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 September 30, 2020

OR

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

For the transition period from _____ to _____

Commission File No. 1-6571

Merck & Co., Inc.

(Exact name of registrant as specified in its charter)

New Jersey	**22-1918501**
(State or other jurisdiction of incorporation)	(I.R.S Employer Identification No.)

2000 Galloping Hill Road
Kenilworth New Jersey 07033
(Address of principal executive offices) (zip code)

(Registrant's telephone number, including area code) **(908) 740-4000**

Not Applicable
(Former name, former address and former fiscal year, if changed since last report.)

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

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

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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. (Check one):

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 ☒

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

Title of each class	*Trading Symbol(s)*	*Name of each exchange on which registered*
Common Stock ($0.50 par value)	MRK	New York Stock Exchange
1.125% Notes due 2021	MRK/21	New York Stock Exchange
0.500% Notes due 2024	MRK 24	New York Stock Exchange
1.875% Notes due 2026	MRK/26	New York Stock Exchange
2.500% Notes due 2034	MRK/34	New York Stock Exchange
1.375% Notes due 2036	MRK 36A	New York Stock Exchange

The number of shares of common stock outstanding as of the close of business on October 31, 2020: 2,530,034,437

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MERCK & CO., INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENT OF INCOME
(Unaudited, $ in millions except per share amounts)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Sales	$ 12,551	$ 12,397	$ 35,479	$ 34,972
Costs, Expenses and Other				
Cost of sales	3,481	3,990	9,952	10,443
Selling, general and administrative	2,450	2,589	7,383	7,726
Research and development	3,390	3,204	7,721	7,324
Restructuring costs	114	232	269	444
Other (income) expense, net	(312)	35	(630)	362
	9,123	10,050	24,695	26,299
Income Before Taxes	3,428	2,347	10,784	8,673
Taxes on Income	483	440	1,611	1,259
Net Income	2,945	1,907	9,173	7,414
Less: Net Income (Loss) Attributable to Noncontrolling Interests	4	6	12	(73)
Net Income Attributable to Merck & Co., Inc.	$ 2,941	$ 1,901	$ 9,161	$ 7,487
Basic Earnings per Common Share Attributable to Merck & Co., Inc. Common Shareholders	$ 1.16	$ 0.74	$ 3.62	$ 2.91
Earnings per Common Share Assuming Dilution Attributable to Merck & Co., Inc. Common Shareholders	$ 1.16	$ 0.74	$ 3.61	$ 2.89

MERCK & CO., INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME
(Unaudited, $ in millions)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2020	2019	2020	2019
Net Income Attributable to Merck & Co., Inc.	$ 2,941	$ 1,901	$ 9,161	$ 7,487
Other Comprehensive Income (Loss) Net of Taxes:				
Net unrealized (loss) gain on derivatives, net of reclassifications	(137)	91	(153)	(9)
Net unrealized (loss) gain on investments, net of reclassifications	—	(17)	(18)	109
Benefit plan net gain and prior service credit, net of amortization	62	15	161	41
Cumulative translation adjustment	85	(117)	(180)	14
	10	(28)	(190)	155
Comprehensive Income Attributable to Merck & Co., Inc.	$ 2,951	$ 1,873	$ 8,971	$ 7,642

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

MERCK & CO., INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED BALANCE SHEET
(Unaudited, $ in millions except per share amounts)

	September 30, 2020	December 31, 2019
Assets		
Current Assets		
Cash and cash equivalents	$ 7,356	$ 9,676
Short-term investments	—	774
Accounts receivable (net of allowance for doubtful accounts of $89 in 2020 and $86 in 2019)	8,422	6,778
Inventories (excludes inventories of $2,081 in 2020 and $1,480 in 2019 classified in Other assets - see Note 6)	6,128	5,978
Other current assets	4,671	4,277
Total current assets	26,577	27,483
Investments	1,372	1,469
Property, Plant and Equipment, at cost, net of accumulated depreciation of $18,572 in 2020 and $17,686 in 2019	16,919	15,053
Goodwill	20,248	19,425
Other Intangibles, Net	16,677	14,196
Other Assets	8,007	6,771
	$ 89,800	$ 84,397
Liabilities and Equity		
Current Liabilities		
Loans payable and current portion of long-term debt	$ 2,420	$ 3,610
Trade accounts payable	3,744	3,738
Accrued and other current liabilities	11,690	12,549
Income taxes payable	984	736
Dividends payable	1,567	1,587
Total current liabilities	20,405	22,220
Long-Term Debt	26,321	22,736
Deferred Income Taxes	1,777	1,470
Other Noncurrent Liabilities	12,027	11,970
Merck & Co., Inc. Stockholders' Equity		
Common stock, $0.50 par value Authorized - 6,500,000,000 shares Issued - 3,577,103,522 shares in 2020 and 2019	1,788	1,788
Other paid-in capital	39,489	39,660
Retained earnings	51,107	46,602
Accumulated other comprehensive loss	(6,383)	(6,193)
	86,001	81,857
Less treasury stock, at cost: 1,047,343,390 shares in 2020 and 1,038,087,496 shares in 2019	56,815	55,950
Total Merck & Co., Inc. stockholders' equity	29,186	25,907
Noncontrolling Interests	84	94
Total equity	29,270	26,001
	$ 89,800	$ 84,397

The accompanying notes are an integral part of this condensed consolidated financial statement.

MERCK & CO., INC. AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENT OF CASH FLOWS
(Unaudited, $ in millions)

	Nine Months Ended September 30,	
	2020	2019
Cash Flows from Operating Activities		
Net income	$ 9,173	$ 7,414
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	2,721	2,716
Intangible asset impairment charges	35	864
Charge for acquisition of Peloton Therapeutics, Inc.	—	982
Deferred income taxes	47	(386)
Share-based compensation	354	306
Other	(445)	219
Net changes in assets and liabilities	(5,638)	(3,469)
Net Cash Provided by Operating Activities	6,247	8,646
Cash Flows from Investing Activities		
Capital expenditures	(3,170)	(2,336)
Purchases of securities and other investments	(78)	(2,380)
Proceeds from sales of securities and other investments	1,894	7,459
Acquisition of ArQule, Inc., net of cash acquired	(2,545)	—
Acquisition of Antelliq Corporation, net of cash acquired	—	(3,620)
Acquisition of Peloton Therapeutics, Inc., net of cash acquired	—	(1,040)
Other acquisitions, net of cash acquired	(907)	(269)
Other	141	320
Net Cash Used in Investing Activities	(4,665)	(1,866)
Cash Flows from Financing Activities		
Net change in short-term borrowings	(311)	(3,892)
Payments on debt	(1,954)	—
Proceeds from issuance of debt	4,419	4,958
Purchases of treasury stock	(1,281)	(3,730)
Dividends paid to stockholders	(4,673)	(4,290)
Proceeds from exercise of stock options	68	344
Other	(472)	(240)
Net Cash Used in Financing Activities	(4,204)	(6,850)
Effect of Exchange Rate Changes on Cash, Cash Equivalents and Restricted Cash	89	(26)
Net Decrease in Cash, Cash Equivalents and Restricted Cash	(2,533)	(96)
Cash, Cash Equivalents and Restricted Cash at Beginning of Year (includes restricted cash of $258 at January 1, 2020 included in Other Assets)	9,934	7,967
Cash, Cash Equivalents and Restricted Cash at End of Period (includes restricted cash of $45 at September 30, 2020 included in Other Assets)	$ 7,401	$ 7,871

The accompanying notes are an integral part of this condensed consolidated financial statement.

1. Basis of Presentation

The accompanying unaudited condensed consolidated financial statements of Merck & Co., Inc. (Merck or the Company) have been prepared pursuant to the rules and regulations for reporting on Form 10-Q. Accordingly, certain information and disclosures required by accounting principles generally accepted in the United States (GAAP) for complete consolidated financial statements are not included herein. These interim statements should be read in conjunction with the audited financial statements and notes thereto included in Merck's Form 10-K filed on February 26, 2020.

The results of operations of any interim period are not necessarily indicative of the results of operations for the full year. In the Company's opinion, all adjustments necessary for a fair statement of these interim statements have been included and are of a normal and recurring nature.

Planned Spin-Off of Women's Health, Biosimilars and Established Brands into New Company

In February 2020, Merck announced its intention to spin-off products from its women's health, biosimilars and established brands businesses into a new, independent, publicly traded company named Organon & Co. (Organon) through a distribution of Organon's publicly traded stock to Company shareholders. The distribution is expected to qualify as tax-free to the Company and its shareholders for U.S. federal income tax purposes. The established brands included in the transaction consist of dermatology, non-opioid pain management, respiratory, and select cardiovascular products including *Zetia* (ezetimibe) and *Vytorin* (ezetimibe and simvastatin), as well as the rest of Merck's diversified brands franchise. Merck's existing research pipeline programs will continue to be owned and developed within Merck as planned. Organon will have development capabilities initially focused on late-stage development and life-cycle management and is expected over time to develop research capabilities in selected therapeutic areas. The spin-off is expected to be completed in the second quarter of 2021, subject to market and certain other conditions. Subsequent to the spin-off, the historical results of the women's health, biosimilars and established brands businesses will be reflected as discontinued operations in the Company's consolidated financial statements.

Recently Adopted Accounting Standards

In June 2016, the Financial Accounting Standards Board (FASB) issued new guidance on the accounting for credit losses on financial instruments. The new guidance introduces an expected loss model for estimating credit losses, replacing the incurred loss model. The new guidance also changes the impairment model for available-for-sale debt securities, requiring the use of an allowance to record estimated credit losses (and subsequent recoveries). The Company adopted the new guidance effective January 1, 2020. There was no impact to the Company's consolidated financial statements upon adoption.

In November 2018, the FASB issued new guidance for collaborative arrangements intended to reduce diversity in practice by clarifying whether certain transactions between collaborative arrangement participants should be accounted for under revenue recognition guidance (ASC 606). The Company adopted the new guidance effective January 1, 2020, which resulted in minor changes to the presentation of information related to the Company's collaborative arrangements.

Recently Issued Accounting Standards Not Yet Adopted

In December 2019, the FASB issued amended guidance on the accounting and reporting of income taxes. The guidance is intended to simplify the accounting for income taxes by: removing exceptions related to certain intraperiod tax allocations and deferred tax liabilities; clarifying guidance primarily related to evaluating the step-up tax basis for goodwill in a business combination; and reflecting enacted changes in tax laws or rates in the annual effective tax rate. The amended guidance is effective for interim and annual periods in 2021. Early adoption is permitted. The amendments in the new guidance are to be applied on a retrospective basis, on a modified retrospective basis through a cumulative-effect adjustment to retained earnings or prospectively, depending on the amendment. The Company is currently evaluating the impact of adoption on its consolidated financial statements.

In January 2020, the FASB issued new guidance intended to clarify certain interactions between accounting standards related to equity securities, equity method investments and certain derivatives. The guidance addresses accounting for the transition into and out of the equity method of accounting and measuring certain purchased options and forward contracts to acquire investments. The new guidance is effective for interim and annual periods in 2021 and is to be applied prospectively. Early adoption is permitted. The Company is currently evaluating the impact of adoption on its consolidated financial statements.

In March 2020, the FASB issued optional guidance to ease the potential burden in accounting for (or recognizing the effects of) reference rate reform on financial reporting. The guidance provides optional expedients and exceptions for applying GAAP to contracts, hedging relationships, and other transactions affected by reference rate reform. The optional guidance is effective upon issuance and can be applied on a prospective basis at any time between January 1, 2020 through December 31, 2022. The Company is currently evaluating the impact of adoption on its consolidated financial statements.

2. Acquisitions, Research Collaborations and License Agreements

The Company continues to pursue acquisitions and the establishment of external alliances such as research collaborations and licensing agreements to complement its internal research capabilities. These arrangements often include upfront payments, as well as expense reimbursements or payments to the third party, and milestone, royalty or profit share arrangements, contingent upon the occurrence of certain future events linked to the success of the asset in development. The Company also reviews its marketed products and pipeline to examine candidates which may provide more value through out-licensing and, as part of its portfolio assessment process, may also divest certain assets. Pro forma financial information for acquired businesses is not presented if the historical financial results of the acquired entity are not significant when compared with the Company's financial results.

In November 2020, Merck and VelosBio, Inc. (VelosBio) announced that the companies had entered into a definitive agreement pursuant to which Merck, through a subsidiary, will acquire all outstanding shares of VelosBio for $2.75 billion, subject to certain customary adjustments. VelosBio is a privately held clinical-stage biopharmaceutical company committed to developing first-in-class cancer therapies targeting receptor tyrosine kinase-like orphan receptor 1 (ROR1). VelosBio's lead investigational candidate is VLS-101, an antibody-drug conjugate targeting ROR1 that is currently being evaluated in a Phase 1 and a Phase 2 clinical trial for the treatment of patients with hematologic malignancies and solid tumors, respectively. The closing of the transaction, which is subject to approval under the Hart-Scott-Rodino Antitrust Improvements Act and other customary conditions, is expected by the end of 2020.

In September 2020, Merck and Seagen Inc. (Seagen, formerly known as Seattle Genetics, Inc.) announced an oncology collaboration to globally develop and commercialize Seagen's ladiratuzumab vedotin (MK-6440), an investigational antibody-drug conjugate targeting LIV-1, which is currently in Phase 2 clinical trials for breast cancer and other solid tumors. The collaboration will pursue a broad joint development program evaluating ladiratuzumab vedotin as monotherapy and in combination with *Keytruda* (pembrolizumab) in triple-negative breast cancer, hormone receptor-positive breast cancer and other LIV-1-expressing solid tumors. The companies will equally share profits worldwide. Under the terms of the agreement, Merck made an upfront payment of $600 million and a $1.0 billion equity investment in 5 million shares of Seagen common stock at a price of $200 per share. Merck recorded $622 million in *Research and development* expenses in the third quarter and first nine months of 2020 related to this transaction reflecting the upfront payment as well as a $22 million mark-to-market loss on the purchase commitment (forward contract) relating to the equity shares (calculated based on the closing price of Seagen common stock on September 30, 2020). The closing of the equity investment occurred in October 2020 and resulted in the recognition of a $6 million reduction to *Research and development* expenses based on the price of Seagen common stock on the closing date. Seagen is also eligible to receive future contingent milestone payments of up to $2.6 billion, including $850 million in development milestones and $1.75 billion in sales milestones.

Concurrent with the above transaction, Seagen granted Merck an exclusive license to commercialize Tukysa (tucatinib), a small molecule tyrosine kinase inhibitor, for the treatment of HER2-positive cancers, in Asia, the Middle East and Latin America and other regions outside of the United States, Canada and Europe. Merck will be responsible for marketing applications seeking approval in its territories, supported by the positive results from the HER2CLIMB clinical trial. Merck will also co-fund a portion of the Tukysa global development plan, which encompasses several ongoing and planned trials across HER2-positive cancers, including breast, colorectal, gastric and other cancers set forth in a global product development plan. Merck will solely fund and conduct country-specific clinical trials necessary to support anticipated regulatory applications in its territories. Under the terms of the agreement, Merck made upfront payments aggregating $210 million, which were recorded as *Research and development* expenses in the third quarter and first nine months of 2020. Seagen is also eligible to receive future contingent regulatory approval milestones of up to $65 million and will receive tiered royalties ranging from 20% to 33% based on annual sales levels of Tukysa in Merck's territories.

Additionally in September 2020, Merck acquired a biologics manufacturing facility located in Dunboyne, Ireland from Takeda Pharmaceutical Company Limited for €256 million ($302 million). The transaction was accounted for as an acquisition of an asset. Merck recorded property, plant and equipment of $289 million and other net assets of $13 million. There are no future contingent payments associated with the acquisition.

In July 2020, Merck acquired the U.S. rights to Sentinel Flavor Tabs and Sentinel Spectrum Chews from Virbac Corporation for $410 million. Sentinel products provide protection against common parasites in dogs. The transaction was accounted for as an acquisition of an asset. Merck recognized intangible assets of $401 million related to currently marketed products and inventory of $9 million at the acquisition date. The estimated fair values of the identifiable intangible assets related to currently marketed products were determined using an income approach. Actual cash flows are likely to be different than those assumed. The intangible assets related to currently marketed products will be amortized over their estimated useful lives of 15 years. There are no future contingent payments associated with the acquisition.

Also, in July 2020, Merck and Ridgeback Biotherapeutics LP (Ridgeback Bio), a closely held biotechnology company, closed a collaboration agreement to develop molnupiravir (MK-4482, formerly known as EIDD-2801), an orally

available antiviral candidate currently in clinical development for the treatment of patients with COVID-19. Merck gained exclusive worldwide rights to develop and commercialize molnupiravir and related molecules. Under the terms of the agreement, Ridgeback Bio received an upfront payment and also is eligible to receive future contingent payments dependent upon the achievement of certain developmental and regulatory approval milestones, as well as a share of the net profits of molnupiravir and related molecules, if approved. Merck and Ridgeback are committed to ensure that any medicines developed for SARS-CoV-2 (the causative agent of COVID-19) will be accessible and affordable globally.

In June 2020, Merck acquired privately held Themis Bioscience GmbH (Themis), a company focused on vaccines and immune-modulation therapies for infectious diseases and cancer for $366 million. Merck may make additional contingent payments of up to $740 million, including up to $80 million for development milestones, up to $260 million for regulatory approval milestones, and up to $400 million for commercial milestones. Themis has a broad pipeline of vaccine candidates and immune-modulatory therapies developed using its innovative measles virus vector platform based on a vector originally developed by scientists at the Institut Pasteur and licensed exclusively to Themis for select viral indications. The acquisition builds upon an ongoing collaboration between the two companies to develop vaccine candidates using the measles virus vector platform and is expected to accelerate the development of the COVID-19 vaccine candidate (V591), which is currently in Phase 1 clinical development. The transaction was accounted for as an acquisition of a business. The Company determined the fair value of the contingent consideration was $97 million at the acquisition date utilizing a probability-weighted estimated cash flow stream using an appropriate discount rate dependent on the nature and timing of the milestone payment. Merck recognized intangible assets for in-process research and development (IPR&D) of $136 million, cash of $59 million, deferred tax assets of $71 million and other net liabilities of $32 million. The excess of the consideration transferred over the fair value of net assets acquired of $229 million was recorded as goodwill that was allocated to the Pharmaceutical segment and is not deductible for tax purposes. The fair values of the identifiable intangible assets related to IPR&D were determined using an income approach. Actual cash flows are likely to be different than those assumed. In connection with the transaction, Merck has entered into a memorandum of understanding that reflects the parties' commitments to address the COVID-19 pandemic by developing, manufacturing and distributing the vaccine on a global basis and with pricing that makes the vaccine both available around the world and accessible to those who need it.

In May 2020, Merck and the International AIDS Vaccine Initiative, Inc. (IAVI), a nonprofit scientific research organization dedicated to addressing urgent, unmet global health challenges, announced a new collaboration to develop V590, an investigational vaccine against SARS-CoV-2 being studied for the prevention of COVID-19. This vaccine candidate will use the recombinant vesicular stomatitis virus (rVSV) technology that is the basis for Merck's approved Ebola Zaire virus vaccine, *Ervebo* (Ebola Zaire Vaccine, Live), which was the first rVSV vaccine approved for use in humans. Under the terms of the agreement, Merck made an upfront payment of $6.5 million and may make additional contingent payments of up to $100 million for sales-based milestones, as well as royalty payments. Merck has also signed an agreement with the Biomedical Advanced Research and Development Authority (BARDA), part of the office of the Assistant Secretary for Preparedness and Response within an agency of the United States Department of Health and Human Services, to provide initial funding support for this effort. Under the agreement, IAVI and Merck will work together to advance the development and global clinical evaluation of a SARS-CoV-2 vaccine candidate designed and engineered by IAVI scientists. The vaccine candidate is currently in Phase 1 clinical development. Merck will lead regulatory filings globally. Both organizations will work together to develop the vaccine and make it accessible and affordable globally, if approved.

In January 2020, Merck acquired ArQule, Inc. (ArQule), a publicly traded biopharmaceutical company focused on kinase inhibitor discovery and development for the treatment of patients with cancer and other diseases. Total consideration paid of $2.7 billion included $138 million of share-based compensation payments to settle equity awards attributable to precombination service and cash paid for transaction costs on behalf of ArQule. The Company incurred $95 million of transaction costs directly related to the acquisition of ArQule, consisting almost entirely of share-based compensation payments to settle non-vested equity awards attributable to postcombination service. These costs were included in *Selling, general and administrative* expenses in the first nine months of 2020. ArQule's lead investigational candidate, MK-1026 (formerly known as ARQ 531), is a novel, oral Bruton's tyrosine kinase (BTK) inhibitor currently being evaluated for the treatment of B-cell malignancies.

The estimated fair value of assets acquired and liabilities assumed from ArQule is as follows:

($ in millions)	January 16, 2020
Cash and cash equivalents	$ 145
IPR&D MK-1026 (formerly ARQ 531) [(1)]	2,280
Licensing arrangement for ARQ 087	80
Deferred income tax liabilities	(389)
Other assets and liabilities, net	34
Total identifiable net assets	2,150
Goodwill [(2)]	540
Consideration transferred	$ 2,690

[(1)] *The estimated fair value of the identifiable intangible asset related to IPR&D was determined using an income approach. The future net cash flows were discounted to present value utilizing a discount rate of 12.5%. Actual cash flows are likely to be different than those assumed.*

[(2)] *The goodwill was allocated to the Pharmaceutical segment and is not deductible for tax purposes.*

In July 2019, Merck acquired Peloton Therapeutics, Inc. (Peloton), a clinical-stage biopharmaceutical company focused on the development of novel small molecule therapeutic candidates targeting hypoxia-inducible factor-2α (HIF-2α) for the treatment of patients with cancer and other non-oncology diseases. Peloton's lead candidate, MK-6482 (formerly known as PT2977), is a novel investigational oral HIF-2α inhibitor in late-stage development for renal cell carcinoma. Merck made an upfront payment of $1.2 billion; additionally, former Peloton shareholders will be eligible to receive $50 million upon U.S. regulatory approval, $50 million upon first commercial sale in the United States, and up to $1.05 billion of sales-based milestones. The transaction was accounted for as an acquisition of an asset. Merck recorded cash of $157 million, deferred tax liabilities of $64 million, and other net liabilities of $6 million at the acquisition date and *Research and development* expenses of $982 million in the third quarter and first nine months of 2019 related to the transaction.

On April 1, 2019, Merck acquired Antelliq Corporation (Antelliq), a leader in digital animal identification, traceability and monitoring solutions. These solutions help veterinarians, farmers and pet owners gather critical data to improve management, health and well-being of livestock and pets. Merck paid $2.3 billion to acquire all outstanding shares of Antelliq and spent $1.3 billion to repay Antelliq's debt. The transaction was accounted for as an acquisition of a business.

The estimated fair value of assets acquired and liabilities assumed from Antelliq is as follows:

($ in millions)	April 1, 2019
Cash and cash equivalents	$ 31
Accounts receivable	73
Inventories	93
Property, plant and equipment	60
Identifiable intangible assets (useful lives ranging from 18-24 years) [(1)]	2,689
Deferred income tax liabilities	(589)
Other assets and liabilities, net	(82)
Total identifiable net assets	2,275
Goodwill [(2)]	1,376
Consideration transferred	$ 3,651

[(1)] *The estimated fair values of identifiable intangible assets relate primarily to trade names and were determined using an income approach. The future net cash flows were discounted to present value utilizing a discount rate of 11.5%. Actual cash flows are likely to be different than those assumed.*

[(2)] *The goodwill recognized is largely attributable to anticipated synergies expected to arise after the acquisition and was allocated to the Animal Health segment. The goodwill is not deductible for tax purposes.*

The Company's results for the first nine months of 2019 include five months of activity for Antelliq. The Company incurred $47 million of transaction costs directly related to the acquisition of Antelliq, consisting largely of advisory fees, which are reflected in *Selling, general and administrative* expenses in the first nine months of 2019.

Also in April 2019, Merck acquired Immune Design, a late-stage immunotherapy company employing next-generation *in vivo* approaches to enable the body's immune system to fight disease, for $301 million in cash. The transaction was accounted for as an acquisition of a business. Merck recognized intangible assets of $156 million, cash of $83 million and other net assets of $42 million. The excess of the consideration transferred over the fair value of net assets acquired of $20

million was recorded as goodwill that was allocated to the Pharmaceutical segment and is not deductible for tax purposes. The fair values of the identifiable intangible assets related to IPR&D were determined using an income approach. Actual cash flows are likely to be different than those assumed.

3. Collaborative Arrangements

Merck has entered into collaborative arrangements that provide the Company with varying rights to develop, produce and market products together with its collaborative partners. Both parties in these arrangements are active participants and exposed to significant risks and rewards dependent on the commercial success of the activities of the collaboration. Merck's more significant collaborative arrangements are discussed below.

