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

Form 10-Q

(Mark One)

☑ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended March 31, 2019

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

Commission file number 001-37702

Amgen Inc.

(Exact name of registrant as specified in its charter)

Delaware	**95-3540776**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
One Amgen Center Drive, Thousand Oaks, California	**91320-1799**
(Address of principal executive offices)	(Zip Code)

(805) 447-1000

(Registrant's telephone number, including area code)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or Section 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 ☑

As of April 24, 2019, the registrant had 609,935,682 shares of common stock, $0.0001 par value, outstanding.

AMGEN INC.

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PART I — FINANCIAL INFORMATION

Item 1. FINANCIAL STATEMENTS

AMGEN INC.
CONDENSED CONSOLIDATED STATEMENTS OF INCOME
(In millions, except per-share data)
(Unaudited)

	Three months ended March 31,	
	2019	**2018**
Revenues:		
Product sales	$ 5,286	$ 5,343
Other revenues	271	211
Total revenues	5,557	5,554
Operating expenses:		
Cost of sales	1,055	944
Research and development	879	760
Selling, general and administrative	1,154	1,127
Other	(3)	(3)
Total operating expenses	3,085	2,828
Operating income	2,472	2,726
Interest expense, net	343	338
Interest and other income, net	185	231
Income before income taxes	2,314	2,619
Provision for income taxes	322	308
Net income	$ 1,992	$ 2,311
Earnings per share:		
Basic	$ 3.20	$ 3.27
Diluted	$ 3.18	$ 3.25
Shares used in calculation of earnings per share:		
Basic	622	707
Diluted	626	711

See accompanying notes.

AMGEN INC.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(In millions)
(Unaudited)

	Three months ended March 31,	
	2019	2018
Net income	$ 1,992	$ 2,311
Other comprehensive income (loss), net of reclassification adjustments and taxes:		
(Losses) gains on foreign currency translation	(13)	29
Gains on cash flow hedges	45	6
Gains (losses) on available-for-sale securities	221	(343)
Other	—	2
Other comprehensive income (loss), net of taxes	253	(306)
Comprehensive income	$ 2,245	$ 2,005

See accompanying notes.

AMGEN INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
(In millions, except per-share data)

	March 31, 2019	December 31, 2018
	(Unaudited)	
ASSETS		
Current assets:		
Cash and cash equivalents	$ 7,358	$ 6,945
Marketable securities	18,943	22,359
Trade receivables, net	3,771	3,580
Inventories	3,016	2,940
Other current assets	2,063	1,794
Total current assets	35,151	37,618
Property, plant and equipment, net	4,892	4,958
Intangible assets, net	7,124	7,443
Goodwill	14,692	14,699
Other assets	2,138	1,698
Total assets	$ 63,997	$ 66,416
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 1,091	$ 1,207
Accrued liabilities	7,910	7,862
Current portion of long-term debt	3,705	4,419
Total current liabilities	12,706	13,488
Long-term debt	29,319	29,510
Long-term deferred tax liabilities	811	864
Long-term tax liabilities	8,869	8,770
Other noncurrent liabilities	1,460	1,284
Contingencies and commitments		
Stockholders' equity:		
Common stock and additional paid-in capital; $0.0001 par value; 2,750.0 shares authorized; outstanding — 614.4 shares in 2019 and 629.6 shares in 2018	31,243	31,246
Accumulated deficit	(19,895)	(17,977)
Accumulated other comprehensive loss	(516)	(769)
Total stockholders' equity	10,832	12,500
Total liabilities and stockholders' equity	$ 63,997	$ 66,416

See accompanying notes.

AMGEN INC.
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In millions, except per-share data)
(Unaudited)

	Number of shares of common stock	Common stock and additional paid-in capital	Accumulated deficit	Accumulated other comprehensive loss	Total
Balance as of December 31, 2018	629.6	$ 31,246	$ (17,977)	$ (769)	$ 12,500
Net income	—	—	1,992	—	1,992
Other comprehensive income, net of taxes	—	—	—	253	253
Dividends declared on common stock ($1.45 per share)	—	—	(879)	—	(879)
Issuance of common stock in connection with the Company's equity award programs	0.7	6	—	—	6
Stock-based compensation expense	—	64	—	—	64
Tax impact related to employee stock-based compensation expense	—	(73)	—	—	(73)
Repurchases of common stock	(15.9)	—	(3,031)	—	(3,031)
Balance as of March 31, 2019	614.4	$ 31,243	$ (19,895)	$ (516)	$ 10,832

	Number of shares of common stock	Common stock and additional paid-in capital	Accumulated deficit	Accumulated other comprehensive loss	Total
Balance as of December 31, 2017	722.2	$ 30,992	$ (5,072)	$ (679)	$ 25,241
Cumulative effect of changes in accounting principles, net of taxes	—	—	38	(9)	29
Net income	—	—	2,311	—	2,311
Other comprehensive loss, net of taxes	—	—	—	(306)	(306)
Dividends declared on common stock ($1.32 per share)	—	—	(877)	—	(877)
Issuance of common stock in connection with the Company's equity award programs	0.6	5	—	—	5
Stock-based compensation expense	—	61	—	—	61
Tax impact related to employee stock-based compensation expense	—	(57)	—	—	(57)
Repurchases of common stock	(56.4)	—	(10,787)	—	(10,787)
Balance as of March 31, 2018	666.4	$ 31,001	$ (14,387)	$ (994)	$ 15,620

See accompanying notes.

AMGEN INC.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(In millions)
(Unaudited)

	Three months ended March 31,	
	2019	**2018**
Cash flows from operating activities:		
Net income	$ 1,992	$ 2,311
Depreciation, amortization and other	495	471
Deferred income taxes	(50)	(72)
Other items, net	24	98
Changes in operating assets and liabilities, net of acquisition:		
Trade receivables, net	(207)	(384)
Inventories	(28)	(107)
Other assets	(249)	(135)
Accounts payable	(112)	(278)
Accrued income taxes, net	277	353
Long-term tax liabilities	100	63
Other liabilities	(397)	407
Net cash provided by operating activities	1,845	2,727
Cash flows from investing activities:		
Purchases of marketable securities	(6,898)	(2,732)
Proceeds from sales of marketable securities	125	16,694
Proceeds from maturities of marketable securities	10,455	900
Cash acquired in acquisition, net of cash paid	—	197
Purchases of property, plant and equipment	(116)	(155)
Other	(11)	2
Net cash provided by investing activities	3,555	14,906
Cash flows from financing activities:		
Repayment of debt	(1,000)	—
Repurchases of common stock	(3,032)	(10,697)
Dividends paid	(901)	(951)
Other	(54)	(44)
Net cash used in financing activities	(4,987)	(11,692)
Increase in cash and cash equivalents	413	5,941
Cash and cash equivalents at beginning of period	6,945	3,800
Cash and cash equivalents at end of period	$ 7,358	$ 9,741

See accompanying notes.

1. Summary of significant accounting policies

Business

Amgen Inc. (including its subsidiaries, referred to as "Amgen," "the Company," "we," "our" or "us") is a global biotechnology pioneer that discovers, develops, manufactures and delivers innovative human therapeutics. We operate in one business segment: human therapeutics.

Basis of presentation

The financial information for the three months ended March 31, 2019 and 2018, is unaudited but includes all adjustments (consisting of only normal, recurring adjustments unless otherwise indicated), which Amgen considers necessary for a fair presentation of its condensed consolidated results of operations for those periods. Interim results are not necessarily indicative of results for the full fiscal year.

The condensed consolidated financial statements should be read in conjunction with our consolidated financial statements and the notes thereto contained in our Annual Report on Form 10-K for the year ended December 31, 2018.

Principles of consolidation

The condensed consolidated financial statements include the accounts of Amgen as well as its majority-owned subsidiaries. We do not have any significant interests in any variable interest entities. All material intercompany transactions and balances have been eliminated in consolidation.

Use of estimates

The preparation of condensed consolidated financial statements in conformity with U.S. generally accepted accounting principles (GAAP) requires management to make estimates and assumptions that affect the amounts reported in the condensed consolidated financial statements and accompanying notes. Actual results may differ from those estimates.

Property, plant and equipment, net

Property, plant and equipment is recorded at historical cost, net of accumulated depreciation and amortization of $7.9 billion and $7.8 billion as of March 31, 2019 and December 31, 2018, respectively.

Leases

Adoption of new lease standard

In February 2016, the Financial Accounting Standards Board (FASB) issued a new accounting standard that amends the guidance for the accounting and disclosure of leases. This new standard requires that lessees recognize the assets and liabilities that arise from leases on the balance sheet, including leases classified as operating leases, and disclose qualitative and quantitative information about leasing arrangements. The FASB subsequently issued additional amendments to address issues arising from the implementation of the new lease standard. We adopted this standard as of January 1, 2019, using the modified-retrospective method. This approach provides a method for recording existing leases at adoption. We used the adoption date as our date of initial application, and thus comparative-period financial information is not presented for periods prior to the adoption date. In addition, we elected the package of practical expedients permitted under the transition guidance within the new standard, which, among other things, allowed us to carry forward the historical lease classification.

Adoption of the new standard resulted in total lease liabilities of $510 million and right-of-use (ROU) assets of $439 million as of January 1, 2019. The difference between the initial lease liabilities and the ROU assets is related primarily to previously existing lease liabilities. The standard did not materially impact our Condensed Consolidated Statements of Income and had no impact on our Condensed Consolidated Statements of Cash Flows. Our accounting policies under the new standard are described below. See Note 8, Leases.

Lease recognition

At inception of a contract, we determine whether an arrangement is or contains a lease. For all leases, we determine the classification as either operating or financing. Operating leases are included in Other assets, Accrued liabilities and Other noncurrent liabilities in our Condensed Consolidated Balance Sheets.

ROU assets represent our right to use an underlying asset for the lease term, and lease liabilities represent our obligation to make lease payments under the lease. Lease recognition occurs at the commencement date and lease liability amounts are based on the present value of lease payments over the lease term. Our lease terms may include options to extend or terminate the lease when it is reasonably certain that we will exercise that option. Because most of our leases do not provide information to determine an implicit interest rate, we use our incremental borrowing rate in determining the present value of lease payments. ROU assets also include any lease payments made prior to the commencement date and exclude lease incentives received. Operating lease expense is recognized on a straight-line basis over the lease term.

We have lease agreements with both lease and nonlease components, which are generally accounted for together as a single lease component. In addition, for certain vehicle and equipment leases, we apply a portfolio approach to determine the lease term and discount rate.

Other recent accounting pronouncements

In June 2016, the FASB issued a new accounting standard that amends the guidance for measuring and recording credit losses on financial assets measured at amortized cost by replacing the incurred-loss model with an expected-loss model. Accordingly, these financial assets will be presented at the net amount expected to be collected. This new standard also requires that credit losses related to available-for-sale debt securities be recorded as an allowance through net income rather than by reducing the carrying amount under the current, other-than-temporary-impairment model. The new standard is effective for interim and annual periods beginning on January 1, 2020, but may be adopted earlier. With certain exceptions, adjustments are to be applied using a modified-retrospective approach by reflecting adjustments through a cumulative-effect impact on retained earnings as of the beginning of the fiscal year of adoption. We are currently evaluating the impact that this new standard will have on our condensed consolidated financial statements.

2. Revenues

We operate in one business segment: human therapeutics. Therefore, results of our operations are reported on a consolidated basis for purposes of segment reporting, consistent with internal management reporting. Revenues by product and by geographic area, based on customers' locations, are presented below. Rest-of-world (ROW) revenues relate to products that are sold primarily in Europe.

Revenues were as follows (in millions):

	Three months ended March 31,					
	2019			2018		
	US	ROW	Total	US	ROW	Total
Enbrel® (etanercept)	$ 1,106	$ 45	$ 1,151	$ 1,050	$ 55	$ 1,105
Neulasta® (pegfilgrastim)	893	128	1,021	1,009	146	1,155
Prolia® (denosumab)	390	202	592	320	174	494
XGEVA® (denosumab)	356	115	471	332	113	445
Aranesp® (darbepoetin alfa)	182	232	414	225	229	454
KYPROLIS® (carfilzomib)	154	91	245	137	85	222
EPOGEN® (epoetin alfa)	219	—	219	244	—	244
Sensipar®/Mimpara® (cinacalcet)	135	78	213	409	88	497
Other products	556	404	960	421	306	727
Total product sales[(1)]	$ 3,991	$ 1,295	5,286	$ 4,147	$ 1,196	5,343
Other revenues			271			211
Total revenues			$ 5,557			$ 5,554

[(1)] Hedging gains and losses, which are included in product sales, were not material for the three months ended March 31, 2019 and 2018.

3. Income taxes

The effective tax rates for the three months ended March 31, 2019 and 2018, were 13.9% and 11.8%, respectively.

The increase in our effective tax rate for the three months ended March 31, 2019, was due primarily to a prior-year tax benefit associated with intercompany sales under U.S. corporate tax reform. The effective tax rates differ from the federal statutory rate primarily as a result of foreign earnings from the Company's operations conducted in Puerto Rico, a territory of the United States that is treated as a foreign jurisdiction for U.S. tax purposes and that is subject to tax incentive grants through 2035; these earnings are subject to U.S. tax at a reduced 10.5% rate.

The U.S. territory of Puerto Rico imposes an excise tax on the gross intercompany purchase price of goods and services from our manufacturer in Puerto Rico. The rate of 4% is effective through December 31, 2027. We account for the excise tax as a manufacturing cost that is capitalized in inventory and expensed in cost of sales when the related products are sold. For U.S. income tax purposes, the excise tax results in foreign tax credits that are generally recognized in our provision for income taxes when the excise tax is incurred.

One or more of our legal entities file income tax returns in the U.S. federal jurisdiction, various U.S. state jurisdictions and certain foreign jurisdictions. Our income tax returns are routinely examined by the tax authorities in those jurisdictions. Significant disputes may arise with authorities involving issues of the timing and amount of deductions, the use of tax credits and allocations of income and expenses among various tax jurisdictions because of differing interpretations of tax laws, regulations and the interpretation of the relevant facts. As previously disclosed, we received a Revenue Agent Report (RAR) from the Internal Revenue Service (IRS) for the years 2010, 2011 and 2012. The RAR proposes to make significant adjustments that relate primarily to the allocation of profits between certain of our entities in the United States and the U.S. territory of Puerto Rico. In November 2017, we received a modified RAR that revised the IRS's calculation but continued to propose substantial adjustments. We disagree with the proposed adjustments and are pursuing resolution with the IRS administrative appeals office, which currently has jurisdiction over the matter. If we deem necessary, we will vigorously contest the proposed adjustments through the judicial process. Final resolution of this complex matter is not likely within the next 12 months and could have a material impact on our condensed consolidated financial statements. We believe our accrual for income tax liabilities is appropriate based on past experience, interpretations of tax law, and judgments about potential actions by tax authorities; however, due to the complexity of the provision for income taxes, the ultimate resolution of any tax matters may result in payments greater or less than amounts accrued. We are no longer subject to U.S. federal income tax examinations for years ended on or before December 31, 2009. In addition, we are currently under examination by a number of other state and foreign tax jurisdictions.

During the three months ended March 31, 2019, the gross amounts of our unrecognized tax benefits (UTBs) increased $90 million as a result of tax positions taken during the current year. Substantially all of the UTBs as of March 31, 2019, if recognized, would affect our effective tax rate.

