	$ 1,243,469

Available-for-sale debt securities by contractual maturity were as follows:

	As of June 30, 2020	As of December 31, 2019
	(in thousands)	
Matures within one year	$ 2,939,879	$ 1,137,942
Matures after one year through five years	34,886	105,527
Total	$ 2,974,765	$ 1,243,469

The Company has a limited number of available-for-sale debt securities in insignificant loss positions as of June 30, 2020, which it does not intend to sell and has concluded it will not be required to sell before recovery of the amortized costs for the investments at maturity. The Company did not record any charges for other-than-temporary declines in the fair value of available-for-sale debt securities or gross realized gains or losses in the three and six months ended June 30, 2020 and 2019.

As of June 30, 2020 and December 31, 2019, the total fair value of the Company's strategic investments in the common stock of publicly traded companies, which was primarily related to its investment in CRISPR, was $219.3 million and $282.1 million, respectively, and was classified as "Marketable securities" on its condensed consolidated balance sheets.

The Company records changes in the fair value of its investments in corporate equity securities to "Other income, net" on its condensed consolidated statements of operations. During the three and six months ended June 30, 2020, the Company recorded net unrealized gains of $85.5 million and $35.2 million, respectively, on corporate equity securities held as of June

30, 2020. During the three and six months ended June 30, 2019, the Company recorded net unrealized gains of $56.5 million and $100.1 million, respectively, on corporate equity securities held as of June 30, 2019. During the six months ended June 30, 2020, the Company received proceeds of $127.9 million related to the sale of the common stock of publicly traded companies, which had a total original weighted-average cost basis of $46.8 million. There were no sales of the common stock of publicly traded companies during the six months ended June 30, 2019.

As of June 30, 2020, the carrying value of the Company's equity investments without readily determinable fair values, which are recorded in "Other assets" on its condensed consolidated balance sheets, was $46.6 million.

G. Accumulated Other Comprehensive Income (Loss)

The following table summarizes the changes in accumulated other comprehensive income (loss) by component:

		Unrealized Holding Gains (Losses), Net of Tax		
	Foreign Currency Translation Adjustment	On Available-For-Sale Debt Securities	On Foreign Currency Forward Contracts	Total
		(in thousands)		
Balance at December 31, 2019	$ (895)	$ 503	$ (1,581)	$ (1,973)
Other comprehensive (loss) income before reclassifications	(13,200)	1,950	11,079	(171)
Amounts reclassified from accumulated other comprehensive income (loss)	—	—	(11,977)	(11,977)
Net current period other comprehensive (loss) income	(13,200)	1,950	(898)	(12,148)
Balance at June 30, 2020	$ (14,095)	$ 2,453	$ (2,479)	$ (14,121)
Balance at December 31, 2018	$ (11,227)	$ (536)	$ 12,422	$ 659
Other comprehensive income before reclassifications	1,091	1,047	5,793	7,931
Amounts reclassified from accumulated other comprehensive income (loss)	—	—	(11,791)	(11,791)
Net current period other comprehensive income (loss)	1,091	1,047	(5,998)	(3,860)
Balance at June 30, 2019	$ (10,136)	$ 511	$ 6,424	$ (3,201)

H. Hedging

Foreign currency forward contracts - Designated as hedging instruments

The Company maintains a hedging program intended to mitigate the effect of changes in foreign exchange rates for a portion of the Company's forecasted product revenues denominated in certain foreign currencies. The program includes foreign currency forward contracts that are designated as cash flow hedges under GAAP having contractual durations from one to eighteen months. The Company recognizes realized gains and losses for the effective portion of such contracts in "Product revenues, net" in its condensed consolidated statements of operations in the same period that it recognizes the product revenues that were impacted by the hedged foreign exchange rate changes.

The Company formally documents the relationship between foreign currency forward contracts (hedging instruments) and forecasted product revenues (hedged items), as well as the Company's risk management objective and strategy for undertaking various hedging activities, which includes matching all foreign currency forward contracts that are designated as cash flow hedges to forecasted transactions. The Company also formally assesses, both at the hedge's inception and on an ongoing basis, whether the foreign currency forward contracts are highly effective in offsetting changes in cash flows of hedged items on a prospective and retrospective basis. If the Company were to determine that a (i) foreign currency forward contract is not highly effective as a cash flow hedge, (ii) foreign currency forward contract has ceased to be a highly effective hedge or (iii) forecasted transaction is no longer probable of occurring, the Company would discontinue hedge accounting

treatment prospectively. The Company measures effectiveness based on the change in fair value of the forward contracts and the fair value of the hypothetical foreign currency forward contracts with terms that match the critical terms of the risk being hedged. As of June 30, 2020, all hedges were determined to be highly effective.

The Company considers the impact of its counterparties' credit risk on the fair value of the foreign currency forward contracts. As of June 30, 2020 and December 31, 2019, credit risk did not change the fair value of the Company's foreign currency forward contracts.

The following table summarizes the notional amount of the Company's outstanding foreign currency forward contracts designated as cash flow hedges under GAAP:

	As of June 30, 2020	As of December 31, 2019
Foreign Currency	**(in thousands)**	
Euro	$ 633,770	$ 501,197
British pound sterling	150,407	87,032
Australian dollar	89,443	89,705
Canadian dollar	57,578	50,452
Total foreign currency forward contracts	$ 931,198	$ 728,386

Foreign currency forward contracts - Not designated as hedging instruments

The Company also enters into foreign currency forward contracts with contractual maturities of less than one month, that are designed to mitigate the effect of changes in foreign exchange rates on monetary assets and liabilities, including intercompany balances. These contracts are not designated as hedging instruments under GAAP. The Company recognizes realized gains and losses for such contracts in "Other income, net" in its condensed consolidated statements of operations each period. As of June 30, 2020, the notional amount of the Company's outstanding foreign currency forward contracts where hedge accounting under GAAP is not applied was $574.6 million.

During the three and six months ended June 30, 2020 and 2019, the Company recognized the following related to foreign currency forward contacts in its condensed consolidated statements of operations:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
	(in thousands)			
Designated as hedging instruments - Reclassified from AOCI				
Product revenues, net	$ 6,366	$ 8,238	$ 15,288	$ 15,077
Not designated as hedging instruments				
Other income, net	$ (6,056)	$ (1,089)	$ 10,173	$ 2,062
Total reported in the Condensed Consolidated Statement of Operations				
Product revenues, net	$ 1,524,485	$ 940,380	$ 3,039,592	$ 1,797,633
Other income, net	$ 116,365	$ 53,939	$ 55,235	$ 96,549

The following table summarizes the fair value of the Company's outstanding foreign currency forward contracts designated as cash flow hedges under GAAP included on its condensed consolidated balance sheets:

As of June 30, 2020			
Assets		**Liabilities**	
Classification	**Fair Value**	**Classification**	**Fair Value**
	(in thousands)		
Prepaid expenses and other current assets	$ 8,054	Other current liabilities	$ (4,871)
Other assets	44	Other long-term liabilities	(1,462)
Total assets	$ 8,098	Total liabilities	$ (6,333)

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As of December 31, 2019			
Assets		**Liabilities**	
Classification	**Fair Value**	**Classification**	**Fair Value**
	(in thousands)		
Prepaid expenses and other current assets	$ 9,725	Other current liabilities	$ (5,533)
Other assets	—	Other long-term liabilities	(1,821)
Total assets	$ 9,725	Total liabilities	$ (7,354)

As of June 30, 2020, the Company expects the amounts that are related to foreign exchange forward contracts designated as cash flow hedges under GAAP recorded in “Prepaid expenses and other current assets” and “Other current liabilities” to be reclassified to earnings within twelve months.

The following table summarizes the potential effect of offsetting derivatives by type of financial instrument designated as cash flow hedges under GAAP on the Company’s condensed consolidated balance sheets:

	As of June 30, 2020				
	Gross Amounts Recognized	**Gross Amounts Offset**	**Gross Amounts Presented**	**Gross Amounts Not Offset**	**Legal Offset**
Foreign currency forward contracts			**(in thousands)**		
Total assets	$ 8,098	$ —	$ 8,098	$ (6,333)	$ 1,765
Total liabilities	(6,333)	—	(6,333)	6,333	—

	As of December 31, 2019				
	Gross Amounts Recognized	**Gross Amounts Offset**	**Gross Amounts Presented**	**Gross Amounts Not Offset**	**Legal Offset**
Foreign currency forward contracts			**(in thousands)**		
Total assets	$ 9,725	$ —	$ 9,725	$ (7,354)	$ 2,371
Total liabilities	(7,354)	—	(7,354)	7,354	—

I. Inventories

Inventories consisted of the following:

	As of June 30, 2020	**As of December 31, 2019**
	(in thousands)	
Raw materials	$ 30,162	$ 26,247
Work-in-process	134,889	107,021
Finished goods	54,167	34,234
Total	$ 219,218	$ 167,502

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J. Stock-based Compensation Expense and Share Repurchase Programs