AstraZeneca

In July 2017, Merck and AstraZeneca PLC (AstraZeneca) entered into a global strategic oncology collaboration to co-develop and co-commercialize AstraZeneca's Lynparza (olaparib) for multiple cancer types. Lynparza is an oral poly (ADP-ribose) polymerase (PARP) inhibitor currently approved for certain types of advanced ovarian, breast, pancreatic and prostate cancers. The companies are jointly developing and commercializing Lynparza, both as monotherapy and in combination trials with other potential medicines. Independently, Merck and AstraZeneca will develop and commercialize Lynparza in combinations with their respective PD-1 and PD-L1 medicines, *Keytruda* and Imfinzi. The companies will also jointly develop and commercialize AstraZeneca's Koselugo (selumetinib), an oral, selective inhibitor of MEK, part of the mitogen-activated protein kinase (MAPK) pathway, currently being developed for multiple indications. In April 2020, Koselugo was approved by the U.S. Food and Drug Administration (FDA) for the treatment of pediatric patients two years of age and older with neurofibromatosis type 1 who have symptomatic, inoperable plexiform neurofibromas. Under the terms of the agreement, AstraZeneca and Merck will share the development and commercialization costs for Lynparza and Koselugo monotherapy and non-PD-L1/PD-1 combination therapy opportunities.

Profits from Lynparza and Koselugo product sales generated through monotherapies or combination therapies are shared equally. Merck will fund all development and commercialization costs of *Keytruda* in combination with Lynparza or Koselugo. AstraZeneca will fund all development and commercialization costs of Imfinzi in combination with Lynparza or Koselugo. AstraZeneca is the principal on Lynparza and Koselugo sales transactions. Merck records its share of Lynparza and Koselugo product sales, net of cost of sales and commercialization costs, as alliance revenue and its share of development costs associated with the collaboration as part of *Research and development* expenses. Reimbursements received from AstraZeneca for research and development expenses are recognized as reductions to *Research and development* costs.

As part of the agreement, Merck made an upfront payment to AstraZeneca of $1.6 billion in 2017 and made payments of $750 million over a multi-year period for certain license options. In addition, the agreement provides for additional contingent payments from Merck to AstraZeneca related to the successful achievement of sales-based and regulatory milestones.

In the second quarter of 2020, Merck determined it was probable that sales of Lynparza in the future would trigger $400 million of sales-based milestone payments from Merck to AstraZeneca. Accordingly, Merck recorded a $400 million liability and a corresponding increase to the intangible asset related to Lynparza. Prior to 2020, Merck accrued sales-based milestone payments aggregating $1.0 billion related to Lynparza, of which $200 million and $250 million was paid to AstraZeneca in 2019 and 2018, respectively, and $250 million was paid in the first nine months of 2020. Potential future sales-based milestone payments of $2.7 billion have not yet been accrued as they are not deemed by the Company to be probable at this time.

In the second quarter of 2020, Lynparza received regulatory approvals triggering capitalized milestone payments of $135 million from Merck to AstraZeneca. In 2019 and 2018, Lynparza received regulatory approvals triggering capitalized milestone payments of $60 million and $140 million, respectively, in the aggregate from Merck to AstraZeneca. Potential future regulatory milestone payments of $1.4 billion remain under the agreement.

The intangible asset balance related to Lynparza (which includes capitalized sales-based and regulatory milestone payments) was $1.3 billion at September 30, 2020 and is included in *Other Intangibles, Net* on the Consolidated Balance Sheet. The amount is being amortized over its estimated useful life through 2028 as supported by projected future cash flows, subject to impairment testing.

Summarized financial information related to this collaboration is as follows:

($ in millions)	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
Alliance revenue - Lynparza	$ 196	$ 123	$ 519	$ 313
Alliance revenue - Koselugo	3	—	3	—
Total alliance revenue	$ 199	$ 123	$ 522	$ 313
Cost of sales [1]	41	28	205	120
Selling, general and administrative	40	36	112	96
Research and development	20	44	93	122

($ in millions)	September 30, 2020	December 31, 2019
Receivables from AstraZeneca included in *Other current assets*	$ 197	$ 128
Payables to AstraZeneca included in *Accrued and other current liabilities* [2]	309	577
Payables to AstraZeneca included in *Other Noncurrent Liabilities* [2]	400	—

[1] *Represents amortization of capitalized milestone payments.*

[2] *Includes accrued milestone payments.*

Eisai

In March 2018, Merck and Eisai Co., Ltd. (Eisai) announced a strategic collaboration for the worldwide co-development and co-commercialization of Lenvima (lenvatinib), an orally available tyrosine kinase inhibitor discovered by Eisai. Lenvima is currently approved for the treatment of certain types of thyroid cancer, hepatocellular carcinoma, in combination with everolimus for certain patients with renal cell carcinoma, and in combination with *Keytruda* for the treatment of certain patients with endometrial carcinoma. Under the agreement, Merck and Eisai will develop and commercialize Lenvima jointly, both as monotherapy and in combination with *Keytruda*. Eisai records Lenvima product sales globally (Eisai is the principal on Lenvima sales transactions), and Merck and Eisai share profits equally. Merck records its share of Lenvima product sales, net of cost of sales and commercialization costs, as alliance revenue. Expenses incurred during co-development, including for studies evaluating Lenvima as monotherapy, are shared equally by the two companies and reflected in *Research and development* expenses.

Under the agreement, Merck made an upfront payment to Eisai of $750 million and agreed to make payments of up to $650 million for certain option rights through 2021 (of which $325 million was paid in March 2019, $200 million was paid in March 2020 and $125 million is expected to be paid in March 2021). In addition, the agreement provides for additional contingent payments from Merck to Eisai related to the successful achievement of sales-based and regulatory milestones.

In the second quarter of 2020, Merck determined it was probable that sales of Lenvima in the future would trigger sales-based milestone payments aggregating $370 million from Merck to Eisai. Accordingly, Merck recorded a $370 million liability and a corresponding increase to the intangible asset related to Lenvima. Prior to 2020, Merck accrued sales-based milestone payments aggregating $950 million. Of these amounts, $50 million was paid to Eisai in 2019 and an additional $500 million was paid in the first nine months of 2020. Potential future sales-based milestone payments of $2.7 billion have not yet been accrued as they are not deemed by the Company to be probable at this time.

In 2018, Lenvima received regulatory approvals triggering capitalized milestone payments of $250 million in the aggregate from Merck to Eisai. Potential future regulatory milestone payments of $135 million remain under the agreement.

The intangible asset balance related to Lenvima (which includes capitalized sales-based and regulatory milestone payments) was $1.1 billion at September 30, 2020 and is included in *Other Intangibles, Net* on the Consolidated Balance Sheet. The amount is being amortized over its estimated useful life through 2026 as supported by projected future cash flows, subject to impairment testing.

Summarized financial information related to this collaboration is as follows:

($ in millions)	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
Alliance revenue - Lenvima	$ 142	$ 109	$ 421	$ 280
Cost of sales [1]	46	23	215	97
Selling, general and administrative	18	21	48	59
Research and development	48	37	168	146

($ in millions)	September 30, 2020	December 31, 2019
Receivables from Eisai included in *Other current assets*	$ 170	$ 150
Payables to Eisai included in *Accrued and other current liabilities* [2]	325	700
Payables to Eisai included in *Other Noncurrent Liabilities* [3]	570	525

[1] *Represents amortization of capitalized milestone payments.*

[2] *Includes accrued milestone and future option payments.*

[3] *Includes accrued milestone payments.*

Bayer AG

In 2014, the Company entered into a worldwide clinical development collaboration with Bayer AG (Bayer) to market and develop soluble guanylate cyclase (sGC) modulators including Bayer's Adempas (riociguat), which is approved to treat pulmonary arterial hypertension and chronic thromboembolic pulmonary hypertension. The two companies have implemented a joint development and commercialization strategy. The collaboration also includes clinical development of Bayer's vericiguat, which is in development for the potential treatment of worsening heart failure. Vericiguat is currently under review by regulatory authorities in the United States, the EU and Japan. Under the agreement, Bayer leads commercialization of Adempas in the Americas, while Merck leads commercialization in the rest of the world. For vericiguat, if approved, Bayer will lead commercialization in the rest of world and Merck will lead in the Americas. Both companies share in development costs and profits on sales and have the right to co-promote in territories where they are not the lead. Merck records sales of Adempas in its marketing territories, as well as alliance revenue, which is Merck's share of profits from the sale of Adempas in Bayer's marketing territories. In addition, the agreement provides for contingent payments from Merck to Bayer related to the successful achievement of sales-based milestones.

Prior to 2020, Merck accrued $725 million of sales-based milestone payments for this collaboration, of which $350 million was paid to Bayer in 2018. There is an additional $400 million potential future sales-based milestone payment that has not yet been accrued as it is not deemed by the Company to be probable at this time.

The intangible asset balance related to this collaboration (which includes the acquired intangible asset balance, as well as capitalized sales-based milestone payments) was $838 million at September 30, 2020 and is included in *Other Intangibles, Net* on the Consolidated Balance Sheet. The amount is being amortized over its estimated useful life through 2027 as supported by projected future cash flows, subject to impairment testing.

Summarized financial information related to this collaboration is as follows:

($ in millions)	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
Alliance revenue - Adempas	$ 83	$ 50	$ 216	$ 144
Net sales of Adempas recorded by Merck	55	57	167	158
Total sales	$ 138	$ 107	$ 383	$ 302
Cost of sales [1]	29	28	85	86
Selling, general and administrative	19	12	42	31
Research and development	12	31	53	94

($ in millions)	September 30, 2020	December 31, 2019
Receivables from Bayer included in *Other current assets*	$ 70	$ 49
Payables to Bayer included in *Other Noncurrent Liabilities* [2]	375	375

[1] *Includes amortization of intangible assets.*

[2] *Represents accrued milestone payment.*

4. Restructuring

In early 2019, Merck approved a new global restructuring program (Restructuring Program) as part of a worldwide initiative focused on further optimizing the Company's manufacturing and supply network, as well as reducing its global real estate footprint. This program is a continuation of the Company's plant rationalization, builds on prior restructuring programs and does not include any actions associated with the planned spin-off of Organon. As the Company continues to evaluate its global footprint and overall operating model, it subsequently identified additional actions under the Restructuring Program, and could identify further actions over time. The actions currently contemplated under the Restructuring Program are expected to be substantially completed by the end of 2023, with the cumulative pretax costs to be incurred by the Company to implement the program estimated to be approximately $2.5 billion. The Company estimates that approximately 60% of the cumulative pretax costs will result in cash outlays, primarily related to employee separation expense and facility shut-down costs. Approximately 40% of the cumulative pretax costs will be non-cash, relating primarily to the accelerated depreciation of facilities to be closed or divested. The Company expects to record charges of approximately $800 million in 2020 related to the Restructuring Program. Actions under previous global restructuring programs have been substantially completed.

The Company recorded total pretax costs of $186 million and $296 million in the third quarter of 2020 and 2019, respectively, and $504 million and $642 million for the first nine months of 2020 and 2019, respectively, related to restructuring program activities. Since inception of the Restructuring Program through September 30, 2020, Merck has recorded total pretax accumulated costs of approximately $1.4 billion. For segment reporting, restructuring charges are unallocated expenses.

The following tables summarize the charges related to restructuring program activities by type of cost:

	Three Months Ended September 30, 2020				Nine Months Ended September 30, 2020			
($ in millions)	Separation Costs	Accelerated Depreciation	Other	Total	Separation Costs	Accelerated Depreciation	Other	Total
Cost of sales	$ —	$ 33	$ 5	$ 38	$ —	$ 89	$ 42	$ 131
Selling, general and administrative	—	15	—	15	—	37	—	37
Research and development	—	18	1	19	—	66	1	67
Restructuring costs	61	—	53	114	143	—	126	269
	$ 61	$ 66	$ 59	$ 186	$ 143	$ 192	$ 169	$ 504

	Three Months Ended September 30, 2019				Nine Months Ended September 30, 2019			
($ in millions)	Separation Costs	Accelerated Depreciation	Other	Total	Separation Costs	Accelerated Depreciation	Other	Total
Cost of sales	$ —	$ 41	$ 21	$ 62	$ —	$ 139	$ 22	$ 161
Selling, general and administrative	—	1	—	1	—	33	—	33
Research and development	—	(1)	2	1	—	1	3	4
Restructuring costs	205	—	27	232	358	—	86	444
	$ 205	$ 41	$ 50	$ 296	$ 358	$ 173	$ 111	$ 642

Separation costs are associated with actual headcount reductions, as well as those headcount reductions which were probable and could be reasonably estimated.

Accelerated depreciation costs primarily relate to manufacturing, research and administrative facilities and equipment to be sold or closed as part of the programs. Accelerated depreciation costs represent the difference between the depreciation expense to be recognized over the revised useful life of the asset, based upon the anticipated date the site will be closed or divested or the equipment disposed of, and depreciation expense as determined utilizing the useful life prior to the restructuring actions. All the sites have and will continue to operate up through the respective closure dates and, since future undiscounted cash flows are sufficient to recover the respective book values, Merck is recording accelerated depreciation over the revised useful life of the site assets. Anticipated site closure dates, particularly related to manufacturing locations, have been and may continue to be adjusted to reflect changes resulting from regulatory or other factors.

Other activity in 2020 and 2019 includes asset abandonment, facility shut-down and other related costs, as well as pretax gains and losses resulting from the sales of facilities and related assets. Additionally, other activity includes certain employee-related costs associated with pension and other postretirement benefit plans (see Note 12) and share-based compensation.

The following table summarizes the charges and spending relating to restructuring program activities for the nine months ended September 30, 2020:

($ in millions)	Separation Costs	Accelerated Depreciation	Other	Total
Restructuring reserves January 1, 2020	$ 690	$ —	$ 69	$ 759
Expense	143	192	169	504
(Payments) receipts, net	(395)	—	(237)	(632)
Non-cash activity	—	(192)	39	(153)
Restructuring reserves September 30, 2020 [(1)]	$ 438	$ —	$ 40	$ 478

[(1)] *The remaining cash outlays are expected to be substantially completed by the end of 2023.*

5. Financial Instruments

Derivative Instruments and Hedging Activities

The Company manages the impact of foreign exchange rate movements and interest rate movements on its earnings, cash flows and fair values of assets and liabilities through operational means and through the use of various financial instruments, including derivative instruments.

A significant portion of the Company's revenues and earnings in foreign affiliates is exposed to changes in foreign exchange rates. The objectives and accounting related to the Company's foreign currency risk management program, as well as its interest rate risk management activities are discussed below.

Foreign Currency Risk Management

The Company has established revenue hedging, balance sheet risk management and net investment hedging programs to protect against volatility of future foreign currency cash flows and changes in fair value caused by changes in foreign exchange rates.

The objective of the revenue hedging program is to reduce the variability caused by changes in foreign exchange rates that would affect the U.S. dollar value of future cash flows derived from foreign currency denominated sales, primarily the euro, Japanese yen and Chinese renminbi. To achieve this objective, the Company will hedge a portion of its forecasted foreign currency denominated third-party and intercompany distributor entity sales (forecasted sales) that are expected to occur over its planning cycle, typically no more than two years into the future. The Company will layer in hedges over time, increasing the portion of forecasted sales hedged as it gets closer to the expected date of the forecasted sales. The portion of forecasted sales hedged is based on assessments of cost-benefit profiles that consider natural offsetting exposures, revenue and exchange rate volatilities and correlations, and the cost of hedging instruments. The Company manages its anticipated transaction exposure principally with purchased local currency put options, forward contracts and purchased collar options.

The fair values of these derivative contracts are recorded as either assets (gain positions) or liabilities (loss positions) in the Condensed Consolidated Balance Sheet. Changes in the fair value of derivative contracts are recorded each period in either current earnings or *Other comprehensive income* (*OCI*), depending on whether the derivative is designated as part of a hedge transaction and, if so, the type of hedge transaction. For derivatives that are designated as cash flow hedges, the unrealized gains or losses on these contracts are recorded in *Accumulated other comprehensive income* (*AOCI*) and reclassified into *Sales* when the hedged anticipated revenue is recognized. For those derivatives which are not designated as cash flow hedges, but serve as economic hedges of forecasted sales, unrealized gains or losses are recorded in *Sales* each period. The cash flows from both designated and non-designated contracts are reported as operating activities in the Condensed Consolidated Statement of Cash Flows. The Company does not enter into derivatives for trading or speculative purposes.

The Company manages operating activities and net asset positions at each local subsidiary in order to mitigate the effects of exchange on monetary assets and liabilities. The Company also uses a balance sheet risk management program to mitigate the exposure of net monetary assets that are denominated in a currency other than a subsidiary's functional currency from the effects of volatility in foreign exchange. In these instances, Merck principally utilizes forward exchange contracts to offset the effects of exchange on exposures denominated in developed country currencies, primarily the euro and Japanese yen. For exposures in developing country currencies, the Company will enter into forward contracts to partially offset the effects of exchange on exposures when it is deemed economical to do so based on a cost-benefit analysis that considers the magnitude of the exposure, the volatility of the exchange rate and the cost of the hedging instrument. The cash flows from these contracts are reported as operating activities in the Condensed Consolidated Statement of Cash Flows.

Monetary assets and liabilities denominated in a currency other than the functional currency of a given subsidiary are remeasured at spot rates in effect on the balance sheet date with the effects of changes in spot rates reported in *Other (income) expense, net*. The forward contracts are not designated as hedges and are marked to market through *Other (income) expense, net*. Accordingly, fair value changes in the forward contracts help mitigate the changes in the value of the remeasured

assets and liabilities attributable to changes in foreign currency exchange rates, except to the extent of the spot-forward differences. These differences are not significant due to the short-term nature of the contracts, which typically have average maturities at inception of less than one year.

The Company also uses forward exchange contracts to hedge a portion of its net investment in foreign operations against movements in exchange rates. The forward contracts are designated as hedges of the net investment in a foreign operation. The unrealized gains or losses on these contracts are recorded in foreign currency translation adjustment within *OCI* and remain in *AOCI* until either the sale or complete or substantially complete liquidation of the subsidiary. The Company excludes certain portions of the change in fair value of its derivative instruments from the assessment of hedge effectiveness (excluded components). Changes in fair value of the excluded components are recognized in *OCI*. The Company recognizes in earnings the initial value of the excluded components on a straight-line basis over the life of the derivative instrument, rather than using the mark-to-market approach. The cash flows from these contracts are reported as investing activities in the Condensed Consolidated Statement of Cash Flows.

Foreign exchange risk is also managed through the use of foreign currency debt. The Company's senior unsecured euro-denominated notes have been designated as, and are effective as, economic hedges of the net investment in a foreign operation. Accordingly, foreign currency transaction gains or losses due to spot rate fluctuations on the euro-denominated debt instruments are included in foreign currency translation adjustment within *OCI*.

The effects of the Company's net investment hedges on *OCI* and the Consolidated Statement of Income are shown below:

	Amount of Pretax (Gain) Loss Recognized in Other Comprehensive Income [1]				Amount of Pretax (Gain) Loss Recognized in *Other (income) expense, net* for Amounts Excluded from Effectiveness Testing			
	Three Months Ended September 30,		Nine Months Ended September 30,		Three Months Ended September 30,		Nine Months Ended September 30,	
($ in millions)	2020	2019	2020	2019	2020	2019	2020	2019
Net Investment Hedging Relationships								
Foreign exchange contracts	$ 10	$ 1	$ 15	$ 8	$ (4)	$ (8)	$ (15)	$ (23)
Euro-denominated notes	162	(150)	182	(152)	—	—	—	—

[1] *No amounts were reclassified from AOCI into income related to the sale of a subsidiary.*

Interest Rate Risk Management

The Company may use interest rate swap contracts on certain investing and borrowing transactions to manage its net exposure to interest rate changes and to reduce its overall cost of borrowing. The Company does not use leveraged swaps and, in general, does not leverage any of its investment activities that would put principal capital at risk.

In February 2020, five interest rate swaps with notional amounts of $250 million each matured. These swaps effectively converted the Company's $1.25 billion, 1.85% fixed-rate notes due 2020 to variable rate debt. At September 30, 2020, the Company was a party to 14 pay-floating, receive-fixed interest rate swap contracts designated as fair value hedges of fixed-rate notes in which the notional amounts match the amount of the hedged fixed-rate notes as detailed in the table below.

	September 30, 2020		
($ in millions)	Par Value of Debt	Number of Interest Rate Swaps Held	Total Swap Notional Amount
3.875% notes due 2021	$ 1,150	5	$ 1,150
2.40% notes due 2022	1,000	4	1,000
2.35% notes due 2022	1,250	5	1,250

The interest rate swap contracts are designated hedges of the fair value changes in the notes attributable to changes in the benchmark London Interbank Offered Rate (LIBOR) swap rate. The fair value changes in the notes attributable to changes in the LIBOR swap rate are recorded in interest expense along with the offsetting fair value changes in the swap contracts. The cash flows from these contracts are reported as operating activities in the Condensed Consolidated Statement of Cash Flows.

The table below presents the location of amounts recorded on the Consolidated Balance Sheet related to cumulative basis adjustments for fair value hedges:

	Carrying Amount of Hedged Liabilities		Cumulative Amount of Fair Value Hedging Adjustment Increase (Decrease) Included in the Carrying Amount	
($ in millions)	September 30, 2020	December 31, 2019	September 30, 2020	December 31, 2019
Balance Sheet Line Item in which Hedged Item is Included				
Loans payable and current portion of long-term debt	$ 1,155	$ 1,249	$ 5	$ (1)
Long-Term Debt	2,309	3,409	62	14

Presented in the table below is the fair value of derivatives on a gross basis segregated between those derivatives that are designated as hedging instruments and those that are not designated as hedging instruments:

		September 30, 2020			December 31, 2019		
		Fair Value of Derivative		U.S. Dollar	Fair Value of Derivative		U.S. Dollar
($ in millions)	Balance Sheet Caption	Asset	Liability	Notional	Asset	Liability	Notional
Derivatives Designated as Hedging Instruments							
Interest rate swap contracts	Other current assets	$ 6	$ —	$ 1,150	$ —	$ —	$ —
Interest rate swap contracts	Other Assets	63	—	2,250	15	—	3,400
Interest rate swap contracts	Accrued and other current liabilities	—	—	—	—	1	1,250
Foreign exchange contracts	Other current assets	30	—	4,120	152	—	6,117
Foreign exchange contracts	Other Assets	59	—	1,881	55	—	2,160
Foreign exchange contracts	Accrued and other current liabilities	—	104	3,096	—	22	1,748
Foreign exchange contracts	Other Noncurrent Liabilities	—	1	157	—	1	53
		$ 158	$ 105	$ 12,654	$ 222	$ 24	$ 14,728
Derivatives Not Designated as Hedging Instruments							
Foreign exchange contracts	Other current assets	$ 81	$ —	$ 5,455	$ 66	$ —	$ 7,245
Foreign exchange contracts	Accrued and other current liabilities	—	171	8,042	—	73	8,693
Forward contract related to Seagen common stock	Accrued and other current liabilities	—	22	1,000	—	—	—
		$ 81	$ 193	$ 14,497	$ 66	$ 73	$ 15,938
		$ 239	$ 298	$ 27,151	$ 288	$ 97	$ 30,666

As noted above, the Company records its derivatives on a gross basis in the Condensed Consolidated Balance Sheet. The Company has master netting agreements with several of its financial institution counterparties (see *Concentrations of Credit Risk* below). The following table provides information on the Company's derivative positions subject to these master netting arrangements as if they were presented on a net basis, allowing for the right of offset by counterparty and cash collateral exchanged per the master agreements and related credit support annexes:

	September 30, 2020		December 31, 2019	
($ in millions)	Asset	Liability	Asset	Liability
Gross amounts recognized in the condensed consolidated balance sheet	$ 239	$ 298	$ 288	$ 97
Gross amounts subject to offset in master netting arrangements not offset in the condensed consolidated balance sheet	(140)	(140)	(84)	(84)
Cash collateral received	—	—	(34)	—
Net amounts	$ 99	$ 158	$ 170	$ 13

The table below provides information regarding the location and amount of pretax (gains) losses of derivatives designated in fair value or cash flow hedging relationships:

	Sales		Other (income) expense, net [1]		Other comprehensive income (loss)		Sales		Other (income) expense, net [1]		Other comprehensive income (loss)	
	Three Months Ended September 30,		Three Months Ended September 30,		Three Months Ended September 30,		Nine Months Ended September 30,		Nine Months Ended September 30,		Nine Months Ended September 30,	
($ in millions)	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019
Financial Statement Line Items in which Effects of Fair Value or Cash Flow Hedges are Recorded	$ 12,551	$ 12,397	$ (312)	$ 35	$ 10	$ (28)	$ 35,479	$ 34,972	$ (630)	$ 362	$ (190)	$ 155
(Gain) loss on fair value hedging relationships												
Interest rate swap contracts												
Hedged items	—	—	(14)	13	—	—	—	—	54	101	—	—
Derivatives designated as hedging instruments	—	—	—	(6)	—	—	—	—	(76)	(74)	—	—
Impact of cash flow hedging relationships												
Foreign exchange contracts												
Amount of (loss) gain recognized in *OCI* on derivatives	—	—	—	—	(195)	186	—	—	—	—	(126)	183
Increase (decrease) in *Sales* as a result of *AOCI* reclassifications	(23)	70	—	—	23	(70)	65	189	—	—	(65)	(189)
Interest rate contracts												
Amount of gain recognized in *Other (income) expense, net* on derivatives	—	—	(1)	(1)	—	—	—	—	(3)	(3)	—	—
Amount of loss recognized in *OCI* on derivatives	—	—	—	—	(1)	(1)	—	—	—	—	(3)	(6)

[1] *Interest expense is a component of* Other (income) expense, net.