4. Earnings per share

The computation of basic earnings per share (EPS) is based on the weighted-average number of our common shares outstanding. The computation of diluted EPS is based on the weighted-average number of our common shares outstanding and dilutive potential common shares, which include primarily shares that may be issued under our stock option, restricted stock and performance unit award programs (collectively, dilutive securities), as determined by using the treasury stock method.

The computations for basic and diluted EPS were as follows (in millions, except per-share data):

	Three months ended March 31,	
	2019	2018
Income (Numerator):		
Net income for basic and diluted EPS	$ 1,992	$ 2,311
Shares (Denominator):		
Weighted-average shares for basic EPS	622	707
Effect of dilutive securities	4	4
Weighted-average shares for diluted EPS	626	711
Basic EPS	$ 3.20	$ 3.27
Diluted EPS	$ 3.18	$ 3.25

For the three months ended March 31, 2019 and 2018, the number of antidilutive employee stock-based awards excluded from the computation of diluted EPS was not significant.

5. Investments

Available-for-sale investments

The amortized cost, gross unrealized gains, gross unrealized losses and fair values of interest-bearing securities, which are considered available-for-sale, by type of security were as follows (in millions):

Types of securities as of March 31, 2019	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair values
U.S. Treasury notes	$ 2,709	$ —	$ (27)	$ 2,682
U.S. Treasury bills	3,475	—	—	3,475
Other government-related debt securities:				
U.S.	112	—	(1)	111
Foreign and other	964	4	(10)	958
Corporate debt securities:				
Financial	2,771	1	(22)	2,750
Industrial	2,481	4	(27)	2,458
Other	572	1	(7)	566
Residential-mortgage-backed securities	1,404	—	(22)	1,382
Other mortgage- and asset-backed securities	478	—	(11)	467
Money market mutual funds	4,375	—	—	4,375
Other short-term interest-bearing securities	6,428	—	—	6,428
Total interest-bearing securities	$ 25,769	$ 10	$ (127)	$ 25,652

Types of securities as of December 31, 2018	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair values
U.S. Treasury notes	$ 2,710	$ —	$ (47)	$ 2,663
U.S. Treasury bills	8,191	—	—	8,191
Other government-related debt securities:				
U.S.	112	—	(2)	110
Foreign and other	972	1	(41)	932
Corporate debt securities:				
Financial	2,778	—	(81)	2,697
Industrial	2,603	—	(99)	2,504
Other	583	—	(21)	562
Residential-mortgage-backed securities	1,458	—	(36)	1,422
Other mortgage- and asset-backed securities	483	—	(14)	469
Money market mutual funds	5,659	—	—	5,659
Other short-term interest-bearing securities	3,515	—	—	3,515
Total interest-bearing securities	$ 29,064	$ 1	$ (341)	$ 28,724

The fair values of interest-bearing securities by location in the Condensed Consolidated Balance Sheets were as follows (in millions):

Condensed Consolidated Balance Sheets locations	March 31, 2019	December 31, 2018
Cash and cash equivalents	$ 6,709	$ 6,365
Marketable securities	18,943	22,359
Total interest-bearing securities	$ 25,652	$ 28,724

Cash and cash equivalents in the above table excludes bank account cash of $649 million and $580 million as of March 31, 2019 and December 31, 2018, respectively.

The fair values of interest-bearing securities by contractual maturity, except for mortgage- and asset-backed securities that do not have a single maturity date, were as follows (in millions):

Contractual maturities	March 31, 2019	December 31, 2018
Maturing in one year or less	$ 14,357	$ 17,424
Maturing after one year through three years	4,600	3,356
Maturing after three years through five years	3,987	5,168
Maturing after five years through ten years	859	885
Mortgage- and asset-backed securities	1,849	1,891
Total interest-bearing securities	$ 25,652	$ 28,724

For the three months ended March 31, 2019 and 2018, realized gains on interest-bearing securities were $1 million and $17 million, respectively, and realized losses on interest-bearing securities were $5 million and $151 million, respectively. Realized gains and losses on interest-bearing securities are recorded in Interest and other income, net, in the Condensed Consolidated Statements of Income. The cost of securities sold is based on the specific-identification method.

The fair values and gross unrealized losses of interest-bearing securities in an unrealized loss position aggregated by type and length of time that the securities have been in a continuous loss position were as follows (in millions):

	Less than 12 months		12 months or more	
Types of securities as of March 31, 2019	**Fair values**	**Unrealized losses**	**Fair values**	**Unrealized losses**
U.S. Treasury notes	$ 1,190	$ (11)	$ 1,452	$ (16)
Other government-related debt securities:				
U.S.	—	—	111	(1)
Foreign and other	410	(6)	307	(4)
Corporate debt securities:				
Financial	1,783	(14)	822	(8)
Industrial	1,516	(20)	634	(7)
Other	454	(6)	36	(1)
Residential-mortgage-backed securities	558	(9)	809	(13)
Other mortgage- and asset-backed securities	17	—	450	(11)
Total	$ 5,928	$ (66)	$ 4,621	$ (61)

	Less than 12 months		12 months or more	
Types of securities as of December 31, 2018	**Fair values**	**Unrealized losses**	**Fair values**	**Unrealized losses**
U.S. Treasury notes	$ 1,219	$ (21)	$ 1,444	$ (26)
Other government-related debt securities:				
U.S.	—	—	110	(2)
Foreign and other	631	(31)	240	(10)
Corporate debt securities:				
Financial	1,968	(59)	718	(22)
Industrial	1,898	(81)	529	(18)
Other	529	(20)	28	(1)
Residential-mortgage-backed securities	576	(14)	840	(22)
Other mortgage- and asset-backed securities	17	—	451	(14)
Total	$ 6,838	$ (226)	$ 4,360	$ (115)

The primary objective of our investment portfolio is to enhance overall returns in an efficient manner while maintaining safety of principal, prudent levels of liquidity and acceptable levels of risk. Our investment policy limits interest-bearing security investments to certain types of debt and money market instruments issued by institutions with primarily investment-grade credit ratings, and it places restrictions on maturities and concentration by asset class and issuer.

We review our available-for-sale investments for other-than-temporary declines in fair value below our cost basis each quarter and whenever events or changes in circumstances indicate that the cost basis of an asset may not be recoverable. The evaluation is based on a number of factors, including the length of time and the extent to which the fair value has been below our cost basis as well as adverse conditions related specifically to the security, such as any changes to the credit rating of the security and the intent to sell or whether we will more likely than not be required to sell the security before recovery of its amortized cost basis. Our assessment of whether a security is other-than-temporarily impaired could change in the future based on new developments or changes in assumptions related to that particular security. As of March 31, 2019, unrealized losses on available-for-sale investments were due primarily to higher interest rates than at the time the securities were purchased. As of March 31, 2019 and December 31, 2018, we believe the cost bases for our available-for-sale investments were recoverable in all material respects.

Equity securities

We held investments in equity securities with readily determinable fair values of $246 million and $176 million as of March 31, 2019 and December 31, 2018, respectively, which are included in Other assets in the Condensed Consolidated Balance Sheets. Gains and losses recognized on equity securities with readily determinable fair values, including gains and losses recognized on sales, were not material for the three months ended March 31, 2019 and 2018.

As of March 31, 2019 and December 31, 2018, respectively, we held investments of $185 million and $222 million in equity securities without readily determinable fair values, which are included in Other assets in the Condensed Consolidated Balance Sheets. Adjustments to the carrying values of these securities were not material for the three months ended March 31, 2019 and 2018.

Limited partnership investments

We held limited partnership investments of $275 million and $285 million as of March 31, 2019 and December 31, 2018, respectively, which are included in Other assets in the Condensed Consolidated Balance Sheets. These investments are measured by using the net asset values of the underlying investments as a practical expedient. These investments are typically redeemable only through distributions upon liquidation of the underlying assets. As of March 31, 2019, unfunded additional commitments to be made during the next several years for these investments were not material. Gains and losses recognized on our limited partnership investments were not material for the three months ended March 31, 2019 and 2018.

6. Inventories

Inventories consisted of the following (in millions):

	March 31, 2019	December 31, 2018
Raw materials	$ 276	$ 257
Work in process	1,770	1,660
Finished goods	970	1,023
Total inventories	$ 3,016	$ 2,940

7. Goodwill and other intangible assets

Goodwill

The change in the carrying amount of goodwill was as follows (in millions):

	Three months ended March 31, 2019
Beginning balance	$ 14,699
Currency translation adjustment	(7)
Ending balance	$ 14,692

Other intangible assets

Other intangible assets consisted of the following (in millions):

	March 31, 2019			December 31, 2018		
	Gross carrying amounts	Accumulated amortization	Other intangible assets, net	Gross carrying amounts	Accumulated amortization	Other intangible assets, net
Finite-lived intangible assets:						
Developed-product-technology rights	$ 12,559	$ (7,639)	$ 4,920	$ 12,573	$ (7,479)	$ 5,094
Licensing rights	3,693	(2,064)	1,629	3,772	(2,032)	1,740
Marketing-related rights	1,211	(947)	264	1,297	(1,019)	278
Research and development technology rights	1,145	(889)	256	1,148	(872)	276
Total finite-lived intangible assets	18,608	(11,539)	7,069	18,790	(11,402)	7,388
Indefinite-lived intangible assets:						
In-process research and development	55	—	55	55	—	55
Total other intangible assets	$ 18,663	$ (11,539)	$ 7,124	$ 18,845	$ (11,402)	$ 7,443

Developed-product-technology rights consist of rights related to marketed products acquired in business combinations. Licensing rights consist primarily of contractual rights acquired in business combinations to receive future milestone, royalty and profit-sharing payments; capitalized payments to third parties for milestones related to regulatory approvals to commercialize products; and upfront payments associated with royalty obligations for marketed products. Marketing-related rights consist primarily of rights related to the sale and distribution of marketed products. Research and development (R&D) technology rights pertain to technology used in R&D that have alternative future uses.

In-process research and development (IPR&D) consists of R&D projects acquired in a business combination that are not complete at the time of acquisition due to remaining technological risks and/or lack of receipt of required regulatory approvals. We review IPR&D projects for impairment annually, whenever events or changes in circumstances indicate that the carrying amounts may not be recoverable and upon the establishment of technological feasibility or regulatory approval.

During the three months ended March 31, 2019 and 2018, we recognized amortization associated with our finite-lived intangible assets, included primarily in Cost of sales in the Condensed Consolidated Statements of Income, of $315 million and $320 million, respectively. The total estimated amortization for our finite-lived intangible assets for the remaining nine months ending December 31, 2019, and the years ending December 31, 2020, 2021, 2022, 2023 and 2024, are $1.0 billion, $1.2 billion, $1.0 billion, $0.9 billion, $0.9 billion and $0.8 billion, respectively.

8. Leases

On January 1, 2019, we adopted a new accounting standard that amends the guidance for the accounting and reporting of leases. Certain required disclosures have been made on a prospective basis in accordance with the guidance of the standard. See Note 1, Summary of significant accounting policies.

We lease certain facilities and equipment related primarily to administrative, R&D and sales and marketing activities. Leases with lease terms of 12 months or less are expensed on a straight-line basis over the lease term and are not recorded in the Condensed Consolidated Balance Sheets.

Most leases include one or more options to renew, with renewal terms that can extend the lease term up to seven years. The exercise of lease renewal options is at our sole discretion. In addition, some of our lease agreements include rental payments adjusted periodically for inflation. Our lease agreements neither contain any residual value guarantees nor impose any significant restrictions or covenants. We sublease certain real estate to third parties. Our sublease portfolio consists of operating leases from former R&D and administrative space.

The following table summarizes information related to our leases, which are all classified as operating, included in our Condensed Consolidated Balance Sheets (in millions):

Condensed Consolidated Balance Sheets locations	March 31, 2019
Assets:	
Other assets	$ 417
Liabilities:	
Accrued liabilities	$ 120
Other noncurrent liabilities	368
Total lease liabilities	$ 488

The components of net lease costs were as follows (in millions):

Lease costs	Three months ended March 31, 2019
Operating[1]	$ 48
Sublease income	(8)
Total net lease costs	$ 40

[1] Includes short-term leases and variable lease costs, which were not material for the three months ended March 31, 2019.

Maturities of lease liabilities as of March 31, 2019, were as follows (in millions):

Maturity dates	Operating leases
Remaining nine months ending December 31, 2019	$ 135
2020	133
2021	107
2022	63
2023	48
Thereafter	41
Total lease payments[1]	527
Less imputed interest	(39)
Present value of lease liabilities	$ 488

[1] Includes future rental commitments for abandoned leases of $204 million. We expect to receive total future rental income of $166 million related to noncancelable subleases for abandoned facilities.

The weighted-average remaining lease term and weighted-average discount rate of our leases were 4.5 years and 3.32%, respectively, as of March 31, 2019.

Cash and noncash information related to our leases was as follows (in millions):

	Three months ended March 31, 2019
Cash paid for amounts included in the measurement of lease liabilities:	
Operating cash flows from operating leases	$ 34
ROU assets obtained in exchange for lease obligations:	
Operating leases	$ 8

9. Financing arrangements

Our borrowings consisted of the following (in millions):

	March 31, 2019	December 31, 2018
5.70% notes due 2019 (5.70% 2019 Notes)	$ —	$ 1,000
1.90% notes due 2019 (1.90% 2019 Notes)	700	700
Floating Rate Notes due 2019	550	550
2.20% notes due 2019 (2.20% 2019 Notes)	1,400	1,400
2.125% €675 million notes due 2019 (2.125% 2019 euro Notes)	757	774
4.50% notes due 2020 (4.50% 2020 Notes)	300	300
2.125% notes due 2020 (2.125% 2020 Notes)	750	750
Floating Rate Notes due 2020	300	300
2.20% notes due 2020 (2.20% 2020 Notes)	700	700
3.45% notes due 2020 (3.45% 2020 Notes)	900	900
4.10% notes due 2021 (4.10% 2021 Notes)	1,000	1,000
1.85% notes due 2021 (1.85% 2021 Notes)	750	750
3.875% notes due 2021 (3.875% 2021 Notes)	1,750	1,750
1.25% €1,250 million notes due 2022 (1.25% 2022 euro Notes)	1,402	1,433
2.70% notes due 2022 (2.70% 2022 Notes)	500	500
2.65% notes due 2022 (2.65% 2022 Notes)	1,500	1,500
3.625% notes due 2022 (3.625% 2022 Notes)	750	750
0.41% CHF700 million bonds due 2023 (0.41% 2023 Swiss franc Bonds)	703	713
2.25% notes due 2023 (2.25% 2023 Notes)	750	750
3.625% notes due 2024 (3.625% 2024 Notes)	1,400	1,400
3.125% notes due 2025 (3.125% 2025 Notes)	1,000	1,000
2.00% €750 million notes due 2026 (2.00% 2026 euro Notes)	841	860
2.60% notes due 2026 (2.60% 2026 Notes)	1,250	1,250
5.50% £475 million notes due 2026 (5.50% 2026 pound sterling Notes)	619	606
3.20% notes due 2027 (3.20% 2027 Notes)	1,000	1,000
4.00% £700 million notes due 2029 (4.00% 2029 pound sterling Notes)	912	893
6.375% notes due 2037 (6.375% 2037 Notes)	552	552
6.90% notes due 2038 (6.90% 2038 Notes)	291	291
6.40% notes due 2039 (6.40% 2039 Notes)	466	466
5.75% notes due 2040 (5.75% 2040 Notes)	412	412
4.95% notes due 2041 (4.95% 2041 Notes)	600	600
5.15% notes due 2041 (5.15% 2041 Notes)	974	974
5.65% notes due 2042 (5.65% 2042 Notes)	487	487
5.375% notes due 2043 (5.375% 2043 Notes)	261	261
4.40% notes due 2045 (4.40% 2045 Notes)	2,250	2,250
4.563% notes due 2048 (4.563% 2048 Notes)	1,415	1,415
4.663% notes due 2051 (4.663% 2051 Notes)	3,541	3,541
Other notes due 2097	100	100
Unamortized bond discounts, premiums and issuance costs, net	(886)	(896)
Fair value adjustments	77	(53)
Total carrying value of debt	33,024	33,929
Less current portion	(3,705)	(4,419)
Total long-term debt	$ 29,319	$ 29,510

There are no material differences between the effective interest rates and coupon rates of any of our borrowings, except for the 4.563% 2048 Notes and the 4.663% 2051 Notes, which have effective interest rates of 6.3% and 5.6%, respectively.

