Item 8. ***Financial Statements and Supplementary Data***

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

The Board of Directors and Shareholders
Amazon.com, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Amazon.com, Inc. (the Company) as of December 31, 2019 and 2018, and the related consolidated statements of operations, comprehensive income, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2019 and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated January 30, 2020 expressed an unqualified opinion thereon.

Adoption of New Accounting Standard

As discussed in Note 1 to the consolidated financial statements, the Company has changed its method for accounting for leases in 2019 due to the adoption of ASU No. 2016-02, Leases (Topic 842).

Basis for Opinion

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

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

Critical Audit Matter

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

Uncertain Tax Positions

Description of the Matter	The Company is subject to income taxes in the U.S. and numerous foreign jurisdictions and, as discussed in Note 9 of the consolidated financial statements, during the ordinary course of business, there are many tax positions for which the ultimate tax determination is uncertain. As a result, significant judgment is required in evaluating the Company's tax positions and determining its provision for income taxes. The Company uses significant judgment in (1) determining whether a tax position's technical merits are more likely than not to be sustained and (2) measuring the amount of tax benefit that qualifies for recognition. As of December 31, 2019, the Company accrued liabilities of $3.9 billion for various tax contingencies. Auditing the measurement of the Company's tax contingencies was challenging because the evaluation of whether a tax position is more likely than not to be sustained and the measurement of the benefit of various tax positions can be complex, involves significant judgment, and is based on interpretations of tax laws and legal rulings.

How We Addressed the Matter in Our Audit	We tested controls over the Company's process to assess the technical merits of its tax contingencies, including controls over the assessment as to whether a tax position is more likely than not to be sustained, management's process to measure the benefit of its tax positions, and the development of the related disclosures. We involved our international tax, transfer pricing, and research and development tax professionals in assessing the technical merits of certain of the Company's tax positions. Depending on the nature of the specific tax position and, as applicable, developments with the relevant tax authorities relating thereto, our procedures included obtaining and examining the Company's analysis including the Company's correspondence with such tax authorities and evaluating the underlying facts upon which the tax positions are based. We used our knowledge of, and experience with, international, transfer pricing, and other income tax laws by the relevant income tax authorities to evaluate the Company's accounting for its tax contingencies. We evaluated developments in the applicable regulatory environments to assess potential effects on the Company's positions. We analyzed the Company's assumptions and data used to determine the amount of tax benefits to recognize and tested the accuracy of the Company's calculations. We have also evaluated the Company's income tax disclosures included in Note 9 in relation to these matters.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 1996.
Seattle, Washington
January 30, 2020

AMAZON.COM, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS
(in millions)

	Year Ended December 31,		
	2017	**2018**	**2019**
CASH, CASH EQUIVALENTS, AND RESTRICTED CASH, BEGINNING OF PERIOD	$ 19,934	$ 21,856	$ 32,173
OPERATING ACTIVITIES:			
Net income	3,033	10,073	11,588
Adjustments to reconcile net income to net cash from operating activities:			
Depreciation and amortization of property and equipment and capitalized content costs, operating lease assets, and other	11,478	15,341	21,789
Stock-based compensation	4,215	5,418	6,864
Other operating expense (income), net	202	274	164
Other expense (income), net	(292)	219	(249)
Deferred income taxes	(29)	441	796
Changes in operating assets and liabilities:			
Inventories	(3,583)	(1,314)	(3,278)
Accounts receivable, net and other	(4,780)	(4,615)	(7,681)
Accounts payable	7,100	3,263	8,193
Accrued expenses and other	283	472	(1,383)
Unearned revenue	738	1,151	1,711
Net cash provided by (used in) operating activities	18,365	30,723	38,514
INVESTING ACTIVITIES:			
Purchases of property and equipment	(11,955)	(13,427)	(16,861)
Proceeds from property and equipment sales and incentives	1,897	2,104	4,172
Acquisitions, net of cash acquired, and other	(13,972)	(2,186)	(2,461)
Sales and maturities of marketable securities	9,677	8,240	22,681
Purchases of marketable securities	(12,731)	(7,100)	(31,812)
Net cash provided by (used in) investing activities	(27,084)	(12,369)	(24,281)
FINANCING ACTIVITIES:			
Proceeds from long-term debt and other	16,228	768	2,273
Repayments of long-term debt and other	(1,301)	(668)	(2,684)
Principal repayments of finance leases	(4,799)	(7,449)	(9,628)
Principal repayments of financing obligations	(200)	(337)	(27)
Net cash provided by (used in) financing activities	9,928	(7,686)	(10,066)
Foreign currency effect on cash, cash equivalents, and restricted cash	713	(351)	70
Net increase (decrease) in cash, cash equivalents, and restricted cash	1,922	10,317	4,237
CASH, CASH EQUIVALENTS, AND RESTRICTED CASH, END OF PERIOD	$ 21,856	$ 32,173	$ 36,410
SUPPLEMENTAL CASH FLOW INFORMATION:			
Cash paid for interest on long-term debt	$ 328	$ 854	$ 875
Cash paid for operating leases	—	—	3,361
Cash paid for interest on finance leases	200	381	647
Cash paid for interest on financing obligations	119	194	39
Cash paid for income taxes, net of refunds	957	1,184	881
Assets acquired under operating leases	—	—	7,870
Property and equipment acquired under finance leases	9,637	10,615	13,723
Property and equipment acquired under build-to-suit arrangements	3,541	3,641	1,362

See accompanying notes to consolidated financial statements.

AMAZON.COM, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS
(in millions, except per share data)

	Year Ended December 31,		
	2017	2018	2019
Net product sales	$ 118,573	$ 141,915	$ 160,408
Net service sales	59,293	90,972	120,114
Total net sales	177,866	232,887	280,522
Operating expenses:			
Cost of sales	111,934	139,156	165,536
Fulfillment	25,249	34,027	40,232
Technology and content	22,620	28,837	35,931
Marketing	10,069	13,814	18,878
General and administrative	3,674	4,336	5,203
Other operating expense (income), net	214	296	201
Total operating expenses	173,760	220,466	265,981
Operating income	4,106	12,421	14,541
Interest income	202	440	832
Interest expense	(848)	(1,417)	(1,600)
Other income (expense), net	346	(183)	203
Total non-operating income (expense)	(300)	(1,160)	(565)
Income before income taxes	3,806	11,261	13,976
Provision for income taxes	(769)	(1,197)	(2,374)
Equity-method investment activity, net of tax	(4)	9	(14)
Net income	$ 3,033	$ 10,073	$ 11,588
Basic earnings per share	$ 6.32	$ 20.68	$ 23.46
Diluted earnings per share	$ 6.15	$ 20.14	$ 23.01
Weighted-average shares used in computation of earnings per share:			
Basic	480	487	494
Diluted	493	500	504

See accompanying notes to consolidated financial statements.

AMAZON.COM, INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(in millions)

	Year Ended December 31,		
	2017	**2018**	**2019**
Net income	$ 3,033	$ 10,073	$ 11,588
Other comprehensive income (loss):			
Net change in foreign currency translation adjustments:			
Foreign currency translation adjustments, net of tax of $5, $6, and $(5)	533	(538)	78
Reclassification adjustment for foreign currency translation included in “Other operating expense (income), net,” net of tax of $0, $0, and $29	—	—	(108)
Net foreign currency translation adjustments	533	(538)	(30)
Net change in unrealized gains (losses) on available-for-sale debt securities:			
Unrealized gains (losses), net of tax of $5, $0, and $(12)	(39)	(17)	83
Reclassification adjustment for losses (gains) included in “Other income (expense), net,” net of tax of $0, $0, and $0	7	8	(4)
Net unrealized gains (losses) on available-for-sale debt securities	(32)	(9)	79
Total other comprehensive income (loss)	501	(547)	49
Comprehensive income	$ 3,534	$ 9,526	$ 11,637

See accompanying notes to consolidated financial statements.

AMAZON.COM, INC.