The table below provides information regarding the income statement effects of derivatives not designated as hedging instruments:

		Amount of Derivative Pretax (Gain) Loss Recognized in Income			
		Three Months Ended September 30,		Nine Months Ended September 30,	
($ in millions)	Income Statement Caption	2020	2019	2020	2019
Derivatives Not Designated as Hedging Instruments					
Foreign exchange contracts [1]	Other (income) expense, net	$ (7)	$ (8)	$ (138)	$ 112
Foreign exchange contracts [2]	Sales	7	(11)	4	(7)
Interest rate contracts [3]	Other (income) expense, net	—	—	9	—
Forward contract related to Seagen common stock	Research and development expenses	22	—	22	—

[1] *These derivative contracts mitigate changes in the value of remeasured foreign currency denominated monetary assets and liabilities attributable to changes in foreign currency exchange rates.*

[2] *These derivative contracts serve as economic hedges of forecasted transactions.*

[3] *These derivatives serve as economic hedges against rising treasury rates.*

At September 30, 2020, the Company estimates $155 million of pretax net unrealized losses on derivatives maturing within the next 12 months that hedge foreign currency denominated sales over that same period will be reclassified from *AOCI* to *Sales*. The amount ultimately reclassified to *Sales* may differ as foreign exchange rates change. Realized gains and losses are ultimately determined by actual exchange rates at maturity.

Investments in Debt and Equity Securities

Information on investments in debt and equity securities is as follows:

	September 30, 2020				December 31, 2019			
	Amortized	Gross Unrealized		Fair	Amortized	Gross Unrealized		Fair
($ in millions)	Cost	Gains	Losses	Value	Cost	Gains	Losses	Value
U.S. government and agency securities	$ 74	$ —	$ —	$ 74	$ 266	$ 3	$ —	$ 269
Foreign government bonds	2	—	—	2	—	—	—	—
Commercial paper	—	—	—	—	668	—	—	668
Corporate notes and bonds	—	—	—	—	608	13	—	621
Asset-backed securities	—	—	—	—	226	1	—	227
Total debt securities	$ 76	$ —	$ —	$ 76	$ 1,768	$ 17	$ —	$ 1,785
Publicly traded equity securities [(1)]				1,477				838
Total debt and publicly traded equity securities				$ 1,553				$ 2,623

[(1)] *Unrealized net (gains) losses recognized in* Other (income) expense, net *on equity securities still held at September 30, 2020 were $(43) million and $(512) million in the third quarter and first nine months of 2020, respectively. Unrealized net losses (gains) recognized in* Other (income) expense, net *on equity securities still held at September 30, 2019 were $25 million and $(41) million in the third quarter and first nine months of 2019, respectively.*

At September 30, 2020 and September 30, 2019, the Company also had $508 million and $393 million, respectively, of equity investments without readily determinable fair values included in *Other Assets*. The Company recognizes unrealized gains on these equity investments based on favorable observable price changes from transactions involving similar investments of the same investee and recognizes unrealized losses based on unfavorable observable price changes. During the first nine months of 2020, the Company recognized unrealized gains of $21 million and unrealized losses of $3 million in *Other (income) expense, net* related to these equity investments held at September 30, 2020. During the first nine months of 2019, the Company recognized unrealized gains of $4 million and unrealized losses of $12 million in *Other (income) expense, net* related to these investments held at September 30, 2019. Cumulative unrealized gains and cumulative unrealized losses based on observable prices changes for investments in equity investments without readily determinable fair values still held at September 30, 2020 were $128 million and $24 million, respectively.

Fair Value Measurements

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The Company uses a fair value hierarchy which maximizes the use of observable inputs and minimizes the use of unobservable inputs when measuring fair value. There are three levels of inputs used to measure fair value with Level 1 having the highest priority and Level 3 having the lowest: *Level 1* - Quoted prices (unadjusted) in active markets for identical assets or liabilities; *Level 2* - Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; *Level 3* - Unobservable inputs that are supported by little or no market activity. Level 3 assets or liabilities are those whose values are determined using pricing models, discounted cash flow methodologies, or similar techniques with significant unobservable inputs, as well as assets or liabilities for which the determination of fair value requires significant judgment or estimation. If the inputs used to measure the financial assets and liabilities fall within more than one level described above, the categorization is based on the lowest level input that is significant to the fair value measurement of the instrument.

Financial Assets and Liabilities Measured at Fair Value on a Recurring Basis

Financial assets and liabilities measured at fair value on a recurring basis are summarized below:

	Fair Value Measurements Using				Fair Value Measurements Using			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
($ in millions)	September 30, 2020				December 31, 2019			
Assets								
Investments								
Foreign government bonds	$ —	$ 2	$ —	$ 2	$ —	$ —	$ —	$ —
Commercial paper	—	—	—	—	—	668	—	668
Corporate notes and bonds	—	—	—	—	—	621	—	621
Asset-backed securities [1]	—	—	—	—	—	227	—	227
U.S. government and agency securities	—	—	—	—	—	209	—	209
Publicly traded equity securities	1,370	—	—	1,370	518	—	—	518
	1,370	2	—	1,372	518	1,725	—	2,243
Other assets [2]								
U.S. government and agency securities	74	—	—	74	60	—	—	60
Publicly traded equity securities	107	—	—	107	320	—	—	320
	181	—	—	181	380	—	—	380
Derivative assets [3]								
Forward exchange contracts	—	116	—	116	—	169	—	169
Interest rate swaps	—	69	—	69	—	15	—	15
Purchased currency options	—	54	—	54	—	104	—	104
	—	239	—	239	—	288	—	288
Total assets	$ 1,551	$ 241	$ —	$ 1,792	$ 898	$ 2,013	$ —	$ 2,911
Liabilities								
Other liabilities								
Contingent consideration	$ —	$ —	$ 829	$ 829	$ —	$ —	$ 767	$ 767
Derivative liabilities [3]								
Forward exchange contracts	—	275	—	275	—	95	—	95
Forward contract related to Seagen common stock	—	22	—	22	—	—	—	—
Written currency options	—	1	—	1	—	1	—	1
Interest rate swaps	—	—	—	—	—	1	—	1
	—	298	—	298	—	97	—	97
Total liabilities	$ —	$ 298	$ 829	$ 1,127	$ —	$ 97	$ 767	$ 864

[1] *Primarily all of the asset-backed securities were highly rated (Standard & Poor's rating of AAA and Moody's Investors Service rating of Aaa), secured primarily by auto loan, credit card and student loan receivables, with weighted-average lives of primarily 5 years or less.*

[2] *Investments included in other assets are restricted as to use, including for the payment of benefits under employee benefit plans.*

[3] *The fair value determination of derivatives includes the impact of the credit risk of counterparties to the derivatives and the Company's own credit risk, the effects of which were not significant.*

As of September 30, 2020 and December 31, 2019, *Cash and cash equivalents* included $6.6 billion and $8.9 billion of cash equivalents, respectively (which would be considered Level 2 in the fair value hierarchy).

Contingent Consideration

Summarized information about the changes in liabilities for contingent consideration associated with business acquisitions is as follows:

	Nine Months Ended September 30,	
($ in millions)	2020	2019
Fair value January 1	$ 767	$ 788
Additions	97	—
Changes in estimated fair value [(1)]	71	52
Payments	(106)	(85)
Fair value September 30 [(2)(3)]	$ 829	$ 755

[(1)] *Recorded in* Cost of sales, Research and development *expenses, and* Other (income) expense, net*. Includes cumulative translation adjustments.*

[(2)] *Balance at September 30, 2020 includes $140 million recorded as a current liability for amounts expected to be paid within the next 12 months.*

[(3)] *At September 30, 2020 and December 31, 2019, $637 million and $625 million, respectively, of the liabilities relate to the termination of the Sanofi-Pasteur MSD joint venture in 2016. As part of the termination, Merck recorded a liability for contingent future royalty payments of 11.5% on net sales of all Merck products that were previously sold by the joint venture through December 31, 2024. The fair value of this liability is determined utilizing the estimated amount and timing of projected cash flows using a risk-adjusted discount rate of 8% to present value the cash flows.*

The additions to contingent consideration in 2020 relate to the acquisition of Themis (see Note 2). The payments of contingent consideration in both periods relate to liabilities recorded in connection with the termination of the Sanofi-Pasteur MSD joint venture in 2016.

Other Fair Value Measurements

Some of the Company's financial instruments, such as cash and cash equivalents, receivables and payables, are reflected in the balance sheet at carrying value, which approximates fair value due to their short-term nature.

The estimated fair value of loans payable and long-term debt (including current portion) at September 30, 2020, was $32.6 billion compared with a carrying value of $28.7 billion and at December 31, 2019, was $28.8 billion compared with a carrying value of $26.3 billion. Fair value was estimated using recent observable market prices and would be considered Level 2 in the fair value hierarchy.

Concentrations of Credit Risk

On an ongoing basis, the Company monitors concentrations of credit risk associated with corporate and government issuers of securities and financial institutions with which it conducts business. Credit exposure limits are established to limit a concentration with any single issuer or institution. Cash and investments are placed in instruments that meet high credit quality standards as specified in the Company's investment policy guidelines.

The majority of the Company's accounts receivable arise from product sales in the United States, Europe and China and are primarily due from drug wholesalers and retailers, hospitals, government agencies, managed health care providers and pharmacy benefit managers. The Company monitors the financial performance and creditworthiness of its customers so that it can properly assess and respond to changes in their credit profile. The Company also continues to monitor global economic conditions, including the volatility associated with international sovereign economies, and associated impacts on the financial markets and its business.

The Company has accounts receivable factoring agreements with financial institutions in certain countries to sell accounts receivable. The Company factored $2.1 billion and $2.7 billion of accounts receivable in the third quarter of 2020 and the fourth quarter of 2019, respectively, under these factoring arrangements, which reduced outstanding accounts receivable. The cash received from the financial institutions is reported within operating activities in the Consolidated Statement of Cash Flows. In certain of these factoring arrangements, for ease of administration, the Company will collect customer payments related to the factored receivables, which it then remits to the financial institutions. The net cash flows relating to these collections are reported as financing activities in the Consolidated Statement of Cash Flows. The cost of factoring such accounts receivable was *de minimis*.

Derivative financial instruments are executed under International Swaps and Derivatives Association master agreements. The master agreements with several of the Company's financial institution counterparties also include credit support annexes. These annexes contain provisions that require collateral to be exchanged depending on the value of the derivative assets and liabilities, the Company's credit rating, and the credit rating of the counterparty. Cash collateral received by the Company from various counterparties was $34 million at December 31, 2019. The obligation to return such collateral is recorded in *Accrued and other current liabilities*. No cash collateral was advanced by the Company to counterparties as of September 30, 2020 or December 31, 2019.

6. Inventories

Inventories consisted of:

($ in millions)	September 30, 2020	December 31, 2019
Finished goods	$ 2,038	$ 1,772
Raw materials and work in process	6,073	5,650
Supplies	197	207
Total (approximates current cost)	8,308	7,629
Decrease to LIFO cost	(99)	(171)
	$ 8,209	$ 7,458
Recognized as:		
Inventories	$ 6,128	$ 5,978
Other assets	2,081	1,480

Amounts recognized as *Other Assets* are comprised almost entirely of raw materials and work in process inventories. At September 30, 2020 and December 31, 2019, these amounts included $1.8 billion and $1.3 billion, respectively, of inventories not expected to be sold within one year. In addition, these amounts included $288 million and $168 million at September 30, 2020 and December 31, 2019, respectively, of inventories produced in preparation for product launches.

7. Other Intangibles

During the third quarter and first nine months of 2019, the Company recorded $612 million and $693 million, respectively, of intangible asset impairment charges related to marketed products within *Cost of sales*. During the third quarter of 2019, the Company recorded an impairment charge of $612 million related to *Sivextro* (tedizolid phosphate), a product for the treatment of acute bacterial skin and skin structure infections caused by susceptible isolates of certain Gram-positive microorganisms. As part of a reorganization and reprioritization of its internal sales force, the Company made the decision to cease promotion of *Sivextro* in the U.S. market by the end of 2019. This decision resulted in reduced cash flow projections for *Sivextro*, which indicated that the *Sivextro* intangible asset value was not fully recoverable on an undiscounted cash flows basis. The Company utilized market participant assumptions to determine its best estimate of the fair value of the intangible asset related to *Sivextro* that, when compared with its related carrying value, resulted in the impairment charge noted above.

8. Long-Term Debt

In June 2020, the Company issued $4.5 billion principal amount of senior unsecured notes consisting of $1.0 billion of 0.75% notes due 2026, $1.25 billion of 1.45% notes due 2030, $1.0 billion of 2.35% notes due 2040 and $1.25 billion of 2.45% notes due 2050. Merck used the net proceeds from the offering for general corporate purposes, including without limitation the repayment of outstanding commercial paper borrowings and other indebtedness with upcoming maturities.

9. Contingencies

The Company is involved in various claims and legal proceedings of a nature considered normal to its business, including product liability, intellectual property, and commercial litigation, as well as certain additional matters including governmental and environmental matters. In the opinion of the Company, it is unlikely that the resolution of these matters will be material to the Company's financial condition, results of operations or cash flows.

Given the nature of the litigation discussed below and the complexities involved in these matters, the Company is unable to reasonably estimate a possible loss or range of possible loss for such matters until the Company knows, among other factors, (i) what claims, if any, will survive dispositive motion practice, (ii) the extent of the claims, including the size of any potential class, particularly when damages are not specified or are indeterminate, (iii) how the discovery process will affect the litigation, (iv) the settlement posture of the other parties to the litigation and (v) any other factors that may have a material effect on the litigation.

The Company records accruals for contingencies when it is probable that a liability has been incurred and the amount can be reasonably estimated. These accruals are adjusted periodically as assessments change or additional information becomes available. For product liability claims, a portion of the overall accrual is actuarially determined and considers such factors as past experience, number of claims reported and estimates of claims incurred but not yet reported. Individually significant contingent losses are accrued when probable and reasonably estimable. Legal defense costs expected to be incurred in connection with a loss contingency are accrued when probable and reasonably estimable.

The Company's decision to obtain insurance coverage is dependent on market conditions, including cost and availability, existing at the time such decisions are made. The Company has evaluated its risks and has determined that the cost of obtaining product liability insurance outweighs the likely benefits of the coverage that is available and, as such, has no insurance for most product liabilities.

Product Liability Litigation

Fosamax

As previously disclosed, Merck is a defendant in product liability lawsuits in the United States involving *Fosamax* (*Fosamax* Litigation). As of September 30, 2020, approximately 3,590 cases are pending against Merck in either federal or state court. Plaintiffs in the vast majority of these cases generally allege that they sustained femur fractures and/or other bone injuries (Femur Fractures) in association with the use of *Fosamax*.

All federal cases involving allegations of Femur Fractures have been or will be transferred to a multidistrict litigation in the District of New Jersey (Femur Fracture MDL). In the only bellwether case tried to date in the Femur Fracture MDL, *Glynn v. Merck*, the jury returned a verdict in Merck's favor. In addition, in June 2013, the Femur Fracture MDL court granted Merck's motion for judgment as a matter of law in the *Glynn* case and held that the plaintiff's failure to warn claim was preempted by federal law.

In August 2013, the Femur Fracture MDL court entered an order requiring plaintiffs in the Femur Fracture MDL to show cause why those cases asserting claims for a femur fracture injury that took place prior to September 14, 2010, should not be dismissed based on the court's preemption decision in the *Glynn* case. Pursuant to the show cause order, in March 2014, the Femur Fracture MDL court dismissed with prejudice approximately 650 cases on preemption grounds. Plaintiffs in approximately 515 of those cases appealed that decision to the U.S. Court of Appeals for the Third Circuit (Third Circuit). In March 2017, the Third Circuit issued a decision reversing the Femur Fracture MDL court's preemption ruling and remanding the appealed cases back to the Femur Fracture MDL court. In May 2019, the U.S. Supreme Court decided that the Third Circuit had incorrectly concluded that the issue of preemption should be resolved by a jury, and accordingly vacated the judgment of the Third Circuit and remanded the proceedings back to the Third Circuit to address the issue in a manner consistent with the Supreme Court's opinion. In November 2019, the Third Circuit remanded the cases back to the District Court in order to allow that court to determine in the first instance whether the plaintiffs' state law claims are preempted by federal law under the standards described by the Supreme Court in its opinion. Briefing on the issue is closed, and the parties await the decision of the District Court.

Accordingly, as of September 30, 2020, approximately 970 cases were actively pending in the Femur Fracture MDL.

As of September 30, 2020, approximately 2,340 cases alleging Femur Fractures have been filed in New Jersey state court and are pending before Judge James Hyland in Middlesex County. The parties selected an initial group of cases to be reviewed through fact discovery, and Merck has continued to select additional cases to be reviewed.

As of September 30, 2020, approximately 275 cases alleging Femur Fractures have been filed and are pending in California state court. All of the Femur Fracture cases filed in California state court have been coordinated before a single judge in Orange County, California.

Additionally, there are four Femur Fracture cases pending in other state courts.

Discovery is presently stayed in the Femur Fracture MDL and in the state court in California. Merck intends to defend against these lawsuits.

Januvia/Janumet

As previously disclosed, Merck is a defendant in product liability lawsuits in the United States involving *Januvia* and/or *Janumet*. As of September 30, 2020, Merck is aware of approximately 1,465 product users alleging that *Januvia* and/or *Janumet* caused the development of pancreatic cancer and other injuries.

Most claims have been filed in multidistrict litigation before the U.S. District Court for the Southern District of California (MDL). Outside of the MDL, the majority of claims have been filed in coordinated proceedings before the Superior Court of California, County of Los Angeles (California State Court).

In November 2015, the MDL and California State Court–in separate opinions–granted summary judgment to defendants on grounds of federal preemption.

Plaintiffs appealed in both forums. In November 2017, the U.S. Court of Appeals for the Ninth Circuit vacated the judgment and remanded for further discovery. In November 2018, the California state appellate court reversed and remanded on similar grounds. In March 2019, the parties in the MDL and the California coordinated proceedings agreed to coordinate and adopt a schedule for completing discovery on general causation and preemption issues and for renewing summary judgment

and *Daubert* motions. Under the stipulated case management schedule, the hearings for *Daubert* and summary judgment motions took place on October 20, 2020.

As of September 30, 2020, six product users have claims pending against Merck in state courts other than California, including Illinois. In June 2017, the Illinois trial court denied Merck's motion for summary judgment based on federal preemption. Merck appealed, and the Illinois appellate court affirmed in December 2018. Merck filed a petition for leave to appeal to the Illinois Supreme Court in February 2019. In April 2019, the Illinois Supreme Court stayed consideration of the pending petition to appeal until the U.S. Supreme Court issued its opinion in *Merck Sharp & Dohme Corp. v. Albrecht* (relating to the *Fosamax* matter discussed above). Merck filed the opinion in *Albrecht* with the Illinois Supreme Court in June 2019. The petition for leave to appeal was decided in September 2019, in which the Illinois Supreme Court directed the intermediate appellate court to reconsider its earlier ruling. The Illinois Appellate Court issued a favorable decision concluding, consistent with *Albrecht*, that preemption presents a legal question to be resolved by the court.

In addition to the claims noted above, the Company has agreed to toll the statute of limitations for approximately 50 additional claims. The Company intends to continue defending against these lawsuits.

Vioxx

As previously disclosed, Merck is a defendant in a lawsuit brought by the Attorney General of Utah alleging that Merck misrepresented the safety of *Vioxx*. The lawsuit is pending in Utah state court. Utah seeks damages and penalties under the Utah False Claims Act. A bench trial in this matter has been rescheduled for April 6, 2021.

Governmental Proceedings

As previously disclosed, the Company's subsidiaries in China have received and may continue to receive inquiries regarding their operations from various Chinese governmental agencies. Some of these inquiries may be related to matters involving other multinational pharmaceutical companies, as well as Chinese entities doing business with such companies. The Company's policy is to cooperate with these authorities and to provide responses as appropriate.

As previously disclosed, from time to time, the Company receives inquiries and is the subject of preliminary investigation activities from competition and other governmental authorities in markets outside the United States. These authorities may include regulators, administrative authorities, and law enforcement and other similar officials, and these preliminary investigation activities may include site visits, formal or informal requests or demands for documents or materials, inquiries or interviews and similar matters. Certain of these preliminary inquiries or activities may lead to the commencement of formal proceedings. Should those proceedings be determined adversely to the Company, monetary fines and/or remedial undertakings may be required.

Commercial and Other Litigation

Zetia Antitrust Litigation

As previously disclosed, Merck, MSD, Schering Corporation and MSP Singapore Company LLC (collectively, the Merck Defendants) are defendants in putative class action and opt-out lawsuits filed in 2018 on behalf of direct and indirect purchasers of *Zetia* alleging violations of federal and state antitrust laws, as well as other state statutory and common law causes of action. The cases have been consolidated for pretrial purposes in a federal multidistrict litigation before Judge Rebecca Beach Smith in the Eastern District of Virginia. In December 2018, the court denied the Merck Defendants' motions to dismiss or stay the direct purchaser putative class actions pending bilateral arbitration. In August 2019, the district court adopted in full the report and recommendation of the magistrate judge with respect to the Merck Defendants' motions to dismiss on non-arbitration issues, thereby granting in part and denying in part Merck Defendants' motions to dismiss. In addition, in June 2019, the representatives of the putative direct purchaser class filed an amended complaint, and in August 2019, retailer opt-out plaintiffs filed an amended complaint. The Merck Defendants moved to dismiss the new allegations in both complaints. In October 2019, the magistrate judge issued a report and recommendation recommending that the district judge grant the motions in their entirety. In December 2019, the district court adopted this report and recommendation in part. The district court granted the Merck Defendants' motion to dismiss to the extent the motion sought dismissal of claims for overcharges paid by entities that purchased generic ezetimibe from Par Pharmaceutical, Inc. (Par Pharmaceutical) and dismissed any claims for such overcharges. In November 2019, the direct purchaser plaintiffs and the indirect purchaser plaintiffs filed motions for class certification. On June 18, 2020, the magistrate judge issued a report and recommendation recommending that the district judge grant in part the direct purchasers' motion for class certification and certify a class of 35 direct purchasers. On August 21, 2020, the district court adopted the report and recommendation in full, and on November 2, 2020, the U.S. Court of Appeals for the Fourth Circuit granted defendants' motion for permission to appeal the district court's order. Also, on August 14, 2020, the magistrate judge recommended that the court grant the motion for class certification filed by the putative indirect purchaser class. The Merck Defendants objected to this report and recommendation and are awaiting a decision from the district court.

On August 10, 2020, the Merck Defendants filed a motion for summary judgment and other motions, and plaintiffs filed a motion for partial summary judgment, and other motions. Those motions are now fully briefed, and the court will likely hold a hearing on the competing motions. Trial in this matter has been adjourned.

Patent Litigation

From time to time, generic manufacturers of pharmaceutical products file abbreviated New Drug Applications (NDAs) with the FDA seeking to market generic forms of the Company's products prior to the expiration of relevant patents owned by the Company. To protect its patent rights, the Company may file patent infringement lawsuits against such generic companies. Similar lawsuits defending the Company's patent rights may exist in other countries. The Company intends to vigorously defend its patents, which it believes are valid, against infringement by companies attempting to market products prior to the expiration of such patents. As with any litigation, there can be no assurance of the outcomes, which, if adverse, could result in significantly shortened periods of exclusivity for these products and, with respect to products acquired through acquisitions, potentially significant intangible asset impairment charges.

Bridion — Between January and March 2020, the Company received multiple Paragraph IV Certification Letters under the Hatch-Waxman Act notifying the Company that generic drug companies have filed applications to the FDA seeking pre-patent expiry approval to sell generic versions of *Bridion* (sugammadex) Injection. In March and April 2020, the Company filed patent infringement lawsuits in the U.S. District Courts for the District of New Jersey and the Northern District of West Virginia against those generic companies. These lawsuits, which assert one or more patents covering sugammadex and methods of using sugammadex, automatically stay FDA approval of the generic applications until June 2023 or until adverse court decisions, if any, whichever may occur earlier.