10. Stockholders' equity

Stock repurchase program

Activity under our stock repurchase program, on a trade date basis, was as follows (in millions):

	2019		2018	
	Shares	Dollars	Shares	Dollars
First quarter	15.9	$ 3,031	56.4	$ 10,787

As of March 31, 2019, $2.1 billion of authority remained available under our stock repurchase program.

Dividends

In March 2019, the Board of Directors declared a quarterly cash dividend of $1.45 per share, which will be paid in June 2019. In December 2018, the Board of Directors declared a quarterly cash dividend of $1.45 per share, which was paid in March 2019.

Accumulated other comprehensive income (loss)

The components of Accumulated other comprehensive income (loss) (AOCI) were as follows (in millions):

	Foreign currency translation	Cash flow hedges	Available-for-sale securities	Other	AOCI
Balance as of December 31, 2018	$ (670)	$ 241	$ (338)	$ (2)	$ (769)
Foreign currency translation adjustments	(13)	—	—	—	(13)
Unrealized gains	—	30	218	—	248
Reclassification adjustments to income	—	28	4	—	32
Income taxes	—	(13)	(1)	—	(14)
Balance as of March 31, 2019	$ (683)	$ 286	$ (117)	$ (2)	$ (516)

Reclassifications out of AOCI and into earnings were as follows (in millions):

	Three months ended March 31,		
Components of AOCI	2019	2018	Condensed Consolidated Statements of Income locations
Cash flow hedges:			
Foreign currency contract gains (losses)	$ 14	$ (34)	Product sales
Cross-currency swap contract (losses) gains	(42)	164	Interest and other income, net
	(28)	130	Income before income taxes
	6	(28)	Provision for income taxes
	$ (22)	$ 102	Net income
Available-for-sale securities:			
Net realized losses	$ (4)	$ (134)	Interest and other income, net
	—	1	Provision for income taxes
	$ (4)	$ (133)	Net income

11. Fair value measurement

To estimate the fair value of our financial assets and liabilities, we use valuation approaches within a hierarchy that maximizes the use of observable inputs and minimizes the use of unobservable inputs by requiring that observable inputs be used when available. Observable inputs are inputs that market participants would use in pricing an asset or liability based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that reflect the Company's assumptions about the inputs that market participants would use in pricing an asset or liability and are developed based on the best information available in the circumstances. The fair value hierarchy is divided into three levels based on the source of inputs as follows:

Level 1 — Valuations based on unadjusted quoted prices in active markets for identical assets or liabilities that the Company has the ability to access

Level 2 — Valuations for which all significant inputs are observable either directly or indirectly—other than Level 1 inputs

Level 3 — Valuations based on inputs that are unobservable and significant to the overall fair value measurement

The availability of observable inputs can vary among the various types of financial assets and liabilities. To the extent that the valuation is based on models or inputs that are less observable or unobservable in the market, the determination of fair value requires more judgment. In certain cases, the inputs used for measuring fair value may fall into different levels of the fair value hierarchy. In such cases, for financial statement disclosure purposes, the level in the fair value hierarchy within which the fair value measurement is categorized is based on the lowest level of input used that is significant to the overall fair value measurement.

The fair values of each major class of the Company's financial assets and liabilities measured at fair value on a recurring basis were as follows (in millions):

Fair value measurement as of March 31, 2019, using:	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Total
Assets:				
Interest-bearing securities:				
U.S. Treasury notes	$ 2,682	$ —	$ —	$ 2,682
U.S. Treasury bills	3,475	—	—	3,475
Other government-related debt securities:				
U.S.	—	111	—	111
Foreign and other	—	958	—	958
Corporate debt securities:				
Financial	—	2,750	—	2,750
Industrial	—	2,458	—	2,458
Other	—	566	—	566
Residential-mortgage-backed securities	—	1,382	—	1,382
Other mortgage- and asset-backed securities	—	467	—	467
Money market mutual funds	4,375	—	—	4,375
Other short-term interest-bearing securities	—	6,428	—	6,428
Equity securities	246	—	—	246
Derivatives:				
Foreign currency contracts	—	238	—	238
Cross-currency swap contracts	—	143	—	143
Interest rate swap contracts	—	94	—	94
Total assets	$ 10,778	$ 15,595	$ —	$ 26,373
Liabilities:				
Derivatives:				
Foreign currency contracts	$ —	$ 8	$ —	$ 8
Cross-currency swap contracts	—	429	—	429
Interest rate swap contracts	—	54	—	54
Contingent consideration obligations	—	—	66	66
Total liabilities	$ —	$ 491	$ 66	$ 557

Fair value measurement as of December 31, 2018, using:	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Total
Assets:				
Interest-bearing securities:				
U.S. Treasury notes	$ 2,663	$ —	$ —	$ 2,663
U.S. Treasury bills	8,191	—	—	8,191
Other government-related debt securities:				
U.S.	—	110	—	110
Foreign and other	—	932	—	932
Corporate debt securities:				
Financial	—	2,697	—	2,697
Industrial	—	2,504	—	2,504
Other	—	562	—	562
Residential-mortgage-backed securities	—	1,422	—	1,422
Other mortgage- and asset-backed securities	—	469	—	469
Money market mutual funds	5,659	—	—	5,659
Other short-term interest-bearing securities	—	3,515	—	3,515
Equity securities	176	—	—	176
Derivatives:				
Foreign currency contracts	—	182	—	182
Cross-currency swap contracts	—	170	—	170
Interest rate swap contracts	—	56	—	56
Total assets	$ 16,689	$ 12,619	$ —	$ 29,308
Liabilities:				
Derivatives:				
Foreign currency contracts	$ —	$ 26	$ —	$ 26
Cross-currency swap contracts	—	401	—	401
Interest rate swap contracts	—	149	—	149
Contingent consideration obligations	—	—	72	72
Total liabilities	$ —	$ 576	$ 72	$ 648

Interest-bearing and equity securities

The fair values of our U.S. Treasury securities, money market mutual funds and equity securities are based on quoted market prices in active markets, with no valuation adjustment.

Most of our other government-related and corporate debt securities are investment grade and have maturity dates of five years or less from the balance sheet date. Our other government-related debt securities portfolio is composed of securities with weighted-average credit ratings of A– or equivalent by Standard & Poor's Financial Services LLC (S&P), Moody's Investors Service, Inc. (Moody's), or Fitch Ratings, Inc. (Fitch); and our corporate debt securities portfolio has weighted-average credit ratings of A– or equivalent by Fitch and BBB+ or equivalent by S&P or Moody's. We estimate the fair values of these securities by taking into consideration valuations obtained from third-party pricing services. The pricing services use industry-standard valuation models, including both income- and market-based approaches, for which all significant inputs are observable either directly or indirectly to estimate fair value. The inputs include reported trades of and broker-dealer quotes on the same or similar securities; issuer credit spreads; benchmark securities; and other observable inputs.

Our residential-mortgage-, other-mortgage- and asset-backed-securities portfolio is composed entirely of senior tranches with credit ratings of AAA by S&P, Moody's or Fitch. We estimate the fair values of these securities by taking into consideration valuations obtained from third-party pricing services. The pricing services use industry-standard valuation models, including both income- and market-based approaches, for which all significant inputs are observable either directly or indirectly to estimate fair value. The inputs include reported trades of and broker-dealer quotes on the same or similar securities; issuer credit spreads; benchmark securities; prepayment or default projections based on historical data; and other observable inputs.

We value our other short-term interest-bearing securities at amortized cost, which approximates fair value given their near-term maturity dates.

Derivatives

All of our foreign currency forward and option derivative contracts have maturities of three years or less, and all are with counterparties that have minimum credit ratings of A– or equivalent by S&P, Moody's or Fitch. We estimate the fair values of these contracts by taking into consideration valuations obtained from a third-party valuation service that uses an income-based industry-standard valuation model for which all significant inputs are observable either directly or indirectly. These inputs include foreign currency exchange rates, the London Interbank Offered Rate (LIBOR), swap rates and obligor credit default swap rates. In addition, inputs for our foreign currency option contracts include implied volatility measures. These inputs, when applicable, are at commonly quoted intervals. See Note 12, Derivative instruments.

Our cross-currency swap contracts are with counterparties that have minimum credit ratings of A– or equivalent by S&P, Moody's or Fitch. We estimate the fair values of these contracts by taking into consideration valuations obtained from a third-party valuation service that uses an income-based industry-standard valuation model for which all significant inputs are observable either directly or indirectly. These inputs include foreign currency exchange rates, LIBOR, swap rates, obligor credit default swap rates and cross-currency-basis swap spreads. See Note 12, Derivative instruments.

Our interest rate swap contracts are with counterparties that have minimum credit ratings of A– or equivalent by S&P, Moody's or Fitch. We estimate the fair values of these contracts by using an income-based industry-standard valuation model for which all significant inputs are observable either directly or indirectly. These inputs include LIBOR, swap rates and obligor credit default swap rates. See Note 12, Derivative instruments.

Contingent consideration obligations

As a result of our business acquisitions, we have incurred contingent consideration obligations. The contingent consideration obligations are recorded at their fair values by using probability-adjusted discounted cash flows, and we revalue these obligations each reporting period until the related contingencies have been resolved. The fair value measurements of these obligations are based on significant unobservable inputs related to licensing rights and product candidates acquired in business combinations, and they are reviewed quarterly by management in our R&D and commercial sales organizations. These inputs include, as applicable, estimated probabilities and the timing of achieving specified regulatory and commercial milestones as well as estimated annual sales. Significant changes that increase or decrease the probabilities of achieving the related regulatory and commercial events or that shorten or lengthen the time required to achieve such events or that increase or decrease estimated annual sales would result in corresponding increases or decreases in the fair values of the obligations, as applicable. Changes in the fair values of contingent consideration obligations are recognized in Other operating expenses in the Condensed Consolidated Statements of Income. Changes in the carrying amounts of contingent consideration obligations for the three months ended March 31, 2019 and 2018 were not material.

During the three months ended March 31, 2019 and 2018, there were no transfers of assets or liabilities between fair value measurement levels, and there were no material remeasurements to the fair values of assets and liabilities that are not measured at fair value on a recurring basis.

Summary of the fair values of other financial instruments

Cash equivalents

The fair values of cash equivalents approximate their carrying values due to the short-term nature of such financial instruments.

Borrowings

We estimated the fair values of our borrowings by using Level 2 inputs. As of March 31, 2019 and December 31, 2018, the aggregate fair values of our borrowings were $34.8 billion and $35.0 billion, respectively, and the carrying values were $33.0 billion and $33.9 billion, respectively.

12. Derivative instruments

The Company is exposed to foreign currency exchange rate and interest rate risks related to its business operations. To reduce our risks related to such exposures, we use or have used certain derivative instruments, including foreign currency forward, foreign currency option, cross-currency swap, forward interest rate and interest rate swap contracts. We do not use derivatives for speculative trading purposes.

Cash flow hedges

We are exposed to possible changes in the values of certain anticipated foreign currency cash flows resulting from changes in foreign currency exchange rates associated primarily with our euro-denominated international product sales. Increases and decreases in the cash flows associated with our international product sales due to movements in foreign currency exchange rates are offset partially by corresponding increases and decreases in the cash flows from our international operating expenses resulting from these foreign currency exchange rate movements. To further reduce our exposure to foreign currency exchange rate fluctuations with regard to our international product sales, we enter into foreign currency forward and option contracts to hedge a portion of our projected international product sales primarily over a three-year time horizon, with, at any given point in time, a higher percentage of nearer-term projected product sales being hedged than in successive periods.

As of both March 31, 2019 and December 31, 2018, we had outstanding foreign currency forward contracts with aggregate notional amounts of $4.5 billion and outstanding foreign currency option contracts with aggregate notional amounts of $21 million. We have designated these foreign currency forward and foreign currency option contracts, which are primarily euro based, as cash flow hedges. Accordingly, we report the unrealized gains and losses on these contracts in AOCI in the Condensed Consolidated Balance Sheets, and we reclassify them to Product sales in the Condensed Consolidated Statements of Income in the same periods during which the hedged transactions affect earnings.

To hedge our exposure to foreign currency exchange rate risk associated with certain of our long-term debt denominated in foreign currencies, we enter into cross-currency swap contracts. Under the terms of such contracts, we paid euros, pounds sterling and Swiss francs and received U.S. dollars for the notional amounts at the inception of the contracts; and based on these notional amounts, we exchange interest payments at fixed rates over the lives of the contracts by paying U.S. dollars and receiving euros, pounds sterling and Swiss francs. In addition, we will pay U.S. dollars to and receive euros, pounds sterling and Swiss francs from the counterparties at the maturities of the contracts for these same notional amounts. The terms of these contracts correspond to the related hedged debt, thereby effectively converting the interest payments and principal repayment on the debt from euros, pounds sterling and Swiss francs to U.S. dollars. We have designated these cross-currency swap contracts as cash flow hedges. Accordingly, the unrealized gains and losses on these contracts are reported in AOCI in the Condensed Consolidated Balance Sheets and reclassified to Interest and other income, net, in the Condensed Consolidated Statements of Income in the same periods during which the hedged debt affects earnings.

The notional amounts and interest rates of our cross-currency swaps as of March 31, 2019, were as follows (notional amounts in millions):

	Foreign currency			U.S. dollars		
Hedged notes	**Notional amounts**		**Interest rates**	**Notional amounts**		**Interest rates**
2.125% 2019 euro Notes	€	675	2.1%	$	864	2.6%
1.25% 2022 euro Notes	€	1,250	1.3%	$	1,388	3.2%
0.41% 2023 Swiss franc Bonds	CHF	700	0.4%	$	704	3.4%
2.00% 2026 euro Notes	€	750	2.0%	$	833	3.9%
5.50% 2026 pound sterling Notes	£	475	5.5%	$	747	6.0%
4.00% 2029 pound sterling Notes	£	700	4.0%	$	1,111	4.5%

In connection with the anticipated issuance of long-term fixed-rate debt, we occasionally enter into forward interest rate contracts in order to hedge the variability in cash flows due to changes in the applicable U.S. Treasury rate between the time we enter into these contracts and the time the related debt is issued. Gains and losses on forward interest rate contracts, which are designated as cash flow hedges, are recognized in AOCI in the Condensed Consolidated Balance Sheets and are amortized into Interest expense, net, in the Condensed Consolidated Statements of Income over the lives of the associated debt issuances. Amounts recognized in connection with forward interest rate swaps during the three months ended March 31, 2019, and amounts expected to be recognized during the subsequent 12 months are not material.