CONSOLIDATED BALANCE SHEETS
(in millions, except per share data)

	December 31,	
	2018	2019
ASSETS		
Current assets:		
Cash and cash equivalents	$ 31,750	$ 36,092
Marketable securities	9,500	18,929
Inventories	17,174	20,497
Accounts receivable, net and other	16,677	20,816
Total current assets	75,101	96,334
Property and equipment, net	61,797	72,705
Operating leases	—	25,141
Goodwill	14,548	14,754
Other assets	11,202	16,314
Total assets	$ 162,648	$ 225,248
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 38,192	$ 47,183
Accrued expenses and other	23,663	32,439
Unearned revenue	6,536	8,190
Total current liabilities	68,391	87,812
Long-term lease liabilities	9,650	39,791
Long-term debt	23,495	23,414
Other long-term liabilities	17,563	12,171
Commitments and contingencies (Note 7)		
Stockholders' equity:		
Preferred stock, $0.01 par value:		
Authorized shares — 500		
Issued and outstanding shares — none	—	—
Common stock, $0.01 par value:		
Authorized shares — 5,000		
Issued shares — 514 and 521		
Outstanding shares — 491 and 498	5	5
Treasury stock, at cost	(1,837)	(1,837)
Additional paid-in capital	26,791	33,658
Accumulated other comprehensive income (loss)	(1,035)	(986)
Retained earnings	19,625	31,220
Total stockholders' equity	43,549	62,060
Total liabilities and stockholders' equity	$ 162,648	$ 225,248

See accompanying notes to consolidated financial statements.

AMAZON.COM, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in millions)

	Common Stock						
	Shares	Amount	Treasury Stock	Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Retained Earnings	Total Stockholders' Equity
Balance as of January 1, 2017	477	$ 5	$ (1,837)	$ 17,186	$ (985)	$ 4,916	$ 19,285
Cumulative effect of a change in accounting principle related to stock-based compensation	—	—	—	—	—	687	687
Net income	—	—	—	—	—	3,033	3,033
Other comprehensive income (loss)	—	—	—	—	501	—	501
Exercise of common stock options	7	—	—	1	—	—	1
Stock-based compensation and issuance of employee benefit plan stock	—	—	—	4,202	—	—	4,202
Balance as of December 31, 2017	484	5	(1,837)	21,389	(484)	8,636	27,709
Cumulative effect of change in accounting principles related to revenue recognition, income taxes, and financial instruments	—	—	—	—	(4)	916	912
Net income	—	—	—	—	—	10,073	10,073
Other comprehensive income (loss)	—	—	—	—	(547)	—	(547)
Exercise of common stock options	7	—	—	—	—	—	—
Stock-based compensation and issuance of employee benefit plan stock	—	—	—	5,402	—	—	5,402
Balance as of December 31, 2018	491	5	(1,837)	26,791	(1,035)	19,625	43,549
Cumulative effect of change in accounting principle related to leases	—	—	—	—	—	7	7
Net income	—	—	—	—	—	11,588	11,588
Other comprehensive income (loss)	—	—	—	—	49	—	49
Exercise of common stock options	7	—	—	—	—	—	—
Stock-based compensation and issuance of employee benefit plan stock	—	—	—	6,867	—	—	6,867
Balance as of December 31, 2019	498	$ 5	$ (1,837)	$ 33,658	$ (986)	$ 31,220	$ 62,060

See accompanying notes to consolidated financial statements.

AMAZON.COM, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1 — DESCRIPTION OF BUSINESS AND ACCOUNTING POLICIES

Description of Business

We seek to be Earth’s most customer-centric company. In each of our segments, we serve our primary customer sets, consisting of consumers, sellers, developers, enterprises, and content creators. We serve consumers through our online and physical stores and focus on selection, price, and convenience. We offer programs that enable sellers to sell their products in our stores and fulfill orders through us, and programs that allow authors, musicians, filmmakers, skill and app developers, and others to publish and sell content. We serve developers and enterprises of all sizes through our AWS segment, which offers a broad set of global compute, storage, database, and other service offerings. We also manufacture and sell electronic devices. In addition, we provide services, such as advertising to sellers, vendors, publishers, and authors, through programs such as sponsored ads, display, and video advertising.

We have organized our operations into three segments: North America, International, and AWS. See “Note 10 — Segment Information.”

Prior Period Reclassifications

Certain prior period amounts have been reclassified to conform to the current period presentation, including the addition of restricted cash to cash and cash equivalents on our consolidated statements of cash flows and the reclassification of long-term capital lease obligations that existed at December 31, 2018 from “Other long-term liabilities” to “Long-term lease liabilities” within the consolidated balance sheets, as a result of the adoption of new accounting guidance. See “Accounting Pronouncements Recently Adopted.”

Principles of Consolidation

The consolidated financial statements include the accounts of Amazon.com, Inc. and its consolidated entities (collectively, the “Company”), consisting of its wholly-owned subsidiaries and those entities in which we have a variable interest and of which we are the primary beneficiary, including certain entities in India and certain entities that support our seller lending financing activities. Intercompany balances and transactions between consolidated entities are eliminated. The financial results of Whole Foods Market, Inc. (“Whole Foods Market”) have been included in our consolidated financial statements from the date of acquisition on August 28, 2017.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires estimates and assumptions that affect the reported amounts of assets and liabilities, revenues and expenses, and related disclosures of contingent liabilities in the consolidated financial statements and accompanying notes. Estimates are used for, but not limited to, income taxes, useful lives of equipment, commitments and contingencies, valuation of acquired intangibles and goodwill, stock-based compensation forfeiture rates, vendor funding, and inventory valuation. Actual results could differ materially from those estimates. For example, in Q4 2019 we completed a useful life study for our servers and are increasing the useful life from three years to four years for servers in January 2020, which, based on servers that are included in “Property and equipment, net” as of December 31, 2019, will have an anticipated impact to our 2020 operating income of $2.3 billion.

Earnings per Share

Basic earnings per share is calculated using our weighted-average outstanding common shares. Diluted earnings per share is calculated using our weighted-average outstanding common shares including the dilutive effect of stock awards as determined under the treasury stock method. In periods when we have a net loss, stock awards are excluded from our calculation of earnings per share as their inclusion would have an antidilutive effect.

The following table shows the calculation of diluted shares (in millions):

	Year Ended December 31,		
	2017	2018	2019
Shares used in computation of basic earnings per share	480	487	494
Total dilutive effect of outstanding stock awards	13	13	10
Shares used in computation of diluted earnings per share	493	500	504

Revenue

Revenue is measured based on the amount of consideration that we expect to receive, reduced by estimates for return allowances, promotional discounts, and rebates. Revenue also excludes any amounts collected on behalf of third parties, including sales and indirect taxes. In arrangements where we have multiple performance obligations, the transaction price is allocated to each performance obligation using the relative stand-alone selling price. We generally determine stand-alone selling prices based on the prices charged to customers or using expected cost plus a margin.

A description of our principal revenue generating activities is as follows:

Retail sales - We offer consumer products through our online and physical stores. Revenue is recognized when control of the goods is transferred to the customer, which generally occurs upon our delivery to a third-party carrier or, in the case of an Amazon delivery, to the customer.

Third-party seller services - We offer programs that enable sellers to sell their products in our stores, and fulfill orders through us. We are not the seller of record in these transactions. The commissions and any related fulfillment and shipping fees we earn from these arrangements are recognized when the services are rendered, which generally occurs upon delivery of the related products to a third-party carrier or, in the case of an Amazon delivery, to the customer.

Subscription services - Our subscription sales include fees associated with Amazon Prime memberships and access to content including audiobooks, digital video, digital music, e-books, and other non-AWS subscription services. Prime memberships provide our customers with access to an evolving suite of benefits that represent a single stand-ready obligation. Subscriptions are paid for at the time of or in advance of delivering the services. Revenue from such arrangements is recognized over the subscription period.

AWS - Our AWS arrangements include global sales of compute, storage, database, and other services. Revenue is allocated to services using stand-alone selling prices and is primarily recognized when the customer uses these services, based on the quantity of services rendered, such as compute or storage capacity delivered on-demand. Certain services, including compute and database, are also offered as a fixed quantity over a specified term, for which revenue is recognized ratably. Sales commissions we pay in connection with contracts that exceed one year are capitalized and amortized over the contract term.

Other - Other revenue primarily includes sales of advertising services, which are recognized as ads are delivered based on the number of clicks or impressions.

Return Allowances

Return allowances, which reduce revenue and cost of sales, are estimated using historical experience. Liabilities for return allowances are included in “Accrued expenses and other” and were $468 million, $623 million, and $712 million as of December 31, 2017, 2018, and 2019. Additions to the allowance were $1.8 billion, $2.3 billion, and $2.5 billion and deductions from the allowance were $1.9 billion, $2.3 billion, and $2.5 billion in 2017, 2018, and 2019. Included in “Inventories” on our consolidated balance sheets are assets totaling $406 million, $519 million, and $629 million as of December 31, 2017, 2018, and 2019, for the rights to recover products from customers associated with our liabilities for return allowances.