Mylan Pharmaceuticals Inc., Mylan API US LLC, and Mylan Inc. (Mylan) have filed motions to dismiss in the District of New Jersey for lack of venue and failure to state a claim against certain defendants, and in the Northern District of West Virginia for failure to state a claim against certain defendants. The New Jersey motion has not yet been decided, and the West Virginia action is stayed pending resolution of the New Jersey motion. All New Jersey actions against all defendants have been consolidated.

Januvia, Janumet, Janumet XR — In February 2019, Par Pharmaceutical filed suit against the Company in the U.S. District Court for the District of New Jersey, seeking a declaratory judgment of invalidity of a patent owned by the Company covering certain salt and polymorphic forms of sitagliptin that expires in 2026. In response, the Company filed a patent infringement lawsuit in the U.S. District Court for the District of Delaware against Par Pharmaceutical and additional companies that also indicated an intent to market generic versions of *Januvia*, *Janumet*, and *Janumet XR* following expiration of key patent protection in 2022, but prior to the expiration of the later-granted patent owned by the Company covering certain salt and polymorphic forms of sitagliptin that expires in 2026 (2026 salt/polymorph patent), and a later granted patent owned by the Company covering the *Janumet* formulation which expires in 2028. Par Pharmaceutical dismissed its case in the U.S. District Court for the District of New Jersey against the Company and will litigate the action in the U.S. District Court for the District of Delaware. The Company filed a patent infringement lawsuit against Mylan in the Northern District of West Virginia. The Judicial Panel of Multidistrict Litigation entered an order transferring the Company's lawsuit against Mylan to the U.S. District Court for the District of Delaware for coordinated and consolidated pretrial proceedings with the other cases pending in that district. The U.S. District Court for the District of Delaware has scheduled the lawsuits for a single three-day trial on invalidity issues in October 2021. The Court will schedule separate one-day trials on infringement issues if necessary. In the Company's case against Mylan, the U.S. District Court for the Northern District of West Virginia has conditionally scheduled a three-day trial in December 2021 on all issues. In February 2020, the Company amended its complaint against one defendant, Teva Pharmaceuticals USA, Inc., to add patent infringement claims related to a patent that expires in 2025 and covers certain processes for manufacturing sitagliptin. In July 2020, the Company amended its complaints against two defendants, Teva Pharmaceuticals USA, Inc. and Watson Laboratories, Inc., to add patent infringement claims related to a patent that also expires in 2026 and covers certain amorphous forms of sitagliptin.

The Company has settled with five generic companies such that these generic companies can bring their products to the market in November 2026 or earlier under certain circumstances.

In October 2019, Mylan filed a petition for *Inter Partes* Review (IPR) at the United States Patent and Trademark Office (USPTO) seeking invalidity of some, but not all, of the claims of the 2026 salt/polymorph patent. The USPTO instituted IPR proceedings in May 2020, finding a reasonable likelihood that the challenged claims are not valid. A trial is scheduled for February 2021 and a final decision is expected in May 2021. After institution, three additional IPR petitions were filed by Teva Pharmaceuticals USA, Inc., Dr. Reddy's Laboratories, Inc., and Sun Pharmaceutical Industries Ltd., as well as related entities, which requested joinder with Mylan's IPR proceedings. If the challenges are successful, the unchallenged claims of the 2026 salt/polymorph patent will remain valid, subject to the court proceedings described above.

In Germany, two generic companies have sought the revocation of the Supplementary Protection Certificate (SPC) for *Janumet*. If the generic companies are successful, *Janumet* could lose market exclusivity in Germany as early as July 2022. Challenges to the *Janumet* SPC have also occurred in Portugal and Finland, and could occur in other European countries.

Other Litigation

There are various other pending legal proceedings involving the Company, principally product liability and intellectual property lawsuits. While it is not feasible to predict the outcome of such proceedings, in the opinion of the Company, either the likelihood of loss is remote or any reasonably possible loss associated with the resolution of such proceedings is not expected to be material to the Company's financial condition, results of operations or cash flows either individually or in the aggregate.

Legal Defense Reserves

Legal defense costs expected to be incurred in connection with a loss contingency are accrued when probable and reasonably estimable. Some of the significant factors considered in the review of these legal defense reserves are as follows: the actual costs incurred by the Company; the development of the Company's legal defense strategy and structure in light of the scope of its litigation; the number of cases being brought against the Company; the costs and outcomes of completed trials and the most current information regarding anticipated timing, progression, and related costs of pre-trial activities and trials in the associated litigation. The amount of legal defense reserves as of September 30, 2020 and December 31, 2019 of approximately $255 million and $240 million, respectively, represents the Company's best estimate of the minimum amount of defense costs to be incurred in connection with its outstanding litigation; however, events such as additional trials and other events that could arise in the course of its litigation could affect the ultimate amount of legal defense costs to be incurred by the Company. The Company will continue to monitor its legal defense costs and review the adequacy of the associated reserves and may determine to increase the reserves at any time in the future if, based upon the factors set forth, it believes it would be appropriate to do so.

10. Equity

	Three Months Ended September 30,								
	Common Stock		Other Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Treasury Stock		Non-controlling Interests	Total
($ and shares in millions except per share amounts)	Shares	Par Value				Shares	Cost		
Balance at July 1, 2019	3,577	$ 1,788	$ 39,484	$ 45,295	$ (5,362)	1,010	$ (53,570)	$ 102	$ 27,737
Net income attributable to Merck & Co., Inc.	—	—	—	1,901	—	—	—	—	1,901
Other comprehensive loss, net of taxes	—	—	—	—	(28)	—	—	—	(28)
Cash dividends declared on common stock ($0.55 per share)	—	—	—	(1,392)	—	—	—	—	(1,392)
Treasury stock shares purchased	—	—	—	—	—	17	(1,405)	—	(1,405)
Share-based compensation plans and other	—	—	77	—	—	(1)	50	—	127
Net income attributable to noncontrolling interests	—	—	—	—	—	—	—	6	6
Distributions attributable to noncontrolling interests	—	—	—	—	—	—	—	(21)	(21)
Balance at September 30, 2019	3,577	$ 1,788	$ 39,561	$ 45,804	$ (5,390)	1,026	$ (54,925)	$ 87	$ 26,925
Balance at July 1, 2020	3,577	$ 1,788	$ 39,373	$ 49,724	$ (6,393)	1,048	$ (56,850)	$ 102	$ 27,744
Net income attributable to Merck & Co., Inc.	—	—	—	2,941	—	—	—	—	2,941
Other comprehensive income, net of taxes	—	—	—	—	10	—	—	—	10
Cash dividends declared on common stock ($0.61 per share)	—	—	—	(1,558)	—	—	—	—	(1,558)
Share-based compensation plans and other	—	—	116	—	—	(1)	35	—	151
Net income attributable to noncontrolling interests	—	—	—	—	—	—	—	4	4
Distributions attributable to noncontrolling interests	—	—	—	—	—	—	—	(22)	(22)
Balance at September 30, 2020	3,577	$ 1,788	$ 39,489	$ 51,107	$ (6,383)	1,047	$ (56,815)	$ 84	$ 29,270

	Nine Months Ended September 30,								
	Common Stock		Other Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Treasury Stock		Non-controlling Interests	Total
($ and shares in millions except per share amounts)	Shares	Par Value				Shares	Cost		
Balance at January 1, 2019	3,577	$ 1,788	$ 38,808	$ 42,579	$ (5,545)	985	$ (50,929)	$ 181	$ 26,882
Net income attributable to Merck & Co., Inc.	—	—	—	7,487	—	—	—	—	7,487
Other comprehensive income, net of taxes	—	—	—	—	155	—	—	—	155
Cash dividends declared on common stock ($1.65 per share)	—	—	—	(4,262)	—	—	—	—	(4,262)
Treasury stock shares purchased	—	—	1,000	—	—	54	(4,730)	—	(3,730)
Share-based compensation plans and other	—	—	(247)	—	—	(13)	734	—	487
Net loss attributable to noncontrolling interests	—	—	—	—	—	—	—	(73)	(73)
Distributions attributable to noncontrolling interests	—	—	—	—	—	—	—	(21)	(21)
Balance at September 30, 2019	3,577	1,788	39,561	45,804	(5,390)	1,026	(54,925)	87	26,925
Balance at January 1, 2020	3,577	$ 1,788	$ 39,660	$ 46,602	$ (6,193)	1,038	$ (55,950)	$ 94	$ 26,001
Net income attributable to Merck & Co., Inc.	—	—	—	9,161	—	—	—	—	9,161
Other comprehensive loss, net of taxes	—	—	—	—	(190)	—	—	—	(190)
Cash dividends declared on common stock ($1.83 per share)	—	—	—	(4,656)	—	—	—	—	(4,656)
Treasury stock shares purchased	—	—	—	—	—	16	(1,281)	—	(1,281)
Share-based compensation plans and other	—	—	(171)	—	—	(7)	416	—	245
Net income attributable to noncontrolling interests	—	—	—	—	—	—	—	12	12
Distributions attributable to noncontrolling interests	—	—	—	—	—	—	—	(22)	(22)
Balance at September 30, 2020	3,577	$ 1,788	$ 39,489	$ 51,107	$ (6,383)	1,047	$ (56,815)	$ 84	$ 29,270

11. Share-Based Compensation Plans

The Company has share-based compensation plans under which the Company grants restricted stock units (RSUs) and performance share units (PSUs) to certain management level employees. In addition, employees and non-employee directors may be granted options to purchase shares of Company common stock at the fair market value at the time of grant.

The following table provides the amounts of share-based compensation cost recorded in the Condensed Consolidated Statement of Income:

	Three Months Ended September 30,		Nine Months Ended September 30,	
($ in millions)	2020	2019	2020	2019
Pretax share-based compensation expense	$ 126	$ 101	$ 354	$ 306
Income tax benefit	(17)	(14)	(48)	(42)
Total share-based compensation expense, net of taxes	$ 109	$ 87	$ 306	$ 264

During the first nine months of 2020, the Company granted 7 million RSUs with a weighted-average grant date fair value of $77.83 per RSU and during the first nine months of 2019 granted 5 million RSUs with a weighted-average grant date fair value of $80.03 per RSU. During the first nine months of 2020, the Company granted 773 thousand PSUs with a weighted-average grant date fair value of $75.22 per PSU and during the first nine months of 2019 granted 609 thousand PSUs with a weighted-average grant date fair value of $90.50 per PSU.

During the first nine months of 2020, the Company granted 4 million stock options with a weighted-average exercise price of $77.67 per option and during the first nine months of 2019 granted 3 million stock options with a weighted-average exercise price of $80.05 per option. The weighted-average fair value of options granted during the first nine months of 2020 and 2019 was $9.93 and $10.63 per option, respectively, and was determined using the following assumptions:

	Nine Months Ended September 30,	
	2020	2019
Expected dividend yield	3.1 %	3.2 %
Risk-free interest rate	0.4 %	2.4 %
Expected volatility	22.1 %	18.7 %
Expected life (years)	5.8	5.9

At September 30, 2020, there was $800 million of total pretax unrecognized compensation expense related to nonvested stock options, RSU and PSU awards which will be recognized over a weighted-average period of 2.1 years. For segment reporting, share-based compensation costs are unallocated expenses.

12. Pension and Other Postretirement Benefit Plans

The Company has defined benefit pension plans covering eligible employees in the United States and in certain of its international subsidiaries. The net periodic benefit cost of such plans consisted of the following components:

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2020		2019		2020		2019	
($ in millions)	U.S.	International	U.S.	International	U.S.	International	U.S.	International
Service cost	$ 96	$ 77	$ 76	$ 58	$ 270	$ 225	$ 221	$ 178
Interest cost	107	35	115	44	323	103	343	133
Expected return on plan assets	(193)	(104)	(202)	(106)	(581)	(310)	(613)	(320)
Amortization of unrecognized prior service credit	(12)	(3)	(12)	(3)	(37)	(9)	(37)	(9)
Net loss amortization	75	32	43	16	228	94	113	47
Termination benefits	1	1	3	—	5	2	7	1
Curtailments	1	—	5	—	4	(1)	6	—
Settlements	2	—	—	—	11	2	—	—
	$ 77	$ 38	$ 28	$ 9	$ 223	$ 106	$ 40	$ 30

The Company anticipates that in 2020 it will contribute approximately $200 million and $375 million to its U.S. and international pension plans, respectively, of which $184 million and $123 million, respectively, was contributed in the first nine months of the year.

The Company provides medical benefits, principally to its eligible U.S. retirees and similar benefits to their dependents, through its other postretirement benefit plans. The net credit of such plans consisted of the following components:

	Three Months Ended September 30,		Nine Months Ended September 30,	
($ in millions)	2020	2019	2020	2019
Service cost	$ 13	$ 12	$ 39	$ 36
Interest cost	14	17	43	52
Expected return on plan assets	(19)	(18)	(56)	(54)
Amortization of unrecognized prior service credit	(18)	(20)	(54)	(59)
Net gain amortization	(5)	(3)	(13)	(7)
Termination benefits	—	1	—	1
Curtailments	—	(3)	(1)	(4)
	$ (15)	$ (14)	$ (42)	$ (35)

In connection with restructuring actions (see Note 4), termination charges were recorded on pension plans related to expanded eligibility for certain employees exiting Merck. Also, in connection with these restructuring actions, curtailments were recorded on pension and other postretirement benefit plans and settlements were recorded on certain U.S. and international pension plans as reflected in the tables above.

The components of net periodic benefit cost (credit) other than the service cost component are included in *Other (income) expense, net* (see Note 13), with the exception of certain amounts for termination benefits, curtailments and

settlements, which are recorded in *Restructuring costs* if the event giving rise to the termination benefits, curtailment or settlement is related to restructuring actions as noted above.

13. Other (Income) Expense, Net

Other (income) expense, net, consisted of:

	Three Months Ended September 30,		Nine Months Ended September 30,	
($ in millions)	2020	2019	2020	2019
Interest income	$ (9)	$ (61)	$ (48)	$ (225)
Interest expense	203	231	624	674
Exchange losses	10	38	89	166
Income from investments in equity securities, net [(1)]	(360)	(16)	(964)	(50)
Net periodic defined benefit plan (credit) cost other than service cost	(88)	(128)	(259)	(409)
Other, net	(68)	(29)	(72)	206
	$ (312)	$ 35	$ (630)	$ 362

[(1)] *Includes net realized and unrealized gains and losses from investments in equity securities either owned directly or through ownership interests in investment funds. Unrealized gains and losses from investments that are directly owned are determined at the end of the reporting period, while ownership interests in investment funds are accounted for on a one quarter lag.*

The decline in interest income in the third quarter and first nine months of 2020 reflects lower investments and lower interest rates. The lower exchange losses in the first nine months of 2020 reflect losses on forward exchange contracts in 2019 related to the acquisition of Antelliq. The increase in income from investments in equity securities, net, in both the third quarter and first nine months of 2020 was driven primarily by the recognition of unrealized gains on certain investments, most of which relate to Moderna, Inc.

Other, net (as reflected in the table above) in the first nine months of 2019 includes $162 million of goodwill impairment charges related to certain businesses in the Healthcare Services segment.

Interest paid for the nine months ended September 30, 2020 and 2019 was $605 million and $629 million, respectively.

14. Taxes on Income

The effective income tax rates of 14.1% and 18.7% for the third quarter of 2020 and 2019, respectively, and 14.9% and 14.5% for the first nine months of 2020 and 2019, respectively, reflect the impacts of acquisition and divestiture-related costs and restructuring costs, partially offset by the beneficial impact of foreign earnings. The effective income tax rates in the third quarter and first nine months of 2019 also reflect the unfavorable impact of a charge for the acquisition of Peloton for which no tax benefit was recognized and the favorable impact of product mix on the estimated 2019 full-year tax rate. In addition, the effective income tax rate for the first nine months of 2019 reflects the favorable impact of a $360 million net tax benefit related to the settlement of certain federal income tax matters.

In the first quarter of 2019, the Internal Revenue Service (IRS) concluded its examinations of Merck's 2012-2014 U.S. federal income tax returns. As a result, the Company was required to make a payment of $107 million. The Company's reserves for unrecognized tax benefits for the years under examination exceeded the adjustments relating to this examination period and therefore the Company recorded a $360 million net tax benefit in the first nine months of 2019. This net benefit reflects reductions in reserves for unrecognized tax benefits for tax positions relating to the years that were under examination, partially offset by additional reserves for tax positions not previously reserved for.

15. Earnings Per Share

The calculations of earnings per share are as follows:

($ and shares in millions except per share amounts)	Three Months Ended September 30, 2020	Three Months Ended September 30, 2019	Nine Months Ended September 30, 2020	Nine Months Ended September 30, 2019
Net income attributable to Merck & Co., Inc.	$ 2,941	$ 1,901	$ 9,161	$ 7,487
Average common shares outstanding	2,529	2,558	2,530	2,572
Common shares issuable [1]	9	14	11	15
Average common shares outstanding assuming dilution	2,538	2,572	2,541	2,587
Basic earnings per common share attributable to Merck & Co., Inc. common shareholders	$ 1.16	$ 0.74	$ 3.62	$ 2.91
Earnings per common share assuming dilution attributable to Merck & Co., Inc. common shareholders	$ 1.16	$ 0.74	$ 3.61	$ 2.89

[1] *Issuable primarily under share-based compensation plans.*

For the third quarter of 2020 and 2019, 5 million and 3 million, respectively, and for the first nine months of 2020 and 2019, 5 million and 2 million, respectively, of common shares issuable under share-based compensation plans were excluded from the computation of earnings per common share assuming dilution because the effect would have been antidilutive.

16. Other Comprehensive Income (Loss)

Changes in *AOCI* by component are as follows:

($ in millions)	Three Months Ended September 30, Derivatives	Investments	Employee Benefit Plans	Cumulative Translation Adjustment	Accumulated Other Comprehensive Income (Loss)
Balance July 1, 2019, net of taxes	$ 66	$ 48	$ (3,530)	$ (1,946)	$ (5,362)
Other comprehensive income (loss) before reclassification adjustments, pretax	186	8	(4)	(84)	106
Tax	(39)	—	—	(33)	(72)
Other comprehensive income (loss) before reclassification adjustments, net of taxes	147	8	(4)	(117)	34
Reclassification adjustments, pretax	(71) [1]	(25) [2]	21 [3]	—	(75)
Tax	15	—	(2)	—	13
Reclassification adjustments, net of taxes	(56)	(25)	19	—	(62)
Other comprehensive income (loss), net of taxes	91	(17)	15	(117)	(28)
Balance September 30, 2019, net of taxes	$ 157	$ 31	$ (3,515)	$ (2,063)	$ (5,390)
Balance July 1, 2020, net of taxes	$ 15	$ —	$ (4,162)	$ (2,246)	$ (6,393)
Other comprehensive income (loss) before reclassification adjustments, pretax	(195)	—	2	50	(143)
Tax	41	—	1	35	77
Other comprehensive income (loss) before reclassification adjustments, net of taxes	(154)	—	3	85	(66)
Reclassification adjustments, pretax	22 [1]	—	72 [3]	—	94
Tax	(5)	—	(13)	—	(18)
Reclassification adjustments, net of taxes	17	—	59	—	76
Other comprehensive income (loss), net of taxes	(137)	—	62	85	10
Balance September 30, 2020, net of taxes	$ (122)	$ —	$ (4,100)	$ (2,161)	$ (6,383)

	Nine Months Ended September 30,				
($ in millions)	Derivatives	Investments	Employee Benefit Plans	Cumulative Translation Adjustment	Accumulated Other Comprehensive Income (Loss)
Balance January 1, 2019, net of taxes	$ 166	$ (78)	$ (3,556)	$ (2,077)	$ (5,545)
Other comprehensive income (loss) before reclassification adjustments, pretax	183	139	(5)	47	364
Tax	(38)	—	6	(33)	(65)
Other comprehensive income (loss) before reclassification adjustments, net of taxes	145	139	1	14	299
Reclassification adjustments, pretax	(195) (1)	(30) (2)	49 (3)	—	(176)
Tax	41	—	(9)	—	32
Reclassification adjustments, net of taxes	(154)	(30)	40	—	(144)
Other comprehensive income (loss), net of taxes	(9)	109	41	14	155
Balance September 30, 2019, net of taxes	$ 157	$ 31	$ (3,515)	$ (2,063)	$ (5,390)
Balance January 1, 2020, net of taxes	$ 31	$ 18	$ (4,261)	$ (1,981)	$ (6,193)
Other comprehensive income (loss) before reclassification adjustments, pretax	(126)	3	(19)	(220)	(362)
Tax	27	—	12	40	79
Other comprehensive income (loss) before reclassification adjustments, net of taxes	(99)	3	(7)	(180)	(283)
Reclassification adjustments, pretax	(68) (1)	(21) (2)	210 (3)	—	121
Tax	14	—	(42)	—	(28)
Reclassification adjustments, net of taxes	(54)	(21)	168	—	93
Other comprehensive income (loss), net of taxes	(153)	(18)	161	(180)	(190)
Balance September 30, 2020, net of taxes	$ (122)	$ —	$ (4,100)	$ (2,161)	$ (6,383)

(1) *Relates to foreign currency cash flow hedges that were reclassified from* AOCI *to* Sales.

(2) *Represents net realized (gains) losses on the sales of available-for-sale debt securities that were reclassified from* AOCI *to* Other (income) expense, net.

(3) *Includes net amortization of prior service cost and actuarial gains and losses included in net periodic benefit cost (see Note 12).*

17. Segment Reporting

The Company's operations are principally managed on a products basis and include three operating segments, which are the Pharmaceutical, Animal Health and Healthcare Services segments. The Pharmaceutical and Animal Health segments are the only reportable segments.

The Pharmaceutical segment includes human health pharmaceutical and vaccine products. Human health pharmaceutical products consist of therapeutic and preventive agents, generally sold by prescription, for the treatment of human disorders. The Company sells these human health pharmaceutical products primarily to drug wholesalers and retailers, hospitals, government agencies and managed health care providers such as health maintenance organizations, pharmacy benefit managers and other institutions. Human health vaccine products consist of preventive pediatric, adolescent and adult vaccines, primarily administered at physician offices. The Company sells these human health vaccines primarily to physicians, wholesalers, physician distributors and government entities. A large component of pediatric and adolescent vaccine sales are made to the U.S. Centers for Disease Control and Prevention Vaccines for Children program, which is funded by the U.S. government. Additionally, the Company sells vaccines to the Federal government for placement into vaccine stockpiles.

The Animal Health segment discovers, develops, manufactures and markets a wide range of veterinary pharmaceutical and vaccine products, as well as health management solutions and services, for the prevention, treatment and control of disease in all major livestock and companion animal species. The Company also offers an extensive suite of digitally connected identification, traceability and monitoring products. The Company sells its products to veterinarians, distributors and animal producers.

The Healthcare Services segment provided services and solutions that focus on engagement, health analytics and clinical services to improve the value of care delivered to patients. The Company has been in the process of divesting the businesses in the Healthcare Services segment. The remaining businesses were divested during the first quarter of 2020.