Stock-based compensation expense

During the three and six months ended June 30, 2020 and 2019, the Company recognized the following stock-based compensation expense:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2020	2019	2020	2019
	(in thousands)			
Stock-based compensation expense by type of award:				
Restricted stock and restricted stock units (including PSUs)	$ 98,419	$ 60,966	$ 195,568	$ 124,476
Stock options	16,847	26,160	34,113	54,316
ESPP share issuances	2,855	2,809	5,340	5,386
Stock-based compensation expense related to inventories	(932)	(248)	(2,126)	(700)
Total stock-based compensation expense included in costs and expenses	$ 117,189	$ 89,687	$ 232,895	$ 183,478
Stock-based compensation expense by line item:				
Cost of sales	$ 1,387	$ 1,503	$ 2,748	$ 2,841
Research and development expenses	70,275	55,632	142,962	115,347
Sales, general and administrative expenses	45,527	32,552	87,185	65,290
Total stock-based compensation expense included in costs and expenses	117,189	89,687	232,895	183,478
Income tax effect	(31,151)	(26,118)	(95,397)	(65,642)
Total stock-based compensation expense, net of tax	$ 86,038	$ 63,569	$ 137,498	$ 117,836

The following table sets forth the Company's unrecognized stock-based compensation expense as of June 30, 2020, by type of award and the weighted-average period over which that expense is expected to be recognized:

	As of June 30, 2020	
	Unrecognized Expense	Weighted-average Recognition Period
	(in thousands)	(in years)
Type of award:		
Restricted stock units (including PSUs)	$ 473,493	2.08
Stock options	$ 91,779	2.15
ESPP share issuances	$ 6,489	0.59

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The following table summarizes information about stock options outstanding and exercisable as of June 30, 2020:

	Options Outstanding			Options Exercisable	
Range of Exercise Prices	Number Outstanding	Weighted-average Remaining Contractual Life	Weighted-average Exercise Price	Number Exercisable	Weighted-average Exercise Price
	(in thousands)	(in years)	(per share)	(in thousands)	(per share)
$33.82–$40.00	67	1.27	$ 37.85	67	$ 37.85
$40.01–$60.00	166	2.20	$ 47.20	166	$ 47.20
$60.01–$80.00	107	3.77	$ 74.83	105	$ 74.83
$80.01–$100.00	1,095	5.92	$ 88.92	889	$ 89.33
$100.01–$120.00	132	4.64	$ 109.27	130	$ 109.20
$120.01–$140.00	288	5.23	$ 129.41	286	$ 129.43
$140.01–$160.00	784	7.61	$ 155.49	340	$ 155.39
$160.01–$180.00	619	8.02	$ 168.32	252	$ 165.43
$180.01–$200.00	1,307	8.40	$ 185.32	365	$ 184.82
$200.01–$286.27	23	9.92	$ 286.27	23	$ 286.27
Total	4,588	6.89	$ 139.99	2,623	$ 121.00

Share repurchase programs

During 2018, the Company's Board of Directors approved a share repurchase program (the "2018 Share Repurchase Program"), pursuant to which the Company repurchased $500.0 million of its common stock in 2018 and 2019. During the six months ended June 30, 2019, the Company repurchased 832,186 shares of its common stock under the share repurchase program for an aggregate of $150.0 million including commissions and fees. As of June 30, 2019, the Company had repurchased the entire $500.0 million it was authorized to repurchase of its common stock under the 2018 Share Repurchase Program.

During 2019, the Company's Board of Directors approved a new share repurchase program (the "2019 Share Repurchase Program"), pursuant to which the Company is authorized to repurchase up to $500.0 million of its common stock between August 1, 2019 and December 31, 2020. The Company expects to fund further repurchases of its common stock through a combination of cash on hand and cash generated by operations.

As of June 30, 2020, there was a total of $164.0 million remaining for repurchases under the 2019 Share Repurchase Program. During the six months ended June 30, 2020, the Company repurchased 1,403,868 shares of its common stock under the 2019 Share Repurchase Program for an aggregate of $300.0 million including commissions and fees. Under the 2019 Share Repurchase Program, the Company is authorized to purchase shares from time to time through open market or privately negotiated transactions. Such purchases are made pursuant to Rule 10b5-1 plans or other means as determined by the Company's management and in accordance with the requirements of the SEC.

K. Income Taxes

The Company is subject to U.S. federal, state, and foreign income taxes. For the three and six months ended June 30, 2020, the Company recorded a benefit from income taxes of $12.5 million and a provision for income taxes of $42.3 million, respectively. For the three and six months ended June 30, 2019, the Company recorded provisions for income taxes of $59.7 million and $111.2 million, respectively. The Company's effective tax rate for the three and six months ended June 30, 2020 was lower than the U.S. statutory rate primarily due to a discrete tax benefit associated with an intra-entity transfer of intellectual property rights to the United Kingdom in the second quarter of 2020, a discrete tax benefit associated with the write-off of a long-term intercompany receivable in the first quarter of 2020 and excess tax benefits related to stock-based compensation. The Company's effective tax rate for the three and six months ended June 30, 2019 was lower than the U.S. statutory rate primarily due to excess tax benefits related to stock-based compensation.

In the second quarter of 2020, the Company completed an intra-entity transfer of intellectual property rights to the United Kingdom resulting in a deferred tax benefit of $187.0 million. The Company expects to be able to utilize the deferred tax asset resulting from the intra-entity transfer.

The Company released its valuation allowance on the majority of its net operating losses and other deferred tax assets as of December 31, 2018. Starting in 2019, the Company began recording a provision for income taxes on its pre-tax income using an effective tax rate approximating statutory rates. Due to the Company's ability to offset its pre-tax income against previously benefited net operating losses and credits, it expects a portion of its tax provision to represent a non-cash expense until its net operating losses and credits have been fully utilized.

The Company maintained a valuation allowance of $205.2 million related primarily to U.S. state and foreign tax attributes as of December 31, 2019. On a periodic basis, the Company reassesses any valuation allowances that it maintains on its deferred tax assets, weighing positive and negative evidence to assess the recoverability of the deferred tax assets.

In March 2020, the Coronavirus Aid, Relief and Economic Security Act (the “CARES Act”) was signed into law. The CARES Act includes provisions relating to several aspects of corporate income taxes. The Company does not currently expect the CARES Act to have a significant impact on its provision for income taxes; however, it will continue to monitor the provisions of the CARES Act in relation to its operations.

The Company has reviewed the tax positions taken, or to be taken, in its tax returns for all tax years currently open to examination by a taxing authority. Unrecognized tax benefits represent the aggregate tax effect of differences between tax return positions and the benefits recognized in the financial statements. As of June 30, 2020 and December 31, 2019, the Company had $68.4 million and $33.9 million, respectively, of gross unrecognized tax benefits, which would affect the Company’s tax rate if recognized. The Company does not expect that its unrecognized tax benefits will materially increase within the next twelve months. The Company accrues interest and penalties related to unrecognized tax benefits as a component of its provision for income taxes. The Company did not recognize any material interest or penalties related to uncertain tax positions during the three and six months ended June 30, 2020 and 2019.

As of June 30, 2020, foreign earnings, which were not significant, have been retained by foreign subsidiaries for indefinite reinvestment. Upon repatriation of those earnings, in the form of dividends or otherwise, the Company could be subject to withholding taxes payable to the various foreign countries.

The Company files U.S. federal income tax returns and income tax returns in various state, local and foreign jurisdictions. The Company is no longer subject to any tax assessment from an income tax examination in the United States or any other major taxing jurisdiction for years before 2011, except where the Company has net operating losses or tax credit carryforwards that originate before 2011. The Company has various income tax audits ongoing at any time throughout the world. No significant adjustments have been reported for any jurisdiction under audit.

L. Commitments and Contingencies

Revolving Credit Facility

In September 2019, the Company and certain of its subsidiaries entered into a Credit Agreement (the “2019 Credit Agreement”) with Bank of America, N.A., as administrative agent and the lenders referred to therein. The 2019 Credit Agreement provides for a $500.0 million unsecured revolving facility, which was not drawn upon at closing. Amounts drawn pursuant to the 2019 Credit Agreement, if any, may be used to finance the Company’s working capital needs, and for general corporate or other lawful purposes. The Company had no borrowings outstanding under the 2019 Credit Agreement as of June 30, 2020 and December 31, 2019. The 2019 Credit Agreement also provides that, subject to satisfaction of certain conditions, the Company may request that the borrowing capacity under the 2019 Credit Agreement be increased by an additional $500.0 million. The 2019 Credit Agreement, which matures on September 17, 2024, superseded the Company’s credit agreement entered into in 2016 with Bank of America, N.A serving in the same capacity. Additionally, the 2019 Credit Agreement provides a sublimit of $50.0 million for letters of credit.

Direct costs related to the 2019 Credit Agreement, which were not material to the Company's financial statements, were deferred and will be recorded over the term of the 2019 Credit Agreement.

Any amounts borrowed under the 2019 Credit Agreement will bear interest, at the Company's option, at either a base rate or a Eurocurrency rate, in each case plus an applicable margin. Under the 2019 Credit Agreement, the applicable margins on base rate loans range from 0.125% to 0.50% and the applicable margins on Eurocurrency loans range from 1.125% to 1.50%, in each case based on the Company's consolidated leverage ratio (the ratio of the Company's total consolidated funded indebtedness to the Company's consolidated EBITDA for the most recently completed four fiscal quarter period).

Any amounts borrowed pursuant to the 2019 Credit Agreement are guaranteed by certain of the Company's existing and future domestic subsidiaries, subject to certain exceptions.

The 2019 Credit Agreement contains customary representations and warranties and affirmative and negative covenants, including financial covenants to maintain (i) subject to certain limited exceptions, a consolidated leverage ratio of 3.50 to 1.00, subject to an increase to 4.00 to 1.00 following a material acquisition and (ii) a consolidated interest coverage ratio (the ratio of the Company's consolidated EBITDA to its consolidated interest expenses for the most recently completed four fiscal quarter period) of 2.50 to 1.00, in each case measured on a quarterly basis. The 2019 Credit Agreement also contains customary events of default. In the case of a continuing event of default, the administrative agent would be entitled to exercise various remedies, including the acceleration of amounts due under outstanding loans. As of June 30, 2020, the Company was in compliance with the covenants described above.