Cost of Sales

Cost of sales primarily consists of the purchase price of consumer products, inbound and outbound shipping costs, including costs related to sortation and delivery centers and where we are the transportation service provider, and digital media content costs where we record revenue gross, including video and music. Shipping costs to receive products from our suppliers are included in our inventory, and recognized as cost of sales upon sale of products to our customers. Payment processing and related transaction costs, including those associated with seller transactions, are classified in “Fulfillment” on our consolidated statements of operations.

Vendor Agreements

We have agreements with our vendors to receive funds primarily for cooperative marketing efforts, promotions, incentives, and volume rebates. We generally consider these amounts received from vendors to be a reduction of the prices we pay for their goods, including property and equipment, or services, and are recorded as a reduction of the cost of inventory, cost of services, or cost of property and equipment. Volume rebates typically depend on reaching minimum purchase thresholds. We evaluate the likelihood of reaching purchase thresholds using past experience and current year forecasts. When volume rebates can be reasonably estimated, we record a portion of the rebate as we make progress towards the purchase threshold.

Fulfillment

Fulfillment costs primarily consist of those costs incurred in operating and staffing our North America and International segments' fulfillment centers, physical stores, and customer service centers, including costs attributable to buying, receiving, inspecting, and warehousing inventories; picking, packaging, and preparing customer orders for shipment; payment processing and related transaction costs, including costs associated with our guarantee for certain seller transactions; responding to inquiries from customers; and supply chain management for our manufactured electronic devices. Fulfillment costs also include amounts paid to third parties that assist us in fulfillment and customer service operations.

Technology and Content

Technology and content costs include payroll and related expenses for employees involved in the research and development of new and existing products and services, development, design, and maintenance of our stores, curation and display of products and services made available in our online stores, and infrastructure costs. Infrastructure costs include servers, networking equipment, and data center related depreciation and amortization, rent, utilities, and other expenses necessary to support AWS and other Amazon businesses. Collectively, these costs reflect the investments we make in order to offer a wide variety of products and services to our customers. Technology and content costs are generally expensed as incurred.

Marketing

Marketing costs primarily consist of advertising and payroll and related expenses for personnel engaged in marketing and selling activities, including sales commissions related to AWS. We pay commissions to third parties when their customer referrals result in sales. We also participate in cooperative advertising arrangements with certain of our vendors, and other third parties.

Advertising and other promotional costs to market our products and services are expensed as incurred and were $6.3 billion, $8.2 billion, and $11.0 billion in 2017, 2018, and 2019.

General and Administrative

General and administrative expenses primarily consist of costs for corporate functions, including payroll and related expenses; facilities and equipment expenses, such as depreciation and amortization expense and rent; and professional fees and litigation costs.

Stock-Based Compensation

Compensation cost for all stock awards expected to vest is measured at fair value on the date of grant and recognized over the service period. The fair value of restricted stock units is determined based on the number of shares granted and the quoted price of our common stock. Such value is recognized as expense over the service period, net of estimated forfeitures, using the accelerated method. The estimated number of stock awards that will ultimately vest requires judgment, and to the extent actual results or updated estimates differ from our current estimates, such amounts will be recorded as a cumulative adjustment in the period estimates are revised. We consider many factors when estimating expected forfeitures, including historical forfeiture experience and employee level.

Other Operating Expense (Income), Net

Other operating expense (income), net, consists primarily of marketing-related, contract-based, and customer-related intangible asset amortization expense, and expenses related to legal settlements.

Other Income (Expense), Net

Other income (expense), net, consists primarily of adjustments to and gains on equity securities of $18 million, $145 million, and $231 million in 2017, 2018, and 2019, equity warrant valuation gains (losses) of $109 million, $(131) million, and $11 million in 2017, 2018, and 2019, and foreign currency gains (losses) of $247 million, $(206) million, and $(20) million in 2017, 2018, and 2019.

Income Taxes

Income tax expense includes U.S. (federal and state) and foreign income taxes. Certain foreign subsidiary earnings are subject to U.S. taxation under the U.S. Tax Act, which also repeals U.S. taxation on the subsequent repatriation of those earnings. We intend to invest substantially all of our foreign subsidiary earnings, as well as our capital in our foreign subsidiaries, indefinitely outside of the U.S. in those jurisdictions in which we would incur significant, additional costs upon repatriation of such amounts.

Deferred income tax balances reflect the effects of temporary differences between the carrying amounts of assets and liabilities and their tax bases and are stated at enacted tax rates expected to be in effect when taxes are actually paid or recovered.

Deferred tax assets are evaluated for future realization and reduced by a valuation allowance to the extent we believe they will not be realized. We consider many factors when assessing the likelihood of future realization of our deferred tax assets, including our recent cumulative loss experience and expectations of future earnings, capital gains and investment in such jurisdiction, the carry-forward periods available to us for tax reporting purposes, and other relevant factors.

We utilize a two-step approach to recognizing and measuring uncertain income tax positions (tax contingencies). The first step is to evaluate the tax position for recognition by determining if the weight of available evidence indicates it is more likely than not the position will be sustained on audit, including resolution of related appeals or litigation processes. The second step is to measure the tax benefit as the largest amount which is more than 50% likely of being realized upon ultimate settlement. We consider many factors when evaluating our tax positions and estimating our tax benefits, which may require periodic adjustments and which may not accurately forecast actual outcomes. We include interest and penalties related to our tax contingencies in income tax expense.

Fair Value of Financial Instruments

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. To increase the comparability of fair value measures, the following hierarchy prioritizes the inputs to valuation methodologies used to measure fair value:

Level 1 — Valuations based on quoted prices for identical assets and liabilities in active markets.

Level 2 — Valuations based on observable inputs other than quoted prices included in Level 1, such as quoted prices for similar assets and liabilities in active markets, quoted prices for identical or similar assets and liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data.

Level 3 — Valuations based on unobservable inputs reflecting our own assumptions, consistent with reasonably available assumptions made by other market participants. These valuations require significant judgment.

For our cash, cash equivalents, or marketable securities, we measure the fair value of money market funds and certain marketable equity securities based on quoted prices in active markets for identical assets or liabilities. Other marketable securities were valued either based on recent trades of securities in inactive markets or based on quoted market prices of similar instruments and other significant inputs derived from or corroborated by observable market data. We did not hold significant amounts of cash, cash equivalents, restricted cash, or marketable securities categorized as Level 3 assets as of December 31, 2018 and 2019.

We hold equity warrants giving us the right to acquire stock of other companies. As of December 31, 2018 and 2019, these warrants had a fair value of $440 million and $669 million, and are recorded within “Other assets” on our consolidated balance sheets. These assets are primarily classified as Level 2 assets.

Cash and Cash Equivalents

We classify all highly liquid instruments with an original maturity of three months or less as cash equivalents.

Inventories

Inventories, consisting of products available for sale, are primarily accounted for using the first-in, first-out method, and are valued at the lower of cost and net realizable value. This valuation requires us to make judgments, based on currently available information, about the likely method of disposition, such as through sales to individual customers, returns to product vendors, or liquidations, and expected recoverable values of each disposition category.

We provide Fulfillment by Amazon services in connection with certain of our sellers' programs. Third-party sellers maintain ownership of their inventory, regardless of whether fulfillment is provided by us or the third-party sellers, and therefore these products are not included in our inventories.

We also purchase electronic device components from a variety of suppliers and use several contract manufacturers to provide manufacturing services for our products. During the normal course of business, in order to manage manufacturing lead times and help ensure adequate supply, we enter into agreements with contract manufacturers and suppliers for certain electronic device components. A portion of our reported purchase commitments arising from these agreements consists of firm, non-cancellable commitments. These commitments are based on forecasted customer demand. If we reduce these commitments, we may incur additional costs. We also have firm, non-cancellable commitments for certain products offered in our Whole Foods Market stores.

Accounts Receivable, Net and Other

Included in "Accounts receivable, net and other" on our consolidated balance sheets are amounts primarily related to customers, vendors, and sellers. As of December 31, 2018 and 2019, customer receivables, net, were $9.4 billion and $12.6 billion, vendor receivables, net, were $3.2 billion and $4.2 billion, and seller receivables, net, were $710 million and $863 million. Seller receivables are amounts due from sellers related to our seller lending program, which provides funding to sellers primarily to procure inventory.