Sales of the Company's products were as follows:

	Three Months Ended September 30,						Nine Months Ended September 30,					
	2020			2019			2020			2019		
($ in millions)	U.S.	Int'l	Total	U.S.	Int'l	Total	U.S.	Int'l	Total	U.S.	Int'l	Total
Pharmaceutical:												
Oncology												
Keytruda	$ 2,157	$ 1,559	$ 3,715	$ 1,743	$ 1,327	$ 3,070	$ 6,106	$ 4,281	$ 10,387	$ 4,525	$ 3,448	$ 7,973
Alliance revenue - Lynparza [1]	107	89	196	71	53	123	297	223	519	186	126	313
Alliance revenue - Lenvima [1]	82	60	142	65	44	109	270	152	421	169	112	280
Emend	8	31	39	42	56	98	18	96	115	173	163	336
Vaccines												
Gardasil/Gardasil 9	579	608	1,187	761	558	1,320	1,209	1,732	2,941	1,579	1,464	3,044
ProQuad/M-M-R II*/Varivax*	437	139	576	482	141	623	1,033	356	1,390	1,325	469	1,794
Pneumovax 23	276	99	375	179	58	237	478	270	748	428	164	592
RotaTeq	114	96	210	102	78	180	355	246	601	360	203	564
Vaqta	32	19	51	36	26	62	79	60	139	103	65	167
Hospital Acute Care												
Bridion	162	157	320	133	151	284	412	431	843	381	437	817
Noxafil	13	66	79	77	100	177	27	220	247	268	291	560
Prevymis	32	46	77	22	23	45	87	113	200	60	55	115
Primaxin	1	73	74	2	75	77	2	187	189	2	204	207
Invanz	1	50	51	(1)	58	57	7	152	159	30	176	206
Cancidas	1	49	50	—	62	62	2	147	148	5	187	191
Cubicin	11	28	39	14	38	52	36	80	116	78	129	207
Zerbaxa	20	23	43	20	15	35	57	54	112	45	43	88
Immunology												
Simponi	—	209	209	—	203	203	—	615	615	—	625	625
Remicade	—	82	82	—	101	101	—	242	242	—	322	322
Neuroscience												
Belsomra	18	63	81	23	57	80	67	177	244	68	155	223
Virology												
Isentress/Isentress HD	92	113	205	102	149	250	243	403	646	304	449	752
Zepatier	6	22	28	24	59	83	38	83	122	96	208	304
Cardiovascular												
Zetia	(1)	103	103	5	142	147	(4)	389	384	11	432	443
Vytorin	3	44	47	5	52	57	9	130	139	11	219	231
Atozet	—	111	111	—	97	97	—	348	348	—	283	283
Alliance revenue - Adempas [2]	78	5	83	48	2	50	200	16	216	137	7	144
Adempas	—	55	55	—	57	57	—	167	167	—	158	158
Diabetes												
Januvia	342	479	821	367	440	807	1,110	1,339	2,449	1,223	1,317	2,539
Janumet	105	400	506	129	375	503	361	1,138	1,499	462	1,105	1,567
Women's Health												
Implanon/Nexplanon	137	52	189	136	62	199	374	142	515	421	160	581
NuvaRing	24	34	58	202	39	241	85	98	184	593	107	700
Diversified Brands												
Singulair	4	78	82	11	140	152	14	324	338	24	479	503
Cozaar/Hyzaar	5	86	91	6	110	116	17	275	292	16	313	329
Arcoxia	—	68	68	—	72	72	—	204	204	—	221	221
Nasonex	—	41	41	4	55	58	9	152	161	2	224	226
Follistim AQ	20	31	50	27	35	62	60	76	136	80	102	182
Other pharmaceutical [3]	352	834	1,186	343	804	1,149	1,144	2,334	3,478	1,037	2,394	3,431
Total Pharmaceutical segment sales	5,218	6,102	11,320	5,180	5,914	11,095	14,202	17,452	31,654	14,202	17,016	31,218
Animal Health:												
Livestock	164	594	758	144	582	726	448	1,697	2,145	406	1,601	2,007
Companion Animals	234	228	462	193	203	396	676	714	1,390	560	704	1,264
Total Animal Health segment sales	398	822	1,220	337	785	1,122	1,124	2,411	3,535	966	2,305	3,271
Other segment sales [4]	—	—	—	46	—	46	23	—	23	133	1	133
Total segment sales	5,616	6,924	12,540	5,563	6,699	12,263	15,349	19,863	35,212	15,301	19,322	34,622
Other [5]	9	2	11	10	125	134	47	221	267	19	330	350
	$ 5,625	$ 6,926	$ 12,551	$ 5,573	$ 6,824	$ 12,397	$ 15,396	$ 20,084	$ 35,479	$ 15,320	$ 19,652	$ 34,972

U.S. plus international may not equal total due to rounding.

[1] Alliance revenue represents Merck's share of profits, which are product sales net of cost of sales and commercialization costs (see Note 3).

[2] Alliance revenue represents Merck's share of profits from sales in Bayer's marketing territories, which are product sales net of cost of sales and commercialization costs (see Note 3).

[3] Other pharmaceutical primarily reflects sales of other human health pharmaceutical products, including products within the franchises not listed separately.

[4] Represents sales for the Healthcare Services segment. All the businesses in the Healthcare Services segment were divested as of March 31, 2020.

[5] Other is primarily comprised of miscellaneous corporate revenues, including revenue hedging activities, as well as third-party manufacturing sales.

Product sales are recorded net of the provision for discounts, including chargebacks, which are customer discounts that occur when a contracted customer purchases through an intermediary wholesale purchaser, and rebates that are owed based upon definitive contractual agreements or legal requirements with private sector and public sector (Medicaid and Medicare Part D) benefit providers, after the final dispensing of the product by a pharmacy to a benefit plan participant. These discounts, in the aggregate, reduced U.S. sales by $3.4 billion and $3.0 billion for the three months ended September 30, 2020 and 2019, respectively, and $9.6 billion and $8.6 billion for the nine months ended September 30, 2020 and 2019, respectively.

Consolidated sales by geographic area where derived are as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
($ in millions)	2020	2019	2020	2019
United States	$ 5,625	$ 5,573	$ 15,396	$ 15,320
Europe, Middle East and Africa	3,454	3,189	10,059	9,452
China	1,016	914	2,715	2,423
Japan	828	919	2,506	2,639
Asia Pacific (other than China and Japan)	735	756	2,129	2,217
Latin America	604	671	1,670	1,889
Other	289	375	1,004	1,032
	$ 12,551	$ 12,397	$ 35,479	$ 34,972

A reconciliation of segment profits to *Income before taxes* is as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
($ in millions)	2020	2019	2020	2019
Segment profits:				
Pharmaceutical segment	$ 7,974	$ 7,747	$ 22,010	$ 21,437
Animal Health segment	451	423	1,336	1,243
Other segment	(1)	(2)	1	(2)
Total segment profits	8,424	8,168	23,347	22,678
Other profits	(12)	101	188	226
Unallocated:				
Interest income	9	61	48	225
Interest expense	(203)	(231)	(624)	(674)
Depreciation and amortization	(395)	(382)	(1,173)	(1,169)
Research and development	(3,272)	(3,110)	(7,364)	(7,045)
Amortization of purchase accounting adjustments	(285)	(329)	(879)	(1,105)
Restructuring costs	(114)	(232)	(269)	(444)
Other unallocated, net	(724)	(1,699)	(2,490)	(4,019)
	$ 3,428	$ 2,347	$ 10,784	$ 8,673

Pharmaceutical segment profits are comprised of segment sales less standard costs, as well as selling, general and administrative expenses directly incurred by the segment. Animal Health segment profits are comprised of segment sales, less all cost of sales, as well as selling, general and administrative expenses and research and development costs directly incurred by the segment. For internal management reporting presented to the chief operating decision maker, Merck does not allocate the remaining cost of sales not included in segment profits as described above, research and development expenses incurred in Merck Research Laboratories, the Company's research and development division that focuses on human health-related activities, or general and administrative expenses, nor the cost of financing these activities. Separate divisions maintain responsibility for monitoring and managing these costs, including depreciation related to fixed assets utilized by these divisions and, therefore, they are not included in segment profits. In addition, costs related to restructuring activities, as well as the amortization of purchase accounting adjustments are not allocated to segments.

Other profits are primarily comprised of miscellaneous corporate profits, as well as operating profits related to third-party manufacturing sales.

Other unallocated, net, includes expenses from corporate and manufacturing cost centers, goodwill and other intangible asset impairment charges, gains or losses on sales of businesses, expense or income related to changes in the estimated fair value measurement of liabilities for contingent consideration, and other miscellaneous income or expense items.

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

Planned Spin-Off of Women's Health, Biosimilars and Established Brands into New Company

In February 2020, Merck announced its intention to spin-off products from its women's health, biosimilars and established brands businesses into a new, independent, publicly traded company named Organon & Co. (Organon) through a distribution of Organon's publicly traded stock to Company shareholders. The distribution is expected to qualify as tax-free to the Company and its shareholders for U.S. federal income tax purposes. The established brands included in the transaction consist of dermatology, non-opioid pain management, respiratory, and select cardiovascular products including *Zetia* (ezetimibe) and *Vytorin* (ezetimibe and simvastatin), as well as the rest of Merck's diversified brands franchise. Merck's existing research pipeline programs will continue to be owned and developed within Merck as planned. Organon will have development capabilities initially focused on late-stage development and life-cycle management and is expected over time to develop research capabilities in selected therapeutic areas. The spin-off is expected to be completed in the second quarter of 2021, subject to market and certain other conditions. Subsequent to the spin-off, the historical results of the women's health, biosimilars and established brands businesses will be reflected as discontinued operations in the Company's consolidated financial statements.

Recent Developments

Management

In October 2020, Merck announced that Dr. Roger M. Perlmutter will be retiring as Executive Vice President and President, Merck Research Laboratories (MRL). Dr. Perlmutter will be succeeded by Dr. Dean Y. Li, effective January 1, 2021. Dr. Perlmutter will remain as Non-Executive Chairman, MRL through June 30, 2021 to facilitate a seamless transition.

Business Developments

Below is a summary of significant 2020 business development activity. See Note 2 to the condensed consolidated financial statements for additional information.

In November 2020, Merck and VelosBio, Inc. (VelosBio) announced that the companies had entered into a definitive agreement pursuant to which Merck, through a subsidiary, will acquire all outstanding shares of VelosBio for $2.75 billion, subject to certain customary adjustments. VelosBio is a privately held clinical-stage biopharmaceutical company committed to developing first-in-class cancer therapies targeting receptor tyrosine kinase-like orphan receptor 1 (ROR1). VelosBio's lead investigational candidate is VLS-101, an antibody-drug conjugate targeting ROR1 that is currently being evaluated in a Phase 1 and a Phase 2 clinical trial for the treatment of patients with hematologic malignancies and solid tumors, respectively. The closing of the transaction, which is subject to approval under the Hart-Scott-Rodino Antitrust Improvements Act and other customary conditions, is expected by the end of 2020.

In September 2020, Merck and Seagen Inc. (Seagen, formerly known as Seattle Genetics, Inc.) announced an oncology collaboration to globally develop and commercialize Seagen's ladiratuzumab vedotin (MK-6440), an investigational antibody-drug conjugate targeting LIV-1, which is currently in Phase 2 clinical trials for breast cancer and other solid tumors. The companies will equally share profits worldwide. Under the terms of the agreement, Merck made an upfront payment of $600 million and a $1.0 billion equity investment in 5 million shares of Seagen common stock at a price of $200 per share. The closing of the equity investment occurred in October 2020. Seagen is also eligible to receive future contingent milestone payments dependent upon the achievement of certain developmental and sales-based milestones.

Concurrent with the above transaction, Seagen granted Merck an exclusive license to commercialize Tukysa (tucatinib), a small molecule tyrosine kinase inhibitor, for the treatment of HER2-positive cancers, in Asia, the Middle East and Latin America and other regions outside of the United States, Canada and Europe. Under the terms of the agreement, Merck made upfront payments aggregating $210 million. Seagen is also eligible to receive future contingent regulatory approval milestones and will receive tiered royalties on sales of Tukysa in Merck's territories.

Additionally in September 2020, Merck acquired a biologics manufacturing facility located in Dunboyne, Ireland from Takeda Pharmaceutical Company Limited for €256 million ($302 million).

In July 2020, Merck acquired the U.S. rights to Sentinel Flavor Tabs and Sentinel Spectrum Chews from Virbac Corporation for $410 million. Sentinel products provide protection against common parasites in dogs.

Also, in July 2020, Merck and Ridgeback Biotherapeutics LP (Ridgeback Bio), a closely held biotechnology company, closed a collaboration agreement to develop molnupiravir (MK-4482, formerly known as EIDD-2801), an orally available antiviral candidate currently in clinical development for the treatment of patients with COVID-19. Merck gained exclusive worldwide rights to develop and commercialize molnupiravir and related molecules. Under the terms of the agreement, Ridgeback Bio received an upfront payment and also is eligible to receive future contingent payments dependent upon the achievement of certain developmental and regulatory approval milestones, as well as a share of the net profits of molnupiravir and related molecules, if approved.

In June 2020, Merck acquired privately held Themis Bioscience GmbH (Themis), a company focused on vaccines and immune-modulation therapies for infectious diseases and cancer for $366 million. Merck may make additional contingent payments dependent upon the achievement of certain developmental, regulatory approval and commercial milestones. The acquisition builds upon an ongoing collaboration between the two companies to develop vaccine candidates using the measles virus vector platform and is expected to accelerate the development of the COVID-19 vaccine candidate (V591), which is currently in Phase 1 clinical development.

In May 2020, Merck and the International AIDS Vaccine Initiative, Inc. (IAVI), a nonprofit scientific research organization dedicated to addressing urgent, unmet global health challenges, announced a new collaboration to develop V590, an investigational vaccine against SARS-CoV-2 being studied for the prevention of COVID-19, which is currently in Phase 1 clinical development. Under the terms of the agreement, Merck made an upfront payment of $6.5 million and may make additional contingent payments dependent upon the achievement of certain sales-based milestones, as well as royalties.

In January 2020, Merck acquired ArQule, Inc. (ArQule), a publicly traded biopharmaceutical company focused on kinase inhibitor discovery and development for the treatment of patients with cancer and other diseases, for total consideration of $2.7 billion. ArQule's lead investigational candidate, MK-1026 (formerly known as ARQ 531), is a novel, oral Bruton's tyrosine kinase (BTK) inhibitor currently being evaluated for the treatment of B-cell malignancies.

Coronavirus Disease 2019 (COVID-19) Update

Overall, in response to the COVID-19 pandemic, Merck is focused on protecting the safety of its employees, ensuring that its supply of medicines and vaccines reaches its patients, contributing its scientific expertise to the development of vaccine and antiviral approaches, and supporting health care providers and Merck's communities. Although COVID-19-related disruptions to patients' ability to access health care providers negatively affected results for the third quarter and first nine months of 2020, Merck remains confident in the fundamental underlying demand for its products and its prospects for long-term growth.

In the third quarter of 2020, the negative impact of the COVID-19 pandemic to Merck's Pharmaceutical sales was estimated to be approximately $475 million. The negative impact to Animal Health sales was immaterial. The negative impact to sales in the first nine months of 2020 was approximately $2.0 billion for the Pharmaceutical segment and $50 million for the Animal Health segment. Merck assumes that the majority of the negative impact from the COVID-19 pandemic occurred in the second quarter of 2020. However, the Company expects some residual negative impacts in the fourth quarter, largely in Europe and certain emerging markets. In addition, the phasing of the recovery of *Gardasil* 9 (Human Papillomavirus 9-valent Vaccine, Recombinant) demand is slower than originally anticipated, in particular in the United States due to lower back-to-school demand. Accordingly, for the full-year 2020, including the impact for the first nine months, Merck expects an unfavorable impact to sales of approximately $2.35 billion (excluding the impact of foreign exchange) due to the COVID-19 pandemic, comprised of approximately $2.3 billion for Pharmaceutical revenue and approximately $50 million for Animal Health revenue.

Roughly two-thirds of Merck's Pharmaceutical revenue is comprised of physician-administered products, which, despite strong underlying demand, were affected by social distancing measures, fewer well visits and delays in elective surgeries due to the COVID-19 pandemic. These impacts, as well as the prioritization of COVID-19 patients at health care providers, have resulted in reduced administration of many of the Company's human health products, in particular for its vaccines, including *Gardasil* 9, as well as for *Keytruda* (pembrolizumab) and *Implanon/Nexplanon* (etonogestrel implant). Access to healthcare providers remains reduced, although improved from the second quarter. Merck anticipates reduced demand for its physician-administered products while pandemic-related access measures remain in place. In addition, declines in elective surgeries negatively affected the demand for *Bridion* (sugammadex) Injection in the year-to-date period. Sales of *Pneumovax* 23 (pneumococcal vaccine polyvalent) increased due to heightened awareness of pneumococcal vaccination during the COVID-19 pandemic and ahead of flu season.

Operating expenses were positively affected in the third quarter and first nine months of 2020 by approximately $115 million and $540 million, respectively, primarily driven by lower promotional and selling costs, as well as lower research and development expenses, net of investments in COVID-19-related antiviral and vaccine research programs. For the full-year 2020, Merck expects a net favorable impact to operating expenses of approximately $625 million reflecting continued lower spending due to the COVID-19 pandemic, partially offset by spending on COVID-19-related antiviral and vaccine research programs.

Pricing

Global efforts toward health care cost containment continue to exert pressure on product pricing and market access worldwide. In the United States, pricing pressure continues on many of the Company's products. Changes to the U.S. health care system as part of health care reform, as well as increased purchasing power of entities that negotiate on behalf of Medicare, Medicaid, and private sector beneficiaries, have contributed to pricing pressure. In several international markets, government-mandated pricing actions have reduced prices of generic and patented drugs. In addition, the Company's revenue

performance in the first nine months of 2020 was negatively affected by other cost-reduction measures taken by governments and other third-parties to lower health care costs. The Company anticipates all of these actions and additional actions in the future will continue to negatively affect revenue performance.

Operating Results

Sales

($ in millions)	Three Months Ended September 30, 2020	2019	% Change	% Change Excluding Foreign Exchange	Nine Months Ended September 30, 2020	2019	% Change	% Change Excluding Foreign Exchange
United States	$ 5,625	$ 5,573	1 %	1 %	$ 15,396	$ 15,320	— %	— %
International	6,926	6,824	1 %	4 %	20,084	19,652	2 %	5 %
Total	$ 12,551	$ 12,397	1 %	2 %	$ 35,479	$ 34,972	1 %	3 %

U.S. plus international may not equal total due to rounding.

Worldwide sales were $12.6 billion and $35.5 billion for the third quarter and first nine months of 2020, respectively, representing growth of 1% compared with the same prior year periods. Sales growth in both periods was primarily driven by higher sales in the oncology franchise reflecting strong growth of *Keytruda*, as well as increased alliance revenue from Lynparza (olaparib) and Lenvima (lenvatinib). Also contributing to revenue growth were higher sales of certain vaccines, including *Pneumovax* 23, and higher sales of certain hospital acute care products, including *Prevymis* (letermovir) and *Bridion*. Higher sales of Animal Health products also contributed to revenue growth in the third quarter and first nine months of 2020.

Sales growth in both periods was partially offset by the ongoing effects of generic competition for certain products including women's health product *NuvaRing* (etonogestrel/ethinyl estradiol vaginal ring), hospital acute care product *Noxafil* (posaconazole), oncology products *Emend* (aprepitant)/ *Emend* (fosaprepitant dimeglumine) for Injection, cardiovascular products *Zetia* and *Vytorin*, as well as products within the diversified brands franchise. The diversified brands franchise includes certain products that are approaching the expiration of their marketing exclusivity or that are no longer protected by patents in developed markets. Lower sales of certain vaccines including human papillomavirus (HPV) vaccines *Gardasil* (Human Papillomavirus Quadrivalent [Types 6,11,16 and 18] Vaccine, Recombinant)*/Gardasil* 9 and pediatric vaccines *ProQuad* (Measles, Mumps, Rubella and Varicella Virus Vaccine Live), *M-M-R* II (Measles, Mumps and Rubella Virus Vaccine Live) and *Varivax* (Varicella Virus Vaccine Live), as well as lower sales of virology products *Zepatier* (elbasvir and grazoprevir) and *Isentress/Isentress HD* (raltegravir) also partially offset revenue growth in the third quarter and first nine months of 2020. As discussed above, the COVID-19 pandemic unfavorably affected sales in the third quarter and first nine months of 2020.

See Note 17 to the condensed consolidated financial statements for details on sales of the Company's products. A discussion of performance for select products in the franchises follows.

Pharmaceutical Segment

Oncology

($ in millions)	Three Months Ended September 30, 2020	2019	% Change	% Change Excluding Foreign Exchange	Nine Months Ended September 30, 2020	2019	% Change	% Change Excluding Foreign Exchange
Keytruda	$ 3,715	$ 3,070	21 %	21 %	$ 10,387	$ 7,973	30 %	31 %
Alliance Revenue - Lynparza [(1)]	196	123	59 %	58 %	519	313	66 %	67 %
Alliance Revenue - Lenvima [(1)]	142	109	30 %	29 %	421	280	50 %	50 %
Emend	39	98	(60)%	(59) %	115	336	(66)%	(65) %

[(1)] Alliance revenue represents Merck's share of profits, which are product sales net of cost of sales and commercialization costs (see Note 3 to the condensed consolidated financial statements).

Keytruda is an anti-PD-1 (programmed death receptor-1) therapy that has been approved as monotherapy for the treatment of certain patients with cervical cancer, classical Hodgkin lymphoma (cHL), cutaneous squamous cell carcinoma (cSCC), esophageal cancer, gastric or gastroesophageal junction adenocarcinoma, head and neck squamous cell carcinoma (HNSCC), hepatocellular carcinoma (HCC), non-small-cell lung cancer (NSCLC), small-cell lung cancer (SCLC), melanoma, Merkel cell carcinoma, microsatellite instability-high (MSI-H) or mismatch repair deficient cancer, primary mediastinal large B-cell lymphoma (PMBCL), and urothelial carcinoma. *Keytruda* is also approved for the treatment of certain patients in combination with chemotherapy for metastatic squamous and nonsquamous NSCLC, in combination with chemotherapy for HNSCC, in combination with axitinib for renal cell carcinoma (RCC), and in combination with Lenvima for endometrial

carcinoma. The *Keytruda* clinical development program includes studies across a broad range of cancer types (see "Research and Development" below).

In January 2020, the U.S. Food and Drug Administration (FDA) approved *Keytruda* as monotherapy for the treatment of certain patients with Bacillus Calmette-Guerin (BCG)-unresponsive, high-risk, non-muscle invasive bladder cancer (NMIBC) based on the results of the KEYNOTE-057 trial.

In April 2020, the FDA granted accelerated approval for an additional recommended dosage of 400 mg every six weeks (Q6W) for *Keytruda* across all adult indications, including monotherapy and combination therapy. This new dosage option is available in addition to the current dose of 200 mg every three weeks (Q3W).

In June 2020, the FDA granted accelerated approval for *Keytruda* as monotherapy for the treatment of adult and pediatric patients with unresectable or metastatic tumor mutational burden-high (TMB-H) (≥10 mutations/megabase) solid tumors, as determined by an FDA-approved test, that have progressed following prior treatment and who have no satisfactory alternative treatment options based in part on the results of the KEYNOTE-158 trial.

Also in June 2020, the FDA approved *Keytruda* as monotherapy both for the treatment of patients with recurrent or metastatic cSCC that is not curable by surgery or radiation based on data from the Phase 2 KEYNOTE-629 trial and for the first-line treatment of patients with unresectable or metastatic MSI-H or mismatch repair deficient colorectal cancer based on results from the Phase 3 KEYNOTE-177 trial.

In October 2020, the FDA approved an expanded label for *Keytruda* as monotherapy for the treatment of adult patients with relapsed or refractory cHL. The approval is based on results from the Phase 3 KEYNOTE-204 trial in which *Keytruda* significantly reduced the risk of disease progression or death compared to brentuximab vedotin. The FDA also approved an updated pediatric indication for *Keytruda* for the treatment of pediatric patients with refractory cHL or cHL that has relapsed after two or more lines of therapy. *Keytruda* was previously approved under the FDA's accelerated approval process for the treatment of adult and pediatric patients with refractory cHL, or who have relapsed after three or more prior lines of therapy based on data from the KEYNOTE-087 trial. In accordance with accelerated approval regulations, continued approval was contingent upon verification and description of clinical benefit; these accelerated approval requirements have been fulfilled with the data from KEYNOTE-204.

In June 2020, *Keytruda* was approved by the National Medical Products Administration (NMPA) in China as monotherapy for the second-line treatment of patients with locally advanced or metastatic esophageal squamous cell carcinoma (ESCC) whose tumors express PD-L1 (Combined Positive Score [CPS] ≥10). This indication was granted based on the Phase 3 KEYNOTE-181 trial, including data from an extension of the global study in Chinese patients.

In August 2020, *Keytruda* was approved by the Japan Pharmaceuticals and Medical Devices Agency (PMDA) as monotherapy for the treatment of patients whose tumors are PD-L1-positive, and have radically unresectable, advanced or recurrent ESCC who have progressed after chemotherapy. The approval was based on results from the Phase 3 KEYNOTE-181 trial. Additionally, *Keytruda* was approved by the Japan PMDA for use at an additional recommended dosage of 400 mg Q6W, including monotherapy and combination therapy. This new dosage option is available in addition to the current dose of 200 mg Q3W.

Global sales of *Keytruda* grew 21% and 30% in the third quarter and first nine months of 2020, respectively. Sales growth in both periods was driven by higher demand as the Company continues to launch *Keytruda* with multiple new indications globally, although the COVID-19 pandemic had a dampening effect on growing demand. Sales in the United States continue to build across the multiple approved indications, in particular for the treatment of NSCLC as monotherapy, and in combination with chemotherapy for both nonsquamous and squamous metastatic NSCLC, along with uptake in the RCC, adjuvant melanoma, HNSCC, bladder cancer and endometrial carcinoma indications. Uptake of the Q6W dosing regimen in the United States benefited sales in 2020. *Keytruda* sales growth in international markets was driven by continued uptake in approved indications, particularly in the European Union (EU). Sales growth in the third quarter and first nine months of 2020 was partially offset by declines in Japan due to pricing. Pursuant to a re-pricing rule, the Japanese government reduced the price of *Keytruda* by 17.5% effective February 2020. Additionally, *Keytruda* was subject to another price reduction of 20.9% in April 2020 under a provision of the Japanese pricing rules.