Guaranties and Indemnifications

As permitted under Massachusetts law, the Company's Articles of Organization and By-laws provide that the Company will indemnify certain of its officers and directors for certain claims asserted against them in connection with their service as an officer or director. The maximum potential amount of future payments that the Company could be required to make under these indemnification provisions is unlimited. However, the Company has purchased directors' and officers' liability insurance policies that could reduce its monetary exposure and enable it to recover a portion of any future amounts paid. No indemnification claims currently are outstanding, and the Company believes the estimated fair value of these indemnification arrangements is minimal.

The Company customarily agrees in the ordinary course of its business to indemnification provisions in agreements with clinical trial investigators and sites in its drug development programs, sponsored research agreements with academic and not-for-profit institutions, various comparable agreements involving parties performing services for the Company and its real estate leases. The Company also customarily agrees to certain indemnification provisions in its drug discovery, development and commercialization collaboration agreements. With respect to the Company's clinical trials and sponsored research agreements, these indemnification provisions typically apply to any claim asserted against the investigator or the investigator's institution relating to personal injury or property damage, violations of law or certain breaches of the Company's contractual obligations arising out of the research or clinical testing of the Company's compounds or drug candidates. With respect to lease agreements, the indemnification provisions typically apply to claims asserted against the landlord relating to personal injury or property damage caused by the Company, to violations of law by the Company or to certain breaches of the Company's contractual obligations. The indemnification provisions appearing in the Company's collaboration agreements are similar to those for the other agreements discussed above, but in addition provide some limited indemnification for its collaborator in the event of third-party claims alleging infringement of intellectual property rights. In each of the cases above, the indemnification obligation generally survives the termination of the agreement for some extended period, although the Company believes the obligation typically has the most relevance during the contract term and for a short period of time thereafter. The maximum potential amount of future payments that the Company could be required to make under these provisions is generally unlimited. The Company has purchased insurance policies covering personal injury, property damage and general liability that reduce its exposure for indemnification and would enable it in many cases to recover all or a portion of any future amounts paid. The Company has never paid any material amounts to defend lawsuits or settle claims related to these indemnification provisions. Accordingly, the Company believes the estimated fair value of these indemnification arrangements is minimal.

Other Contingencies

The Company has certain contingent liabilities that arise in the ordinary course of its business activities. The Company accrues a reserve for contingent liabilities when it is probable that future expenditures will be made, and such expenditures can be reasonably estimated. There were no material contingent liabilities accrued as of June 30, 2020 or December 31, 2019.

M. Additional Cash Flow Information

The cash, cash equivalents and restricted cash at the beginning and ending of each period presented in the Company's condensed consolidated statements of cash flows consisted of the following:

	Six Months Ended June 30,			
	2020		2019	
	Beginning of period	End of period	Beginning of period	End of period
	(in thousands)			
Cash and cash equivalents	$ 3,109,322	$ 4,831,332	$ 2,650,134	$ 3,294,684
Prepaid expenses and other current assets	8,004	4,368	4,910	6,962
Other assets	3,355	—	3,209	—
Cash, cash equivalents and restricted cash per statement of cash flows	$ 3,120,681	$ 4,835,700	$ 2,658,253	$ 3,301,646

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

OVERVIEW

We invest in scientific innovation to create transformative medicines for people with serious diseases with a focus on specialty markets. We have four approved medicines to treat cystic fibrosis, or CF, a life-threatening genetic disease, and are focused on expanding the number of CF patients eligible for our medicines. We are broadening our pipeline into additional disease areas through internal research efforts and accessing external innovation through business development transactions.

In October 2019, TRIKAFTA (elexacaftor/tezacaftor/ivacaftor and ivacaftor), our triple-combination regimen, was approved by the U.S. Food and Drug Administration, or FDA, for the treatment of patients with CF 12 years of age and older who have at least one *F508del* mutation in the cystic fibrosis transmembrane conductance regulator, or CFTR, gene. Approval of TRIKAFTA in the U.S. increased the number of CF patients eligible for our medicines by approximately 6,000 and provided an additional treatment option for many patients who are also eligible for one of our previously approved products. Collectively, our medicines are currently approved to treat approximately 60% of the 75,000 CF patients in North America, Europe and Australia. We are seeking approval from the European Commission for our triple combination regimen for patients with CF 12 years of age and older with specific mutations in their CFTR gene. If our triple combination is approved by the European Commission, up to 10,000 patients will be newly eligible for our medicines. We are evaluating our triple combination in younger patients with the goal of having small molecule treatments for up to 90% of patients with CF. We are also pursuing genetic therapies to address the remaining 10% of CF patients.

Beyond CF, our small molecule programs include programs focused on developing treatments for alpha-1 antitrypsin, or AAT, deficiency, APOL1-mediated kidney diseases, and pain. We are evaluating CTX001, a genetic therapy, as a potential treatment for sickle cell disease, or SCD, and transfusion-dependent beta thalassemia, or TDT, in Phase 1/2 clinical trials in collaboration with CRISPR Therapeutics AG, or CRISPR. In 2019, through a series of strategic transactions, we acquired preclinical programs to develop cell-based therapies for type 1 diabetes, or T1D, and preclinical genetic therapy programs for Duchenne muscular dystrophy, or DMD, and myotonic dystrophy type 1, or DM1.

Financial Highlights

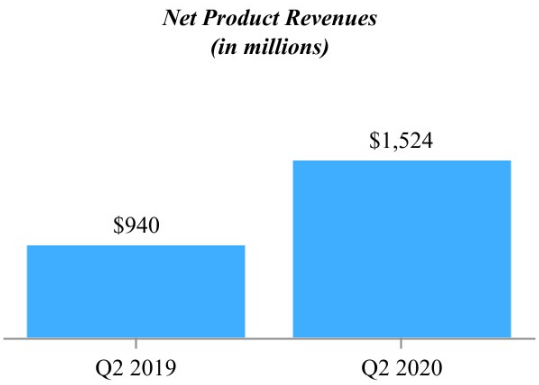
Revenues

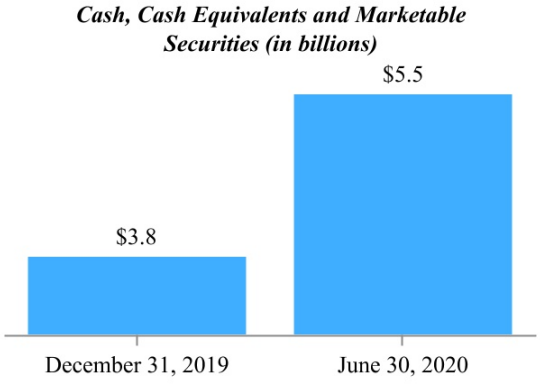
In the second quarter of 2020, our net product revenues continued to increase due to the approval of TRIKAFTA in late 2019 and uptake of our medicines in ex-U.S. markets following completion of reimbursement agreements in 2019.

Expenses

Our combined R&D and SG&A expenses increased to $612.7 million in the second quarter of 2020 from $535.6 million in the second quarter of 2019. In the second quarter of 2020, cost of sales was 12% of our net product revenues.

Balance Sheet





Business Updates

Cystic Fibrosis

TRIKAFTA/KAFTRIO (elexacaftor in combination with tezacaftor and ivacaftor)

- In the U.S., most of the approximately 18,000 eligible patients 12 years of age and older have initiated treatment with TRIKAFTA following its approval in October 2019.
- In June 2020, the European Medicines Agency's Committee for Medicinal Products for Human Use, or CHMP, adopted a positive opinion for our triple combination, which we intend to market as KAFTRIO in Europe if approved. This opinion was based on the Marketing Authorization Application, or MAA, we submitted to the European Medicines Agency, or EMA, in 2019 and is for the treatment of patients with CF 12 years of age and older with one *F508del* mutation and one minimal function mutation or two *F508del* mutations. The CHMP's positive opinion will be reviewed by the European Commission, which has the authority to approve the MAA.
- In June 2020, we expanded our reimbursement agreement with the National Health Service, or NHS, England to include KAFTRIO, subject to approval of the medicine. If approved, KAFTRIO will be available to patients with CF in England 12 years of age and older with one *F508del* mutation and one minimal function mutation or two *F508del* mutations.
- In July 2020, we announced positive Phase 3 clinical trial results for TRIKAFTA in patients with CF 12 years and older who have one copy of the *F508del* mutation and one gating or residual function mutation. In the U.S., this clinical trial was a post-marketing commitment and TRIKAFTA is already approved for use in patients with CF 12 years of age and older who have at least one copy of the *F508del* mutation, which includes the populations evaluated in this clinical trial. The data from this clinical trial will be submitted to the EMA to support a potential indication expansion of the European Union, or EU, label, after initial approval has been granted for our triple combination.
- Data from our Phase 3 clinical trial evaluating the use of our triple combination regimen in children 6 to 11 years of age with CF who have two copies of the *F508del* mutation or who have one *F508del* mutation and one minimal function mutation is expected in the second half of 2020. If the data from this clinical trial is positive, we plan to submit a supplemental New Drug Application, or sNDA, to the FDA in the fourth quarter of 2020 for children 6 to 11 years of age with at least one *F508del* mutation, followed by regulatory submissions in other countries.