We estimate losses on receivables based on known troubled accounts and historical experience of losses incurred. Receivables are considered impaired and written-off when it is probable that all contractual payments due will not be collected in accordance with the terms of the agreement. The allowance for doubtful accounts was $348 million, $495 million, and $718 million as of December 31, 2017, 2018, and 2019. Additions to the allowance were $626 million, $878 million, and $1.0 billion, and deductions to the allowance were $515 million, $731 million, and $793 million in 2017, 2018, and 2019.

Software Development Costs

We incur software development costs related to products to be sold, leased, or marketed to external users, internal-use software, and our websites. Software development costs capitalized were not significant for the years presented. All other costs, including those related to design or maintenance, are expensed as incurred.

Property and Equipment, Net

Property and equipment are stated at cost less accumulated depreciation and amortization. Incentives that we receive from property and equipment vendors are recorded as a reduction in our costs. Property includes buildings and land that we own, along with property we have acquired under build-to-suit lease arrangements when we have control over the building during the construction period and finance lease arrangements. Equipment includes assets such as servers and networking equipment, heavy equipment, and other fulfillment equipment. Depreciation and amortization is recorded on a straight-line basis over the estimated useful lives of the assets (generally the lesser of 40 years or the remaining life of the underlying building, three years for our servers, five years for networking equipment, ten years for heavy equipment, and three to seven years for other fulfillment equipment). Depreciation and amortization expense is classified within the corresponding operating expense categories on our consolidated statements of operations.

Leases

We categorize leases with contractual terms longer than twelve months as either operating or finance. Finance leases are generally those leases that allow us to substantially utilize or pay for the entire asset over its estimated life. Assets acquired under finance leases are recorded in property and equipment, net. All other leases are categorized as operating leases. Our leases generally have terms that range from one to ten years for equipment and one to twenty years for property.

Certain lease contracts include obligations to pay for other services, such as operations and maintenance. For leases of property, we account for these other services as a component of the lease. For substantially all other leases, the services are accounted for separately and we allocate payments to the lease and other services components based on estimated stand-alone prices.

Lease liabilities are recognized at the present value of the fixed lease payments, reduced by landlord incentives using a discount rate based on similarly secured borrowings available to us. Lease assets are recognized based on the initial present value of the fixed lease payments, reduced by landlord incentives, plus any direct costs from executing the leases or lease prepayments reclassified from “Other assets” upon lease commencement. Leasehold improvements are capitalized at cost and amortized over the lesser of their expected useful life or the lease term.

When we have the option to extend the lease term, terminate the lease before the contractual expiration date, or purchase the leased asset, and it is reasonably certain that we will exercise the option, we consider these options in determining the classification and measurement of the lease. Our leases may include variable payments based on measures that include changes in price indices, market interest rates, or the level of sales at a physical store, which are expensed as incurred.

Costs associated with operating lease assets are recognized on a straight-line basis within operating expenses over the term of the lease. Finance lease assets are amortized within operating expenses on a straight-line basis over the shorter of the estimated useful lives of the assets or, in the instance where title does not transfer at the end of the lease term, the lease term. The interest component of a finance lease is included in interest expense and recognized using the effective interest method over the lease term.

We establish assets and liabilities for the present value of estimated future costs to retire long-lived assets at the termination or expiration of a lease. Such assets are depreciated over the lease period into operating expense, and the recorded liabilities are accreted to the future value of the estimated retirement costs.

Financing Obligations

We record assets and liabilities for estimated construction costs under build-to-suit lease arrangements when we have control over the building during the construction period. If we continue to control the building after the construction period, the arrangement is classified as a financing obligation instead of a lease. The building is depreciated over the shorter of its useful life or the term of the obligation.

If we do not control the building after the construction period ends, the assets and liabilities for construction costs are derecognized, and we classify the lease as either operating or finance.

Goodwill

We evaluate goodwill for impairment annually or more frequently when an event occurs or circumstances change that indicate the carrying value may not be recoverable. In testing goodwill for impairment, we may elect to utilize a qualitative assessment to evaluate whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If our qualitative assessment indicates that goodwill impairment is more likely than not, we perform a two-step impairment test. We test goodwill for impairment under the two-step impairment test by first comparing the book value of net assets to the fair value of the reporting units. If the fair value is determined to be less than the book value or qualitative factors indicate that it is more likely than not that goodwill is impaired, a second step is performed to compute the amount of impairment as the difference between the estimated fair value of goodwill and the carrying value. We estimate the fair value of the reporting units using discounted cash flows. Forecasts of future cash flows are based on our best estimate of future net sales and operating expenses, based primarily on expected category expansion, pricing, market segment share, and general economic conditions.

We completed the required annual testing of goodwill for impairment for all reporting units as of April 1, 2019, and determined that goodwill is not impaired as the fair value of our reporting units substantially exceeded their book value. There were no events that caused us to update our annual impairment test. See “Note 5 — Acquisitions, Goodwill, and Acquired Intangible Assets.”

Other Assets

Included in “Other assets” on our consolidated balance sheets are amounts primarily related to acquired intangible assets, net of accumulated amortization; video and music content, net of accumulated amortization; long-term deferred tax assets; certain equity investments; marketable securities restricted for longer than one year, the majority of which are attributable to collateralization of bank guarantees and debt related to our international operations; lease prepayments made prior to lease commencement; and equity warrant assets.

Digital Video and Music Content

We obtain video content, inclusive of episodic television and movies, and music content for customers through licensing agreements that have a wide range of licensing provisions including both fixed and variable payment schedules. When the license fee for a specific video or music title is determinable or reasonably estimable and the content is available to us, we recognize an asset and a corresponding liability for the amounts owed. We reduce the liability as payments are made and we amortize the asset to “Cost of sales” on an accelerated basis, based on estimated usage or viewing patterns, or on a straight-line basis. If the licensing fee is not determinable or reasonably estimable, no asset or liability is recorded and licensing costs are expensed as incurred. We also develop original video content for which the production costs are capitalized and amortized to “Cost of sales” predominantly on an accelerated basis that follows the viewing patterns associated with the content. The weighted average remaining life of our capitalized video content is 2.7 years.

Our produced and licensed video content is primarily monetized together as a unit, referred to as a film group, in each major geography where we offer Amazon Prime memberships. These film groups are evaluated for impairment whenever an event occurs or circumstances change indicating the fair value is less than the carrying value. The total capitalized costs of video, which is primarily released content, and music as of December 31, 2018 and 2019 were $3.8 billion and $5.8 billion. Total video and music expense was $6.7 billion and $7.8 billion for the year ended December 31, 2018 and 2019. Total video and music expense includes licensing and production costs associated with content offered within Amazon Prime memberships, and costs associated with digital subscriptions and sold or rented content.

Investments

We generally invest our excess cash in AAA-rated money market funds and investment grade short- to intermediate-term fixed income securities. Such investments are included in “Cash and cash equivalents” or “Marketable securities” on the accompanying consolidated balance sheets. Marketable debt securities are classified as available-for-sale and reported at fair value with unrealized gains and losses included in “Accumulated other comprehensive income (loss).”

Equity investments are accounted for using the equity method of accounting if the investment gives us the ability to exercise significant influence, but not control, over an investee. Equity-method investments are included within “Other assets” on our consolidated balance sheets. Our share of the earnings or losses as reported by equity-method investees, amortization of basis differences, and related gains or losses, if any, are classified as “Equity-method investment activity, net of tax” on our consolidated statements of operations.

Equity investments without readily determinable fair values and for which we do not have the ability to exercise significant influence are accounted for at cost with adjustments for observable changes in prices or impairments and are classified as “Other assets” on our consolidated balance sheets with adjustments recognized in “Other income (expense), net” on our consolidated statements of operations. As of December 31, 2018 and 2019, these investments had a carrying value of $282 million and $1.5 billion.

Equity investments that have readily determinable fair values are included in “Marketable securities” on our consolidated balance sheets and measured at fair value with changes recognized in “Other income (expense), net” on our consolidated statement of operations.

We periodically evaluate whether declines in fair values of our investments indicate impairment. For debt securities and equity-method investments, we also evaluate whether declines in fair value of our investments below their book value are other-than-temporary. This evaluation consists of several qualitative and quantitative factors regarding the severity and duration of the unrealized loss as well as our ability and intent to hold the investment until a forecasted recovery occurs. Additionally, we assess whether we have plans to sell the security or it is more likely than not we will be required to sell any investment before recovery of its amortized cost basis. Factors considered include: quoted market prices; recent financial results and operating trends; implied values from any recent transactions or offers of investee securities; credit quality of debt instrument issuers; other publicly available information that may affect the value of our investments; duration and severity of the decline in value; and our strategy and intentions for holding the investment.