Lynparza, an oral poly (ADP-ribose) polymerase (PARP) inhibitor being developed as part of a collaboration with AstraZeneca PLC (AstraZeneca) (see Note 3 to the condensed consolidated financial statements), is approved for the treatment of certain types of advanced ovarian, breast, pancreatic and prostate cancers. Alliance revenue related to Lynparza increased 59% and 66% in the third quarter and first nine months of 2020, respectively. Sales growth in both periods was largely driven by continued uptake across the multiple approved indications in the United States, the EU and China. In May 2020, the FDA approved Lynparza in combination with bevacizumab as a first-line maintenance treatment of certain adult patients with advanced epithelial ovarian, fallopian tube or primary peritoneal cancer who are in complete or partial response to first-line platinum-based chemotherapy based on the results from the Phase 3 PAOLA-1 trial. In November 2020, Lynparza was

approved in the EU for the maintenance treatment of adult patients with advanced high-grade epithelial ovarian, fallopian tube or primary peritoneal cancer who are in complete or parital response following completion of first-line platinum-based chemotherapy in combination with bevacizumab and whose cancer is associated with homologous recombination deficiency (HRD)-positive status defined by either a breast cancer susceptibility gene 1/2 (*BRCA*1/2) mutation and/or genomic instability based on the results from the PAOLA-1 trial. Also in May 2020, the FDA approved Lynparza for the treatment of adult patients with deleterious or suspected deleterious germline or somatic homologous recombination repair (HRR) gene-mutated metastatic castration-resistant prostate cancer (mCRPC) who have progressed following prior treatment with enzalutamide or abiraterone based on positive results from the Phase 3 PROfound trial. In November 2020, Lynparza was approved in the EU as monotherapy for the treatment of adult patients with mCRPC and *BRCA*1/2 mutations (germline and/or somatic) who have progressed following a prior therapy that included a new hormonal agent based on the PROfound trial. In July 2020, Lynparza was approved in the EU as a monotherapy for the maintenance treatment of adult patients with germline *BRCA*1/2 mutations who have metastatic adenocarcinoma of the pancreas and have not progressed after a minimum of 16 weeks of platinum treatment within a first-line chemotherapy regimen based on the results from the Phase 3 POLO trial.

Lenvima, an oral receptor tyrosine kinase inhibitor being developed as part of a collaboration with Eisai Co., Ltd. (Eisai) (see Note 3 to the condensed consolidated financial statements), is approved for the treatment of certain types of thyroid cancer, HCC, in combination with everolimus for certain patients with RCC, and in combination with *Keytruda* for the treatment of certain patients with endometrial carcinoma. Alliance revenue related to Lenvima grew 30% and 50% in the third quarter and first nine months of 2020, respectively. Sales growth in both periods was primarily due to higher demand in the United States, China and the EU.

Global sales of *Emend*, for the prevention of chemotherapy-induced nausea and vomiting, declined 60% and 66% in the third quarter and first nine months of 2020, respectively. The sales declines were primarily driven by lower demand and pricing in the United States due to generic competition, including recent generic competition for *Emend* for Injection following U.S. patent expiry in September 2019. Also contributing to the sales declines in the third quarter and first nine months of 2020 was lower demand in the EU as a result of generic competition for the oral formulation of *Emend* following loss of market exclusivity in May 2019. U.S. market exclusivity for the oral formulation of *Emend* previously expired in 2015. Generic competition for *Emend* for Injection in Japan following loss of exclusivity also contributed to the sales declines in the third quarter and first nine months of 2020. *Emend* for Injection lost market exclusivity in major European markets in August 2020. The Company anticipates that sales of *Emend* for Injection in these markets will decline significantly in future periods.

In April 2020, the FDA approved Koselugo (selumetinib) for the treatment of pediatric patients two years of age and older with neurofibromatosis type 1 (NF1) who have symptomatic, inoperable plexiform neurofibromas (PN). The FDA approval is based on positive results from the National Cancer Institute (NCI) Cancer Therapy Evaluation Program (CTEP)-sponsored Phase 2 SPRINT Stratum 1 trial coordinated by the NCI's Center for Cancer Research, Pediatric Oncology Branch. This is the first regulatory approval of a medicine for the treatment of NF1 PN, a rare and debilitating genetic condition. Koselugo is being jointly developed and commercialized with AstraZeneca globally (see Note 3 to the condensed consolidated financial statements).

Vaccines

($ in millions)	Three Months Ended September 30, 2020	2019	% Change	% Change Excluding Foreign Exchange	Nine Months Ended September 30, 2020	2019	% Change	% Change Excluding Foreign Exchange
Gardasil/Gardasil 9	$ 1,187	$ 1,320	(10)%	(10) %	$ 2,941	$ 3,044	(3)%	(2) %
ProQuad	218	232	(6)%	(6) %	507	588	(14)%	(14) %
M-M-R II	115	121	(5)%	(6) %	287	443	(35)%	(35) %
Varivax	243	270	(10)%	(9) %	595	763	(22)%	(21) %
Pneumovax 23	375	237	58 %	58 %	748	592	26 %	27 %

Worldwide sales of *Gardasil/Gardasil* 9, vaccines to help prevent certain cancers and other diseases caused by certain types of HPV, declined 10% and 3% in the third quarter and first nine months of 2020, respectively, primarily due to lower demand in the United States and Hong Kong, SAR, PRC attributable to the COVID-19 pandemic, partially offset by higher volumes in China and in the EU.

The Company anticipates that in the fourth quarter of 2020 it will replenish the doses of *Gardasil* 9 borrowed from the U.S. Centers for Disease Control and Prevention (CDC) Pediatric Vaccine Stockpile in the fourth quarter of 2019. The replenishment will result in the recognition of approximately $120 million in sales and a reversal of the related liability.

In June 2020, the FDA approved an expanded indication for *Gardasil* 9 for the prevention of oropharyngeal and other head and neck cancers caused by HPV Types 16, 18, 31, 33, 45, 52, and 58. The oropharyngeal and head and neck

cancer indication was approved under accelerated approval based on effectiveness in preventing HPV-related anogenital disease.

In July 2020, *Silgard* 9 aqueous suspension for intramuscular injection syringes (recombinant adsorbed 9-valent Human Papillomavirus virus-like particles vaccine) were approved for use in women and girls by the Ministry of Health, Labor and Welfare in Japan.

Global sales of *ProQuad*, a pediatric combination vaccine to help protect against measles, mumps, rubella and varicella, declined 6% and 14% in the third quarter and first nine months of 2020, respectively, primarily due to lower demand in the United States resulting from the COVID-19 pandemic, partially offset by higher pricing.

Worldwide sales of *M-M-R* II, a vaccine to help protect against measles, mumps and rubella, declined 35% in the first nine months of 2020 primarily driven by lower demand in the United States resulting from fewer measles outbreaks in 2020 compared with 2019, coupled with the unfavorable impact of the COVID-19 pandemic, partially offset by higher pricing. Additionally, the sales decline in the first nine months of 2020 reflects lower demand in Brazil.

Global sales of *Varivax*, a vaccine to help prevent chickenpox (varicella), declined 10% and 22% in the third quarter and first nine months of 2020, respectively. The sales declines reflect lower demand in the United States resulting from the COVID-19 pandemic, partially offset by higher pricing. The sales decline in the first nine months of 2020 was also attributable to lower government tenders in Brazil.

Worldwide sales of *Pneumovax* 23, a vaccine to help prevent pneumococcal disease, grew 58% and 26% in the third quarter and first nine months of 2020, respectively, primarily due to higher volumes in the United States and in the EU attributable in part to heightened awareness of pneumococcal vaccination during the COVID-19 pandemic and ahead of flu season. Higher pricing in the United States also contributed to sales growth in the third quarter and first nine months of 2020.

Hospital Acute Care

	Three Months Ended September 30,			% Change Excluding Foreign	Nine Months Ended September 30,			% Change Excluding Foreign
($ in millions)	2020	2019	% Change	Exchange	2020	2019	% Change	Exchange
Bridion	$ 320	$ 284	13 %	13 %	$ 843	$ 817	3 %	4 %
Noxafil	79	177	(55)%	(55) %	247	560	(56)%	(55) %
Prevymis	77	45	72 %	69 %	200	115	74 %	74 %
Cubicin	39	52	(26)%	(25) %	116	207	(44)%	(43) %

Worldwide sales of *Bridion*, for the reversal of two types of neuromuscular blocking agents used during surgery, grew 13% and 3% in the third quarter and first nine months of 2020, respectively, primarily attributable to higher demand in the United States. Fewer elective surgeries as a result of the COVID-19 pandemic unfavorably affected demand in 2020.

Global sales of *Noxafil*, for the prevention of invasive fungal infections, declined 55% and 56% in the third quarter and first nine months of 2020, respectively, primarily due to generic competition in the United States and in the EU. The patents that provided U.S. market exclusivity for certain forms of *Noxafil* representing the majority of U.S. *Noxafil* sales expired in July 2019. Additionally, the patent for *Noxafil* expired in a number of major European markets in December 2019. Accordingly, the Company is experiencing volume and pricing declines in *Noxafil* sales in these markets as a result of generic competition and expects the declines to continue.

Worldwide sales of *Prevymis*, a medicine for prophylaxis (prevention) of cytomegalovirus (CMV) infection and disease in adult CMV-seropositive recipients of an allogenic hematopoietic stem cell transplant, grew 72% and 74% in the third quarter and first nine months of 2020, respectively, due to continued uptake since launch in the EU and in the United States.

Global sales of *Cubicin* (daptomycin for injection), an I.V. antibiotic for complicated skin and skin structure infections or bacteremia when caused by designated susceptible organisms, declined 26% and 44% in the third quarter and first nine months of 2020, respectively, primarily due to ongoing generic competition in the EU and in the United States.

In June 2020, the FDA approved a supplemental New Drug Application (NDA) for *Recarbrio* (imipenem, cilastatin, and relebactam) for the treatment of patients 18 years of age and older with hospital-acquired bacterial pneumonia and ventilator-associated bacterial pneumonia (HABP/VABP), caused by certain susceptible Gram-negative microorganisms.

Zerbaxa (ceftolozane and tazobactam) is indicated for the treatment of HABP/VABP caused by certain susceptible Gram-negative microorganisms, and for the treatment of certain complicated urinary tract and intra-abdominal infections. The COVID-19 pandemic is unfavorably affecting sales of *Zerbaxa*, particularly in the United States. An increased focus on more stringent cleaning protocols at hospitals, along with visitor restrictions, have reduced patients' exposure to developing HABP/

VABP, resulting in a smaller population of patients that need to be treated with *Zerbaxa*. These factors resulted in lower cash flow forecasts for *Zerbaxa* in the United States, which constituted a triggering event requiring the evaluation of the *Zerbaxa* intangible asset for impairment. Although the "step one" impairment test that was performed indicated that the intangible asset related to *Zerbaxa* remains recoverable, in the event that these trends depress sales of *Zerbaxa* to a greater extent than anticipated by the Company, or in the event other circumstances arise that further reduce global cash flow projections for *Zerbaxa*, the Company may record an intangible asset impairment charge in the future and such charge could be material. The carrying value of *Zerbaxa* was $2.2 billion at September 30, 2020.

Immunology

	Three Months Ended September 30,			% Change Excluding Foreign	Nine Months Ended September 30,			% Change Excluding Foreign
($ in millions)	2020	2019	% Change	Exchange	2020	2019	% Change	Exchange
Simponi	$ 209	$ 203	3 %	— %	$ 615	$ 625	(2)%	(1) %
Remicade	82	101	(19)%	(20) %	242	322	(25)%	(24) %

Sales of *Simponi* (golimumab), a once-monthly subcutaneous treatment for certain inflammatory diseases (marketed by the Company in Europe, Russia and Turkey), declined 2% in the first nine month of 2020 primarily driven by lower demand in the EU due to the uptake of biosimilars for a competing product, partially offset by the timing of shipments in Russia.

Sales of *Remicade* (infliximab), a treatment for inflammatory diseases (marketed by the Company in Europe, Russia and Turkey), declined 19% and 25% in the third quarter and first nine months of 2020, respectively, driven by ongoing biosimilar competition in the Company's marketing territories in Europe. The Company lost market exclusivity for *Remicade* in major European markets in 2015 and no longer has market exclusivity in any of its marketing territories. The Company is experiencing pricing and volume declines in these markets as a result of biosimilar competition and expects the declines to continue.

Virology

	Three Months Ended September 30,			% Change Excluding Foreign	Nine Months Ended September 30,			% Change Excluding Foreign
($ in millions)	2020	2019	% Change	Exchange	2020	2019	% Change	Exchange
Isentress/Isentress HD	$ 205	$ 250	(18)%	(18) %	$ 646	$ 752	(14)%	(12) %
Zepatier	28	83	(67)%	(67) %	122	304	(60)%	(59) %

Global combined sales of *Isentress/Isentress HD*, an HIV integrase inhibitor for use in combination with other antiretroviral agents for the treatment of HIV-1 infection, declined 18% and 14% in the third quarter and first nine months of 2020, respectively, primarily driven by competitive pressure in the United States and in the EU, as well as the timing of shipments in Brazil.

Global sales of *Zepatier*, a treatment for adult patients with chronic hepatitis C virus genotype (GT) 1 or GT4 infection, declined 67% and 60% in the third quarter and first nine months of 2020, respectively, driven by lower demand globally due to competition and declining patient volumes, coupled with the impact of the COVID-19 pandemic.

Cardiovascular

	Three Months Ended September 30,			% Change Excluding Foreign	Nine Months Ended September 30,			% Change Excluding Foreign
($ in millions)	2020	2019	% Change	Exchange	2020	2019	% Change	Exchange
Zetia/Vytorin	$ 150	$ 204	(27)%	(26) %	$ 523	$ 674	(22)%	(21) %
Atozet	111	97	14 %	12 %	348	283	23 %	25 %
Rosuzet	32	32	1 %	— %	94	97	(3)%	(1) %
Alliance Revenue - Adempas [(1)]	83	50	67 %	67 %	216	144	50 %	50 %
Adempas	55	57	(5)%	(7) %	167	158	6 %	6 %

[(1)] Alliance revenue represents Merck's share of profits from sales in Bayer's marketing territories, which are product sales net of cost of sales and commercialization costs (see Note 3 to the condensed consolidated financial statements).

Combined global sales of *Zetia* (marketed in most countries outside the United States as *Ezetrol*) and *Vytorin* (marketed outside the United States as *Inegy*), medicines for lowering LDL cholesterol, declined 27% in the third quarter of 2020, primarily due to lower sales of *Ezetrol* in Japan. The patent that provided market exclusivity for *Ezetrol* in Japan expired in September 2019 and generic competition began in June 2020. Accordingly, the Company is experiencing a rapid and

substantial decline in *Ezetrol* sales in Japan and expects the decline to continue. Higher demand for *Ezetro*l in China partially offset the sales decline in the third quarter of 2020. Combined global sales of *Zetia* and *Vytorin* declined 22% in the first nine months of 2020 primarily due to generic competition for *Ezetrol* and *Inegy* in the EU and *Ezetrol* in Japan. The EU patents for *Ezetrol* and *Inegy* expired in April 2018 and April 2019, respectively. The sales decline in the first nine months of 2020 was also attributable to lower pricing following loss of exclusivity in Australia in 2018. Higher demand for *Ezetrol* in China partially offset the sales decline in the first nine months of 2020.

Sales of *Atozet* (ezetimibe and atorvastatin) (marketed outside of the United States), a medicine for lowering LDL cholesterol, grew 14% and 23% in the third quarter and first nine months of 2020, respectively, primarily due to higher demand in most markets, particularly in the EU, Japan and other countries in the Asia Pacific region.

Adempas (riociguat), a cardiovascular drug for the treatment of pulmonary arterial hypertension, is part of a worldwide clinical development collaboration with Bayer AG (Bayer) to market and develop soluble guanylate cyclase (sGC) modulators including Adempas (see Note 3 to the condensed consolidated financial statements). Revenue from Adempas includes Merck's share of profits from the sale of Adempas in Bayer's marketing territories, which grew 67% and 50% in the third quarter and first nine months of 2020, respectively, as well as sales in Merck's marketing territories, which declined 5% in the third quarter and grew 6% in the first nine months of 2020.

Diabetes

	Three Months Ended September 30,			% Change Excluding Foreign	Nine Months Ended September 30,			% Change Excluding Foreign
($ in millions)	2020	2019	% Change	Exchange	2020	2019	% Change	Exchange
Januvia/Janumet	$ 1,327	$ 1,311	1 %	2 %	$ 3,948	$ 4,106	(4) %	(3) %

Worldwide combined sales of *Januvia* (sitagliptin) and *Janumet* (sitagliptin/metformin HCl), medicines that help lower blood sugar levels in adults with type 2 diabetes, grew 1% in the third quarter of 2020 driven primarily by higher demand in certain international markets, particularly in China, partially offset by continued pricing pressure in the United States. Global combined sales of *Januvia* and *Janumet* declined 4% in the first nine months of 2020. The decline was primarily due to continued pricing pressure in the United States and lower demand in the EU, partially offset by higher demand in certain international markets, particularly in China. The Company expects U.S. pricing pressure to continue. The patents that provide market exclusivity for *Januvia* and *Janumet* in the United States expire in July 2022 (although six-month pediatric exclusivity may extend this date). The patent that provides market exclusivity for *Januvia* in the EU expires in July 2022 (although pediatric exclusivity has recently been granted which may extend this date to September 2022 and the Company is applying in individual countries for the extensions). The supplementary patent certificate that provides market exclusivity for *Janumet* in the EU expires in April 2023. The Company anticipates sales of *Januvia* and *Janumet* in these markets will decline substantially after these patent expiries.

Women's Health

	Three Months Ended September 30,			% Change Excluding Foreign	Nine Months Ended September 30,			% Change Excluding Foreign
($ in millions)	2020	2019	% Change	Exchange	2020	2019	% Change	Exchange
Implanon/Nexplanon	$ 189	$ 199	(5)%	(4) %	$ 515	$ 581	(11)%	(10) %
NuvaRing	58	241	(76)%	(76) %	184	700	(74)%	(73) %

Global sales of *Implanon/Nexplanon*, a single-rod subdermal contraceptive implant, declined 5% in the third quarter of 2020 primarily driven by lower demand in Latin America. Worldwide sales of *Implanon/Nexplanon* declined 11% in the first nine months of 2020 primarily due to lower demand in the United States and in the EU resulting from the COVID-19 pandemic.

Worldwide sales of *NuvaRing*, a vaginal contraceptive product, declined 76% and 74% in the third quarter and first nine months of 2020, respectively, due to generic competition in the United States. The patent that provided U.S. market exclusivity for *NuvaRing* expired in April 2018 and generic competition began in December 2019. Accordingly, the Company is experiencing a rapid and substantial decline in U.S. *NuvaRing* sales and expects the decline to continue.

Biosimilars

	Three Months Ended September 30,			% Change Excluding Foreign	Nine Months Ended September 30,			% Change Excluding Foreign
($ in millions)	2020	2019	% Change	Exchange	2020	2019	% Change	Exchange
Biosimilars	$ 99	$ 68	45 %	44 %	$ 227	$ 189	20 %	21 %

Biosimilar products are marketed by the Company pursuant to an agreement with Samsung Bioepis Co., Ltd. (Samsung) to develop and commercialize multiple pre-specified biosimilar candidates. Currently, the Company markets Renflexis (infliximab-abda), a biosimilar to Remicade (infliximab) for the treatment of certain inflammatory diseases; Ontruzant (trastuzumab-dttb), a biosimilar to Herceptin (trastuzumab) for the treatment of human epidermal growth factor receptor 2 (HER2)-positive breast cancer and HER2 overexpressing gastric cancer; and Brenzys (etanercept biosimilar), a biosimilar to Enbrel for the treatment of certain inflammatory diseases. Merck's commercialization territories under the agreement vary by product. Sales of biosimilars grew 45% and 20% in the third quarter and first nine months of 2020, respectively, primarily due to the launch of Ontruzant in Brazil in August 2020 and continued post-launch uptake of Renflexis in the United States and Canada. Sales growth in the first nine months of 2020 was partially offset by lower sales of Brenzys in Brazil.

In August 2020, the EC granted marketing authorization for Aybintio (bevacizumab) for the treatment of metastatic carcinoma of the colon or rectum, metastatic breast cancer, NSCLC, advanced and/or metastatic RCC, epithelial ovarian, fallopian tube and primary peritoneal cancer and cervical cancer. An application seeking approval of Aybintio in the United States was filed in September 2019.

Animal Health Segment

	Three Months Ended September 30,			% Change Excluding Foreign	Nine Months Ended September 30,			% Change Excluding Foreign
($ in millions)	2020	2019	% Change	Exchange	2020	2019	% Change	Exchange
Livestock	$ 758	$ 726	5 %	8 %	$ 2,145	$ 2,007	7 %	11 %
Companion Animal	462	396	17 %	18 %	1,390	1,264	10 %	12 %

Sales of livestock products grew 5% and 7% in the third quarter and first nine months of 2020, respectively, primarily driven by higher demand for ruminant, swine and poultry products. Sales growth in the first nine months of 2020 was also driven by the April 2019 acquisition of Antelliq Corporation (Antelliq) (see Note 2 to the condensed consolidated financial statements). Sales of companion animal products grew 17% in the third quarter of 2020 and 10% in the first nine months of 2020 primarily driven by higher demand for the *Bravecto* (fluralaner) line of products, as well as higher demand for companion animal vaccines.

Costs, Expenses and Other

	Three Months Ended September 30,			Nine Months Ended September 30,		
($ in millions)	2020	2019	% Change	2020	2019	% Change
Cost of sales	$ 3,481	$ 3,990	(13)%	$ 9,952	$ 10,443	(5)%
Selling, general and administrative	2,450	2,589	(5)%	7,383	7,726	(4)%
Research and development	3,390	3,204	6 %	7,721	7,324	5 %
Restructuring costs	114	232	(51)%	269	444	(39)%
Other (income) expense, net	(312)	35	*	(630)	362	*
	$ 9,123	$ 10,050	(9)%	24,695	26,299	(6)%

** Greater than 100%.*

Cost of Sales

Cost of sales declined 13% and 5% in the third quarter and first nine months of 2020, respectively. Cost of sales includes the amortization of intangible assets recorded in connection with business acquisitions, which totaled $270 million and $320 million in the third quarter of 2020 and 2019, respectively, and $843 million and $1.1 billion in the first nine months of 2020 and 2019, respectively. Cost of sales also includes the amortization of amounts capitalized in connection with collaborations of $117 million and $81 million in the third quarter of 2020 and 2019, respectively, and $509 million and $307 million in the first nine months of 2020 and 2019, respectively. Additionally, costs include intangible asset impairment charges of $612 million and $693 million in the third quarter and first nine months of 2019, respectively, related to marketed products. The Company may recognize additional impairment charges in the future related to intangible assets that were measured at fair value and capitalized in connection with business acquisitions and such charges could be material. Also included in cost of sales are expenses associated with restructuring activities which amounted to $38 million and $62 million in the third quarter of 2020 and 2019, respectively, and $131 million and $161 million in the first nine months of 2020 and 2019, respectively, including accelerated depreciation and asset write-offs related to the planned sale or closure of manufacturing facilities. Separation costs associated with manufacturing-related headcount reductions have been incurred and are reflected in *Restructuring costs* as discussed below.

Gross margin was 72.3% in the third quarter of 2020 compared with 67.8% in the third quarter of 2019. The gross margin improvement reflects lower intangible asset impairment charges (noted above), the favorable effect of product mix and lower restructuring costs, partially offset by the unfavorable effects of pricing pressure, inventory write-offs and foreign exchange. Gross margin was 71.9% in the first nine months of 2020 compared with 70.1% in the first nine months of 2019. The gross margin improvement was primarily driven by lower impairment charges and amortization related to intangible assets (noted above), as well as the favorable effect of product mix and lower restructuring costs, partially offset by the unfavorable effects of pricing pressure, royalties, manufacturing variances, and inventory write-offs.

Selling, General and Administrative

Selling, general and administrative (SG&A) expenses declined 5% and 4% in the third quarter and first nine months of 2020, respectively, primarily due to lower administrative and selling costs, including reduced travel and fewer meetings, due in part to the COVID-19 pandemic, and the favorable effect of foreign exchange, partially offset by costs related to the planned spin-off of Organon. Transaction costs related to the acquisition of ArQule also partially offset the decline in SG&A expenses in the first nine months of 2020 (see Note 2 to the condensed consolidated financial statements).