SYMDEKO/SYMKEVI (tezacaftor in combination with ivacaftor)

- The EMA review of the application for use of SYMKEVI in children 6 through 11 years of age in Europe is ongoing. If approved, this will be the first CFTR modulator to treat patients 6 through 11 years of age with residual function mutations in the EU.

KALYDECO (ivacaftor)

- In June 2020, the European Commission granted approval of the label extension for KALYDECO for treatment in patients six months of age and older who have the *R117H* mutation.

Pipeline

Beta Thalassemia and Sickle Cell Disease

- In June 2020, we and our collaborator, CRISPR, provided new clinical data at the European Hematology Association Congress from the two ongoing Phase 1/2 clinical trials of the investigational CRISPR/Cas9 gene-editing therapy CTX001 in patients with TDT and in patients with severe SCD. Data from two TDT patients demonstrated clinical proof-of-concept for CTX001 in this disease. Longer duration data from one SCD patient showed a durable effect on HbF levels and the patient was free of vaso-occlusive crises. Screening, enrollment and mobilization of these trials is ongoing; conditioning and dosing in both trials have been resumed following temporary pauses related to the spread of the novel coronavirus, or COVID-19. We and CRISPR expect to report data from additional patients in the second half of 2020.

Alpha-1 Antitrypsin Deficiency

- We are evaluating multiple compounds with the potential to correct the misfolding of Z-AAT protein in the liver in order to increase the levels of functional AAT in the blood. Misfolded Z-AAT protein is the root cause of AAT deficiency.
- Enrollment and dosing have been re-initiated at some but not all sites following a temporary COVID-19-related pause in a Phase 2 proof-of-concept clinical trial designed to evaluate the levels of circulating, functional AAT protein after treatment with VX-814. We expect data from this clinical trial at the end of 2020 or in the first quarter of 2021.
- In July 2020, we initiated a Phase 2 proof-of-concept clinical trial for a second Z-AAT corrector, VX-864.

APOL1-Mediated Kidney Diseases

- We are evaluating inhibitors of APOL1 function to reduce proteinuria in people with serious kidney disease, including focal segmental glomerulosclerosis, or FSGS.
- Enrollment is underway at multiple clinical trial sites in a Phase 2 proof-of-concept clinical trial designed to evaluate the reduction of proteinuria in people with APOL1-mediated FSGS after treatment with VX-147.

Type 1 Diabetes

- We are developing a cell therapy designed to replace insulin-producing islet cells in patients with T1D. Two opportunities exist for the transplant of these functional islets into patients: transplantation of islet cells alone, using immunosuppression to protect the implanted cells, and implantation of the islet cells inside a novel immunoprotective device.
- We plan to submit an IND application to the FDA for the first program (transplantation of islet cells alone) in late 2020 to support evaluation of this potential therapy in patients with T1D.

COVID-19

We continue to monitor the impacts of COVID-19 on our business. COVID-19 has not affected our supply chain or the demand for our medicines, and we believe that we will be able to continue to supply all of our approved medicines to our patients globally. We have adjusted our business operations in response to COVID-19 with a majority of our employees continuing to work remotely. In addition, we have re-initiated enrollment and dosing in all of our ongoing clinical trials and initiated new clinical trials despite some temporary pauses to enrollment and dosing caused by COVID-19.

Research

We continue to invest in our research programs and foster scientific innovation in order to identify and develop transformative medicines. Our strategy is to combine transformative advances in the understanding of human disease and the science of therapeutics in order to identify and develop new medicines. We believe that pursuing research in diverse areas allows us to balance the risks inherent in drug development and may provide drug candidates that will form our pipeline in future years. To supplement our internal research programs, we acquire technologies and programs and collaborate with biopharmaceutical and technology companies, leading academic research institutions, government laboratories, foundations and other organizations, as needed, to advance research in our areas of therapeutic interest and to access technologies needed to execute on our strategy.

Drug Discovery and Development

Discovery and development of a new pharmaceutical product is a difficult and lengthy process that requires significant financial resources along with extensive technical and regulatory expertise. Potential drug candidates are subjected to rigorous evaluations, driven in part by stringent regulatory considerations, designed to generate information concerning efficacy, side effects, proper dosage levels and a variety of other physical and chemical characteristics that are important in determining whether a drug candidate should be approved for marketing as a pharmaceutical product. Most chemical compounds that are investigated as potential drug candidates never progress into development, and most drug candidates that do advance into development never receive marketing approval. Because our investments in drug candidates are subject to considerable risks, we closely monitor the results of our discovery, research, clinical trials and nonclinical studies and frequently evaluate our drug development programs in light of new data and scientific, business and commercial insights,

with the objective of balancing risk and potential. This process can result in abrupt changes in focus and priorities as new information becomes available and as we gain additional understanding of our ongoing programs and potential new programs, as well as those of our competitors.

If we believe that data from a completed registration program support approval of a drug candidate, we submit an NDA to the FDA requesting approval to market the drug candidate in the United States and seek analogous approvals from comparable regulatory authorities in jurisdictions outside the United States. To obtain approval, we must, among other things, demonstrate with evidence gathered in nonclinical studies and well-controlled clinical trials that the drug candidate is safe and effective for the disease it is intended to treat and that the manufacturing facilities, processes and controls for the manufacture of the drug candidate are adequate. The FDA and ex-U.S. regulatory authorities have substantial discretion in deciding whether or not a drug candidate should be granted approval based on the benefits and risks of the drug candidate in the treatment of a particular disease, and could delay, limit or deny regulatory approval. If regulatory delays are significant or regulatory approval is limited or denied altogether, our financial results and the commercial prospects for the drug candidate involved will be harmed.

Regulatory Compliance

Our marketing of pharmaceutical products is subject to extensive and complex laws and regulations. We have a corporate compliance program designed to actively identify, prevent and mitigate risk through the implementation of compliance policies and systems and through the promotion of a culture of compliance. Among other laws, regulations and standards, we are subject to various U.S. federal and state laws, and comparable laws in other jurisdictions, pertaining to health care fraud and abuse, including anti-kickback and false claims laws, and laws prohibiting the promotion of drugs for unapproved or off-label uses. Anti-kickback laws generally make it illegal for a prescription drug manufacturer to knowingly and willfully solicit, offer, receive or pay any remuneration in return for or to induce the referral of business, including the purchase or prescription of a particular drug that is reimbursed by a state or federal health care program. False claims laws prohibit anyone from knowingly or willfully presenting for payment to third-party payors, including Medicare and Medicaid, claims for reimbursed drugs or services that are false or fraudulent, claims for items or services not provided as claimed, or claims for medically unnecessary items or services. We are subject to laws and regulations that regulate the sales and marketing practices of pharmaceutical manufacturers, as well as laws such as the U.S. Foreign Corrupt Practices Act, which govern our international business practices with respect to payments to government officials. In addition, we are subject to various data protection and privacy laws and regulations in the U.S., E.U., U.K., Canada, Australia and other jurisdictions. We expect to continue to devote substantial resources to maintain, administer and expand these compliance programs globally.

Reimbursement

Sales of our products depend, to a large degree, on the extent to which our products are reimbursed by third-party payors, such as government health programs, commercial insurance and managed health care organizations. We dedicate substantial management and other resources in order to obtain and maintain appropriate levels of reimbursement for our products from third-party payors, including governmental organizations in the U.S. and ex-U.S. markets.

In the U.S., we have worked successfully with third party payors in order to promptly obtain appropriate levels of reimbursement for our CF medicines. We plan to continue to engage in discussions with numerous commercial insurers and managed health care organizations, along with government health programs that are typically managed by authorities in the individual states, to ensure that payors recognize the significant benefits that our medicines provide by treating the underlying cause of CF and continue to provide access to our medicines.

In Europe and other ex-U.S. markets, we seek government reimbursement for our medicines on a country-by-country basis. This is necessary for each new medicine, as well as label expansions for our current medicines in most countries. We successfully obtained reimbursement for KALYDECO in each significant ex-U.S. market within two years of approval, but experienced significant challenges in obtaining reimbursement for ORKAMBI in certain ex-U.S. markets. With the completion of reimbursement discussions in England and France in 2019, we have reimbursement for ORKAMBI or SYMKEVI in most of our significant ex-U.S. markets. In addition, in several ex-U.S. markets, including England, Ireland, Denmark and Australia, our reimbursement agreements include innovative arrangements that provide a pathway to access and rapid reimbursement for certain future CF medicines. For example, our existing reimbursement agreements in England and Ireland have been expanded to include our triple combination regimen pending approval by the European Commission. We expect to continue to focus significant resources to obtain appropriate reimbursement for our products in ex-U.S. markets.

Strategic Transactions

Acquisitions

As part of our business strategy, we seek to acquire drugs, drug candidates and other technologies and businesses that have the potential to complement our ongoing research and development efforts. In 2019, we invested significantly in business development transactions designed to augment our pipeline, including the acquisition of Semma Therapeutics, Inc., or Semma, a privately-held company focused on the use of stem cell-derived human islets as a potentially curative treatment for T1D, and Exonics Therapeutics, Inc., or Exonics, a privately-held company focused on creating transformative gene-editing therapies to repair mutations that cause DMD and other severe neuromuscular diseases, including DM1. In the Semma acquisition, we paid approximately $950.0 million in cash to Semma equity holders. In the Exonics acquisition, we paid approximately $245.0 million upfront to Exonics equity holders and agreed to additional payments based upon successful achievement of specified development and regulatory milestones. We expect to continue to identify and evaluate potential acquisitions that may be similar to or different from the transactions that we have engaged in previously.