Long-Lived Assets

Long-lived assets, other than goodwill, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of the assets might not be recoverable. Conditions that would necessitate an impairment assessment include a significant decline in the observable market value of an asset, a significant change in the extent or manner in which an asset is used, or any other significant adverse change that would indicate that the carrying amount of an asset or group of assets may not be recoverable.

For long-lived assets used in operations, including lease assets, impairment losses are only recorded if the asset’s carrying amount is not recoverable through its undiscounted, probability-weighted future cash flows. We measure the impairment loss based on the difference between the carrying amount and estimated fair value. Long-lived assets are considered held for sale when certain criteria are met, including when management has committed to a plan to sell the asset, the asset is available for sale in its immediate condition, and the sale is probable within one year of the reporting date. Assets held for sale are reported at the lower of cost or fair value less costs to sell. Assets held for sale were not significant as of December 31, 2018 and 2019.

Accrued Expenses and Other

Included in “Accrued expenses and other” on our consolidated balance sheets are liabilities primarily related to leases and asset retirement obligations, payroll and related expenses, unredeemed gift cards, customer liabilities, current debt, acquired digital media content, and other operating expenses.

As of December 31, 2018 and 2019, our liabilities for payroll related expenses were $3.4 billion and $4.3 billion and our liabilities for unredeemed gift cards were $2.8 billion and $3.3 billion. We reduce the liability for a gift card when redeemed by a customer. The portion of gift cards that we do not expect to be redeemed is recognized based on customer usage patterns.

Unearned Revenue

Unearned revenue is recorded when payments are received or due in advance of performing our service obligations and is recognized over the service period. Unearned revenue primarily relates to prepayments of AWS services and Amazon Prime memberships. Our total unearned revenue as of December 31, 2018 was $7.9 billion, of which $6.3 billion was recognized as revenue during the year ended December 31, 2019 and our total unearned revenue as of December 31, 2019 was $10.2 billion. Included in “Other long-term liabilities” on our consolidated balance sheets was $1.4 billion and $2.0 billion of unearned revenue as of December 31, 2018 and 2019.

Additionally, we have performance obligations, primarily related to AWS, associated with commitments in customer contracts for future services that have not yet been recognized in our financial statements. For contracts with original terms that exceed one year, those commitments not yet recognized were $29.8 billion as of December 31, 2019. The weighted average remaining life of our long-term contracts is 3.3 years. However, the amount and timing of revenue recognition is largely driven by customer usage, which can extend beyond the original contractual term.

Other Long-Term Liabilities

Included in “Other long-term liabilities” on our consolidated balance sheets are liabilities primarily related to deferred tax liabilities, financing obligations, asset retirement obligations, tax contingencies, and digital video and music content.

Foreign Currency

We have internationally-focused stores for which the net sales generated, as well as most of the related expenses directly incurred from those operations, are denominated in local functional currencies. The functional currency of our subsidiaries that either operate or support these stores is generally the same as the local currency. Assets and liabilities of these subsidiaries are translated into U.S. Dollars at period-end foreign exchange rates, and revenues and expenses are translated at average rates prevailing throughout the period. Translation adjustments are included in “Accumulated other comprehensive income (loss),” a separate component of stockholders’ equity, and in the “Foreign currency effect on cash, cash equivalents, and restricted cash,” on our consolidated statements of cash flows. Transaction gains and losses including intercompany transactions denominated in a currency other than the functional currency of the entity involved are included in “Other income (expense), net” on our consolidated statements of operations. In connection with the settlement and remeasurement of intercompany balances, we recorded gains (losses) of $202 million, $(186) million, and $95 million in 2017, 2018, and 2019.

Accounting Pronouncements Recently Adopted

In May 2014, the Financial Accounting Standards Board (“FASB”) issued an Accounting Standards Update (“ASU”) amending revenue recognition guidance and requiring more detailed disclosures to enable users of financial statements to understand the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers. We adopted this ASU on January 1, 2018 for all revenue contracts with our customers using the modified retrospective approach and increased retained earnings by approximately $650 million. The adjustment primarily relates to the unredeemed portion of our gift cards, which are now recognized over the expected customer usage period rather than waiting until gift cards expire or when the likelihood of redemption becomes remote. We changed the recognition and classification of Amazon Prime memberships, which are now accounted for as a single performance obligation and recognized ratably over the membership period as service sales. Previously, Prime memberships were considered to be arrangements with multiple deliverables and were allocated among product sales and service sales. Other changes relate primarily to the presentation of revenue. Certain advertising services are now classified as revenue rather than a reduction in cost of sales, and sales of apps, in-app content, and certain digital media content are presented on a net basis. Prior year amounts have not been adjusted and continue to be reported in accordance with our historic accounting policy.

The impact of applying this ASU for the year ended December 31, 2018 primarily resulted in a decrease in product sales and an increase in service sales driven by the reclassification of Prime membership fees of approximately $3.8 billion. Service sales also increased by approximately $3.0 billion for the year ended December 31, 2018 due to the reclassification of certain advertising services.

In January 2016, the FASB issued an ASU that updates certain aspects of recognition, measurement, presentation, and disclosure of financial instruments. Under this ASU, certain equity investments are measured at fair value with changes recognized in net income. We adopted this ASU in Q1 2018 with no material impact to our consolidated financial statements.

In February 2016, the FASB issued an ASU amending the accounting for leases, primarily requiring the recognition of lease assets and liabilities for operating leases with terms of more than twelve months on our consolidated balance sheets. Under the new guidance, leases previously described as capital lease obligations and finance lease obligations are now referred to as finance leases and financing obligations, respectively. We adopted this ASU on January 1, 2019 by recording an immaterial cumulative adjustment to retained earnings rather than retrospectively adjusting prior periods. Prior period amounts were not adjusted and continue to be reported in accordance with our historic accounting policies resulting in a balance sheet presentation that is not comparable to the prior period in the first year of adoption. The adoption of this ASU resulted in the recognition of operating lease assets and liabilities of approximately $21 billion, which included the reclassification of finance lease obligations to operating leases of $1.2 billion. As of December 31, 2018, amounts related to finance lease obligations and construction liabilities totaled $9.6 billion, of which $1.5 billion was derecognized for buildings that we do not control during the construction period and $5.4 billion and $1.5 billion were reclassified to finance leases and operating leases, respectively.

In October 2016, the FASB issued an ASU amending the accounting for income taxes. The new guidance requires the recognition of the income tax consequences of an intercompany asset transfer, other than transfers of inventory, when the transfer occurs. For intercompany transfers of inventory, the income tax effects will continue to be deferred until the inventory has been sold to a third party. We adopted this ASU in Q1 2018 with an increase of approximately $250 million to retained earnings and deferred tax assets net of valuation allowances.

In November 2016, the FASB issued an ASU amending the presentation of restricted cash within the consolidated statements of cash flows. The new guidance requires that restricted cash be added to cash and cash equivalents on the consolidated statements of cash flows. We adopted this ASU in Q1 2018 on a retrospective basis with the following impacts to our consolidated statements of cash flows (in millions):

Year Ended December 31, 2017	**Previously Reported**	**Adjustments**	**As Revised**
Operating activities	$ 18,434	$ (69)	$ 18,365
Investing activities	(27,819)	735	(27,084)
Financing activities	9,860	68	9,928
Net change in cash, cash equivalents, and restricted cash	$ 475	$ 734	$ 1,209

In March 2019, the FASB issued an ASU amending the accounting for film costs, inclusive of episodic television and movie costs. The new guidance aligns the accounting for production costs of episodic television with that of movies by requiring production costs to be capitalized. Previously, we only capitalized a portion of the production costs related to our produced episodic television content. We adopted this ASU as of January 1, 2019 and began capitalizing substantially all of our production costs. Adoption of this ASU resulted in approximately $1.0 billion of incremental capitalized film costs classified in “Other Assets” as of December 31, 2019.