Research and Development

Research and development (R&D) expenses grew 6% and 5% in the third quarter and first nine months of 2020, respectively, primarily driven by higher upfront payments related to collaborations and license agreements (see Note 2 to the condensed consolidated financial statements), increased clinical development, discovery research and early drug development spending, as well as higher restructuring costs, partially offset by a charge in 2019 for the acquisition of Peloton Therapeutics, Inc. (Peloton) (see Note 2 to the condensed consolidated financial statements), lower costs associated with the COVID-19 pandemic (net of spending on COVID-19-related vaccine and antiviral research programs), and the favorable effect of foreign exchange.

R&D expenses are comprised of the costs directly incurred by MRL, the Company's research and development division that focuses on human health-related activities, which were $1.6 billion in both the third quarter of 2020 and 2019, and $4.7 billion and $4.4 billion in the first nine months of 2020 and 2019, respectively. Also included in R&D expenses are Animal Health research costs, licensing costs and costs incurred by other divisions in support of R&D activities, including depreciation, production and general and administrative, which in the aggregate were approximately $645 million and $655 million for the third quarter of 2020 and 2019, respectively, and were $1.9 billion in both the first nine months of 2020 and 2019. In addition, R&D expenses include expense or income related to changes in the estimated fair value measurement of liabilities for contingent consideration recorded in connection with business acquisitions. The Company recorded a net reduction in expenses of $48 million and $36 million in the first nine months of 2020 and 2019, respectively, related to the changes in these estimates. R&D expenses also reflect $19 million and $67 million of accelerated depreciation costs in connection with restructuring activities in the third quarter and first nine months of 2020, respectively.

Restructuring Costs

In early 2019, Merck approved a new global restructuring program (Restructuring Program) as part of a worldwide initiative focused on further optimizing the Company's manufacturing and supply network, as well as reducing its global real estate footprint. This program is a continuation of the Company's plant rationalization, builds on prior restructuring programs and does not include any actions associated with the planned spin-off of Organon. As the Company continues to evaluate its global footprint and overall operating model, it subsequently identified additional actions under the Restructuring Program, and could identify further actions over time. The actions currently contemplated under the Restructuring Program are expected to be substantially completed by the end of 2023, with the cumulative pretax costs to be incurred by the Company to implement the program estimated to be approximately $2.5 billion. The Company expects to record charges of approximately $800 million in 2020 related to the Restructuring Program. The Company anticipates the actions under the Restructuring Program to result in annual net cost savings of approximately $900 million by the end of 2023. Actions under previous global restructuring programs have been substantially completed.

Restructuring costs, primarily representing separation and other related costs associated with these restructuring activities, were $114 million and $232 million for the third quarter of 2020 and 2019, respectively, and $269 million and $444 million in the first nine months of 2020 and 2019, respectively. Separation costs incurred were associated with actual headcount reductions, as well as estimated expenses under existing severance programs for headcount reductions that were probable and could be reasonably estimated. Also included in restructuring costs are asset abandonment, facility shut-down and other related costs, as well as employee-related costs such as curtailment, settlement and termination charges associated with pension and other postretirement benefit plans and share-based compensation plan costs. For segment reporting, restructuring costs are unallocated expenses.

Additional costs associated with the Company's restructuring activities are included in *Cost of sales*, *Selling, general and administrative* expenses and *Research and development* costs. The Company recorded aggregate pretax costs of

$186 million and $296 million in the third quarter of 2020 and 2019, respectively, and $504 million and $642 million in the first nine months of 2020 and 2019, respectively, related to restructuring program activities (see Note 4 to the condensed consolidated financial statements).

Other (Income) Expense, Net

For details on the components of *Other (income) expense, net* see Note 13 to the condensed consolidated financial statements.

Segment Profits

	Three Months Ended September 30,		Nine Months Ended September 30,	
($ in millions)	2020	2019	2020	2019
Pharmaceutical segment profits	$ 7,974	$ 7,747	$ 22,010	$ 21,437
Animal Health segment profits	451	423	1,336	1,243
Other non-reportable segment profits	(1)	(2)	1	(2)
Other	(4,996)	(5,821)	(12,563)	(14,005)
Income before taxes	$ 3,428	$ 2,347	$ 10,784	$ 8,673

Pharmaceutical segment profits are comprised of segment sales less standard costs, as well as SG&A expenses directly incurred by the segment. Animal Health segment profits are comprised of segment sales, less all cost of sales, as well as SG&A expenses and research and development costs directly incurred by the segment. For internal management reporting presented to the chief operating decision maker, Merck does not allocate the remaining cost of sales not included in segment profits as described above, research and development expenses incurred by MRL, or general and administrative expenses, nor the cost of financing these activities. Separate divisions maintain responsibility for monitoring and managing these costs, including depreciation related to fixed assets utilized by these divisions and, therefore, they are not included in segment profits. Also excluded from the determination of segment profits are costs related to restructuring activities and acquisition and divestiture-related costs, including the amortization of purchase accounting adjustments, intangible asset impairment charges, and changes in the estimated fair value measurement of liabilities for contingent consideration. Additionally, segment profits do not reflect other expenses from corporate and manufacturing cost centers and other miscellaneous income or expense. These unallocated items are reflected in “Other” in the above table. Also included in “Other” are miscellaneous corporate profits (losses), as well as operating profits (losses) related to third-party manufacturing sales.

Pharmaceutical segment profits grew 3% in both the third quarter and first nine months of 2020 driven primarily by higher sales, as well as lower administrative and selling costs. Animal Health segment profits grew 6% and 7% in the third quarter and first nine months of 2020, respectively, reflecting higher sales and lower promotional costs, partially offset by higher R&D costs and the unfavorable effect of foreign exchange.

Taxes on Income

The effective income tax rates of 14.1% and 18.7% for the third quarter of 2020 and 2019, respectively, and 14.9% and 14.5% for the first nine months of 2020 and 2019, respectively, reflect the impacts of acquisition and divestiture-related costs and restructuring costs, partially offset by the beneficial impact of foreign earnings. The effective income tax rates in the third quarter and first nine months of 2019 also reflect the unfavorable impact of a charge for the acquisition of Peloton for which no tax benefit was recognized and the favorable impact of product mix on the estimated 2019 full-year tax rate. In addition, the effective income tax rate for the first nine months of 2019 reflects the favorable impact of a $360 million net tax benefit related to the settlement of certain federal income tax matters.

In the first quarter of 2019, the Internal Revenue Service (IRS) concluded its examinations of Merck’s 2012-2014 U.S. federal income tax returns. As a result, the Company was required to make a payment of $107 million. The Company’s reserves for unrecognized tax benefits for the years under examination exceeded the adjustments relating to this examination period and therefore the Company recorded a $360 million net tax benefit in the first nine months of 2019. This net benefit reflects reductions in reserves for unrecognized tax benefits for tax positions relating to the years that were under examination, partially offset by additional reserves for tax positions not previously reserved for.

Net Loss Attributable to Noncontrolling Interests

Net loss attributable to noncontrolling interests of $73 million for the first nine months of 2019 includes the portion of goodwill impairment charges related to certain businesses in the Healthcare Services segment that are attributable to noncontrolling interests.

Net Income and Earnings per Common Share

Net income attributable to Merck & Co., Inc. was $2.9 billion for the third quarter of 2020 compared with $1.9 billion for the third quarter of 2019 and was $9.2 billion for the first nine months of 2020 compared with $7.5 billion for the first nine months of 2019. Earnings per common share assuming dilution attributable to Merck & Co., Inc. common shareholders (EPS) for the third quarter of 2020 were $1.16 compared with $0.74 in the third quarter of 2019 and were $3.61 for the first nine months of 2020 compared with $2.89 for the first nine months of 2019.

Non-GAAP Income and Non-GAAP EPS

Non-GAAP income and non-GAAP EPS are alternative views of the Company's performance that Merck is providing because management believes this information enhances investors' understanding of the Company's results as it permits investors to understand how management assesses performance. Non-GAAP income and non-GAAP EPS exclude certain items because of the nature of these items and the impact that they have on the analysis of underlying business performance and trends. The excluded items (which should not be considered non-recurring) consist of acquisition and divestiture-related costs, restructuring costs and certain other items. These excluded items are significant components in understanding and assessing financial performance. Non-GAAP income and non-GAAP EPS are important internal measures for the Company. Senior management receives a monthly analysis of operating results that includes non-GAAP EPS. Management uses these measures internally for planning and forecasting purposes and to measure the performance of the Company along with other metrics. In addition, senior management's annual compensation is derived in part using non-GAAP pretax income. Since non-GAAP income and non-GAAP EPS are not measures determined in accordance with GAAP, they have no standardized meaning prescribed by GAAP and, therefore, may not be comparable to the calculation of similar measures of other companies. The information on non-GAAP income and non-GAAP EPS should be considered in addition to, but not as a substitute for or superior to, net income and EPS prepared in accordance with generally accepted accounting principles in the United States (GAAP).

A reconciliation between GAAP financial measures and non-GAAP financial measures is as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
($ in millions except per share amounts)	2020	2019	2020	2019
Income before taxes as reported under GAAP	$ 3,428	$ 2,347	$ 10,784	$ 8,673
Increase (decrease) for excluded items:				
Acquisition and divestiture-related costs	508	975	1,551	2,183
Restructuring costs	186	296	504	642
Other items:				
Charges for collaborations and acquisitions [(1)]	1,082	982	1,082	982
Other	(1)	—	(17)	48
Non-GAAP income before taxes	5,203	4,600	13,904	12,528
Taxes on income as reported under GAAP	483	440	1,611	1,259
Estimated tax benefit on excluded items [(2)]	356	281	616	555
Adjustment to tax benefits recorded in conjunction with the 2015 Cubist Pharmaceuticals, Inc. acquisition	(67)	—	(67)	—
Net tax benefit from the settlement of certain federal income tax matters	—	—	—	360
Tax charge related to finalization of treasury regulations for the Tax Cuts and Job Act of 2017	—	—	—	(67)
Non-GAAP taxes on income	772	721	2,160	2,107
Non-GAAP net income	4,431	3,879	11,744	10,421
Less: Net income (loss) attributable to noncontrolling interests as reported under GAAP	4	6	12	(73)
Acquisition and divestiture-related costs attributable to noncontrolling interests	—	—	—	89
Non-GAAP net income attributable to noncontrolling interests	4	6	12	16
Non-GAAP net income attributable to Merck & Co., Inc.	$ 4,427	$ 3,873	$ 11,732	$ 10,405
EPS assuming dilution as reported under GAAP	$ 1.16	$ 0.74	$ 3.61	$ 2.89
EPS difference	0.58	0.77	1.01	1.13
Non-GAAP EPS assuming dilution	$ 1.74	$ 1.51	$ 4.62	$ 4.02

[(1)] Amount in 2020 includes $832 million related to transactions with Seagen. Amount in 2019 represents a charge for the acquisition of Peloton. See Note 2 to the condensed consolidated financial statements.

[(2)] The estimated tax impact on the excluded items is determined by applying the statutory rate of the originating territory of the non-GAAP adjustments.

Acquisition and Divestiture-Related Costs

Non-GAAP income and non-GAAP EPS exclude the impact of certain amounts recorded in connection with business acquisitions and divestitures. These amounts include the amortization of intangible assets and amortization of purchase accounting adjustments to inventories, as well as intangible asset impairment charges, and expense or income related to changes in the estimated fair value measurement of liabilities for contingent consideration. Also excluded are integration, transaction, and certain other costs associated with business acquisitions and divestitures.

Restructuring Costs

Non-GAAP income and non-GAAP EPS exclude costs related to restructuring actions (see Note 4 to the condensed consolidated financial statements). These amounts include employee separation costs and accelerated depreciation associated with facilities to be closed or divested. Accelerated depreciation costs represent the difference between the depreciation expense to be recognized over the revised useful life of the asset, based upon the anticipated date the site will be closed or divested or the equipment disposed of, and depreciation expense as determined utilizing the useful life prior to the restructuring actions. Restructuring costs also include asset abandonment, facility shut-down and other related costs, as well as employee-related costs such as curtailment, settlement and termination charges associated with pension and other postretirement benefit plans and share-based compensation costs.

Certain Other Items

Non-GAAP income and non-GAAP EPS exclude certain other items. These items are adjusted for after evaluating them on an individual basis, considering their quantitative and qualitative aspects. Typically, these consist of items that are unusual in nature, significant to the results of a particular period or not indicative of future operating results. Excluded from non-GAAP income and non-GAAP EPS in 2020 are upfront payments related to licensing arrangements and collaborations, including the transactions with Seagen (see Note 2 to the condensed consolidated financial statements), and an adjustment to tax benefits recorded in conjunction with the 2015 Cubist Pharmaceuticals, Inc. acquisition. Excluded from non-GAAP income and non-GAAP EPS in 2019 is a charge for the acquisition of Peloton (see Note 2 to the condensed consolidated financial statements), a net tax benefit related to the settlement of certain federal income tax matters (see Note 14 to the condensed consolidated financial statements) and a tax charge related to the finalization of U.S. treasury regulations related to the Tax Cuts and Jobs Act of 2017.

Research and Development Update

In July 2020, the FDA accepted for priority review the NDA for vericiguat, an orally administered sGC stimulator, to reduce the risk of cardiovascular death and heart failure hospitalization following a worsening heart failure event in patients with symptomatic chronic heart failure with reduced ejection fraction, in combination with other heart failure therapies. The FDA set a Prescription Drug User Fee Act (PDUFA), or target action, date of January 20, 2021. Vericiguat is being jointly developed with Bayer (see Note 3 to the condensed consolidated financial statements). The application is based on results from the Phase 3 VICTORIA trial, which is the first contemporary outcomes study focused exclusively on a population with worsening chronic heart failure who are at high risk for cardiovascular mortality and repeated heart failure hospitalizations. Data from VICTORIA were presented at the virtual American College of Cardiology's 69th Annual Scientific Session together with World Congress of Cardiology and published in *The New England Journal of Medicine*. Vericiguat is also under review in the EU and in Japan. Merck and Bayer plan to share VICTORIA data with regulatory authorities worldwide.

Koselugo is under review in the EU for the treatment of pediatric patients two years of age and older with NF1 who have symptomatic, inoperable PN based on positive results from the NCI CTEP-sponsored Phase 2 SPRINT Stratum 1 trial. Koselugo was approved by the FDA in April 2020. Koselugo is being jointly developed and commercialized with AstraZeneca globally (see Note 3 to the condensed consolidated financial statements).

Keytruda is an anti-PD-1 therapy approved for the treatment of many cancers that is in clinical development for expanded indications. These approvals were the result of a broad clinical development program that currently consists of more than 1,300 clinical trials, including more than 900 trials that combine *Keytruda* with other cancer treatments. These studies encompass more than 30 cancer types including: biliary tract, cervical, colorectal, cutaneous squamous cell, endometrial, esophageal, gastric, glioblastoma, head and neck, hepatocellular, Hodgkin lymphoma, non-Hodgkin lymphoma, melanoma, mesothelioma, nasopharyngeal, non-small-cell lung, ovarian, prostate, renal, small-cell lung, triple-negative breast and urothelial, many of which are currently in Phase 3 clinical development. Further trials are being planned for other cancers.

In July 2020, the FDA accepted and granted Priority Review for a supplemental Biologics License Application (BLA) seeking accelerated approval for *Keytruda* in combination with chemotherapy for the treatment of patients with locally recurrent unresectable or metastatic triple-negative breast cancer (TNBC) whose tumors express PD-L1 (CPS ≥10). The application was based on data from the KEYNOTE-355 trial in which *Keytruda* plus chemotherapy demonstrated a statistically significant and clinically meaningful improvement in progression-free survival (PFS) compared with chemotherapy alone in patients whose tumors expressed PD-L1 at CPS ≥10. In patients whose tumors expressed PD-L1 with

CPS ≥1, *Keytruda* plus chemotherapy improved PFS versus chemotherapy alone, however these results did not meet statistical significance. These data were presented at the virtual scientific program of the 2020 American Society of Clinical Oncology (ASCO) Annual Meeting. As previously announced, the trial will continue without changes to evaluate the other dual primary endpoint of overall survival (OS). The FDA set a PDUFA date of November 28, 2020. In October 2020, Merck announced the submission of KEYNOTE-355 to the Japan PMDA.

Also in July 2020, the FDA accepted for standard review a supplemental BLA for *Keytruda* for the treatment of patients with high-risk, early-stage TNBC, in combination with chemotherapy as neoadjuvant treatment, and then as a single agent as adjuvant treatment after surgery. The application was based on data from the KEYNOTE-522 trial in which neoadjuvant *Keytruda* plus chemotherapy resulted in a statistically significant increase in pathologic complete response in patients with early-stage TNBC, regardless of PD-L1 expression. The *Keytruda* regimen also demonstrated a favorable trend for the other dual primary endpoint of event-free survival. An interim analysis for this study was conducted by the Independent Data Monitoring Committee (DMC). Based on the recommendation of the DMC, the study continues to evaluate event-free survival. Data from the KEYNOTE-522 trial were presented at the European Society for Medical Oncology 2019 Congress. As previously announced, *Keytruda* plus chemotherapy was granted Breakthrough Therapy designation by the FDA in September 2019 for the neoadjuvant treatment of patients with high-risk, early-stage TNBC. The PDUFA date for this application is March 29, 2021.

The Committee for Medicinal Products for Human Use (CHMP) of the European Medicines Agency (EMA) announced the start of a procedure to extend the currently approved therapeutic indication for the treatment of relapsed or refractory cHL in adults to an earlier line of therapy based on the pivotal Phase 3 KEYNOTE-204 trial, in which *Keytruda* demonstrated a significant improvement in PFS compared to brentuximab vedotin (BV), a current standard of care in this patient population. Data from KEYNOTE-204 were presented during the virtual scientific program of the 2020 ASCO Annual Meeting. *Keytruda* was approved for this indication by the FDA in October 2020. The procedure also seeks to extend the indication to include pediatric patients.

Keytruda is also under review in the EU and in Japan for the first-line treatment of patients with MSI-H or mismatch repair deficient unresectable or metastatic colorectal cancer based on the results from the Phase 3 KEYNOTE-177 trial. *Keytruda* was approved for this indication by the FDA in June 2020.

In addition to the Breakthrough Therapy designation from the FDA for the combination of *Keytruda* with neoadjuvant chemotherapy for the treatment of high-risk, early-stage TNBC noted above, *Keytruda* also received Breakthrough Therapy designation from the FDA in February 2020 for the combination of *Keytruda* with PADCEV (enfortumab vedotin-ejfv), in the first-line setting for the treatment of patients with unresectable locally advanced or metastatic urothelial cancer who are not eligible for cisplatin-containing chemotherapy. The FDA's Breakthrough Therapy designation is intended to expedite the development and review of a candidate that is planned for use, alone or in combination, to treat a serious or life-threatening disease or condition when preliminary clinical evidence indicates that the drug may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints.

In August 2020, Merck announced first-time data from the pivotal Phase 3 KEYNOTE-590 trial evaluating *Keytruda* in combination with platinum-based chemotherapy for the first-line treatment of patients with locally advanced or metastatic esophageal and gastroesophageal junction cancer. In the study, *Keytruda* in combination with chemotherapy significantly improved OS and PFS versus chemotherapy in all randomized patients; it was demonstrated that the risk of death was reduced by 27% versus chemotherapy as first-line treatment for locally advanced or metastatic esophageal cancer. With these results, *Keytruda* is the first anti-PD-1 therapy in combination with chemotherapy to show superior OS, PFS and objective response rate (ORR) versus chemotherapy, the current standard of care, for these patients regardless of histology or PD-L1 expression status. These data were presented at the European Society for Medical Oncology (ESMO) Virtual Congress 2020. Merck will be sharing these data with regulatory authorities worldwide.

In June 2020, Merck announced that the Phase 3 KEYNOTE-361 trial evaluating *Keytruda* in combination with chemotherapy for the first-line treatment of patients with advanced or metastatic urothelial carcinoma (bladder cancer) did not meet its pre-specified dual primary endpoints of OS or PFS, compared with standard of care chemotherapy. In the final analysis of the study, there was an improvement in OS and PFS for patients treated with *Keytruda* in combination with chemotherapy compared to chemotherapy alone; however, these results did not meet statistical significance per the pre-specified statistical plan. The monotherapy arm of the study was not formally tested, since superiority was not reached for OS or PFS in the *Keytruda* combination arm. *Keytruda* has three FDA-approved bladder cancer indications across multiple stages of bladder cancer. Additionally, Merck has an extensive clinical development program in bladder cancer and is continuing to evaluate *Keytruda* as monotherapy and in combination with other anti-cancer therapies across several disease settings (i.e., metastatic, muscle invasive bladder cancer, and non-muscle invasive bladder cancer).

In May 2020, Merck announced positive results from two studies from the Company's lung cancer research program. Initial results from the Phase 2 KEYNOTE-799 trial evaluating *Keytruda* plus concurrent chemoradiation therapy

demonstrated an ORR of 67.0% in Cohort A (squamous and nonsquamous NSCLC patients who received paclitaxel plus carboplatin) and 56.6% in Cohort B (nonsquamous NSCLC patients who received cisplatin plus pemetrexed) in untreated patients with unresectable, locally advanced stage III NSCLC.

Additionally in May 2020, Merck and Eisai presented data from analyses of two trials evaluating *Keytruda* plus Lenvima at the 2020 ASCO Annual Meeting, in which the *Keytruda* plus Lenvima combination demonstrated clinically meaningful ORR: the KEYNOTE-524/Study 116 trial in patients with unresectable HCC with no prior systemic therapy and the KEYNOTE-146/Study 111 trial in patients with metastatic clear cell renal cell carcinoma (ccRCC) who progressed following immune checkpoint inhibitor therapy.

In July 2020, Merck and Eisai announced that the FDA issued a Complete Response Letter (CRL) regarding Merck's and Eisai's applications seeking accelerated approval of Keytruda plus Lenvima for the first-line treatment of patients with unresectable HCC based on data from the Phase 1b KEYNOTE-524/Study 116 trial, which showed clinically meaningful efficacy in the single-arm setting. These data supported a Breakthrough Therapy designation granted by the FDA in July 2019. Ahead of the PDUFA action dates of Merck's and Eisai's applications, another combination therapy was approved based on a randomized, controlled trial that demonstrated improvement in OS versus standard-of-care treatment. Consequently, the CRL stated that Merck's and Eisai's applications do not provide evidence that Keytruda in combination with Lenvima represents a meaningful advantage over available therapies for the treatment of unresectable or metastatic HCC with no prior systemic therapy for advanced disease. Since the applications for KEYNOTE-524/Study 116 no longer meet the criteria for accelerated approval, both companies plan to work with the FDA to take appropriate next steps, which include conducting a well-controlled clinical trial that demonstrates substantial evidence of effectiveness and the clinical benefit of the combination. As such, LEAP-002, the Phase 3 trial evaluating the *Keytruda* plus Lenvima combination as a first-line treatment for advanced HCC, is currently underway and fully enrolled. The CRL does not impact the current approved indications for *Keytruda* or for Lenvima.

In July 2020, the FDA granted Breakthrough Therapy designation to the hypoxia-inducible factor-2 alpha (HIF-2α) inhibitor MK-6482, a novel investigational candidate for the treatment of patients with von Hippel-Lindau (VHL) disease-associated RCC with nonmetastatic RCC tumors less than three centimeters in size, unless immediate surgery is required. The FDA also granted orphan drug designation to MK-6482 for VHL disease. These designations are based on data from a Phase 2 trial evaluating MK-6482 in patients with VHL-associated ccRCC, which were presented at the 2020 ASCO Annual Meeting. Additionally, Phase 2 data showing anti-tumor responses in VHL disease patients with ccRCC and other tumors were presented at the ESMO Virtual Congress 2020.

In September 2020, Merck and Seagen announced a collaboration to globally develop and commercialize Seagen's ladiratuzumab vedotin (MK-6440), an investigational antibody-drug conjugate targeting LIV-1, which is currently in Phase 2 clinical trials for breast cancer and other solid tumors. The collaboration will pursue a broad joint development program evaluating ladiratuzumab vedotin as monotherapy and in combination with *Keytruda* in triple-negative breast cancer, hormone receptor-positive breast cancer and other LIV-1-expressing solid tumors. Seagen also granted Merck an exclusive license and entered into a co-development agreement with Merck to accelerate the global reach of Tukysa (MK-7119), a small molecule tyrosine kinase inhibitor, for the treatment of HER2-positive cancers, in Asia, the Middle East and Latin America and other regions outside of the United States, Canada and Europe. See Note 2 to the condensed consolidated financial statements.

Lynparza is an oral PARP inhibitor currently approved for certain types of advanced ovarian, breast, pancreatic and prostate cancers being co-developed for multiple cancer types as part of a collaboration with AstraZeneca (see Note 3 to the condensed consolidated financial statements).