Both of our 2019 acquisitions were accounted for as business combinations. As of the acquisition date for each transaction, the cash payments, as well as the fair value of contingent consideration for Exonics, were allocated primarily to goodwill and the fair value of several in-process research and development assets that we acquired. The fair value of contingent consideration related to Exonics was recorded as a liability and will be adjusted on a quarterly basis in the future. As a result, these acquisitions are primarily reflected in additional assets and liabilities on our condensed consolidated balance sheet. Please refer to Note C, “Acquisitions,” and our critical accounting policies, “Acquisitions,” in our 2019 Annual Report on Form 10-K for further information regarding the significant judgments and estimates related to our 2019 acquisitions.

Collaboration and Licensing Arrangements

We enter into arrangements with third parties, including collaboration and licensing arrangements, for the development, manufacture and commercialization of drugs, drug candidates and other technologies that have the potential to complement our ongoing research and development efforts. We expect to continue to identify and evaluate collaboration and licensing opportunities that may be similar to or different from the collaborations and licenses that we have engaged in previously.

In-License Agreements

We have entered into collaborations with biotechnology and pharmaceutical companies in order to acquire rights or to license drug candidates or technologies that enhance our pipeline and/or our research capabilities. Over the last several years, we entered into collaboration agreements with a number of companies, including Affinia Therapeutics Inc., Arbor Biotechnologies, Inc., CRISPR, Kymera Therapeutics, Inc. and Molecular Templates, Inc. Generally, when we in-license a technology or drug candidate, we make upfront payments to the collaborator, assume the costs of the program and/or agree to make contingent payments, which could consist of milestone, royalty and option payments. Most of these collaboration payments are expensed as research and development expenses; however, depending on many factors, including the structure of the collaboration, the significance of the in-licensed drug candidate to the collaborator’s operations and the other activities in which our collaborators are engaged, the accounting for these transactions can vary significantly. In the first half of 2020 and 2019, our research and development expenses included $63.3 million and $57.6 million, respectively, related to upfront and milestones payments pursuant to our collaboration agreements.

Out-License Agreements

We also have out-licensed internally developed programs to collaborators who are leading the development of these programs. These out-license arrangements include our agreements with Janssen Pharmaceuticals, Inc., or Janssen, which is evaluating pimodivir in Phase 3 clinical trials for the treatment of influenza; and Merck KGaA, Darmstadt, Germany, which licensed oncology research and development programs from us in early 2017. Pursuant to these out-licensing arrangements, our collaborators are responsible for the research, development and commercialization costs associated with these programs, and we are entitled to receive contingent milestone and/or royalty payments. As a result, we do not expect to incur

significant expenses in connection with these programs and have the potential for future collaborative and royalty revenues resulting from these programs.

Please refer to Note C, “Collaborative Arrangements,” for further information regarding our in-license agreements and out-license agreements.

Strategic Investments

In connection with our business development activities, we have periodically made equity investments in our collaborators. As of June 30, 2020, we held strategic equity investments in public companies, including CRISPR, and certain private companies, and we plan to make additional strategic equity investments in the future. While we invest the majority of our cash, cash equivalents and marketable securities in instruments that meet specific credit quality standards and limit our exposure to any one issue or type of instrument, our strategic investments are maintained and managed separately from our other cash, cash equivalents and marketable securities. Any changes in the fair value of equity investments with readily determinable fair values (including publicly traded securities such as CRISPR) are recorded to other income (expense), net in our condensed consolidated statement of operations. For equity investments without readily determinable fair values including equity investments in private companies, each reporting period we are required to re-evaluate the carrying value of the investment, which may result in other income (expense).

In the first half of 2020 and 2019, we recorded within other income (expense), net gains of $65.1 million and $100.1 million, respectively, related to changes in the fair value of our strategic investments, and from sales of certain equity investments. To the extent that we continue to hold strategic investments, particularly strategic investments in publicly traded companies, we will record other income (expense) related to these strategic investments on a quarterly basis. Due to the increased volatility of the global markets, including as a result of COVID-19, and the high volatility of stocks in the biotechnology industry, we expect the value of these strategic investments to fluctuate and that the increases or decreases in the fair value of these strategic investments will continue to have material impacts on our net income (expense) and our profitability on a quarterly and/or annual basis.

RESULTS OF OPERATIONS

	Three Months Ended June 30,		Increase/(Decrease)		Six Months Ended June 30,		Increase/(Decrease)	
	2020	2019	$	%	2020	2019	$	%
	(in thousands, except percentages)							
Revenues	$ 1,524,485	$ 941,293	$ 583,192	62 %	$ 3,039,592	$ 1,799,728	$ 1,239,864	69 %
Operating costs and expenses	806,452	671,333	135,119	20 %	1,601,335	1,252,960	348,375	28 %
Income from operations	718,033	269,960	448,073	166 %	1,438,257	546,768	891,489	163 %
Other non-operating income, net	106,737	57,178	49,559	87 %	44,047	100,535	(56,488)	(56)%
(Benefit from) provision for income taxes	(12,500)	59,711	**	**	42,281	111,245	(68,964)	(62)%
Net income	$ 837,270	$ 267,427	$ 569,843	213 %	$ 1,440,023	$ 536,058	$ 903,965	169 %
Net income per diluted common share	$ 3.18	$ 1.03			$ 5.46	$ 2.06		
Diluted shares used in per share calculations	263,403	259,822			263,746	260,015		

** Not meaningful

Net Income

Our net income increased in the second quarter and first half of 2020 as compared to the second quarter and first half of 2019 primarily due to significant increases in our revenues, partially offset by increases in our operating expenses. The increase in revenues was primarily due to the U.S. approval of TRIKAFTA in the fourth quarter of 2019. The increases in operating expenses were the result of increased cost of sales consistent with increased product revenues, increased investment in research and development and increased sales, and general and administrative expenses to support our business.

Revenues

	Three Months Ended June 30,		Increase/(Decrease)		Six Months Ended June 30,		Increase/(Decrease)	
	2020	2019	$	%	2020	2019	$	%
	(in thousands)							
Product revenues, net	$ 1,524,485	$ 940,380	$ 584,105	62 %	$ 3,039,592	$ 1,797,633	$ 1,241,959	69 %
Collaborative and royalty revenues	—	913	(913)	**	—	2,095	(2,095)	**
Total revenues	$ 1,524,485	$ 941,293	$ 583,192	62 %	$ 3,039,592	$ 1,799,728	$ 1,239,864	69 %

** Not meaningful

Product Revenues, Net

	Three Months Ended June 30,		Increase/(Decrease)		Six Months Ended June 30,		Increase/(Decrease)	
	2020	2019	$	%	2020	2019	$	%
	(in thousands, except percentages)							
TRIKAFTA	$ 917,715	$ —	$ 917,715	**	$ 1,812,948	$ —	$ 1,812,948	**
SYMDEKO/SYMKEVI	171,729	361,832	(190,103)	(53)%	344,888	682,107	(337,219)	(49)%
ORKAMBI	231,981	316,441	(84,460)	(27)%	466,119	609,448	(143,329)	(24)%
KALYDECO	203,060	262,107	(59,047)	(23)%	415,637	506,078	(90,441)	(18)%
Total product revenues, net	$ 1,524,485	$ 940,380	$ 584,105	62 %	$ 3,039,592	$ 1,797,633	$ 1,241,959	69 %

** Not meaningful

In the second quarter and first half of 2020, our net product revenues increased by $584.1 million and $1.24 billion, respectively, as compared to the second quarter and first half of 2019. The increase in total net product revenues in the second quarter and first half of 2020 was primarily due to the launch of TRIKAFTA, which was approved in the United States in the fourth quarter of 2019. Decreases in revenues for our other products were the result of patients in the United States switching from these medicines to TRIKAFTA, partially offset by label expansions and expanded access to our medicines in ex-U.S markets. In the second quarter and first half of 2020, our net product revenues included $314.2 million

and $641.7 million, respectively, from ex-U.S. markets. In the second quarter and first half of 2019, our net product revenues included $240.7 million and $458.1 million, respectively, from ex-U.S. markets. Net product revenues in the first half of 2020 were also positively impacted by factors that may not be repeated in future periods, including increased patient inventory levels and compliance and persistence rates of patients who recently initiated treatment with TRIKAFTA.

Collaborative and Royalty Revenues

We did not record any collaborative and royalty revenues in the second quarter and first half of 2020. Our collaborative and royalty revenues were $0.9 million and $2.1 million in the second quarter and first half of 2019, respectively. Our collaborative revenues have historically fluctuated significantly from one period to another and may continue to fluctuate in the future. Our future royalty revenues will be dependent on if, and when, our collaborators, including Janssen and Merck KGaA, Darmstadt, Germany are able to successfully develop drug candidates that we have out-licensed to them.