The unrealized gains and losses recognized in AOCI for our derivative instruments designated as cash flow hedges were as follows (in millions):

	Three months ended March 31,	
Derivatives in cash flow hedging relationships	**2019**	**2018**
Foreign currency contracts	$ 85	$ (89)
Cross-currency swap contracts	(55)	238
Total unrealized gains	$ 30	$ 149

The locations in the Condensed Consolidated Statements of Income and the gains and losses reclassified out of AOCI and into earnings for our derivative instruments designated as cash flow hedges were as follows (in millions):

		Three months ended March 31,	
Derivatives in cash flow hedging relationships	**Condensed Consolidated Statements of Income locations**	**2019**	**2018**
Foreign currency contracts	Product sales	$ 14	$ (34)
Cross-currency swap contracts	Interest and other income, net	(42)	164
Total realized (losses) gains		$ (28)	$ 130

No portions of our cash flow hedge contracts were excluded from the assessment of hedge effectiveness. As of March 31, 2019, we expected to reclassify $83 million of net losses on our foreign currency and cross-currency swap contracts out of AOCI and into earnings during the next 12 months.

Fair value hedges

To achieve a desired mix of fixed-rate and floating-rate debt, we entered into interest rate swap contracts that qualified for and were designated as fair value hedges. These interest rate swap contracts effectively convert fixed-rate coupons to floating-rate LIBOR-based coupons over the terms of the related hedge contracts. As of March 31, 2019 and December 31, 2018, we had interest rate swap contracts with aggregate notional amounts of $10.95 billion that hedge certain of our long-term debt issuances.

For interest rate swap contracts that qualify for and are designated as fair value hedges, we recognize in Interest expense, net, in the Condensed Consolidated Statements of Income the unrealized gain or loss on the derivative resulting from the change in fair value during the period, as well as the offsetting unrealized loss or gain of the hedged item resulting from the change in fair value during the period attributable to the hedged risk. If a hedging relationship involving an interest rate swap contract is terminated, the gain or loss realized on contract termination is recorded as an adjustment to the carrying value of the debt and amortized into Interest expense, net, over the remaining life of the previously hedged debt.

Net unrealized gains and losses on our outstanding interest rate swap contracts were as follows (in millions):

	Three months ended March 31,	
Derivatives in fair value hedging relationships	**2019**	**2018**
Net unrealized gains (losses) recognized on interest rate swap contracts	$ 133	$ (164)
Net unrealized (losses) gains recognized on related hedged debt	$ (133)	$ 164

The hedged liabilities and related cumulative-basis adjustments for fair value hedges of those liabilities were recorded in the Condensed Consolidated Balance Sheets as follows (in millions):

	Carrying amounts of hedged liabilities[1]		Cumulative amounts of fair value hedging adjustments related to the carrying amounts of the hedged liabilities[2]	
Condensed Consolidated Balance Sheets locations	March 31, 2019	December 31, 2018	March 31, 2019	December 31, 2018
Current portion of long-term debt	$ 1,398	$ 2,396	$ (2)	$ (3)
Long-term debt	$ 9,494	$ 9,361	$ 79	$ (50)

[1] Current portion of long-term debt includes $1.0 billion of carrying value with discontinued hedging relationships as of December 31, 2018. Long-term debt includes $137 million of carrying value with discontinued hedging relationships as of March 31, 2019 and December 31, 2018.

[2] Current portion of long-term debt includes $3 million of hedging adjustments on discontinued hedging relationships as of December 31, 2018. Long-term debt includes $37 million of hedging adjustments on discontinued hedging relationships as of March 31, 2019 and December 31, 2018.

The following table summarizes the amounts recorded in income and expense line items and the effects thereon from fair value and cash flow hedging, including discontinued hedging relationships (in millions):

	Three months ended March 31, 2019		
	Product sales	Interest and other income, net	Interest (expense), net
Total amounts recorded in income and (expense) line items presented in the Condensed Consolidated Statements of Income	$ 5,286	$ 185	$ (343)
The effects of cash flow and fair value hedging:			
Gains (losses) on cash flow hedging relationships reclassified out of AOCI:			
Foreign currency contracts	$ 14	$ —	$ —
Cross-currency swap contracts	$ —	$ (42)	$ —
Gains (losses) on fair value hedging relationships—interest rate swap agreements:			
Hedged items[1]	$ —	$ —	$ (130)
Derivatives designated as hedging instruments	$ —	$ —	$ 133

[1] The amounts include benefits of $3 million related to the amortization of the cumulative amount of fair value hedging adjustments included in the carrying amount of the hedged debt for discontinued hedging relationships for the three months ended March 31, 2019.

Derivatives not designated as hedges

To reduce our exposure to foreign currency fluctuations in certain assets and liabilities denominated in foreign currencies, we enter into foreign currency forward contracts that are not designated as hedging transactions. These exposures are hedged on a month-to-month basis. As of March 31, 2019 and December 31, 2018, the total notional amounts of these foreign currency forward contracts were $891 million and $737 million, respectively. Gains and losses recognized in earnings for our derivative instruments not designated as hedging instruments were not material for the three months ended March 31, 2019 and 2018.

The fair values of derivatives included in the Condensed Consolidated Balance Sheets were as follows (in millions):

	Derivative assets		Derivative liabilities	
March 31, 2019	**Condensed Consolidated Balance Sheets locations**	**Fair values**	**Condensed Consolidated Balance Sheets locations**	**Fair values**
Derivatives designated as hedging instruments:				
Foreign currency contracts	Other current assets/ Other assets	$ 238	Accrued liabilities/ Other noncurrent liabilities	$ 8
Cross-currency swap contracts	Other current assets/ Other assets	143	Accrued liabilities/ Other noncurrent liabilities	429
Interest rate swap contracts	Other current assets/ Other assets	94	Accrued liabilities/ Other noncurrent liabilities	54
Total derivatives designated as hedging instruments		475		491
Derivatives not designated as hedging instruments:				
Foreign currency contracts	Other current assets	—	Accrued liabilities	—
Total derivatives not designated as hedging instruments		—		—
Total derivatives		$ 475		$ 491

	Derivative assets		Derivative liabilities	
December 31, 2018	**Condensed Consolidated Balance Sheets locations**	**Fair values**	**Condensed Consolidated Balance Sheets locations**	**Fair values**
Derivatives designated as hedging instruments:				
Foreign currency contracts	Other current assets/ Other assets	$ 181	Accrued liabilities/ Other noncurrent liabilities	$ 26
Cross-currency swap contracts	Other current assets/ Other assets	170	Accrued liabilities/ Other noncurrent liabilities	401
Interest rate swap contracts	Other current assets/ Other assets	56	Accrued liabilities/ Other noncurrent liabilities	149
Total derivatives designated as hedging instruments		407		576
Derivatives not designated as hedging instruments:				
Foreign currency contracts	Other current assets	1	Accrued liabilities	—
Total derivatives not designated as hedging instruments		1		—
Total derivatives		$ 408		$ 576

Our derivative contracts that were in liability positions as of March 31, 2019, contain certain credit-risk-related contingent provisions that would be triggered if (i) we were to undergo a change in control and (ii) our or the surviving entity's creditworthiness deteriorates, which is generally defined as having either a credit rating that is below investment grade or a materially weaker creditworthiness after the change in control. If these events were to occur, the counterparties would have the right but not the obligation to close the contracts under early-termination provisions. In such circumstances, the counterparties could request immediate settlement of these contracts for amounts that approximate the then current fair values of the contracts. In addition, our derivative contracts are not subject to any type of master netting arrangement and amounts due either to or from a counterparty under the contracts may be offset against other amounts due either to or from the same counterparty only if an event of default or termination, as defined, were to occur.

The cash flow effects of our derivative contracts are included in Net cash provided by operating activities in the Condensed Consolidated Statements of Cash Flows.

13. Contingencies and commitments

Contingencies

In the ordinary course of business, we are involved in various legal proceedings, government investigations and other matters that are complex in nature and have outcomes that are difficult to predict. See our Annual Report on Form 10-K for the year ended December 31, 2018, Part I, Item 1A. Risk Factors—*Our business may be affected by litigation and government investigations.* We describe our legal proceedings and other matters that are significant or that we believe could become significant in this footnote.

We record accruals for loss contingencies to the extent that we conclude it is probable that a liability has been incurred and the amount of the related loss can be reasonably estimated. We evaluate, on a quarterly basis, developments in legal proceedings and other matters that could cause an increase or decrease in the amount of the liability that has been accrued previously.

Our legal proceedings involve various aspects of our business and a variety of claims, some of which present novel factual allegations and/or unique legal theories. In each of the matters described in this filing or in Note 20, Contingencies and commitments, to the consolidated financial statements in our Annual Report on Form 10-K for the year ended December 31, 2018, in which we could incur a liability, our opponents seek an award of a not-yet-quantified amount of damages or an amount that is not material. In addition, a number of the matters pending against us are at very early stages of the legal process, which in complex proceedings of the sort we face often extend for several years. As a result, none of the matters described in this filing or in Note 20, Contingencies and commitments, to the consolidated financial statements in our Annual Report on Form 10-K for the year ended December 31, 2018, in which we could incur a liability, have progressed sufficiently through discovery and/or the development of important factual information and legal issues to enable us to estimate a range of possible loss, if any, or such amounts are not material. While it is not possible to accurately predict or determine the eventual outcomes of these matters, an adverse determination in one or more of these matters currently pending could have a material adverse effect on our consolidated results of operations, financial position or cash flows.

Certain recent developments concerning our legal proceedings and other matters are discussed below:

Novartis Breach of Contract Action

On April 4, 2019, Amgen filed a lawsuit in the U.S. District Court for the Southern District of New York against Novartis Pharma AG (Novartis) seeking a declaratory judgment that Novartis materially breached two collaboration agreements related to the development and commercialization of Aimovig® (erenumab-aooe) due to Novartis' affiliate Sandoz Gmbh (Sandoz) entering into a contract manufacturing agreement with Alder BioPharmaceuticals, Inc. (Alder) related to eptinezumab, an expected direct competitor to Aimovig® and entrant in the calcitonin gene-related peptide (CGRP)-related migraine therapy market. Amgen seeks to terminate its collaboration agreements with Novartis and also seeks damages from Novartis for breach of contract and negligent misrepresentation.

Also on April 4, 2019, Novartis initiated a separate lawsuit against Amgen in the same court seeking declaratory judgment that Novartis, alternatively, did not materially breach the collaboration agreements or, even if it did breach the collaboration agreements, such breach was not material and has been cured, and that Amgen may not terminate the collaboration agreements. On April 8, 2019, Amgen answered Novartis' complaint and filed counterclaims seeking a declaratory judgment that Novartis materially breached the collaboration agreements due to its affiliate Sandoz entering into the contract manufacturing agreement with Alder. In its counterclaim, Amgen seeks to terminate its collaboration agreements with Novartis and also seeks damages from Novartis for breach of contract and negligent misrepresentation.

Sensipar® (cinacalcet) Litigation

Amgen Inc. v. Amneal Pharmaceuticals LLC, et al. (formerly, Amgen Inc. v. Aurobindo Pharma Ltd. et al.) ANDA Patent Litigation

On March 19, 2019, Amgen filed an emergency motion for an injunction pending appeal, seeking an order from the U.S. District Court for the District of Delaware (the Delaware District Court) enjoining defendant Piramal Healthcare UK Limited (Piramal) from making, using, selling, offering for sale or importing its generic cinacalcet product. Amgen's motion follows an announcement that Slate Run Pharmaceuticals LLC (Slate Run), in partnership with Piramal, had begun selling Piramal's generic cinacalcet product at risk notwithstanding the appeals pending at the U.S. Court of Appeals for the Federal Circuit (the Federal Circuit Court). On April 15, 2019, the Delaware District Court signed an order enjoining Piramal and Slate Run from selling their generic cinacalcet product until certain events occur related to a decision by the Federal Circuit Court on the parties' appeal. The order has no effect on the product that Piramal and Slate Run have already sold to third parties.

On March 21, 2019, defendants Sun Pharma Global FZE, Sun Pharmaceutical Industries, Ltd. and Sun Pharmaceutical Industries, Inc. (collectively, Sun) filed a motion to enforce the settlement agreement entered between Amgen and Sun, contending that Sun's generic cinacalcet product should not be held off the U.S. market.

On March 26, 2019, the Delaware District Court denied the joint motion for indicative ruling of Watson Laboratories, Inc. and Actavis Pharma, Inc. (collectively, Watson) and Amgen, which had asked the court to vacate its final judgment of noninfringement as to Watson and to enter a proposed consent judgment of infringement and validity of Amgen's U.S. Patent No. 9,375,405 and an injunction prohibiting the making, having made, using, selling, offering to sell or distributing Watson's generic cinacalcet product in the United States, or importing Watson's generic cinacalcet product into the United States, consistent with a confidential settlement agreement entered into by the parties. On April 10, 2019, Amgen filed an appeal to the Federal Circuit Court. On April 29, 2019, the Federal Circuit Court lifted the stay of Amgen's appeal of the judgment of noninfringement as to Watson and consolidated it with Amgen's appeal of the Delaware District Court's denial of the joint motion for indicative ruling.

Cipla Ltd. v. Amgen Inc.

On March 11, 2019, following an announcement by Cipla Limited and Cipla USA, Inc. (collectively, Cipla) that it had begun selling its generic cinacalcet product in the United States, Amgen filed in the Delaware District Court a counterclaim and related motion for preliminary injunction in Cipla's lawsuit seeking a declaration that provisions of its February 2018 settlement agreement with Amgen have been triggered by the at-risk launch of a generic cinacalcet product by Teva Pharmaceutical Industries Ltd. (Teva), an affiliate of Watson. Amgen's motion seeks to prohibit Cipla from making, having made, using, selling, offering to sell or distributing its generic cinacalcet product in breach of such settlement agreement. On April 2, 2019, the Delaware District Court held a hearing on Amgen's motion for preliminary injunction.

Sensipar® Antitrust Class Actions

From February 21, 2019, to April 10, 2019, four plaintiffs filed putative class action lawsuits against Amgen and various entities affiliated with Teva alleging anticompetitive conduct in connection with settlements between Amgen and manufacturers of generic cinacalcet product. Two of those actions were brought in the Delaware District Court, captioned *UFCW Local 1500 Welfare Fund v. Amgen Inc., et al.* (February 21, 2019) (Local 1500) and *Cesar Castillo, Inc. v. Amgen Inc., et al.* (February 26, 2019) (Castillo). The third action was brought in the U.S. District Court for the District of New Jersey (the New Jersey District Court), captioned *Teamsters Local 237 Welfare Fund, et al. v. Amgen Inc., et al.* (March 14, 2019) (Local 237) and the fourth action was brought in the U.S. District Court for the Eastern District of Pennsylvania (the Eastern Pennsylvania District Court), captioned *KPH Healthcare Services, Inc. a/k/a Kinney Drugs, Inc. v. Amgen Inc., et al* (April 10, 2019) (KPH). Each of the lawsuits is brought on behalf of a putative class of direct or indirect purchasers of Sensipar® and alleges that the plaintiffs have overpaid for Sensipar® as a result of Amgen's conduct that allegedly improperly delayed market entry by manufacturers of generic cinacalcet products. The lawsuits focus predominantly on the settlement among Amgen, Watson and Teva of the parties' patent infringement litigation. Each of the lawsuits seeks, among other things, treble damages, equitable relief and attorneys' fees and costs. On April 10, 2019, the plaintiff in the KPH lawsuit filed a motion seeking to have the four lawsuits consolidated and designated as a multidistrict litigation (MDL) in the Eastern Pennsylvania District Court, and the plaintiff in the Local 1500 lawsuit filed a motion seeking to have the four lawsuits, along with *Cipla Ltd. v. Amgen Inc.*, consolidated and designated as a MDL in the Delaware District Court.