In May 2020, the results from the Phase 3 GY004 trial, led by NRG Oncology and sponsored by the U.S. NCI, were presented at the 2020 ASCO Annual Meeting. This follows the March 2020, Merck and AstraZeneca announcement of the high-level results from the Phase 3 GY004 trial that examined primarily the efficacy and safety of investigational medicine cediranib in combination with Lynparza versus platinum-based chemotherapy in patients with platinum-sensitive relapsed ovarian cancer. The trial did not meet the primary endpoint in the intent-to-treat population of a statistically significant improvement in PFS with cediranib in combination with Lynparza vs. platinum-based chemotherapy.

In September 2020, Merck announced the results from two ongoing pivotal Phase 3 trials (COUGH-1 and COUGH-2) evaluating the efficacy and safety of gefapixant (MK-7264), an investigational, orally administered, selective P2X3 receptor antagonist, for the treatment of refractory or unexplained chronic cough. In these studies, adult patients treated with gefapixant 45 mg twice daily demonstrated a statistically significant reduction in 24-hour cough frequency versus placebo at 12 weeks (COUGH-1) and 24 weeks (COUGH-2). The gefapixant 15 mg twice daily treatment arms did not meet the primary efficacy endpoint in either Phase 3 study. These results were presented at the Virtual European Respiratory Society International Congress 2020. Merck plans to share data from COUGH-1 and COUGH-2 with regulatory authorities worldwide.

In October 2020, Merck announced Week 96 data from the Phase 2b trial (NCT03272347) evaluating the efficacy and safety of islatravir, the company's investigational oral nucleoside reverse transcriptase translocation inhibitor (NRTTI), in combination with doravirine (*Pifeltro*), in treatment-naïve adults with HIV-1 infection. Week 96 findings demonstrated that the combination of islatravir and doravirine maintained virologic suppression (as measured by the number of study participants achieving HIV-1 RNA levels <50 copies/mL, similar to *Delstrigo* (doravirine/lamivudine/tenofovir disoproxil fumarate)), and the findings were consistent with Week 48 results. Additional Week 96 data from the study show low rates of participants meeting the definition of protocol-defined virologic failure in both the islatravir plus doravirine and the *Delstrigo* treatment arms, and no participants in either arm met the criteria for resistance testing. These data were presented at the virtual 2020 International Congress on Drug Therapy in HIV Infection (HIV Glasglow).

In October 2020, Merck announced findings from two Phase 3 studies evaluating the safety, tolerability and immunogenicity of V114, the Company's investigational 15-valent pneumococcal conjugate vaccine. In the PNEU-PATH (V114-016) study, healthy adults 50 years of age and older received V114 or PCV13 followed by *Pneumovax* 23 one year later. Immune responses following vaccination with *Pneumovax* 23 were comparable in both vaccination groups for the 15 serotypes in V114. Results also showed that at 30 days post vaccination with either V114 or PCV13, immune responses were comparable for both groups across the 13 serotypes shared by the conjugate vaccines and higher in the V114 group for serotypes 22F and 33F, the two serotypes not included in PCV13. In PNEU-DAY (V114-017), a Phase 3 study in immunocompetent adults 18 to 49 years of age with underlying medical conditions associated with increased risk for pneumococcal disease, V114 generated immune responses generally comparable to PCV13 for the 13 shared serotypes and higher immune responses for serotypes 22F and 33F at 30 days post-vaccination.

In September 2020, Merck announced that two Phase 3 studies evaluating the safety, tolerability and immunogenicity of V114 met their primary immunogenicity objectives. The pivotal PNEU-AGE (V114-019) study in healthy adults 50 years of age or older demonstrated that V114 is non-inferior to the currently available 13-valent pneumococcal conjugate vaccine (PCV13) for the 13 serotypes targeted by both vaccines and superior for serotypes 22F and 33F, the two serotypes targeted by V114 but not PCV13. The PNEU-AGE study also met the key secondary immunogenicity objective, demonstrating superiority of V114 compared to PCV13 for serotype 3, a leading cause of invasive pneumococcal disease globally. In another Phase 3 study, PNEU-TRUE (V114-020), in healthy adults 50 years of age or older, V114 met its primary immunogenicity objective demonstrating equivalent immune response across all 15 serotypes for three different lots of V114.

In June 2020, Merck announced results from two initial Phase 3 studies evaluating the safety, tolerability and immunogenicity of V114. Results from the PNEU-WAY (V114-018) study in adults 18 years of age or older living with HIV showed that V114 elicited an immune response to all 15 serotypes included in the vaccine, including serotypes 22F and 33F. Results from the PNEU-FLU (V114-021) study in healthy adults 50 years of age or older showed that V114 can be given concomitantly with the quadrivalent influenza vaccine. These data were announced and published in the International Symposium on Pneumococci and Pneumococcal Diseases digital library in lieu of an in-person meeting.

The V114 Phase 3 clinical development program is comprised of 16 trials investigating the safety, tolerability and immunogenicity of V114 in a variety of populations who are at increased risk for pneumococcal disease including both healthy older adult and healthy pediatric populations, as well as people who are immunocompromised or have certain chronic conditions. Findings from the V114 Phase 3 clinical program, including the studies above, will be presented at a future scientific congress and will form the basis for global regulatory licensure applications, beginning with the FDA before the end of the year.

In June 2020, Merck and Pfizer Inc. announced the presentation of results from the Phase 3 VERTIS CV cardiovascular (CV) outcomes trial that evaluated Steglatro (ertugliflozin), an oral sodium-glucose cotransporter 2 (SGLT2) inhibitor, versus placebo, added to background standard of care treatment, in patients with type 2 diabetes and atherosclerotic CV disease. The study met the primary endpoint of non-inferiority on major adverse CV events (MACE), which is a composite of CV death, nonfatal myocardial infarction or nonfatal stroke, compared to placebo. The key secondary endpoints of superiority for Steglatro versus placebo for time to the first occurrence of the composite of CV death or hospitalization for heart failure, time to CV death alone and time to the first occurrence of the composite of renal death, dialysis/transplant or doubling of serum creatinine from baseline were not met. While not a pre-specified hypothesis for statistical testing, a reduction in hospitalization for heart failure was observed with Steglatro.

In July 2020, the FDA granted V181, the Company's investigational dengue vaccine in Phase 1 development, Fast Track designation.

The chart below reflects the Company's research pipeline as of November 2, 2020. Candidates shown in Phase 3 include specific products and the date such candidate entered into Phase 3 development. Candidates shown in Phase 2 include the most advanced compound with a specific mechanism or, if listed compounds have the same mechanism, they are each currently intended for commercialization in a given therapeutic area. Small molecules and biologics are given MK-number designations and vaccine candidates are given V-number designations. Except as otherwise noted, candidates in Phase 1,

additional indications in the same therapeutic area (other than with respect to cancer) and additional claims, line extensions or formulations for in-line products are not shown.

Phase 2	Phase 3 (Phase 3 entry date)	Under Review
Antiviral COVID-19 MK-4482 (molnupiravir)[1] **Cancer** MK-1026 Hematological Malignancies MK-1308 (quavonlimab)[2] Melanoma Non-Small-Cell Lung MK-1454[2] Head and Neck MK-3475 *Keytruda* Advanced Solid Tumors MK-4280[2] Hematological Malignancies Non-Small-Cell Lung MK-5890[2] Non-Small-Cell Lung MK-6440 (ladiratuzumab vedotin)[1][3] Advanced Solid Tumors Breast MK-7119 Tukysa[1] Colorectal MK-7339 Lynparza[1][3] Advanced Solid Tumors MK-7684 (vibostolimab)[2] Melanoma Non-Small-Cell Lung MK-7902 Lenvima[1][2] Advanced Solid Tumors Biliary Tract Colorectal Gastric Glioblastoma V937 Breast Cutaneous Squamous Cell Melanoma Head and Neck **Chikungunya virus** V184 **Cytomegalovirus** V160 **HIV-1 Prevention** MK-8591 (islatravir) **Overgrowth Syndrome** MK-7075 (miransertib) **Pneumococcal Vaccine Adult** V116 **Respiratory Syncytial Virus** MK-1654 **Schizophrenia** MK-8189	**Cancer** MK-3475 *Keytruda* Biliary Tract (September 2019) Breast (October 2015) (EU) Cervical (October 2018) (EU) Cutaneous Squamous Cell (August 2019) (EU) Endometrial (August 2019) (EU) Esophageal (December 2015) (EU) Gastric (May 2015) (EU) Hepatocellular (May 2016) (EU) Mesothelioma (May 2018) Nasopharyngeal (April 2016) Ovarian (December 2018) Prostate (May 2019) Small-Cell Lung (May 2017) (EU) MK-6482 Renal Cell (February 2020) MK-7119 Tukysa[1] Breast (October 2019) MK-7339 Lynparza[1][2] Colorectal (August 2020) Non-Small-Cell Lung (June 2019) MK-7902 Lenvima[1][2] Bladder (May 2019) Endometrial (June 2018) (EU) Head and Neck (February 2020) Melanoma (March 2019) Non-Small-Cell Lung (March 2019) **Cough** MK-7264 (gefapixant) (March 2018) **HIV-1 Infection** MK-8591A (doravirine/islatravir) (February 2020) **Pneumoconjugate Vaccine** V114 (June 2018)	**New Molecular Entities/Vaccines** **Heart Failure** MK-1242 (vericiguat)[1] (U.S.) (EU) (JPN) **Pediatric Neurofibromatosis Type 1** MK-5618 (selumetinib)[1] (EU) **Certain Supplemental Filings** **Cancer** MK-3475 *Keytruda* • Metastatic Triple-Negative Breast Cancer (KEYNOTE-355) (U.S.) (JPN) • Early-Stage Triple-Negative Breast Cancer (KEYNOTE-522) (U.S.) • Refractory Classical Hodgkin Lymphoma (KEYNOTE-204) (EU) • Unresectable or Metastatic MSI-H or dMMR Colorectal Cancer (KEYNOTE-177) (EU) (JPN) MK-7902 Lenvima[1] • First-Line Metastatic Hepatocellular Carcinoma (KEYNOTE-524) (U.S.)[2][4] • Thymic Carcinoma (NCCH1508/REMORA) (JPN)
		Footnotes: [1] Being developed in a collaboration [2] Being developed in combination with *Keytruda*. [3] Being developed as monotherapy and in combination with *Keytruda.* [4] In July 2020, the FDA issued a CRL for Merck's and Eisai's applications. Merck and Eisai are reviewing the letter and will submit data to the FDA.

Liquidity and Capital Resources

($ in millions)	September 30, 2020	December 31, 2019
Cash and investments	$ 8,728	$ 11,919
Working capital	6,172	5,263
Total debt to total liabilities and equity	32.0 %	31.2 %

Cash provided by operating activities was $6.2 billion in the first nine months of 2020 compared with $8.6 billion in the first nine months of 2019. Cash provided by operating activities in the first nine months of 2020 includes $2.1 billion of payments related to collaborations compared with $505 million in the first nine months of 2019. Cash provided by operating activities continues to be the Company's primary source of funds to finance operating needs, capital expenditures, treasury stock purchases and dividends paid to shareholders.

Cash used in investing activities was $4.7 billion in the first nine months of 2020 compared with $1.9 billion in the first nine months of 2019. The increase was driven primarily by lower proceeds from sales of securities and other investments and higher capital expenditures, partially offset by lower purchases of securities and other investments and lower use of cash for acquisitions.

Cash used in financing activities was $4.2 billion in the first nine months of 2020 compared with $6.9 billion in the first nine months of 2019. The lower use of cash in financing activities was driven primarily by a net increase in short-term borrowings in 2020 compared with a net decrease in short-term borrowing in 2019, as well as lower purchases of treasury stock, partially offset by higher payments on debt (see below), lower proceeds from the issuance of debt (see below), higher dividends paid to shareholders, and lower proceeds from the exercise of stock options.

Capital expenditures totaled $3.2 billion and $2.3 billion for the first nine months of 2020 and 2019, respectively. The increased capital expenditures reflect investment in new capital projects focused primarily on increasing manufacturing capacity for Merck's key products, as well as the purchase of a manufacturing facility in Dunboyne, Ireland to support upcoming product launches (see Note 2 to the condensed consolidated financial statements).

The Company has accounts receivable factoring agreements with financial institutions in certain countries to sell accounts receivable. The Company factored $2.1 billion and $2.7 billion of accounts receivable in the third quarter of 2020 and the fourth quarter of 2019, respectively, under these factoring arrangements, which reduced outstanding accounts receivable. The cash received from the financial institutions is reported within operating activities in the Condensed Consolidated Statement of Cash Flows. In certain of these factoring arrangements, for ease of administration, the Company will collect customer payments related to the factored receivables, which it then remits to the financial institutions. The net cash flows relating to these collections are reported as financing activities in the Condensed Consolidated Statement of Cash Flows.

Dividends paid to stockholders were $4.7 billion and $4.3 billion for the first nine months of 2020 and 2019, respectively. In May 2020, the Board of Directors declared a quarterly dividend of $0.61 per share on the Company's common stock for the third quarter that was paid in July 2020. In July 2020, the Board of Directors declared a quarterly dividend of $0.61 per share on the Company's common stock for the fourth quarter that was paid in October 2020.

In February 2020, the Company's $1.25 billion, 1.85% notes and $700 million floating-rate notes matured in accordance with their terms and were repaid.

In June 2020, the Company issued $4.5 billion principal amount of senior unsecured notes consisting of $1.0 billion of 0.75% notes due 2026, $1.25 billion of 1.45% notes due 2030, $1.0 billion of 2.35% notes due 2040 and $1.25 billion of 2.45% notes due 2050. Merck used the net proceeds from the offering for general corporate purposes, including without limitation the repayment of outstanding commercial paper borrowings and other indebtedness with upcoming maturities.

In March 2019, the Company issued $5.0 billion principal amount of senior unsecured notes consisting of $750 million of 2.90% notes due 2024, $1.75 billion of 3.40% notes due 2029, $1.0 billion of 3.90% notes due 2039, and $1.5 billion of 4.00% notes due 2049. The Company used the net proceeds from the offering of $5.0 billion for general corporate purposes, including the repayment of outstanding commercial paper borrowings.

In 2018, Merck's Board of Directors authorized purchases of up to $10 billion of Merck's common stock for its treasury. The treasury stock purchase authorization has no time limit and will be made over time in open-market transactions, block transactions on or off an exchange, or in privately negotiated transactions. During the first nine months of 2020, the Company purchased $1.3 billion (16 million shares) of its common stock for its treasury under this share repurchase program. As of September 30, 2020, the Company's remaining share repurchase authorization was $5.9 billion. In March 2020, the Company temporarily suspended its share repurchase program.

The Company has a $6.0 billion credit facility that matures in June 2024. The facility provides backup liquidity for the Company's commercial paper borrowing facility and is to be used for general corporate purposes. The Company has not drawn funding from this facility.

Critical Accounting Policies

The Company's significant accounting policies, which include management's best estimates and judgments, are included in Note 2 to the consolidated financial statements for the year ended December 31, 2019 included in Merck's Form 10-K filed on February 26, 2020. Certain of these accounting policies are considered critical as disclosed in the Critical Accounting Policies section of Management's Discussion and Analysis of Financial Condition and Results of Operations included in Merck's Form 10-K because of the potential for a significant impact on the financial statements due to the inherent uncertainty in such estimates. There have been no significant changes in the Company's critical accounting policies since December 31, 2019. See Note 1 to the condensed consolidated financial statements for information on the adoption of new accounting standards during 2020.

Recently Issued Accounting Standards

For a discussion of recently issued accounting standards, see Note 1 to the condensed consolidated financial statements.

Item 4. Controls and Procedures

Management of the Company, with the participation of its Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of the Company's disclosure controls and procedures over financial reporting. Based on their evaluation, the Company's Chief Executive Officer and Chief Financial Officer have concluded that as of September 30, 2020, the Company's disclosure controls and procedures are effective. For the third quarter of 2020, there were no changes in internal control over financial reporting that materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

CAUTIONARY FACTORS THAT MAY AFFECT FUTURE RESULTS

This report and other written reports and oral statements made from time to time by the Company may contain so-called "forward-looking statements," all of which are based on management's current expectations and are subject to risks and uncertainties which may cause results to differ materially from those set forth in the statements. One can identify these forward-looking statements by their use of words such as "anticipates," "expects," "plans," "will," "estimates," "forecasts," "projects" and other words of similar meaning, or negative variations of any of the foregoing. One can also identify them by the fact that they do not relate strictly to historical or current facts. These statements are likely to address the Company's growth strategy, financial results, product development, product approvals, product potential and development programs. One must carefully consider any such statement and should understand that many factors could cause actual results to differ materially from the Company's forward-looking statements. These factors include inaccurate assumptions and a broad variety of other risks and uncertainties, including the impact of the global outbreak of COVID-19 and other risks and uncertainties some that are known and some that are not. No forward-looking statement can be guaranteed and actual future results may vary materially.

The Company does not assume the obligation to update any forward-looking statement. One should carefully evaluate such statements in light of factors, including risk factors, described in the Company's filings with the Securities and Exchange Commission, especially on Forms 10-K, 10-Q and 8-K. In Item 1A. "Risk Factors" of the Company's Annual Report on Form 10-K for the year ended December 31, 2019, as filed on February 26, 2020, in the Company's Form 10-Q for the quarterly period ended March 31, 2020, as filed on May 6, 2020, in the Company's Form 10-Q for the quarterly period ended June 30, 2020, as filed on August 5, 2020, and in this Form 10-Q, the Company discusses in more detail various important risk factors that could cause actual results to differ from expected or historic results. The Company notes these factors for investors as permitted by the Private Securities Litigation Reform Act of 1995. One should understand that it is not possible to predict or identify all such factors. Consequently, the reader should not consider any such list to be a complete statement of all potential risks or uncertainties.

PART II - Other Information

Item 1. Legal Proceedings

The information called for by this Item is incorporated herein by reference to Note 9 included in Part I, Item 1, Financial Statements (unaudited) — Notes to Condensed Consolidated Financial Statements.

Item 1A. Risk Factors

For a discussion of risks that affect the Company's business, please refer to Part I, Item IA, "Risk Factors" in the Company's Annual Report on Form 10-K for the year ended December 31, 2019. There have been no material changes to the risk factors as previously disclosed in the Company's Annual Report on Form 10-K, except as follows:

The global COVID-19 pandemic is having an adverse impact on the Company's business, operations and financial performance. The Company is unable to predict the full extent to which the pandemic and related impacts will continue to adversely impact its business, operations, financial performance, results of operations, and financial condition.

The Company's business and financial results have been negatively impacted by the outbreak of Coronavirus Disease 2019 (COVID-19). The duration, spread and severity of the COVID-19 pandemic is uncertain, rapidly changing and difficult to predict. The degree to which COVID-19 impacts the Company's results will depend on future developments, beyond the Company's knowledge or control, including, but not limited to, the duration and spread of the outbreak, its

severity, the actions taken to contain the virus or treat its impact, and how quickly and to what extent normal economic and operating conditions can resume.

Merck assumes that the majority of the negative impact from the COVID-19 pandemic occurred in the second quarter of 2020. However, the Company expects some residual negative impacts in the fourth quarter, largely in Europe and certain emerging markets. In addition, the phasing of the recovery of *Gardasil* 9 demand is slower than originally anticipated, in particular in the United States due to lower back-to-school demand. To the extent these assumptions prove to be incorrect, the Company's results may differ materially from the estimates set forth herein.

Thus far in 2020, the COVID-19 pandemic has impacted the Company's business and the Company continues to expect that it will impact the business in numerous ways, including but not limited to those outlined below:

In the third quarter of 2020, the negative impact of the COVID-19 pandemic to Merck's Pharmaceutical sales was estimated to be approximately $475 million. The negative impact to Animal Health sales was immaterial. The negative impact to sales in the first nine months of 2020 was approximately $2.0 billion for the Pharmaceutical segment and $50 million for the Animal Health segment. For the full-year 2020, including the impact for the first nine months, Merck expects an unfavorable impact to sales of approximately $2.35 billion (excluding the impact of foreign exchange) due to the COVID-19 pandemic, comprised of approximately $2.3 billion for Pharmaceutical revenue and approximately $50 million for Animal Health revenue.

Roughly two-thirds of Merck's Pharmaceutical revenue is comprised of physician-administered products, which, despite strong underlying demand, were affected by social distancing measures, fewer well visits and delays in elective surgeries due to the COVID-19 pandemic. These impacts, as well as the prioritization of COVID-19 patients at health care providers, have resulted in reduced administration of many of the Company's human health products, in particular for its vaccines, including *Gardasil* 9 (Human Papillomavirus 9-valent Vaccine, Recombinant), as well as for *Keytruda* (pembrolizumab) and *Implanon/Nexplanon* (etonogestrel implant). Access to healthcare providers remains reduced, although improved from the second quarter. Merck anticipates reduced demand for its physician-administered products while pandemic-related access measures remain in place. In addition, declines in elective surgeries negatively affected the demand for *Bridion* (sugammadex) Injection in the year-to-date period. Sales of *Pneumovax* 23 (pneumococcal vaccine polyvalent) increased due to heightened awareness of pneumococcal vaccination during the COVID-19 pandemic and ahead of flu season.

Operating expenses were positively affected in the third quarter and first nine months of 2020 by approximately $115 million and $540 million, respectively, primarily driven by lower promotional and selling costs, as well as lower research and development expenses, net of investments in COVID-19-related antiviral and vaccine research programs. For the full-year 2020, Merck expects a net favorable impact to operating expenses of approximately $625 million reflecting continued lower spending due to the COVID-19 pandemic, partially offset by spending on COVID-19-related antiviral and vaccine research programs.

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

Issuer purchases of equity securities for the three months ended September 30, 2020 were as follows:

ISSUER PURCHASES OF EQUITY SECURITIES

			($ in millions)
Period	Total Number of Shares Purchased [1]	Average Price Paid Per Share	Approximate Dollar Value of Shares That May Yet Be Purchased Under the Plans or Programs [1]
July 1 - July 31	—	$0.00	$5,888
August 1 - August 31	—	$0.00	$5,888
September 1 - September 30	—	$0.00	$5,888
Total	—	$0.00	$5,888

[1] *The Company did not purchase any shares during the three months ended September 30, 2020 under the plan approved by the Board of Directors in October 2018 to purchase up to $10 billion of Merck's common stock for its treasury.*

Item 6. Exhibits

Number		Description
3.1	—	Restated Certificate of Incorporation of Merck & Co., Inc. (November 3, 2009) – Incorporated by reference to Current Report on Form 8-K filed on November 4, 2009 (No. 1-6571)
3.2	—	By-Laws of Merck & Co., Inc. (effective July 22, 2015) – Incorporated by reference to Current Report on Form 8-K filed on July 28, 2015 (No. 1-6571)
31.1	—	Rule 13a – 14(a)/15d – 14(a) Certification of Chief Executive Officer
31.2	—	Rule 13a – 14(a)/15d – 14(a) Certification of Chief Financial Officer
32.1	—	Section 1350 Certification of Chief Executive Officer
32.2	—	Section 1350 Certification of Chief Financial Officer
101.INS	—	XBRL Instance Document - The instance document does not appear in the interactive data file because its XBRL tags are embedded within the Inline XBRL document.
101.SCH	—	XBRL Taxonomy Extension Schema 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.
104	—	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).

Signatures

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

MERCK & CO., INC.

Date: November 5, 2020

/s/ Jennifer Zachary

JENNIFER ZACHARY
Executive Vice President, General Counsel and Corporate Secretary

Date: November 5, 2020

/s/ Rita A. Karachun

RITA A. KARACHUN
Senior Vice President Finance - Global Controller

Exhibit 31.1

CERTIFICATION

I, Kenneth C. Frazier, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Merck & Co., Inc.;

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

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

4. The registrant's other certifying officer(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 report is being prepared;

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

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

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

5. The registrant's other certifying officer(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: November 5, 2020

By: /s/ Kenneth C. Frazier

KENNETH C. FRAZIER
Chairman, President and Chief Executive Officer

Exhibit 31.2

CERTIFICATION

I, Robert M. Davis, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Merck & Co., Inc.;

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

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

4. The registrant's other certifying officer(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 report is being prepared;

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

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

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

5. The registrant's other certifying officer(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: November 5, 2020

By: /s/ Robert M. Davis

ROBERT M. DAVIS
Executive Vice President, Global Services
and Chief Financial Officer

Exhibit 32.1

Section 1350
Certification of Chief Executive Officer

Pursuant to 18 U.S.C. Section 1350, the undersigned officer of Merck & Co., Inc. (the "Company"), hereby certifies that the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2020 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: November 5, 2020

/s/ Kenneth C. Frazier

Name: KENNETH C. FRAZIER
Title: Chairman, President and Chief Executive Officer

Exhibit 32.2

Section 1350
Certification of Chief Financial Officer

Pursuant to 18 U.S.C. Section 1350, the undersigned officer of Merck & Co., Inc. (the "Company"), hereby certifies that the Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2020 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: November 5, 2020

/s/ Robert M. Davis

Name: ROBERT M. DAVIS
Title: Executive Vice President, Global Services and Chief Financial Officer