Operating Costs and Expenses

	Three Months Ended June 30,		Increase/(Decrease)		Six Months Ended June 30,		Increase/(Decrease)	
	2020	2019	$	%	2020	2019	$	%
	(in thousands, except percentages)							
Cost of sales	$ 184,520	$ 135,740	$ 48,780	36 %	$ 347,017	$ 230,832	$ 116,185	50 %
Research and development expenses	420,928	379,091	41,837	11 %	869,456	718,581	150,875	21 %
Sales, general and administrative expenses	191,804	156,502	35,302	23 %	374,062	303,547	70,515	23 %
Change in fair value of contingent consideration	9,200	—	9,200	**	10,800	—	10,800	**
Total costs and expenses	$ 806,452	$ 671,333	$ 135,119	20 %	$ 1,601,335	$ 1,252,960	$ 348,375	28 %

** Not Meaningful

Cost of Sales

Our cost of sales primarily consists of the cost of producing inventories that corresponded to product revenues for the reporting period, plus the third-party royalties payable on our net sales of our products. Pursuant to our agreement with the CFF, our tiered third-party royalties on sales of TRIKAFTA, SYMDEKO/SYMKEVI, KALYDECO and ORKAMBI, calculated as a percentage of net sales, range from the single digits to the sub-teens. Over the last several years, our cost of sales has been increasing due to increased net product revenues. Our cost of sales as a percentage of our net product revenues was approximately 12% and 14% in the second quarter of 2020 and 2019, respectively. Our cost of sales as a percentage of our net product revenues was approximately 11% and 13% in first half of 2020 and 2019, respectively.

Research and Development Expenses

	Three Months Ended June 30,		Increase/(Decrease)		Six Months Ended June 30,		Increase/(Decrease)	
	2020	2019	$	%	2020	2019	$	%
	(in thousands, except percentages)							
Research expenses	$ 134,138	$ 144,628	$ (10,490)	(7)%	$ 291,408	$ 235,091	$ 56,317	24 %
Development expenses	286,790	234,463	52,327	22 %	578,048	483,490	94,558	20 %
Total research and development expenses	$ 420,928	$ 379,091	$ 41,837	11 %	$ 869,456	$ 718,581	$ 150,875	21 %

Our research and development expenses include internal and external costs incurred for research and development of our drugs and drug candidates and expenses related to certain technology that we acquire or license through business development transactions. We do not assign our internal costs, such as salary and benefits, stock-based compensation expense, laboratory supplies and other direct expenses and infrastructure costs, to individual drugs or drug candidates, because the employees within our research and development groups typically are deployed across multiple research and development programs. These internal costs are significantly greater than our external costs, such as the costs of services provided to us by clinical research organizations and other outsourced research, which we allocate by individual program. All research and development costs for our drugs and drug candidates are expensed as incurred.

Since January 2018, we have incurred approximately $4.0 billion in research and development expenses associated with drug discovery and development. The successful development of our drug candidates is highly uncertain and subject to a number of risks. In addition, the duration of clinical trials may vary substantially according to the type, complexity and novelty of the drug candidate and the disease indication being targeted. The FDA and comparable agencies in foreign countries impose substantial requirements on the introduction of therapeutic pharmaceutical products, typically requiring lengthy and detailed laboratory and clinical testing procedures, sampling activities and other costly and time-consuming procedures. Data obtained from nonclinical and clinical activities at any step in the testing process may be adverse and lead to discontinuation or redirection of development activities. Data obtained from these activities also are susceptible to varying interpretations, which could delay, limit or prevent regulatory approval. The duration and cost of discovery, nonclinical studies and clinical trials may vary significantly over the life of a project and are difficult to predict. Therefore, accurate and meaningful estimates of the ultimate costs to bring our drug candidates to market are not available.

In 2019 and the first half of 2020, costs related to our CF programs represented the largest portion of our development costs. Any estimates regarding development and regulatory timelines for our drug candidates are highly subjective and subject to change. Until we have data from Phase 3 clinical trials, we cannot make a meaningful estimate regarding when, or if, a clinical development program will generate revenues and cash flows.

Research Expenses

	Three Months Ended June 30,		Increase/(Decrease)		Six Months Ended June 30,		Increase/(Decrease)	
	2020	2019	$	%	2020	2019	$	%
	(in thousands, except percentages)							
Research Expenses:								
Salary and benefits	$ 31,099	$ 22,498	$ 8,601	38 %	$ 65,368	$ 46,877	$ 18,491	39 %
Stock-based compensation expense	26,496	17,138	9,358	55 %	52,905	34,673	18,232	53 %
Outsourced services and other direct expenses	21,073	27,622	(6,549)	(24)%	51,926	50,986	940	2 %
Collaboration and asset acquisition payments	27,000	52,200	(25,200)	(48)%	63,250	52,200	11,050	21 %
Infrastructure costs	28,470	25,170	3,300	13 %	57,959	50,355	7,604	15 %
Total research expenses	$ 134,138	$ 144,628	$ (10,490)	(7)%	$ 291,408	$ 235,091	$ 56,317	24 %

We expect to continue to invest in our research programs with a focus on identifying drug candidates with the goal of creating transformative medicines for serious diseases. Our research expenses decreased by 7% in the second quarter of 2020 compared to the second quarter of 2019 and increased by 24% in the first half of 2020 compared to the first half of 2019. The decrease in the second quarter of 2020 compared to the second quarter of 2019 was primarily due to a decrease in collaboration and asset acquisition payments partially offset by increased expenses to support our cell and genetic therapy programs. The increase in the first half of 2020 compared to the first half of 2019 was primarily due to increased expenses to support our cell and genetic therapy programs and an increase in collaboration and asset acquisition payments.

Development Expenses

	Three Months Ended June 30,		Increase/(Decrease)		Six Months Ended June 30,		Increase/(Decrease)	
	2020	2019	$	%	2020	2019	$	%
	(in thousands, except percentages)							
Development Expenses:								
Salary and benefits	$ 68,532	$ 58,195	$ 10,337	18 %	$ 148,130	$ 118,702	$ 29,428	25 %
Stock-based compensation expense	43,779	38,494	5,285	14 %	90,057	80,674	9,383	12 %
Outsourced services and other direct expenses	124,898	93,701	31,197	33 %	241,331	191,469	49,862	26 %
Collaboration and asset acquisition payments	—	190	(190)	**	—	5,440	(5,440)	**
Infrastructure costs	49,581	43,883	5,698	13 %	98,530	87,205	11,325	13 %
Total development expenses	$ 286,790	$ 234,463	$ 52,327	22 %	$ 578,048	$ 483,490	$ 94,558	20 %

** Not meaningful

Our development expenses increased by 22% in the second quarter of 2020 as compared to the second quarter of 2019 and increased by 20% in the first half of 2020 as compared to the first half of 2019, primarily due to increased expenses related to our advancing pipeline including clinical trials, headcount and infrastructure costs.

Sales, General and Administrative Expenses

	Three Months Ended June 30,		Increase/(Decrease)		Six Months Ended June 30,		Increase/(Decrease)	
	2020	2019	$	%	2020	2019	$	%
	(in thousands, except percentages)							
Sales, general and administrative expenses	$ 191,804	$ 156,502	$ 35,302	23 %	$ 374,062	$ 303,547	$ 70,515	23 %

Sales, general and administrative expenses increased by 23% in the second quarter of 2020 as compared to the second quarter of 2019 and increased by 23% in the first half of 2020 as compared to the first half of 2019, primarily due to increased global support for our medicines and incremental investment to support the launch of our triple combination regimen.

Contingent Consideration

In the second quarter and first half of 2020, the increase in the fair value of contingent consideration potentially payable to Exonics' former equity holders was $9.2 million and $10.8 million, respectively. There were no similar amounts for the second quarter and first half of 2019.

Other Non-Operating Income (Expense), Net

Interest Income

Interest income decreased from $18.1 million and $33.7 million in the second quarter and first half of 2019, respectively, to $4.2 million and $16.8 million in the second quarter and first half of 2020, respectively, primarily due to a decrease in prevailing market interest rates. Our future interest income will be dependent on the amount of, and prevailing market interest rates on, our outstanding cash equivalents and marketable securities.

Interest Expense

Interest expense was $13.9 million and $28.0 million in the second quarter and first half of 2020, respectively, as compared to $14.8 million and $29.7 million in the second quarter and first half of 2019, respectively. The majority of our interest expense in these periods was related to imputed interest expense associated with our leased corporate headquarters in Boston. Our future interest expense will be dependent on whether, and to what extent, we borrow amounts under our credit facility.

Other Income (Expense), Net

Other income (expense), net was income of $116.4 million and $55.2 million in the second quarter and first half of 2020, respectively, as compared to income of $53.9 million and $96.5 million in the second quarter and first half of 2019, respectively. Our other income (expense), net in these periods was primarily related to changes in the fair value of our strategic investments, as well as realized gains from sales of certain investments. We expect that due to the volatility of the stock price of biotechnology companies, our other income (expense), net will fluctuate in future periods based on increases or decreases in the fair value of our strategic investments.

Income Taxes

We recorded a benefit from income taxes in the second quarter of 2020 of $12.5 million and a provision for income taxes in the first half of 2020 of $42.3 million, respectively, as compared to provisions for income taxes of $59.7 million and $111.2 million in the second quarter and first half of 2019, respectively. Our effective tax rate for the first half of 2020 was lower than the U.S. statutory rate primarily due to a discrete tax benefit of $187.0 million associated with the transfer of intellectual property rights to the United Kingdom in the second quarter of 2020, a discrete tax benefit associated with the write-off of a long-term intercompany receivable in the first quarter of 2020 and excess tax benefits related to stock-based compensation. Our effective tax rate for the first half of 2019 was lower than the U.S. statutory rate primarily due to excess tax benefits related to stock-based compensation. We released our valuation allowance on the majority of our net operating losses and other deferred tax assets in the fourth quarter of 2018. Starting in 2019, we began recording a provision for income taxes on our pre-tax income using an effective tax rate approximating statutory rates. Due to our ability to offset our pre-tax income against previously benefited net operating losses and credits, we expect a portion of our tax provision to represent a non-cash expense until our net operating losses and credits have been fully utilized.