Sanofi / Regeneron Repatha® (evolocumab) Patent Litigation

On February 25, 2019, a jury of the Delaware District Court unanimously upheld the validity of claims 7 and 15 of U.S. Patent No. 8,829,165 (the '165 Patent) and claim 7 of U.S. Patent No. 8,859,741 (the '741 Patent) in our infringement action against Sanofi, Sanofi-Aventis U.S. LLC and Aventisub LLC, formerly doing business as Aventis Pharmaceuticals Inc. (collectively, Sanofi) and Regeneron Pharmaceuticals, Inc. (Regeneron). The jury also found that claims 19 and 29 of the '165 Patent meet the enablement requirement, but are invalid for failure to meet the written description requirement. On March 18, 2019, Sanofi and Regeneron filed post-trial motions seeking to reverse judgment as a matter of law or for a new trial with respect to claims 7 and 15 of the '165 Patent and claim 7 of the '741 Patent, and Amgen filed a motion for a permanent injunction. The Delaware District Court has scheduled hearing dates on Amgen's motion for a permanent injunction for June 6, 13 and 21, 2019.

KYPROLIS® (carfilzomib) ANDA Patent Litigation

On March 4, 2019, the Delaware District Court entered an order on a stipulation between Onyx Therapeutics, Inc. and Breckenridge Pharmaceutical, Inc. (Breckenridge), providing that Breckenridge infringes the asserted claims of U.S. Patent Nos. 7,417,042; 7,737,112 and 8,207,125, and consolidated this lawsuit against Breckenridge into the existing consolidated case, *Onyx Therapeutics, Inc. v. Cipla Limited, et al.*, for all purposes. Trial in the consolidated case is scheduled to commence on May 6, 2019.

Bioepis ENBREL (etanercept) Patent Litigation

On April 30, 2019, Immunex Corporation and Amgen Manufacturing, Limited (collectively, Amgen), along with Hoffmann-La Roche Inc. (Roche), filed a lawsuit in the New Jersey District Court against Samsung Bioepis Co., Ltd. (Bioepis). This lawsuit stems from Bioepis's submission of an application for U.S. Food and Drug Administration (FDA) licensure of an etanercept product as biosimilar to Amgen's ENBREL. Amgen and Roche have asserted infringement of five patents: U.S. Patent Nos. 8,063,182 (the '182 Patent); 8,163,522 (the '522 Patent); 7,915,225 (the '225 Patent); 8,119,605 (the '605 Patent); and 8,722,631 (the '631 Patent). By their complaint, Amgen and Roche seek an injunction to prohibit Bioepis from commercializing its biosimilar etanercept product in the United States prior to the expiry of such patents.

NEUPOGEN® (filgrastim) / Neulasta® (pegfilgrastim) Patent Litigation

Apotex NEUPOGEN® / Neulasta® Patent Litigation

On April 5, 2019, the U.S. District Court for the Southern District of Florida (the Florida District Court) denied the motion of Apotex Inc. and Apotex Corporation (collectively, Apotex) to dismiss Amgen's complaint for failure to state a claim. On April 18, 2019, Apotex answered the complaint including counterclaims seeking declaratory judgments of noninfringement and invalidity.

Coherus Neulasta® Patent Litigation

A hearing on Amgen's Federal Circuit Court appeal of the final judgment dismissing Amgen's lawsuit against Coherus BioSciences, Inc. (Coherus) for infringement of Amgen's U.S. Patent No. 8,273,707 is scheduled for May 8, 2019.

As previously disclosed, we are also engaged in a separate lawsuit in the Ventura County Superior Court in which we have alleged that Coherus and others misappropriated our confidential information and trade secrets through the hiring of former Amgen employees and that the defendants have used such information to develop and market UDENYCA™, as biosimilar to Amgen's Neulasta®. On March 27, 2019, the Ventura County Superior Court ordered Howard Weiser dismissed from the lawsuit based on a joint request regarding settlement filed on behalf of Amgen and Mr. Weiser. Trial in the misappropriation and trade secret litigation began on April 22, 2019.

Pfizer NEUPOGEN® Patent Litigation

On March 22, 2019, Amgen filed an amended complaint against Pfizer Inc. and Hospira Inc. (collectively, Pfizer) in the Delaware District Court narrowing the patent claims at issue in the infringement dispute and adding a request for damages. On April 11, 2019, Pfizer answered Amgen's amended complaint including counterclaims seeking declaratory judgments of noninfringement and invalidity.

Sandoz NEUPOGEN® / Neulasta® Patent Litigation

On February 21, 2019, Sandoz Inc. (Sandoz) filed a new lawsuit in the U.S. District Court for the Northern District of California (the California Northern District Court) against Amgen Inc. and Amgen Manufacturing, Limited seeking a judgment of noninfringement and invalidity of the '997 Patent. The lawsuit stems from Sandoz filing applications under the Biologics Price Competition and Innovation Act for the FDA licensure of filgrastim and pegfilgrastim products as biosimilar to NEUPOGEN® and Neulasta®, respectively. On April 24, 2019, Amgen filed a motion to dismiss the lawsuit for failure to state a claim.

Patent Trial and Appeal Board Patent Challenges

On March 7, 2019, Kashiv Biosciences, LLC, formerly known as Adello Biologics, LLC (Kashiv), filed petitions seeking to institute inter partes review (IPR) proceedings before the U.S. Patent and Trademark Office's Patent Trial and Appeal Board (PTAB) to challenge the patentability of each claim of U.S. Patent Nos. 8,940,878 (the '878 Patent) and 9,643,997 (the '997 Patent). The '878 Patent is also among the patents at issue in the previously-disclosed litigation between Amgen Inc. and Amgen Manufacturing, Limited (collectively, Amgen) and Kashiv, Amneal Pharmaceuticals LLC, and Amneal Pharmaceuticals, Inc. (the Kashiv NEUPOGEN® litigation) and in the previously-disclosed litigations between Amgen and Sandoz Inc., Sandoz International GmbH and Sandoz GmbH (the Sandoz NEUPOGEN® litigation) and between Amgen and Sandoz Inc., Sandoz International GmbH, Sandoz GmbH and Lek Pharmaceuticals d.d. (the Sandoz Neulasta® litigation). The '997 Patent is also among the patents at issue in the Kashiv NEUPOGEN® litigation, the Pfizer NEUPOGEN® Patent Litigation, the new Sandoz NEUPOGEN® / Neulasta® Patent Litigation and the previously-disclosed litigation between Amgen and Mylan Inc., Mylan Pharmaceuticals Inc., Mylan GmbH, and Mylan N.V. The deadline for Amgen to file a preliminary response to these IPR petitions is June 14, 2019, after which the PTAB will have three months to render a decision regarding whether to institute PTAB trial proceedings on the '878 and '997 Patents.

In a separate challenge, on April 14, 2019, Fresenius Kabi USA, LLC and Fresenius Kabi SwissBiosim GmbH filed a petition seeking to institute IPR proceedings before the PTAB to challenge the patentability of U.S. Patent No. 9,856,287 (the '287 Patent). The '287 Patent is also the subject of the Apotex NEUPOGEN® / Neulasta® Patent Litigation and is among the patents at issue in the Kashiv NEUPOGEN® litigation. The patent owner preliminary response to the IPR petition is due July 17, 2019, after which the PTAB will have three months to render a decision regarding whether to institute PTAB trial proceedings on the '287 Patent.

In a separate challenge, on April 19, 2019, the PTAB granted Apotex and Kashiv's previously-disclosed petition to institute post grant review proceedings on the '287 Patent, challenging claims of the '287 Patent as unpatentable. Amgen's response to the petition is due July 11, 2019.

AMJEVITA™ (adalimumab-atto) / AMGEVITA™ Patent Litigation

On April 18, 2019, Amgen responded to the lawsuit filed by Coherus, denying patent infringement and seeking judgment that the patents-in-suit are invalid, unenforceable and/or not infringed by Amgen.

MVASI™ (bevacizumab-awwb) Patent Litigation

On March 29, 2019, Genentech, Inc. (Genentech) and City of Hope filed a third lawsuit against Amgen in the Delaware District Court alleging infringement of 14 patents. All but 2 of the 14 patents asserted in this lawsuit have already been the subject of litigation pending among these parties in this court relating to Amgen's submission of the application that led to the FDA licensure of MVASI™ as biosimilar to Genentech's Avastin® (bevacizumab). Among other remedies, Genentech and City of Hope are seeking injunctive relief.

Humira® Biosimilar Antitrust Class Actions

From March 18, 2019, to April 19, 2019, ten purported class actions against Amgen, along with AbbVie Inc. and AbbVie Biotechnology Ltd. (collectively, AbbVie), were filed in the U.S. District Court for the Northern District of Illinois. The cases are captioned: *UFCW Local 1500 Welfare Fund v. AbbVie Inc., et al.* (March 18, 2019) (Local 1500); *Fraternal Order of Police, Miami Lodge 20, Insurance Trust Fund v. AbbVie Inc., et al.* (March 20, 2019); *Mayor and City Council of Baltimore v. AbbVie Inc., et al.* (March 22, 2019); *Pipe Trades Services MN Welfare Fund v. AbbVie Inc., et al.* (March 29, 2019); *St. Paul Electrical Workers' Health Plan v. AbbVie Inc., et al.* (March 29, 2019); *Welfare Plan of the International Union of Operating Engineers Locals 137, 137A, 137B, 137C, and 137R v. AbbVie Inc., et al.* (April 1, 2019); *Law Enforcement Health Benefits, Inc. v. AbbVie, Inc., et al.* (April 9, 2019) (Law Enforcement); *Kentucky Laborers District Council Health and Welfare Fund v. AbbVie, Inc., et al.* (April 16, 2019); *Sheet Metal Workers' Local Union No. 28 Welfare Fund v. AbbVie, Inc., et al.* (April 19, 2019) (Sheet Metal Workers'); and *Locals 302 & 612 of The International Union of Operating Engineers-Employers Construction Industry Health And Security Trust Fund v. AbbVie Inc., et al.* (April 25, 2019) (Construction Industry) (collectively, Humira® Antitrust Class Actions). In each of the Humira® Antitrust Class Actions, the plaintiffs bring federal antitrust claims along with various state law claims under state common law and state antitrust, consumer protection, and unfair competition statutes. In each case, the plaintiffs specifically allege that AbbVie has unlawfully monopolized the alleged market for Humira® and biosimilars of Humira®, including by creating an allegedly unlawful so-called patent thicket around Humira®. In the Local 1500, Sheet Metal Workers' and Construction Industry cases, the plaintiffs further allege that AbbVie entered into allegedly unlawful market division agreements with Amgen and other companies that had developed Humira® biosimilars, including Samsung Bioepis Co., Ltd., Mylan Inc., Mylan Pharmaceuticals, Inc., Sandoz, Inc., Fresenius Kabi USA, LLC, Pfizer Inc. and Momenta Pharmaceuticals, Inc., in connection with the settlement of patent litigation relating to Humira®, whereby Amgen and the other defendants that have developed Humira® biosimilars were permitted to market those products in Europe as early as October 2018, while remaining off the market in the United States until 2023. In each of the Humira® Antitrust Class Actions other than the Local 1500 and Construction Industry cases, the plaintiffs allege that AbbVie and Amgen entered into an allegedly unlawful settlement agreement under which Amgen allegedly agreed to delay its entry into the U.S. market with AMGEVITA™, its Humira® biosimilar, in exchange for an alleged promise of exclusivity as the sole Humira® biosimilar in that market for five months, beginning in January 2023. In each of the Humira® Antitrust Class Actions, plaintiffs seek injunctive relief, treble damages and attorney's fees on behalf of a putative class of third-party payers and/or consumers that have indirectly purchased, paid for or provided reimbursement for Humira® in the United States. Defendants' responses to the first six complaints were stayed by the court and a status hearing is set for May 2, 2019.

U.S. Attorney's Office for the District of Massachusetts-Patient Assistance Investigation

On April 25, 2019, Amgen, the U.S. Department of Justice and the Office of Inspector General (OIG) of the U.S. Department of Health and Human Services entered into a settlement agreement. Under that agreement, Amgen agreed to pay $24.75 million to resolve the government's allegations relating to Amgen's support of independent charitable organizations that provide patients with financial assistance to access their medicines. Additionally, Amgen and OIG entered into a Corporate Integrity Agreement that requires Amgen to maintain its corporate compliance program and to undertake a set of defined corporate integrity obligations for a period of five years.

Item 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following Management's Discussion and Analysis of Financial Condition and Results of Operations (MD&A) is intended to assist the reader in understanding Amgen's business. MD&A is provided as a supplement to and should be read in conjunction with our Annual Report on Form 10-K for the year ended December 31, 2018. Our results of operations discussed in MD&A are presented in conformity with GAAP. Amgen operates in one business segment: human therapeutics. Therefore, our results of operations are discussed on a consolidated basis.

Forward-looking statements

This report and other documents we file with the Securities and Exchange Commission (SEC) contain forward-looking statements that are based on current expectations, estimates, forecasts and projections about us, our future performance, our business, our beliefs and our management's assumptions. In addition, we, or others on our behalf, may make forward-looking statements in press releases, written statements or our communications and discussions with investors and analysts in the normal course of business through meetings, webcasts, phone calls and conference calls. Such words as "expect," "anticipate," "outlook," "could," "target," "project," "intend," "plan," "believe," "seek," "estimate," "should," "may," "assume" and "continue" as well as variations of such words and similar expressions are intended to identify such forward-looking statements. These statements are not guarantees of future performance and they involve certain risks, uncertainties and assumptions that are difficult to predict. We describe our respective risks, uncertainties and assumptions that could affect the outcome or results of operations in Part I, Item 1A. Risk Factors of our Annual Report on Form 10-K for the year ended December 31, 2018. We have based our forward-looking statements on our management's beliefs and assumptions based on information available to our management at the time the statements are made. We caution you that actual outcomes and results may differ materially from what is expressed, implied or forecasted by our forward-looking statements. Reference is made in particular to forward-looking statements regarding product sales, regulatory activities, clinical trial results, reimbursement, expenses, EPS, liquidity and capital resources, trends, planned dividends, stock repurchases and restructuring plans. Except as required under the federal securities laws and the rules and regulations of the SEC, we do not have any intention or obligation to update publicly any forward-looking statements after the distribution of this report, whether as a result of new information, future events, changes in assumptions or otherwise.

Overview

Amgen is a highly focused biotechnology company committed to unlocking the potential of biology for patients suffering from serious illness. A biotechnology pioneer since 1980, Amgen has grown to be one of the world's leading independent biotechnology companies, has reached millions of patients around the world and is developing a pipeline of medicines with breakaway potential.

Our principal products—those with the most significant annual commercial sales—are ENBREL, Neulasta®, Prolia®, XGEVA®, Aranesp®, KYPROLIS®, EPOGEN® and Sensipar®/Mimpara®. We also market a number of other products, including Nplate® (romiplostim), Vectibix® (panitumumab), Repatha®, Parsabiv® (etelcalcetide), NEUPOGEN®, BLINCYTO® (blinatumomab), Aimovig®, AMGEVITA™, KANJINTI™ (biosimilar trastuzumab), EVENITY™ (romosozumab-aqqg), Corlanor® (ivabradine) and IMLYGIC® (talimogene laherparepvec).