Note 2 — FINANCIAL INSTRUMENTS

Cash, Cash Equivalents, Restricted Cash, and Marketable Securities

As of December 31, 2018 and 2019, our cash, cash equivalents, restricted cash, and marketable securities primarily consisted of cash, AAA-rated money market funds, U.S. and foreign government and agency securities, and other investment grade securities. Cash equivalents and marketable securities are recorded at fair value. The following table summarizes, by major security type, our cash, cash equivalents, restricted cash, and marketable securities that are measured at fair value on a recurring basis and are categorized using the fair value hierarchy (in millions):

	December 31, 2018			
	Cost or Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Total Estimated Fair Value
Cash	$ 10,406	$ —	$ —	$ 10,406
Level 1 securities:				
Money market funds	12,515	—	—	12,515
Equity securities				170
Level 2 securities:				
Foreign government and agency securities	815	—	—	815
U.S. government and agency securities	11,686	1	(20)	11,667
Corporate debt securities	5,008	1	(19)	4,990
Asset-backed securities	896	—	(4)	892
Other fixed income securities	190	—	(2)	188
Equity securities				33
	$ 41,516	$ 2	$ (45)	$ 41,676
Less: Restricted cash, cash equivalents, and marketable securities (2)				(426)
Total cash, cash equivalents, and marketable securities				$ 41,250

	December 31, 2019			
	Cost or Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Total Estimated Fair Value
Cash	$ 9,776	$ —	$ —	$ 9,776
Level 1 securities:				
Money market funds	18,850	—	—	18,850
Equity securities (1)				202
Level 2 securities:				
Foreign government and agency securities	4,794	—	—	4,794
U.S. government and agency securities	7,070	11	(1)	7,080
Corporate debt securities	11,845	37	(1)	11,881
Asset-backed securities	2,355	6	(1)	2,360
Other fixed income securities	393	1	—	394
Equity securities (1)				5
	$ 55,083	$ 55	$ (3)	$ 55,342
Less: Restricted cash, cash equivalents, and marketable securities (2)				(321)
Total cash, cash equivalents, and marketable securities				$ 55,021

(1) The related unrealized gain (loss) recorded in “Other income (expense), net” was $4 million for the year ended December 31, 2019.

(2) We are required to pledge or otherwise restrict a portion of our cash, cash equivalents, and marketable securities as collateral for real estate leases, amounts due to third-party sellers in certain jurisdictions, debt, and standby and trade letters of credit. We classify cash, cash equivalents, and marketable securities with use restrictions of less than twelve months as “Accounts receivable, net and other” and of twelve months or longer as non-current “Other assets” on our consolidated balance sheets. See “Note 7 — Commitments and Contingencies.”

The following table summarizes gross gains and gross losses realized on sales of available-for-sale fixed income marketable securities (in millions):

	Year Ended December 31,		
	2017	2018	2019
Realized gains	$ 5	$ 2	$ 11
Realized losses	11	9	7

The following table summarizes the remaining contractual maturities of our cash equivalents and marketable fixed income securities as of December 31, 2019 (in millions):

	Amortized Cost	Estimated Fair Value
Due within one year	$ 35,064	$ 35,071
Due after one year through five years	9,262	9,304
Due after five years through ten years	301	302
Due after ten years	680	682
Total	$ 45,307	$ 45,359

Actual maturities may differ from the contractual maturities because borrowers may have certain prepayment conditions.

Consolidated Statements of Cash Flows Reconciliation

The following table provides a reconciliation of the amount of cash, cash equivalents, and restricted cash reported within the consolidated balance sheets to the total of the same such amounts shown in the consolidated statements of cash flows (in millions):

	December 31, 2018	December 31, 2019
Cash and cash equivalents	$ 31,750	$ 36,092
Restricted cash included in accounts receivable, net and other	418	276
Restricted cash included in other assets	5	42
Total cash, cash equivalents, and restricted cash shown in the consolidated statements of cash flows	$ 32,173	$ 36,410

Note 3 — PROPERTY AND EQUIPMENT

Property and equipment, at cost, consisted of the following (in millions):

	December 31,	
	2018	2019
Gross property and equipment (1):		
Land and buildings	$ 31,741	$ 39,223
Equipment	54,591	71,310
Other assets	2,577	3,111
Construction in progress	6,861	6,036
Gross property and equipment	95,770	119,680
Total accumulated depreciation and amortization (1)	33,973	46,975
Total property and equipment, net	$ 61,797	$ 72,705

(1) Includes the original cost and accumulated depreciation of fully-depreciated assets.

Depreciation and amortization expense on property and equipment was $8.8 billion, $12.1 billion, and $15.1 billion which includes amortization of property and equipment acquired under finance leases of $5.4 billion, $7.3 billion, and $10.1 billion for 2017, 2018, and 2019.

Note 4 — LEASES

Gross assets acquired under finance leases, inclusive of those where title transfers at the end of the lease, are recorded in “Property and equipment, net” and were $36.1 billion and $57.4 billion as of December 31, 2018 and 2019. Accumulated amortization associated with finance leases was $19.8 billion and $30.0 billion as of December 31, 2018 and 2019.

Lease cost recognized in our consolidated statements of operations is summarized as follows (in millions):

	Year Ended December 31, 2019
Operating lease cost (1)	$ 3,669
Finance lease cost:	
Amortization of lease assets	10,094
Interest on lease liabilities	695
Finance lease cost	10,789
Variable lease cost	966
Total lease cost	$ 15,424

(1) Rental expense under operating lease agreements was $2.2 billion and $3.4 billion for 2017 and 2018.

Other information about lease amounts recognized in our consolidated financial statements is summarized as follows:

	December 31, 2019
Weighted-average remaining lease term – operating leases	11.5
Weighted-average remaining lease term – finance leases	5.5
Weighted-average discount rate – operating leases	3.1%
Weighted-average discount rate – finance leases	2.7%

As of December 31, 2019, our lease liabilities were as follows (in millions):

	Operating Leases	Finance Leases	Total
Gross lease liabilities	$ 31,963	$ 28,875	$ 60,838
Less: imputed interest	(6,128)	(1,896)	(8,024)
Present value of lease liabilities	25,835	26,979	52,814
Less: current portion of lease liabilities	(3,139)	(9,884)	(13,023)
Total long-term lease liabilities	$ 22,696	$ 17,095	$ 39,791

Note 5 — ACQUISITIONS, GOODWILL, AND ACQUIRED INTANGIBLE ASSETS

2017 Acquisition Activity

On May 12, 2017, we acquired Souq Group Ltd., an e-commerce company, for approximately $583 million, net of cash acquired, and on August 28, 2017, we acquired Whole Foods Market, a grocery store chain, for approximately $13.2 billion, net of cash acquired. Both acquisitions are intended to expand our retail presence. During 2017, we also acquired certain other companies for an aggregate purchase price of $204 million. The primary reason for our other 2017 acquisitions was to acquire technologies and know-how to enable Amazon to serve customers more effectively.

2018 Acquisition Activity

On April 12, 2018, we acquired Ring Inc. (“Ring”) for cash consideration of approximately $839 million, net of cash acquired, and on September 11, 2018, we acquired PillPack, Inc. (“PillPack”) for cash consideration of approximately $753 million, net of cash acquired, to expand our product and service offerings. During 2018, we also acquired certain other companies for an aggregate purchase price of $57 million. The primary reason for our other 2018 acquisitions was to acquire technologies and know-how to enable Amazon to serve customers more effectively.

2019 Acquisition Activity

During 2019, we acquired certain companies for an aggregate purchase price of $315 million. The primary reason for these acquisitions, none of which were individually material to our consolidated financial statements, was to acquire technologies and know-how to enable Amazon to serve customers more effectively.

Acquisition-related costs were expensed as incurred and were not significant.

Pro forma results of operations have not been presented because the effects of 2019 acquisitions, individually and in the aggregate, were not material to our consolidated results of operations.

Purchase Price Allocation

The aggregate purchase price of these acquisitions was allocated as follows (in millions):

	December 31,		
	2017	2018	2019
Purchase Price			
Cash paid, net of cash acquired	$ 13,859	$ 1,618	$ 276
Indemnification holdback	104	31	39
	$ 13,963	$ 1,649	$ 315
Allocation			
Goodwill	$ 9,501	$ 1,228	$ 189
Intangible assets (1):			
Marketing-related	1,987	186	8
Contract-based	440	13	—
Technology-based	166	285	139
Customer-related	54	193	14
	2,647	677	161
Property and equipment	3,810	11	3
Deferred tax assets	117	174	29
Other assets acquired	1,858	282	41
Long-term debt	(1,165)	(176)	(31)
Deferred tax liabilities	(961)	(159)	(34)
Other liabilities assumed	(1,844)	(388)	(43)
	$ 13,963	$ 1,649	$ 315

(1) Intangible assets acquired in 2017, 2018, and 2019 have estimated useful lives of between one and twenty-five years, two and seven years, and two and seven years, with weighted-average amortization periods of twenty-one years, six years, and five years.

We determined the estimated fair value of identifiable intangible assets acquired primarily by using the income approach. These assets are included within “Other assets” on our consolidated balance sheets and are being amortized to operating expenses on a straight-line basis over their estimated useful lives.