LIQUIDITY AND CAPITAL RESOURCES

The following table summarizes the components of our financial condition as of June 30, 2020 and December 31, 2019:

	June 30, 2020	December 31, 2019	Increase/(Decrease) $	Increase/(Decrease) %
	(in thousands)			
Cash, cash equivalents and marketable securities	$ 5,450,769	$ 3,808,294	$ 1,642,475	43 %
Working Capital				
Total current assets	6,694,320	4,822,829	1,871,491	39 %
Total current liabilities	(1,798,640)	(1,334,827)	463,813	35 %
Total working capital	$ 4,895,680	$ 3,488,002	$ 1,407,678	40 %

As of June 30, 2020, total working capital was $4.9 billion, which represented an increase of $1.4 billion from $3.5 billion as of December 31, 2019. The increase in total working capital in the first half of 2020 was primarily related to $1.9 billion of cash provided by operations partially offset by $300.0 million of cash used to repurchase our common stock pursuant to the share repurchase program that we announced in July 2019.

Sources of Liquidity

As of June 30, 2020, we had cash, cash equivalents and marketable securities of $5.5 billion, which represented an increase of $1.6 billion from $3.8 billion as of December 31, 2019. We intend to rely on our existing cash, cash equivalents and marketable securities together with cash flows from product sales as our primary source of liquidity.

We may borrow up to $500.0 million pursuant to our revolving credit facility that we entered into in 2019. We may repay and reborrow amounts under the revolving credit agreement without penalty. Subject to certain conditions, we may request that the borrowing capacity under this credit agreement be increased by an additional $500.0 million, up to a total of $1.0 billion.

Other possible sources of future liquidity include commercial debt, public and private offerings of our equity and debt securities, strategic sales of assets or businesses and financial transactions. Negative covenants in our credit agreement may prohibit or limit our ability to access these sources of liquidity.

Future Capital Requirements

We have significant future capital requirements, including:

- significant expected operating expenses to conduct research and development activities and to operate our organization; and
- substantial facility and capital lease obligations, including leases for two buildings in Boston, Massachusetts that continue through 2028.

In addition:

- We have entered into certain collaboration agreements with third parties that include the funding of certain research, development and commercialization efforts with the potential for future milestone and royalty payments by us upon the achievement of pre-established developmental and regulatory targets and/or commercial targets, and we may enter into additional business development transactions, including acquisitions, collaborations and equity investments, that require additional capital.
- We have reached an agreement with the French government and will repay a portion of the amounts we have collected under the ORKAMBI early access programs in France to the French government in the second half of 2020 based on the difference between the invoiced amount and the final amount for ORKAMBI distributed through these programs as reflected in the structure of the agreement with the French government.
- To the extent we borrow amounts under the credit agreement we entered into in 2019, we would be required to repay any outstanding principal amounts in 2024.
- As of June 30, 2020, $164.0 million remained available to fund repurchases under our share repurchase program.

We expect that cash flows from our products together with our current cash, cash equivalents and marketable securities will be sufficient to fund our operations for at least the next twelve months and do not expect COVID-19 to have an adverse effect on our liquidity. The adequacy of our available funds to meet our future operating and capital requirements will depend on many factors, including the amounts of future revenues generated by our products, and the potential introduction of one or more of our other drug candidates to the market, the level of our business development activities and the number, breadth, cost and prospects of our research and development programs.

Financing Strategy

We may raise additional capital by borrowing under credit agreements, through public offerings or private placements of our securities or securing new collaborative agreements or other methods of financing. We will continue to manage our capital structure and will consider all financing opportunities, whenever they may occur, that could strengthen our long-term liquidity profile. There can be no assurance that any such financing opportunities will be available on acceptable terms, if at all.

CONTRACTUAL COMMITMENTS AND OBLIGATIONS

Our commitments and obligations were reported in our Annual Report on Form 10-K for the year ended December 31, 2019, which was filed with the Securities and Exchange Commission, or SEC, on February 13, 2020. There have been no material changes from the contractual commitments and obligations previously disclosed in that Annual Report on Form 10-K.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Our discussion and analysis of our financial condition and results of operations are based upon our condensed consolidated financial statements prepared in accordance with generally accepted accounting principles in the United States. The preparation of these financial statements requires us to make certain estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the condensed consolidated financial statements and the reported amounts of revenues and expenses during the reported periods. These items are

monitored and analyzed by management for changes in facts and circumstances, and material changes in these estimates could occur in the future. Changes in estimates are reflected in reported results for the period in which the change occurs. We base our estimates on historical experience and various other assumptions that we believe to be reasonable under the circumstances. Actual results may differ from our estimates if past experience or other assumptions do not turn out to be substantially accurate. During the six months ended June 30, 2020, there were no material changes to our critical accounting policies as reported in our Annual Report on Form 10-K for the year ended December 31, 2019, which was filed with the SEC on February 13, 2020.

RECENT ACCOUNTING PRONOUNCEMENTS

For a discussion of recent accounting pronouncements, please refer to Note A, “Basis of Presentation and Accounting Policies.”

Item 3. Quantitative and Qualitative Disclosures About Market Risk

As part of our investment portfolio, we own financial instruments that are sensitive to market risks. The investment portfolio is used to preserve our capital until it is required to fund operations, including our research and development activities. None of these market risk-sensitive instruments are held for trading purposes. We do not have derivative financial instruments in our investment portfolio.

Interest Rate Risk

We invest our cash in a variety of financial instruments, principally securities issued by the U.S. government and its agencies, investment-grade corporate bonds and commercial paper, and money market funds. These investments are denominated in U.S. Dollars. All of our interest-bearing securities are subject to interest rate risk and could decline in value if interest rates fluctuate, including potential fluctuations as a result of COVID-19. Substantially all of our investment portfolio consists of marketable securities with active secondary or resale markets to help ensure portfolio liquidity, and we have implemented guidelines limiting the term-to-maturity of our investment instruments. Due to the conservative nature of these instruments, we do not believe that we have a material exposure to interest rate risk. If interest rates were to increase or decrease by 1%, the fair value of our investment portfolio would increase or decrease by an immaterial amount.

In 2019, we entered into a credit agreement. Loans under the credit agreement bear interest, at our option, at either a base rate or a Eurocurrency rate, in each case plus an applicable margin. The applicable margin on base rate loans ranges from 0.125% to 0.50% and the applicable margin on Eurocurrency loans ranges from 1.125% to 1.50%, in each case, based on our consolidated leverage ratio (the ratio of our total consolidated funded indebtedness to our consolidated EBITDA for the most recently completed four fiscal quarter period). We do not believe that changes in interest rates related to the credit agreement would have a material effect on our financial statements. As of June 30, 2020, we had no principal or interest outstanding. A portion of our “Interest expense” in 2020 will be dependent on whether, and to what extent, we borrow amounts under the existing facility.

Foreign Exchange Market Risk

As a result of our foreign operations, we face exposure to movements in foreign currency exchange rates, primarily the Euro and British Pound against the U.S. Dollar. Fluctuations in the global markets, including as a result of COVID-19, may have a positive or negative effect on our foreign exchange rate exposure. The current exposures arise primarily from cash, accounts receivable, intercompany receivables and payables, payables and accruals and inventories. Both positive and negative effects to our net revenues from international product sales from movements in exchange rates are partially mitigated by the natural, opposite effect that exchange rates have on our international operating costs and expenses.

We have a foreign currency management program with the objective of reducing the effect of exchange rate fluctuations on our operating results and forecasted revenues and expenses denominated in foreign currencies. We currently have cash flow hedges for the Euro, British Pound, Canadian Dollar and Australian Dollar related to a portion of our forecasted product revenues that qualify for hedge accounting treatment under U.S. GAAP. We do not seek hedge accounting treatment for our foreign currency forward contracts related to monetary assets and liabilities that impact our operating results. As of June 30, 2020, we held foreign exchange forward contracts that were designated as cash flow hedges with notional amounts totaling $931.2 million and had a net fair value of $1.8 million recorded on our condensed consolidated balance sheet.

Although not predictive in nature, we believe a hypothetical 10% threshold reflects a reasonably possible near-term change in exchange rates. Assuming that the June 30, 2020 exchange rates were to change by a hypothetical 10%, the fair value recorded on our condensed consolidated balance sheet related to our foreign exchange forward contracts that were designated as cash flow hedges as of June 30, 2020 would change by approximately $93.1 million. However, since these contracts hedge a specific portion of our forecasted product revenues denominated in certain foreign currencies, any change in the fair value of these contracts is recorded in "Accumulated other comprehensive loss" on our condensed consolidated balance sheet and is reclassified to earnings in the same periods during which the underlying product revenues affect earnings. Therefore, any change in the fair value of these contracts that would result from a hypothetical 10% change in exchange rates would be entirely offset by the change in value associated with the underlying hedged product revenues resulting in no impact on our future anticipated earnings and cash flows with respect to the hedged portion of our forecasted product revenues.

Equity Price Risk

Information required by this section is incorporated by reference from the discussion in the "Strategic Investments" section of this Part I, Item 2, "Management's Discussion and Analysis of Financial Condition and Results of Operations."