Significant developments

Following is a summary of selected significant developments affecting our business that have occurred since the filing of our Annual Report on Form 10-K for the year ended December 31, 2018. For additional developments or for a more comprehensive discussion of certain developments discussed below, see our Annual Report on Form 10-K for the year ended December 31, 2018.

Products/Pipeline

Cardiovascular

Repatha®

- In February 2019, we announced that a jury unanimously upheld the validity of two of our patents related to Proprotein Convertase Subtilisin/Kexin Type 9 (PCSK9) antibodies in our infringement action against Sanofi, Sanofi-Aventis U.S. LLC, Aventisub LLC and Regeneron Pharmaceuticals, Inc. See Note 13, Contingencies and commitments, to the condensed consolidated financial statements.

Bone health

EVENITY™

- In April 2019, we and UCB, our global collaboration partner in the development of EVENITY™, announced that the FDA approved EVENITY™ for the treatment of osteoporosis in postmenopausal women at high risk for fracture.

Selected financial information

The following is an overview of our results of operations (in millions, except percentages and per-share data):

	Three months ended March 31,		
	2019	2018	Change
Product sales			
U.S.	$ 3,991	$ 4,147	(4)%
ROW	1,295	1,196	8 %
Total product sales	5,286	5,343	(1)%
Other revenues	271	211	28 %
Total revenues	$ 5,557	$ 5,554	— %
Operating expenses	$ 3,085	$ 2,828	9 %
Operating income	$ 2,472	$ 2,726	(9)%
Net income	$ 1,992	$ 2,311	(14)%
Diluted EPS	$ 3.18	$ 3.25	(2)%
Diluted shares	626	711	(12)%

In the following discussion of changes in product sales, any reference to unit demand growth or decline refers to changes in the purchases of our products by healthcare providers (such as physicians or their clinics), dialysis centers, hospitals and pharmacies. In addition, any reference to increases or decreases in inventory refers to changes in inventory held by wholesaler customers and end users (such as pharmacies).

Total product sales decreased for the three months ended March 31, 2019, driven primarily by a decline in net selling price and unfavorable changes in inventory, offset partially by higher unit demand. In 2019, we expect a lower net selling price compared with 2018.

Other revenues increased for the three months ended March 31, 2019, driven primarily by higher royalties.

Operating expenses increased for the three months ended March 31, 2019, driven primarily by higher Cost of sales and R&D expense.

Although changes in foreign currency exchange rates result in increases or decreases in our reported international product sales, the benefit or detriment that such movements have on our international product sales is offset partially by corresponding increases or decreases in our international operating expenses and our related foreign currency hedging activities. Our hedging activities seek to offset the impacts, both positive and negative, that foreign currency exchange rate changes may have on our net income by hedging our net foreign currency exposure, primarily with respect to product sales denominated in euros. The net impact from changes in foreign currency exchange rates was not material for the three months ended March 31, 2019 and 2018.

Results of operations

Product sales

Worldwide product sales were as follows (dollar amounts in millions):

	Three months ended March 31,		
	2019	2018	Change
ENBREL	$ 1,151	$ 1,105	4 %
Neulasta®	1,021	1,155	(12)%
Prolia®	592	494	20 %
XGEVA®	471	445	6 %
Aranesp®	414	454	(9)%
KYPROLIS®	245	222	10 %
EPOGEN®	219	244	(10)%
Sensipar®/Mimpara®	213	497	(57)%
Other products	960	727	32 %
Total product sales	$ 5,286	$ 5,343	(1)%

Future sales of our products will depend, in part, on the factors discussed below and in the following sections of our Annual Report on Form 10-K for the year ended December 31, 2018: (i) Item 1. Business—Marketing, Distribution and Selected Marketed Products, (ii) Item 1A. Risk Factors and (iii) Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations—Overview, and Results of Operations—Product Sales.

ENBREL

Total ENBREL sales by geographic region were as follows (dollar amounts in millions):

	Three months ended March 31,		
	2019	2018	Change
ENBREL — U.S.	$ 1,106	$ 1,050	5 %
ENBREL — Canada	45	55	(18)%
Total ENBREL	$ 1,151	$ 1,105	4 %

The increase in ENBREL sales for the three months ended March 31, 2019, was driven primarily by favorable impacts from changes in accounting estimates of sales deductions and product returns and a slight increase in net selling price, offset partially by unfavorable changes in inventory.

In 2019, we expect lower unit demand compared with 2018.

In April 2019, the FDA approved a second biosimilar version of ENBREL. Other companies are also developing proposed biosimilar versions of ENBREL. Further, we are involved in patent litigations with the two companies seeking to market their FDA-approved biosimilar versions of ENBREL. See Note 13, Contingencies and commitments, to the condensed consolidated financial statements and Note 20, Contingencies and commitments, to the consolidated financial statements in our Annual Report on Form 10-K for the year ended December 31, 2018. These companies may seek to enter the U.S. market if we are not successful in our litigations, or even earlier.

Neulasta®

Total Neulasta® sales by geographic region were as follows (dollar amounts in millions):

	Three months ended March 31,		
	2019	2018	Change
Neulasta®— U.S.	$ 893	$ 1,009	(11)%
Neulasta®— ROW	128	146	(12)%
Total Neulasta®	$ 1,021	$ 1,155	(12)%

The decrease in global Neulasta® sales for the three months ended March 31, 2019, was driven primarily by lower net selling price and, to a lesser extent, changes in inventory. Neulasta® sales in 2019 included a $98 million order from the U.S. government.

Our final material U.S. patent for Neulasta® expired in October 2015. Therefore, we face increased competition in the United States, which has had and will continue to have a material adverse impact on sales of Neulasta®. Biosimilar versions of Neulasta® have been approved and launched and other biosimilar versions may also receive approval in the near future. For a discussion of ongoing patent litigations with these and other companies that are developing proposed biosimilar versions of Neulasta®, see Note 13, Contingencies and commitments, to the condensed consolidated financial statements and Note 20, Contingencies and commitments, to the consolidated financial statements in our Annual Report on Form 10-K for the year ended December 31, 2018.

In addition, supplementary protection certificates issued by certain countries, including France, Germany, Italy, Spain and the United Kingdom, that are related to our European patent for Neulasta® expired in August 2017. In 2019, we expect European sales to decline with the launch of multiple long-acting biosimilar competitors.

Neulasta® sales have been and will continue to be affected by the development of new protocols, tests and/or treatments for cancer and/or new treatment alternatives, including those that have reduced and may continue to reduce the use of myelosuppressive regimens in some patients.

Prolia®

Total Prolia® sales by geographic region were as follows (dollar amounts in millions):

	Three months ended March 31,		
	2019	2018	Change
Prolia® — U.S.	$ 390	$ 320	22%
Prolia® — ROW	202	174	16%
Total Prolia®	$ 592	$ 494	20%

The increase in global Prolia® sales for the three months ended March 31, 2019, was driven primarily by higher unit demand. Prolia®, which has a six-month dosing interval, has exhibited a historical sales pattern, with the first and third quarters of a year representing lower sales than the second and fourth quarters of a year.

XGEVA®

Total XGEVA® sales by geographic region were as follows (dollar amounts in millions):

	Three months ended March 31,		
	2019	2018	Change
XGEVA® — U.S.	$ 356	$ 332	7%
XGEVA® — ROW	115	113	2%
Total XGEVA®	$ 471	$ 445	6%

The increase in global XGEVA® sales for the three months ended March 31, 2019, was driven primarily by higher unit demand.

Aranesp®

Total Aranesp® sales by geographic region were as follows (dollar amounts in millions):

	Three months ended March 31,		
	2019	2018	Change
Aranesp® — U.S.	$ 182	$ 225	(19)%
Aranesp® — ROW	232	229	1 %
Total Aranesp®	$ 414	$ 454	(9)%

The decrease in global Aranesp® sales for the three months ended March 31, 2019, was driven primarily by the impact of competition on unit demand.

Aranesp® faces competition from a long-acting product. Aranesp® also faces competition from a biosimilar version of EPOGEN®, which was approved in the second quarter of 2018 and launched in the fourth quarter of 2018. Other biosimilar versions of EPOGEN ® may also receive approval. In 2019, we expect sales in the United States to decline at a faster rate than in 2018 due to short- and long- acting competition.

KYPROLIS®

Total KYPROLIS® sales by geographic region were as follows (dollar amounts in millions):

	Three months ended March 31,		
	2019	2018	Change
KYPROLIS® — U.S.	$ 154	$ 137	12%
KYPROLIS® — ROW	91	85	7%
Total KYPROLIS®	$ 245	$ 222	10%

The increase in global KYPROLIS® sales for the three months ended March 31, 2019, was driven primarily by higher unit demand.

We are engaged in litigation with a number of companies challenging our material patents relating to KYPROLIS® and seeking to market generic carfilzomib products, one of which has been tentatively approved by the FDA. See Note 13, Contingencies and commitments, to the condensed consolidated financial statements. These companies may seek to enter the U.S. market at risk as soon as their products are approved by the FDA, which could occur following the expiry of the stay of regulatory approval under the Hatch-Waxman Act that currently prevents the FDA from granting final approval before January 2020.

EPOGEN®

Total EPOGEN® sales were as follows (dollar amounts in millions):

	Three months ended March 31,		
	2019	2018	Change
EPOGEN® — U.S.	$ 219	$ 244	(10)%

The decrease in EPOGEN® sales for the three months ended March 31, 2019, was driven primarily by a decline in net selling price due to our contract with DaVita Inc. In 2019, we expect a lower net selling price compared with 2018.

Our final material U.S. patent for EPOGEN® expired in May 2015. We face competition in the United States, which has had and will continue to have a material adverse impact on sales of EPOGEN®. Multiple companies are developing proposed biosimilar versions of EPOGEN®. A biosimilar version of EPOGEN® was approved in the second quarter of 2018 and launched in the fourth quarter of 2018. Other biosimilar versions of EPOGEN® may also receive approval. For a discussion of ongoing patent litigation with one of these companies, see Note 20, Contingencies and commitments, to the consolidated financial statements in our Annual Report on Form 10-K for the year ended December 31, 2018.

Sensipar®/Mimpara®

Total Sensipar®/Mimpara® sales by geographic region were as follows (dollar amounts in millions):

	Three months ended March 31,		
	2019	2018	Change
Sensipar® — U.S.	$ 135	$ 409	(67)%
Sensipar®/Mimpara® — ROW	78	88	(11)%
Total Sensipar®/Mimpara®	$ 213	$ 497	(57)%

The decrease in global Sensipar®/Mimpara® sales for the three months ended March 31, 2019, was driven primarily by the impact of at-risk launches by generic competitors and, to a lesser extent, changes in inventory.

Our U.S. composition-of-matter patent related to Sensipar®, a small molecule, expired in March 2018. We are involved in litigation with a number of companies seeking to market generic cinacalcet products surrounding our U.S. formulation patent that expires in September 2026. See Note 13, Contingencies and commitments, to the condensed consolidated financial statements. Certain manufacturers of generics began selling their products in the United States in late 2018 and early 2019, and some of this generic product remains commercially available in the United States from third-party distributors. We believe our product sales for Sensipar® have already been and may continue to be adversely impacted as a result of generic product sales in the U.S. market.

In 2019, we expect Sensipar® sales will be lower than in 2018 due to existing and potential future generic-market entries, continued adoption of Parsabiv® and higher purchases in 2018 due to the reimbursement change from Medicare Part D to Part B.

Other products

Other product sales by geographic region were as follows (dollar amounts in millions):

	Three months ended March 31,		
	2019	2018	Change
Nplate®— U.S.	$ 114	$ 112	2 %
Nplate®— ROW	75	67	12 %
Vectibix®— U.S.	78	75	4 %
Vectibix®— ROW	92	94	(2)%
Repatha®— U.S.	83	84	(1)%
Repatha®— ROW	58	39	49 %
Parsabiv® — U.S.	109	36	*
Parsabiv® — ROW	17	5	*
NEUPOGEN®— U.S.	50	65	(23)%
NEUPOGEN®— ROW	23	38	(39)%
BLINCYTO® — U.S.	40	30	33 %
BLINCYTO® — ROW	29	19	53 %
Aimovig® — U.S.	59	—	*
Biosimilars — ROW	55	—	*
Other — U.S.	23	19	21 %
Other — ROW	55	44	25 %
Total other products	$ 960	$ 727	32 %
Total U.S. — other products	$ 556	$ 421	32 %
Total ROW — other products	404	306	32 %
Total other products	$ 960	$ 727	32 %

* Change in excess of 100%.

Operating expenses

Operating expenses were as follows (dollar amounts in millions):

	Three months ended March 31,		
	2019	2018	Change
Operating expenses:			
Cost of sales	$ 1,055	$ 944	12%
% of product sales	20.0%	17.7%	
% of total revenues	19.0%	17.0%	
Research and development	$ 879	$ 760	16%
% of product sales	16.6%	14.2%	
% of total revenues	15.8%	13.7%	
Selling, general and administrative	$ 1,154	$ 1,127	2%
% of product sales	21.8%	21.1%	
% of total revenues	20.8%	20.3%	
Other	$ (3)	$ (3)	—%

Cost of sales

Cost of sales increased to 19.0% of total revenues for the three months ended March 31, 2019, driven primarily by unfavorable product mix and higher manufacturing costs, offset partially by lower royalty costs. In 2019, product mix will continue to negatively impact cost of sales.

Research and development

The increase in R&D expense for the three months ended March 31, 2019, was driven primarily by increased spending in research and early pipeline in support of our oncology programs, as changes in late-stage programs and marketed products were not significant.

Selling, general and administrative

The increase in Selling, general and administrative expenses for the three months ended March 31, 2019, was driven primarily by investments in launch products.

Other

Other operating expenses for the three months ended March 31, 2019 and 2018, remained flat and included changes in the fair values of contingent consideration and certain net charges related to our restructuring plan.

Nonoperating expense/income and income taxes

Nonoperating expense/income and income taxes were as follows (dollar amounts in millions):

	Three months ended March 31,	
	2019	2018
Interest expense, net	$ 343	$ 338
Interest and other income, net	$ 185	$ 231
Provision for income taxes	$ 322	$ 308
Effective tax rate	13.9%	11.8%

Interest expense, net

The increase in Interest expense, net, for the three months ended March 31, 2019, was due primarily to the impact of rising interest rates on variable-rate debt, offset by a reduction in average debt outstanding.

Interest and other income, net

The decrease in Interest and other income, net, for the three months ended March 31, 2019 was due primarily to the net gain recognized in connection with our acquisition of Kirin-Amgen, Inc., during the three months ended March 31, 2018 as well as reduced interest income as a result of lower average cash and marketable securities balances, offset partially by lower losses on sales of investments.

Income taxes

The increase in our effective tax rate for the three months ended March 31, 2019, was due primarily to a prior-year tax benefit associated with intercompany sales under U.S. corporate tax reform.

As previously disclosed, we received a RAR from the IRS for the years 2010, 2011 and 2012. The RAR proposes to make significant adjustments that relate primarily to the allocation of profits between certain of our entities in the United States and the U.S. territory of Puerto Rico. In November 2017, we received a modified RAR that revised the IRS's calculation but continued to propose substantial adjustments. We disagree with the proposed adjustments and are pursuing resolution with the IRS administrative appeals office, which currently has jurisdiction over the matter. If we deem necessary, we will vigorously contest the proposed adjustments through the judicial process. Final resolution of this complex matter is not likely within the next 12 months and could have a material impact on our condensed consolidated financial statements. We believe our accrual for income tax liabilities is appropriate based on past experience, interpretations of tax law, and judgments about potential actions by tax authorities; however, due to the complexity of the provision for income taxes, the ultimate resolution of any tax matters may result in payments greater or less than amounts accrued.