Goodwill

The goodwill of the acquired companies is primarily related to expected improvements in technology performance and functionality, as well as sales growth from future product and service offerings and new customers, together with certain intangible assets that do not qualify for separate recognition. The goodwill of the acquired companies is generally not deductible for tax purposes. The following summarizes our goodwill activity in 2018 and 2019 by segment (in millions):

	North America	International	AWS	Consolidated
Goodwill - January 1, 2018	$ 11,165	$ 1,108	$ 1,077	$ 13,350
New acquisitions (1)	1,031	177	20	1,228
Other adjustments (2)	(5)	(15)	(10)	(30)
Goodwill - December 31, 2018	12,191	1,270	1,087	14,548
New acquisitions	71	29	89	189
Other adjustments (2)	2	1	14	17
Goodwill - December 31, 2019	$ 12,264	$ 1,300	$ 1,190	$ 14,754

(1) Primarily includes the acquisitions of Ring and PillPack in the North America segment.
(2) Primarily includes changes in foreign exchange rates.

Intangible Assets

Acquired intangible assets, included within "Other assets" on our consolidated balance sheets, consist of the following (in millions):

	December 31,						
	2018			2019			
	Acquired Intangibles, Gross (1)	Accumulated Amortization (1)	Acquired Intangibles, Net	Acquired Intangibles, Gross (1)	Accumulated Amortization (1)	Acquired Intangibles, Net	Weighted Average Life Remaining
Marketing-related	$ 2,542	$ (431)	$ 2,111	$ 2,303	$ (340)	$ 1,963	20.7
Contract-based	1,430	(224)	1,206	1,702	(302)	1,400	10.5
Technology- and content-based	941	(377)	564	1,011	(477)	534	3.6
Customer-related	437	(208)	229	282	(130)	152	4.3
Acquired intangibles (2)	$ 5,350	$ (1,240)	$ 4,110	$ 5,298	$ (1,249)	$ 4,049	14.3

(1) Excludes the original cost and accumulated amortization of fully-amortized intangibles.
(2) Intangible assets have estimated useful lives of between one and twenty-five years.

Amortization expense for acquired intangibles was $366 million, $475 million, and $565 million in 2017, 2018, and 2019. Expected future amortization expense of acquired intangible assets as of December 31, 2019 is as follows (in millions):

Year Ended December 31,	
2020	$ 486
2021	424
2022	391
2023	334
2024	270
Thereafter	2,116
	$ 4,021

Note 6 — DEBT

As of December 31, 2019, we had $23.3 billion of unsecured senior notes outstanding (the "Notes"). As of December 31, 2018 and 2019, the net unamortized discount and debt issuance costs on the Notes was $101 million. We also have other long-term debt with a carrying amount, including the current portion and borrowings under our credit facility, of $715 million and $1.6 billion as of December 31, 2018 and 2019. The face value of our total long-term debt obligations is as follows (in millions):

	December 31,	
	2018	2019
2.600% Notes due on December 5, 2019	1,000	—
1.900% Notes due on August 21, 2020 (3)	1,000	1,000
3.300% Notes due on December 5, 2021 (2)	1,000	1,000
2.500% Notes due on November 29, 2022 (1)	1,250	1,250
2.400% Notes due on February 22, 2023 (3)	1,000	1,000
2.800% Notes due on August 22, 2024 (3)	2,000	2,000
3.800% Notes due on December 5, 2024 (2)	1,250	1,250
5.200% Notes due on December 3, 2025 (4)	1,000	1,000
3.150% Notes due on August 22, 2027 (3)	3,500	3,500
4.800% Notes due on December 5, 2034 (2)	1,250	1,250
3.875% Notes due on August 22, 2037 (3)	2,750	2,750
4.950% Notes due on December 5, 2044 (2)	1,500	1,500
4.050% Notes due on August 22, 2047 (3)	3,500	3,500
4.250% Notes due on August 22, 2057 (3)	2,250	2,250
Credit Facility	594	740
Other long-term debt	121	830
Total debt	24,965	24,820
Less current portion of long-term debt	(1,371)	(1,307)
Face value of long-term debt	$ 23,594	$ 23,513

(1) Issued in November 2012, effective interest rate of the 2022 Notes was 2.66%.
(2) Issued in December 2014, effective interest rates of the 2021, 2024, 2034, and 2044 Notes were 3.43%, 3.90%, 4.92%, and 5.11%.
(3) Issued in August 2017, effective interest rates of the 2020, 2023, 2024, 2027, 2037, 2047, and 2057 Notes were 2.16%, 2.56%, 2.95%, 3.25%, 3.94%, 4.13%, and 4.33%.
(4) Consists of $872 million of 2025 Notes issued in December 2017 in exchange for notes assumed in connection with the acquisition of Whole Foods Market and $128 million of 2025 Notes issued by Whole Foods Market that did not participate in our December 2017 exchange offer. The effective interest rate of the 2025 Notes was 3.02%.

Interest on the Notes issued in 2012 is payable semi-annually in arrears in May and November. Interest on the Notes issued in 2014 is payable semi-annually in arrears in June and December. Interest on the Notes issued in 2017 is payable semi-annually in arrears in February and August. Interest on the 2025 Notes is payable semi-annually in arrears in June and December. We may redeem the Notes at any time in whole, or from time to time, in part at specified redemption prices. We are not subject to any financial covenants under the Notes. The proceeds from the November 2012 and the December 2014 Notes were used for general corporate purposes. The proceeds from the August 2017 Notes were used to fund the consideration for the acquisition of Whole Foods Market, to repay notes due in 2017, and for general corporate purposes. The estimated fair value of the Notes was approximately $24.3 billion and $26.2 billion as of December 31, 2018 and 2019, which is based on quoted prices for our debt as of those dates.

In October 2016, we entered into a $500 million secured revolving credit facility with a lender that is secured by certain seller receivables, which we subsequently increased to $740 million and may from time to time increase in the future subject to lender approval (the "Credit Facility"). The Credit Facility is available until October 2022, bears interest at the London interbank offered rate ("LIBOR") plus 1.40%, and has a commitment fee of 0.50% on the undrawn portion. There were $594 million and $740 million of borrowings outstanding under the Credit Facility as of December 31, 2018 and 2019, which had a weighted-average interest rate of 3.2% and 3.4% as of December 31, 2018 and 2019. As of December 31, 2018 and 2019, we have pledged $686 million and $852 million of our cash and seller receivables as collateral for debt related to our Credit Facility. The estimated fair value of the Credit Facility, which is based on Level 2 inputs, approximated its carrying value as of December 31, 2018 and 2019.

The other debt, including the current portion, had a weighted-average interest rate of 6.0% and 4.1% as of December 31, 2018 and 2019. We used the net proceeds from the issuance of this debt primarily to fund certain business operations. The estimated fair value of the other long-term debt, which is based on Level 2 inputs, approximated its carrying value as of December 31, 2018 and 2019.

As of December 31, 2019, future principal payments for our total debt were as follows (in millions):

Year Ended December 31,		
2020	$	1,307
2021		1,141
2022		1,773
2023		1,510
2024		3,339
Thereafter		15,750
	$	24,820

In April 2018, we established a commercial paper program (the “Commercial Paper Program”) under which we may from time to time issue unsecured commercial paper up to a total of $7.0 billion at any time, with individual maturities that may vary but will not exceed 397 days from the date of issue. There were no borrowings outstanding under the Commercial Paper Program as of December 31, 2018 and 2019.

In April 2018, in connection with our Commercial Paper Program, we amended and restated our unsecured revolving credit facility (the “Credit Agreement”) with a syndicate of lenders to increase our borrowing capacity thereunder to $7.0 billion. As amended and restated, the Credit Agreement has a term of three years, but it may be extended for up to three additional one-year terms if approved by the lenders. The interest rate applicable to outstanding balances under the amended and restated Credit Agreement is LIBOR plus 0.50%, with a commitment fee of 0.04% on the undrawn portion of the credit facility. There were no borrowings outstanding under the Credit Agreement as of December 31, 2018 and 2019.

Note 7 — COMMITMENTS AND CONTINGENCIES

Commitments

We have entered into non-cancellable operating and finance leases and financing obligations for equipment and office, fulfillment, sortation, delivery, data center, physical store, and renewable energy facilities.