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

Our management (under the supervision and with the participation of our chief executive officer and chief financial officer), after evaluating the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended) as of the end of the period covered by this Quarterly Report on Form 10-Q, has concluded that, based on such evaluation, as of June 30, 2020 our disclosure controls and procedures were effective and designed to provide reasonable assurance that the information required to be disclosed is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms. In designing and evaluating our disclosure controls and procedures, our management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives, and our management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

Changes in Internal Controls Over Financial Reporting

No change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934, as amended) occurred during the three months ended June 30, 2020 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II. Other Information

Item 1. Legal Proceedings

We are not currently subject to any material legal proceedings.

Item 1A. Risk Factors

Information regarding risk factors appears in Part I, Item 1A. "Risk Factors" of our Annual Report on Form 10-K for the year ended December 31, 2019, which was filed with the SEC on February 13, 2020. There have been no material changes from the risk factors previously disclosed in the Annual Report on Form 10-K, except as discussed in Part II, Item 1A. "Risk Factors" in our Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, which was filed with the SEC on May 1, 2020 and is being updated below.

We are subject to risks associated with the spread of the novel strain of coronavirus, or COVID-19.

COVID-19 has broadly affected the global economy, resulted in significant travel and work restrictions in many regions and has put a significant strain on healthcare resources. COVID-19 has had, and we expect it will continue to have, an impact on our operations and an impact on the operations of our collaborators, third-party contractors and other entities, including governments, governmental agencies and payors, with which we interact. To date, the most significant effect on our business operations has been the requirement that a majority of our employees work remotely. We have re-initiated enrollment and dosing in all of our ongoing clinical trials and initiated new clinical trials despite some temporary pauses to enrollment and dosing caused by COVID-19. In the future, the economic impacts of the COVID-19 outbreak could affect our business directly or indirectly, including potentially affecting the net prices for our products through changes in our payor mix as a result of increased unemployment in the United States or increased pressure on healthcare costs. The effects on our research, development, manufacturing and commercialization activities will be dependent on, among other things, the severity and duration of the COVID-19 outbreak as well as the impact of the outbreak on our third-party manufacturers, suppliers, distributors, subcontractors and customers. While the ultimate impact of COVID-19 on our business is highly uncertain, any negative impacts that materialize could materially adversely affect our operations, financial performance and stock price. Any negative impacts of COVID-19, alone or in combination with others, could exacerbate risk factors discussed in Part I, "Item 1A. Risk Factors" in our Annual Report on Form 10-K for the year ended December 31, 2019. The full extent to which the COVID-19 outbreak will negatively affect our operations, financial performance and stock price will depend on future developments that are highly uncertain and cannot be predicted, including the scope and duration of the outbreak and actions taken by governmental authorities and other third parties in response to the outbreak.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This Quarterly Report on Form 10-Q and, in particular, our Management's Discussion and Analysis of Financial Condition and Results of Operations set forth in Part I, Item 2, contain or incorporate a number of forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, including statements regarding:

- our expectations regarding the amount of, timing of, and trends with respect to our financial performance, including revenues, costs and expenses and other gains and losses, including those related to net product revenues;
- our expectations regarding the effect of COVID-19 on, among other things, our financial performance, liquidity, business and operations, including, manufacturing, supply chain, research and development activities and pipeline programs;
- our expectations regarding clinical trials, development timelines, regulatory authority filings, submissions and potential approvals and label expansions for ivacaftor, lumacaftor, tezacaftor, elexacaftor, and any combination regimen;
- our ability to obtain reimbursement for our medicines in the U.S. and ex-U.S. markets and our ability to launch, commercialize and market our medicines or any of our other drug candidates for which we obtain regulatory approval;
- our expectations regarding the timing and structure of clinical trials of our drugs, drug candidates and other pipeline programs and the expected timing of our receipt of data from our ongoing and planned clinical trials;
- the data that will be generated by ongoing and planned clinical trials and the ability to use that data to advance compounds, continue development or support regulatory filings;
- our beliefs regarding the support provided by clinical trials and preclinical and nonclinical studies of our drug candidates and other pipeline programs for further investigation, clinical trials or potential use as a treatment;
- our plan to continue investing in our research and development programs, including anticipated timelines for our programs, and our strategy to develop our pipeline programs, alone or with third party-collaborators;
- the potential future benefits of our acquisitions and collaborations;

- the establishment, development and maintenance of collaborative relationships, including potential milestone payments or other obligations;
- potential business development activities, including the identification of potential collaborative partners or acquisition targets;
- potential fluctuations in foreign currency exchange rates;
- our expectations regarding our provision for or benefit from income taxes and the utilization of our deferred tax assets;
- our ability to use our research programs to identify and develop new drug candidates to address serious diseases and significant unmet medical needs; and
- our liquidity and our expectations regarding the possibility of raising additional capital.

Any or all of our forward-looking statements in this Quarterly Report on Form 10-Q may turn out to be wrong. They can be affected by inaccurate assumptions or by known or unknown risks and uncertainties. Many factors mentioned in this Quarterly Report on Form 10-Q will be important in determining future results. Consequently, no forward-looking statement can be guaranteed. Actual future results may vary materially from expected results. We also provide a cautionary discussion of risks and uncertainties under "Risk Factors" in Item 1A of our Annual Report on Form 10-K for the year ended December 31, 2019, which was filed with the SEC on February 13, 2020 and our Quarterly Report on Form 10-Q for the quarter ended March 31, 2020, which was filed with the SEC on May 1, 2020. These are factors and uncertainties that we think could cause our actual results to differ materially from expected results. Other factors and uncertainties besides those listed there could also adversely affect us.

Without limiting the foregoing, the words "believes," "anticipates," "plans," "intends," "expects," "could," "may," "potential," "will," "estimate" and similar expressions are intended to identify forward-looking statements. There are a number of factors and uncertainties that could cause actual events or results to differ materially from those indicated by such forward-looking statements, many of which are beyond our control. In addition, the forward-looking statements contained herein represent our estimate only as of the date of this filing and should not be relied upon as representing our estimate as of any subsequent date. While we may elect to update these forward-looking statements at some point in the future, we specifically disclaim any obligation to do so to reflect actual results, changes in assumptions or changes in other factors affecting such forward-looking statements.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

Issuer Repurchases of Equity Securities

In July 2019, our Board of Directors approved a share repurchase program (the "2019 Share Repurchase Program"), pursuant to which we are authorized to repurchase up to $500.0 million of our common stock between August 1, 2019 and December 31, 2020. During the quarter ended June 30, 2020, we did not repurchase any shares of our common stock. As of June 30, 2020, we had purchased a total of 1,617,416 shares at a cost of $336.0 million under the 2019 Share Repurchase Program. As of June 30, 2020, $164.0 million remained available to fund repurchases under the 2019 Share Repurchase Program.

Under our 2019 Share Repurchase Program, we are authorized to purchase shares from time to time through open market or privately negotiated transactions. Such purchases may be made pursuant to Rule 10b5-1 plans or other means as determined by our management and in accordance with the requirements of the Securities and Exchange Commission.

Item 6. Exhibits

Exhibit Number	Exhibit Description
3.2	Amended and Restated By-Laws of Vertex Pharmaceuticals Incorporated (incorporated by reference to Exhibit 3.2 to our Quarterly Report on Form 10-Q filed on May 1, 2020).
10.1	Employment Agreement, dated as of April 1, 2020, between Vertex Pharmaceuticals Incorporated and Dr. Jeffrey M. Leiden (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on April 1, 2020).*
31.1	Certification of the Chief Executive Officer under Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of the Chief Financial Officer under Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of the Chief Executive Officer and the Chief Financial Officer under Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.
101.SCH	XBRL Taxonomy Extension Schema
101.CAL	XBRL Taxonomy Extension Calculation
101.LAB	XBRL Taxonomy Extension Labels
101.PRE	XBRL Taxonomy Extension Presentation
101.DEF	XBRL Taxonomy Extension Definition
104	Cover Page Interactive Data File—the cover page interactive data file does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document.

* Management contract, compensatory plan or agreement.

SIGNATURES

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

Vertex Pharmaceuticals Incorporated

July 31, 2020 By: /s/ Charles F. Wagner, Jr.

Charles F. Wagner, Jr.

Executive Vice President, Chief Financial Officer
(principal financial officer and
duly authorized officer)

Exhibit 31.1

CERTIFICATION

I, Reshma Kewalramani, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Vertex Pharmaceuticals Incorporated;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: July 31, 2020

/s/ Reshma Kewalramani

Reshma Kewalramani

Chief Executive Officer and President

Exhibit 31.2

CERTIFICATION

I, Charles F. Wagner, Jr., certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Vertex Pharmaceuticals Incorporated;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: July 31, 2020

/s/ Charles F. Wagner, Jr.

Charles F. Wagner, Jr.

Executive Vice President and Chief Financial Officer

Exhibit 32.1

SECTION 906 CEO/CFO CERTIFICATION

Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (Subsections (a) and (b) of Section 1350, Chapter 63 of Title 18, United States Code) each of the undersigned officers of Vertex Pharmaceuticals Incorporated, a Massachusetts corporation (the "Company"), does hereby certify, to such officer's knowledge, that the Quarterly Report on Form 10-Q for the quarter ended June 30, 2020 (the "Form 10-Q") of the Company fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, and the information contained in the Form 10-Q fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: July 31, 2020

/s/ Reshma Kewalramani

Reshma Kewalramani

Chief Executive Officer and President

Date: July 31, 2020

/s/ Charles F. Wagner, Jr.

Charles F. Wagner, Jr.

Executive Vice President and Chief Financial Officer

A signed original of this written statement required by Section 906 has been provided to the Company and will be retained by the Company and furnished to the Securities and Exchange Commission or its staff upon request.