See Note 3, Income taxes, to the condensed consolidated financial statements for further discussion.

Financial condition, liquidity and capital resources

Selected financial data was as follows (in millions):

	March 31, 2019	December 31, 2018
Cash, cash equivalents and marketable securities	$ 26,301	$ 29,304
Total assets	$ 63,997	$ 66,416
Current portion of long-term debt	$ 3,705	$ 4,419
Long-term debt	$ 29,319	$ 29,510
Stockholders' equity	$ 10,832	$ 12,500

Cash, cash equivalents and marketable securities

We have global access to our $26.3 billion balance of cash, cash equivalents and marketable securities, as we no longer reinvest the related undistributed foreign earnings indefinitely outside the United States. As a result of U.S. corporate tax reform in 2017, we recorded a repatriation tax liability on undistributed earnings generated from operations in foreign tax jurisdictions, which will be paid over eight years. The first two annual payments were made in April 2018 and April 2019, and the remaining scheduled payments total $6.2 billion.

The primary objective of our investment portfolio is to enhance overall returns in an efficient manner while maintaining safety of principal, prudent levels of liquidity and acceptable levels of risk. Our investment policy limits interest-bearing security investments to certain types of debt and money market instruments issued by institutions with primarily investment-grade credit ratings, and it places restrictions on maturities and concentration by asset class and issuer.

Capital allocation

Consistent with the objective to optimize our capital structure, we seek to deploy our accumulated cash balances in an efficient manner, and we consider several alternatives such as payment of dividends, stock repurchases, repayment of debt and strategic transactions that expand our portfolio of products in areas of therapeutic interest.

We intend to continue to invest in our business while returning capital to stockholders through the payment of cash dividends and stock repurchases reflecting our confidence in the future cash flows of our business. The timing and amount of future dividends and stock repurchases will vary based on a number of factors, including future capital requirements for strategic transactions, availability of financing on acceptable terms, debt service requirements, our credit rating, changes to applicable tax laws or corporate laws, changes to our business model and periodic determination by our Board of Directors that cash dividends and/or

stock repurchases are in the best interests of stockholders and are in compliance with applicable laws and the Company's agreements. In addition, the timing and amount of stock repurchases may also be affected by stock price and blackout periods, during which we are restricted from repurchasing stock. The manner of stock repurchases may include private block purchases, tender offers and market transactions.

In December 2018, the Board of Directors declared a quarterly cash dividend of $1.45 per share of common stock, an increase of 10% from the cash dividend paid in each of the previous four quarters, which was paid on March 8, 2019. In March 2019, the Board of Directors declared a quarterly cash dividend of $1.45 per share of common stock, which will be paid on June 7, 2019.

We have also returned capital to stockholders through our stock repurchase program. During the three months ended March 31, 2019, we repurchased $3.0 billion of common stock. As of March 31, 2019, $2.1 billion of authority remained available under our stock repurchase program.

As a result of stock repurchases and quarterly dividend payments, we have an accumulated deficit as of March 31, 2019 and December 31, 2018. Our accumulated deficit is not expected to affect our future ability to operate, repurchase stock, pay dividends or repay our debt given our continuing profitability and strong financial position.

We believe that existing funds, cash generated from operations and existing sources of and access to financing are adequate to satisfy our needs for working capital; capital expenditure and debt service requirements; our plans to pay dividends and repurchase stock; and other business initiatives we plan to strategically pursue, including acquisitions and licensing activities. We anticipate that our liquidity needs can be met through a variety of sources, including cash provided by operating activities, sales of marketable securities, borrowings through commercial paper and/or syndicated credit facilities and access to other domestic and foreign debt markets and equity markets. See our Annual Report on Form 10-K for the year ended December 31, 2018, Part I, Item 1A. Risk Factors—*Global economic conditions may negatively affect us and may magnify certain risks that affect our business*.

Certain of our financing arrangements contain nonfinancial covenants. In addition, our revolving credit agreement includes a financial covenant, which requires that we maintain a specified minimum interest coverage ratio of (i) the sum of consolidated net income, interest expense, provision for income taxes, depreciation expense, amortization expense, unusual or nonrecurring charges and other noncash items (Consolidated EBITDA) to (ii) Consolidated Interest Expense, each as defined and described in the credit agreement. We were in compliance with all applicable covenants under these arrangements as of March 31, 2019.

Cash flows

Our summarized cash flow activity was as follows (in millions):

	Three months ended March 31,	
	2019	**2018**
Net cash provided by operating activities	$ 1,845	$ 2,727
Net cash provided by investing activities	$ 3,555	$ 14,906
Net cash used in financing activities	$ (4,987)	$ (11,692)

Operating

Cash provided by operating activities has been and is expected to continue to be our primary recurring source of funds. Cash provided by operating activities during the three months ended March 31, 2019, decreased compared with the same period in the prior year due primarily to an increase in sales deductions paid to customers and lower net income.

Investing

Cash provided by investing activities during the three months ended March 31, 2019 and 2018, was due primarily to net cash inflows related to marketable securities of $3.7 billion and $14.9 billion, respectively. Higher cash inflows in the prior year reflects the cash to fund a $10.0 billion tender offer completed in 2018 to repurchase our common stock. Capital expenditures, which were associated primarily with site development costs, including our Thousand Oaks, California, campus, as well as the next-generation biomanufacturing facility in Rhode Island and life cycle investments across the manufacturing network during the three months ended March 31, 2019 and 2018, were $116 million and $155 million, respectively. We currently estimate 2019 spending on capital projects to be approximately $700 million.

Financing

Cash used in financing activities during the three months ended March 31, 2019, was due primarily to repurchases of our common stock of $3.0 billion, repayment of debt of $1.0 billion and the payment of dividends of $0.9 billion. Cash used in financing activities during the three months ended March 31, 2018, was due primarily to repurchases of our common stock of $10.7 billion and the payment of dividends of $1.0 billion. See Note 9, Financing arrangements, and Note 10, Stockholders' equity, to the condensed consolidated financial statements for further discussion.

Critical accounting policies

The preparation of our condensed consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts reported in the financial statements and the notes to the financial statements. Some of those judgments can be subjective and complex, and therefore, actual results could differ materially from those estimates under different assumptions or conditions. A summary of our critical accounting policies is presented in Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations, of our Annual Report on Form 10-K for the year ended December 31, 2018. There were no material changes to our critical accounting policies during the three months ended March 31, 2019.

Item 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Information about our market risk is disclosed in Part II, Item 7A. Quantitative and Qualitative Disclosures About Market Risk, of our Annual Report on Form 10-K for the year ended December 31, 2018, and is incorporated herein by reference. There have been no material changes during the three months ended March 31, 2019, to the information provided in Part II, Item 7A. Quantitative and Qualitative Disclosures About Market Risk, of our Annual Report on Form 10-K for the year ended December 31, 2018.

Item 4. CONTROLS AND PROCEDURES

We maintain "disclosure controls and procedures," as such term is defined under the Securities Exchange Act Rule 13a-15(e), that are designed to ensure that information required to be disclosed in Amgen's Exchange Act reports is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to Amgen's management, including its Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosures. In designing and evaluating the disclosure controls and procedures, Amgen's 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, in reaching a reasonable level of assurance, Amgen's management necessarily was required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures. We have carried out an evaluation under the supervision and with the participation of our management, including Amgen's Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of Amgen's disclosure controls and procedures. Based upon their evaluation and subject to the foregoing, the Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of March 31, 2019.

Management determined that, as of March 31, 2019, there were no changes in our internal control over financial reporting that occurred during the fiscal quarter then ended that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II — OTHER INFORMATION

Item 1. LEGAL PROCEEDINGS

See Note 13, Contingencies and commitments, to the condensed consolidated financial statements included in our Quarterly Report on Form 10-Q for the period ended March 31, 2019, for discussions that are limited to certain recent developments concerning our legal proceedings. Those discussions should be read in conjunction with Note 20, Contingencies and commitments, to the consolidated financial statements in Part IV of our Annual Report on Form 10-K for the year ended December 31, 2018.

Item 1A. RISK FACTORS

This report and other documents we file with the SEC contain forward-looking statements that are based on current expectations, estimates, forecasts and projections about us, our future performance, our business, our beliefs and our management's assumptions. These statements are not guarantees of future performance, and involve certain risks, uncertainties and assumptions that are difficult to predict. You should carefully consider the risks and uncertainties our business faces. We have described in our Annual Report on Form 10-K for the year ended December 31, 2018, the primary risks related to our business, and we periodically update those risks for material developments. Those risks are not the only ones we face. Our business is also subject to the risks that affect many other companies, such as employment relations, general economic conditions, geopolitical events and international operations. Further, additional risks not currently known to us or that we currently believe are immaterial may in the future materially and adversely affect our business, operations, liquidity and stock price.

There are no material updates from the risk factors previously disclosed in Part I, Item 1A, of our Annual Report on Form 10-K for the year ended December 31, 2018.

Item 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS

During the three months ended March 31, 2019, we had one outstanding stock repurchase program, under which the repurchase activity was as follows:

Period	Total number of shares purchased	Average price paid per share [1]	Total number of shares purchased as part of publicly announced program	Maximum dollar value that may yet be purchased under the program[2]
January 1 - 31	6,172,485	$ 196.80	6,172,485	$ 3,899,713,218
February 1 - 28	4,566,600	$ 187.66	4,566,600	$ 3,042,730,429
March 1 - 31	5,116,400	$ 187.58	5,116,400	$ 2,082,993,130
Total	15,855,485	$ 191.19	15,855,485	

[1] Average price paid per share includes related expenses.

[2] In December 2018, our Board of Directors increased the amount authorized under our stock repurchase program by an additional $3.6 billion.

Item 6. EXHIBITS

Reference is made to the Index to Exhibits included herein.

INDEX TO EXHIBITS

Exhibit No.	Description
3.1	Restated Certificate of Incorporation of Amgen Inc. (As Restated March 6, 2013.) (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2013 on May 3, 2013 and incorporated herein by reference.)
3.2	Amended and Restated Bylaws of Amgen Inc. (As Amended and Restated February 15, 2016.) (Filed as an exhibit to Form 8-K on February 17, 2016 and incorporated herein by reference.)
4.1	Form of stock certificate for the common stock, par value $.0001 of the Company. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 1997 on May 14, 1997 and incorporated herein by reference.)
4.2	Form of Indenture, dated January 1, 1992. (Filed as an exhibit to Form S-3 Registration Statement filed on December 19, 1991 and incorporated herein by reference.)
4.3	Agreement of Resignation, Appointment and Acceptance dated February 15, 2008. (Filed as an exhibit to Form 10-K for the year ended December 31, 2007 on February 28, 2008 and incorporated herein by reference.)
4.4	First Supplemental Indenture, dated February 26, 1997. (Filed as an exhibit to Form 8-K on March 14, 1997 and incorporated herein by reference.)
4.5	8-1/8% Debentures due April 1, 2097. (Filed as an exhibit to Form 8-K on April 8, 1997 and incorporated herein by reference.)
4.6	Officer's Certificate of Amgen Inc., dated April 8, 1997, establishing a series of securities entitled "8 1/8% Debentures due April 1, 2097." (Filed as an exhibit to Form 8-K on April 8, 1997 and incorporated herein by reference.)
4.7	Indenture, dated August 4, 2003. (Filed as an exhibit to Form S-3 Registration Statement on August 4, 2003 and incorporated herein by reference.)
4.8	Corporate Commercial Paper - Master Note between and among Amgen Inc., as Issuer, Cede & Co., as Nominee of The Depository Trust Company, and Citibank, N.A., as Paying Agent. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 1998 on May 13, 1998 and incorporated herein by reference.)
4.9	Officers' Certificate of Amgen Inc., dated May 30, 2007, including forms of the Company's Senior Floating Rate Notes due 2008, 5.85% Senior Notes due 2017 and 6.375% Senior Notes due 2037. (Filed as an exhibit to Form 8-K on May 30, 2007 and incorporated herein by reference.)
4.10	Officers' Certificate of Amgen Inc., dated May 23, 2008, including forms of the Company's 6.15% Senior Notes due 2018 and 6.90% Senior Notes due 2038. (Filed as exhibit to Form 8-K on May 23, 2008 and incorporated herein by reference.)
4.11	Officers' Certificate of Amgen Inc., dated January 16, 2009, including forms of the Company's 5.70% Senior Notes due 2019 and 6.40% Senior Notes due 2039. (Filed as exhibit to Form 8-K on January 16, 2009 and incorporated herein by reference.)
4.12	Officers' Certificate of Amgen Inc., dated March 12, 2010, including forms of the Company's 4.50% Senior Notes due 2020 and 5.75% Senior Notes due 2040. (Filed as exhibit to Form 8-K on March 12, 2010 and incorporated herein by reference.)
4.13	Officers' Certificate of Amgen Inc., dated September 16, 2010, including forms of the Company's 3.45% Senior Notes due 2020 and 4.95% Senior Notes due 2041. (Filed as an exhibit to Form 8-K on September 17, 2010 and incorporated herein by reference.)
4.14	Officers' Certificate of Amgen Inc., dated June 30, 2011, including forms of the Company's 2.30% Senior Notes due 2016, 4.10% Senior Notes due 2021 and 5.65% Senior Notes due 2042. (Filed as an exhibit to Form 8-K on June 30, 2011 and incorporated herein by reference.)
4.15	Officers' Certificate of Amgen Inc., dated November 10, 2011, including forms of the Company's 1.875% Senior Notes due 2014, 2.50% Senior Notes due 2016, 3.875% Senior Notes due 2021 and 5.15% Senior Notes due 2041. (Filed as an exhibit to Form 8-K on November 10, 2011 and incorporated herein by reference.)
4.16	Officers' Certificate of Amgen Inc., dated December 5, 2011, including forms of the Company's 4.375% Senior Notes due 2018 and 5.50% Senior Notes due 2026. (Filed as an exhibit to Form 8-K on December 5, 2011 and incorporated herein by reference.)

4.17	Officers' Certificate of Amgen Inc., dated May 15, 2012, including forms of the Company's 2.125% Senior Notes due 2017, 3.625% Senior Notes due 2022 and 5.375% Senior Notes due 2043. (Filed as an exhibit to Form 8-K on May 15, 2012 and incorporated herein by reference.)
4.18	Officers' Certificate of Amgen Inc., dated September 13, 2012, including forms of the Company's 2.125% Senior Notes due 2019 and 4.000% Senior Notes due 2029. (Filed as an exhibit to Form 8-K on September 13, 2012 and incorporated herein by reference.)
4.19	Indenture, dated May 22, 2014, between Amgen Inc. and The Bank of New York Mellon Trust Company, N.A., as Trustee. (Filed as an exhibit to Form 8-K on May 22, 2014 and incorporated herein by reference.)
4.20	Officers' Certificate of Amgen Inc., dated May 22, 2014, including forms of the Company's Senior Floating Rate Notes due 2017, Senior Floating Rate Notes due 2019, 1.250% Senior Notes due 2017, 2.200% Senior Notes due 2019 and 3.625% Senior Notes due 2024. (Filed as an exhibit to Form 8-K on May 22, 2014 and incorporated herein by reference.)
4.21	Officer's Certificate of Amgen Inc., dated May 1, 2015, including forms of the Company's 2.125% Senior Notes due 2020, 2.700% Senior Notes due 2022, 3.125% Senior Notes due 2025 and 4.400% Senior Notes due 2045. (Filed as an exhibit on Form 8-K on May 1, 2015 and incorporated herein by reference.)
4.22	Officer's Certificate of Amgen Inc., dated as of February 25, 2016, including forms of the Company's 1.250% Senior Notes due 2022 and 2.000% Senior Notes due 2026. (Filed as an exhibit on Form 8-K on February 26, 2016 and incorporated herein by reference.)
4.23	Form of Permanent Global Certificate for the Company's 0.410% bonds due 2023. (Filed as an exhibit on Form 8-K on March 8, 2016 and incorporated herein by reference.)
4.24	Terms of the Bonds for the Company's 0.410% bonds due 2023. (Filed as an exhibit on Form 8-K on March 8, 2016 and incorporated herein by reference.)
4.25	Officer's Certificate of Amgen Inc., dated as of June 14, 2016, including forms of the Company's 4.563% Senior Notes due 2048 and 4.663% Senior Notes due 2051. (Filed as an exhibit to Form 8-K on June 14, 2016 and incorporated herein by reference.)
4.26	Officer's Certificate of Amgen Inc., dated as of August 19, 2016, including forms of the Company's 1.850% Senior Notes due 2021, 2.250% Senior Notes due 2023 and 2.600% Senior Notes due 2026. (Filed as an exhibit to Form 8-K on August 19, 2016 and incorporated herein by reference.)
4.27	Officer's Certificate of Amgen Inc., dated as of May 11, 2017 including forms of the Company's Senior Floating Rate Notes due 2019, Senior Floating Rate Notes due 2020, 1.900% Senior Notes due 2019, 2.200% Senior Notes due 2020 and 2.650% Senior Notes due 2022. (Filed as an exhibit to Form 8-K on May 11, 2017 and incorporated herein by reference.)
4.28	Officer's Certificate of Amgen Inc., dated as of November 2, 2017, including in the form of the Company's 3.200% Senior Notes due 2027. (Filed as an exhibit to Form 8-K on November 2, 2017 and incorporated by reference.)
10.1+	Amgen Inc. Amended and Restated 2009 Equity Incentive Plan. (Filed as Appendix C to the Definitive Proxy Statement on Schedule 14A on April 8, 2013 and incorporated herein by reference.)
10.2+	First Amendment to Amgen Inc. Amended and Restated 2009 Equity Incentive Plan, effective March 4, 2015. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2015 on April 27, 2015 and incorporated herein by reference.)
10.3+	Second Amendment to Amgen Inc. Amended and Restated 2009 Equity Incentive Plan, effective March 2, 2016. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2016 on May 2, 2016 and incorporated herein by reference.)
10.4+	Form of Stock Option Agreement for the Amgen Inc. Amended and Restated 2009 Equity Incentive Plan. (As Amended on December 7, 2018.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2018 on February 13, 2019 and incorporated herein by reference.)
10.5+	Form of Restricted Stock Unit Agreement for the Amgen Inc. Amended and Restated 2009 Equity Incentive Plan. (As Amended on December 7, 2018.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2018 on February 13, 2019 and incorporated herein by reference.)
10.6+	Amgen Inc. 2009 Performance Award Program. (As Amended on December 12, 2017.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2017 on February 13, 2018 and incorporated herein by reference.)

10.7+	Form of Performance Unit Agreement for the Amgen Inc. 2009 Performance Award Program. (As Amended on December 7, 2018.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2018 on February 13, 2019 and incorporated herein by reference.)
10.8+	Amgen Inc. 2009 Director Equity Incentive Program. (As Amended on October 24, 2017.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2017 on February 13, 2018 and incorporated herein by reference.)
10.9+	Form of Grant of Non-Qualified Stock Option Agreement for the Amgen Inc. 2009 Director Equity Incentive Program. (Filed as an exhibit to Form 8-K on May 8, 2009 and incorporated herein by reference.)
10.10+	Form of Restricted Stock Unit Agreement for the Amgen Inc. 2009 Director Equity Incentive Program. (As Amended on October 24, 2017.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2017 on February 13, 2018 and incorporated herein by reference.)
10.11+	Form of Cash-Settled Restricted Stock Unit Agreement for the Amgen 2009 Director Equity Incentive Program. (Filed as an exhibit to Form 10-K for the year ended December 31, 2017 on February 13, 2018 and incorporated herein by reference.)
10.12+	Amgen Inc. Supplemental Retirement Plan. (As Amended and Restated effective October 16, 2013.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2013 on February 24, 2014 and incorporated herein by reference.)
10.13+	First Amendment to the Amgen Inc. Supplemental Retirement Plan, effective October 14, 2016. (Filed as an exhibit to Form 10-Q for the quarter ended September 30, 2016 on October 28, 2016 and incorporated herein by reference.)
10.14+	Amended and Restated Amgen Change of Control Severance Plan. (As Amended and Restated effective December 9, 2010 and subsequently amended effective March 2, 2011.) (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2011 on May 10, 2011 and incorporated herein by reference.)
10.15+	Amgen Inc. Executive Incentive Plan. (As Amended and Restated effective January 1, 2009.) (Filed as an exhibit to Form 10-Q for the quarter ended September 30, 2008 on November 7, 2008 and incorporated herein by reference.)
10.16+	First Amendment to the Amgen Inc. Executive Incentive Plan, effective December 13, 2012. (Filed as an exhibit to Form 10-K for the year ended December 31, 2012 on February 27, 2013 and incorporated herein by reference.)
10.17+	Second Amendment to the Amgen Inc. Executive Incentive Plan, effective January 1, 2017. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2017 on April 27, 2017 and incorporated herein by reference.)
10.18+	Amgen Nonqualified Deferred Compensation Plan. (As Amended and Restated effective October 16, 2013.) (Filed as an exhibit to Form 10-K for the year ended December 31, 2013 on February 24, 2014 and incorporated herein by reference.)
10.19+	First Amendment to the Amgen Nonqualified Deferred Compensation Plan, effective October 14, 2016. (Filed as an exhibit to Form 10-Q for the quarter ended September 30, 2016 on October 28, 2016 and incorporated herein by reference.)
10.20+	Agreement between Amgen Inc. and David W. Meline, effective July 21, 2014. (Filed as an exhibit to Form 10-Q for the quarter ended September 30, 2014 on October 29, 2014 and incorporated herein by reference.)
10.21+	Agreement between Amgen Inc. and Jonathan Graham, dated May 11, 2015. (Filed as an exhibit to Form 10-Q/A for the quarter ended June 30, 2015 on August 6, 2015 and incorporated herein by reference.)
10.22+	Agreement between Amgen Inc. and Lori Johnston, dated October 25, 2016. (Filed as an exhibit to Form 10-K for the year ended December 31, 2016 on February 14, 2017 and incorporated herein by reference.)
10.23+	Agreement between Amgen Inc. and Murdo Gordon, dated July 25, 2018. (Filed as an exhibit to Form 10-Q for the quarter ended September 30, 2018 on October 31, 2018 and incorporated herein by reference.)
10.24	Amended and Restated Credit Agreement, dated July 30, 2014, among Amgen Inc., the Banks therein named, Citibank, N.A., as administrative agent, and JPMorgan Chase Bank, N.A., as syndication agent (the "Credit Agreement"). (Filed as an exhibit to Form 8-K on July 30, 2014 and incorporated herein by reference.)
10.25	Amendment No. 1 to the Credit Agreement, dated March 9, 2018, among Amgen Inc., the Banks therein named, and Citibank, N.A., as administrative agent. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2018 on April 25, 2018 and incorporated herein by reference.)

10.26	Collaboration and License Agreement between Amgen Inc. and Celltech R&D Limited dated May 10, 2002 (portions of the exhibit have been omitted pursuant to a request for confidential treatment) and Amendment No. 1, effective June 9, 2003, to Collaboration and License Agreement between Amgen Inc. and Celltech R&D Limited (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-K/A for the year ended December 31, 2012 on July 31, 2013 and incorporated herein by reference.)
10.27	Amendment No. 2 to Collaboration and License Agreement, effective November 14, 2016, between Amgen Inc. and Celltech R&D Limited (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-K for the year ended December 31, 2016 on February 14, 2017 and incorporated herein by reference.)
10.28	Collaboration Agreement, dated April 22, 1994, by and between Bayer Corporation (formerly Miles, Inc.) and Onyx Pharmaceuticals, Inc. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2011 by Onyx Pharmaceuticals, Inc. on May 10, 2011 and incorporated herein by reference.)
10.29	Amendment to Collaboration Agreement, dated April 24, 1996, by and between Bayer Corporation and Onyx Pharmaceuticals, Inc. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2006 by Onyx Pharmaceuticals, Inc. on May 10, 2006 and incorporated herein by reference.)
10.30	Amendment to Collaboration Agreement, dated February 1, 1999, by and between Bayer Corporation and Onyx Pharmaceuticals, Inc. (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2006 by Onyx Pharmaceuticals, Inc. on May 10, 2006 and incorporated herein by reference.)
10.31	Settlement Agreement and Release, dated October 11, 2011, by and between Bayer Corporation, Bayer AG, Bayer HealthCare LLC and Bayer Pharma AG and Onyx Pharmaceuticals, Inc. (Filed as an exhibit to Form 10-K for the year ended December 31, 2011 by Onyx Pharmaceuticals, Inc. on February 27, 2012 and incorporated herein by reference.)
10.32	Fourth Amendment to Collaboration Agreement, dated October 11, 2011, by and between Bayer Corporation and Onyx Pharmaceuticals, Inc. (Filed as an exhibit to Form 10-K for the year ended December 31, 2011 by Onyx Pharmaceuticals, Inc. on February 27, 2012 and incorporated herein by reference.)
10.33	Side Letter Regarding Collaboration Agreement, dated May 29, 2015, by and between Bayer HealthCare LLC and Onyx Pharmaceuticals, Inc. (Filed as an exhibit to Form 10-Q for the quarter ended June 30, 2015 on August 5, 2015 and incorporated herein by reference.)
10.34	Sourcing and Supply Agreement, dated January 6, 2017, by and between Amgen USA Inc., a wholly owned subsidiary of Amgen Inc., and DaVita Inc. (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2017 on April 27, 2017 and incorporated herein by reference.)
10.35	Exclusive License and Collaboration Agreement, dated August 28, 2015, by and between Amgen Inc. and Novartis Pharma AG (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-Q for the quarter ended June 30, 2017 on July 26, 2017 and incorporated herein by reference.)
10.36	Amendment No. 1 to the Exclusive License and Collaboration Agreement, dated April 21, 2017, by and between Amgen Inc. and Novartis Pharma AG (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-Q for the quarter ended June 30, 2017 on July 26, 2017 and incorporated herein by reference.)
10.37	Amendment No. 2 to the Exclusive License and Collaboration Agreement, dated April 21, 2017, by and between Amgen Inc. and Novartis Pharma AG (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-Q for the quarter ended June 30, 2017 on July 26, 2017 and incorporated herein by reference.)
10.38	Collaboration Agreement, dated April 21, 2017, by and between Amgen Inc. and Novartis Pharma AG (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-Q for the quarter ended June 30, 2017 on July 26, 2017 and incorporated herein by reference.)
10.39	Amendment No. 1 to the Collaboration Agreement, dated March 20, 2018, by and between Novartis Pharma AG and Amgen Inc. (portions of the exhibit have been omitted pursuant to a request for confidential treatment). (Filed as an exhibit to Form 10-Q for the quarter ended March 31, 2018 on April 25, 2018 and incorporated herein by reference.)
31*	Rule 13a-14(a) Certifications.
32**	Section 1350 Certifications.

101.INS*	XBRL Instance Document.
101.SCH*	XBRL Taxonomy Extension Schema Document.
101.CAL*	XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF*	XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB*	XBRL Taxonomy Extension Label Linkbase Document.
101.PRE*	XBRL Taxonomy Extension Presentation Linkbase Document.

(* = filed herewith)

(** = furnished herewith and not “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended)

(+ = management contract or compensatory plan or arrangement)

SIGNATURES

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

Amgen Inc.
(Registrant)

Date: April 30, 2019

By: /s/ DAVID W. MELINE

David W. Meline
Executive Vice President and Chief Financial Officer
(Principal Financial and Accounting Officer)

Exhibit 31

CERTIFICATIONS

I, Robert A. Bradway, Chairman of the Board, Chief Executive Officer and President of Amgen Inc., certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Amgen Inc.;

2. Based on my knowledge, this quarterly 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 quarterly report;

3. Based on my knowledge, the financial statements, and other financial information included in this quarterly 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 quarterly report;

4. The registrant's other certifying officer(s) 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 quarterly 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 quarterly report based on such evaluation; and

   (d) Disclosed in this quarterly 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(s) 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: April 30, 2019

/s/ ROBERT A. BRADWAY

Robert A. Bradway
Chairman of the Board,
Chief Executive Officer and President

CERTIFICATIONS

I, David W. Meline, Executive Vice President and Chief Financial Officer of Amgen Inc., certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Amgen Inc.;

2. Based on my knowledge, this quarterly 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 quarterly report;

3. Based on my knowledge, the financial statements, and other financial information included in this quarterly 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 quarterly report;

4. The registrant's other certifying officer(s) 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 quarterly 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 quarterly report based on such evaluation; and

   (d) Disclosed in this quarterly 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(s) 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: April 30, 2019

/s/ DAVID W. MELINE

David W. Meline

Executive Vice President and Chief Financial Officer

Exhibit 32

Certification of Chief Executive Officer

Pursuant to 18 U.S.C. § 1350, as created by Section 906 of the Sarbanes-Oxley Act of 2002, the undersigned officer of Amgen Inc. (the "Company") hereby certifies that:

(i) the accompanying Quarterly Report on Form 10-Q of the Company for the period ended March 31, 2019 (the "Report") fully complies with the requirements of Section 13(a) or Section 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and

(ii) information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: April 30, 2019

/s/ ROBERT A. BRADWAY

Robert A. Bradway
Chairman of the Board,
Chief Executive Officer and President

A signed original of this written statement required by Section 906 of the Sarbanes-Oxley Act of 2002 ("Section 906"), or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to Amgen Inc. and will be retained by Amgen Inc. and furnished to the Securities and Exchange Commission or its staff upon request.

Certification of Chief Financial Officer

Pursuant to 18 U.S.C. § 1350, as created by Section 906 of the Sarbanes-Oxley Act of 2002, the undersigned officer of Amgen Inc. (the "Company") hereby certifies that:

(i) the accompanying Quarterly Report on Form 10-Q of the Company for the period ended March 31, 2019 (the "Report") fully complies with the requirements of Section 13(a) or Section 15(d), as applicable, of the Securities Exchange Act of 1934, as amended; and

(ii) information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: April 30, 2019

/s/ DAVID W. MELINE

David W. Meline

Executive Vice President and Chief Financial Officer

A signed original of this written statement required by Section 906 of the Sarbanes-Oxley Act of 2002 ("Section 906"), or other document authenticating, acknowledging, or otherwise adopting the signature that appears in typed form within the electronic version of this written statement required by Section 906, has been provided to Amgen Inc. and will be retained by Amgen Inc. and furnished to the Securities and Exchange Commission or its staff upon request.