The following summarizes our principal contractual commitments, excluding open orders for purchases that support normal operations and are generally cancellable, as of December 31, 2019 (in millions):

	Year Ended December 31,						
	2020	2021	2022	2023	2024	Thereafter	Total
Debt principal and interest	$ 2,202	$ 2,009	$ 2,603	$ 2,273	$ 4,084	$ 26,019	$ 39,190
Operating lease liabilities	3,757	3,630	3,226	2,900	2,605	15,845	31,963
Finance lease liabilities, including interest	9,878	7,655	4,060	1,332	989	4,961	28,875
Financing obligations, including interest	142	146	148	150	152	2,452	3,190
Unconditional purchase obligations (1)	4,593	3,641	3,293	3,103	3,000	2,358	19,988
Other commitments (2)(3)	3,837	2,274	1,770	1,439	1,389	12,186	22,895
Total commitments	$24,409	$19,355	$15,100	$11,197	$12,219	$ 63,821	$146,101

(1) Includes unconditional purchase obligations related to certain products offered in our Whole Foods Market stores and long-term agreements to acquire and license digital media content that are not reflected on the consolidated balance sheets. For those digital media content agreements with variable terms, we do not estimate the total obligation beyond any minimum quantities and/or pricing as of the reporting date. Purchase obligations associated with renewal provisions solely at the option of the content provider are included to the extent such commitments are fixed or a minimum amount is specified.

(2) Includes the estimated timing and amounts of payments for rent and tenant improvements associated with build-to-suit lease arrangements and lease arrangements prior to the lease commencement date and digital media content liabilities associated with long-term digital media content assets with initial terms greater than one year.

(3) Excludes approximately $3.9 billion of accrued tax contingencies for which we cannot make a reasonably reliable estimate of the amount and period of payment, if any.

Pledged Assets

As of December 31, 2018 and 2019, we have pledged or otherwise restricted $575 million and $994 million of our cash, cash equivalents, and marketable securities, and certain property and equipment as collateral for real estate leases, amounts due to third-party sellers in certain jurisdictions, debt, and standby and trade letters of credit. Additionally, we have pledged our cash and seller receivables for debt related to our Credit Facility. See “Note 6 — Debt.”

Suppliers

During 2019, no vendor accounted for 10% or more of our purchases. We generally do not have long-term contracts or arrangements with our vendors to guarantee the availability of merchandise, particular payment terms, or the extension of credit limits.

Other Contingencies

In 2016, we determined that we processed and delivered orders of consumer products for certain individuals and entities located outside Iran covered by the Iran Threat Reduction and Syria Human Rights Act or other United States sanctions and export control laws. The consumer products included books, music, other media, apparel, home and kitchen, health and beauty, jewelry, office, consumer electronics, software, lawn and patio, grocery, and automotive products. Our review is ongoing and we have voluntarily reported these orders to the United States Treasury Department’s Office of Foreign Assets Control and the United States Department of Commerce’s Bureau of Industry and Security. We intend to cooperate fully with OFAC and BIS with respect to their review, which may result in the imposition of penalties. For additional information, see Item 9B of Part II, “Other Information — Disclosure Pursuant to Section 13(r) of the Exchange Act.”

We are subject to claims related to various indirect taxes (such as sales, value added, consumption, service, and similar taxes), including in jurisdictions in which we already collect and remit such taxes. If the relevant taxing authorities were successfully to pursue these claims, we could be subject to significant additional tax liabilities. For example, in June 2017, the State of South Carolina issued an assessment for uncollected sales and use taxes for the period from January 2016 to March 2016, including interest and penalties. South Carolina is alleging that we should have collected sales and use taxes on transactions by our third-party sellers. In September 2019, the South Carolina Administrative Law Court ruled in favor of the Department of Revenue and we have appealed the decision to the state Court of Appeals. We believe the assessment is without merit and intend to defend ourselves vigorously in this matter. If other tax authorities were successfully to seek additional adjustments of a similar nature, we could be subject to significant additional tax liabilities.

Legal Proceedings

The Company is involved from time to time in claims, proceedings, and litigation, including the following:

Beginning in August 2013, a number of complaints were filed alleging, among other things, that Amazon.com, Inc. and several of its subsidiaries failed to compensate hourly workers for time spent waiting in security lines and otherwise violated federal and state wage and hour statutes and common law. In August 2013, Busk v. Integrity Staffing Solutions, Inc. and Amazon.com, Inc. was filed in the United States District Court for the District of Nevada, and Vance v. Amazon.com, Inc., Zappos.com Inc., another affiliate of Amazon.com, Inc., and Kelly Services, Inc. was filed in the United States District Court for the Western District of Kentucky. In September 2013, Allison v. Amazon.com, Inc. and Integrity Staffing Solutions, Inc. was filed in the United States District Court for the Western District of Washington, and Johnson v. Amazon.com, Inc. and an affiliate of Amazon.com, Inc. was filed in the United States District Court for the Western District of Kentucky. In October 2013, Davis v. Amazon.com, Inc., an affiliate of Amazon.com, Inc., and Integrity Staffing Solutions, Inc. was filed in the United States District Court for the Middle District of Tennessee. The plaintiffs variously purport to represent a nationwide class of certain current and former employees under the Fair Labor Standards Act and/or state-law-based subclasses for certain current and former employees in states including Arizona, California, Pennsylvania, South Carolina, Kentucky, Washington, and Nevada, and one complaint asserts nationwide breach of contract and unjust enrichment claims. The complaints seek an unspecified amount of damages, interest, injunctive relief, and attorneys' fees. We have been named in several other similar cases. In December 2014, the Supreme Court ruled in Busk that time spent waiting for and undergoing security screening is not compensable working time under the federal wage and hour statute. In February 2015, the courts in those actions alleging only federal law claims entered stipulated orders dismissing those actions without prejudice. In March 2016, the United States District Court for the Western District of Kentucky dismissed the Vance case with prejudice. In April 2016, the plaintiffs appealed the district court's judgment to the United States Court of Appeals for the Federal Circuit. In March 2017, the court of appeals affirmed the district court's decision. In June 2017, the United States District Court for the Western District of Kentucky dismissed the Busk and Saldana cases with prejudice. We dispute any remaining allegations of wrongdoing and intend to defend ourselves vigorously in these matters.

In March 2015, Zitovault, LLC filed a complaint against Amazon.com, Inc., Amazon.com, LLC, Amazon Web Services, Inc., and Amazon Web Services, LLC for patent infringement in the United States District Court for the Eastern District of Texas. The complaint alleges that Elastic Compute Cloud, Virtual Private Cloud, Elastic Load Balancing, Auto-Scaling, and Elastic Beanstalk infringe U.S. Patent No. 6,484,257, entitled "System and Method for Maintaining N Number of Simultaneous Cryptographic Sessions Using a Distributed Computing Environment." The complaint seeks injunctive relief, an unspecified amount of damages, enhanced damages, attorneys' fees, costs, and interest. In January 2016, the case was transferred to the United States District Court for the Western District of Washington. In June 2016, the case was stayed pending resolution of a review petition we filed with the United States Patent and Trademark Office. In January 2019, the stay of the case was lifted following resolution of the review petition. We dispute the allegations of wrongdoing and intend to defend ourselves vigorously in this matter.

In November 2015, Eolas Technologies, Inc. filed a complaint against Amazon.com, Inc. in the United States District Court for the Eastern District of Texas. The complaint alleges, among other things, that the use of "interactive features" on www.amazon.com, including "search suggestions and search results," infringes U.S. Patent No. 9,195,507, entitled "Distributed Hypermedia Method and System for Automatically Invoking External Application Providing Interaction and Display of Embedded Objects Within A Hypermedia Document." The complaint sought a judgment of infringement together with costs and attorneys' fees. In February 2016, Eolas filed an amended complaint seeking, among other things, an unspecified amount of damages. In February 2017, Eolas alleged in its damages report that in the event of a finding of liability Amazon could be subject to $130-$250 million in damages. In April 2017, the case was transferred to the United States District Court for the Northern District of California. We dispute the allegations of wrongdoing and intend to defend ourselves vigorously in this matter.

In October 2017, SRC Labs, LLC and Saint Regis Mohawk Tribe filed a complaint for patent infringement against Amazon Web Services, Inc., Amazon.com, Inc., and VADATA, Inc. in the United States District Court for the Eastern District of Virginia. The complaint alleges, among other things, that certain AWS EC2 Instances infringe U.S. Patent Nos. 6,434,687, entitled "System and method for accelerating web site access and processing utilizing a computer system incorporating reconfigurable processors operating under a single operating system image"; 7,149,867, entitled "System and method of enhancing efficiency and utilization of memory bandwidth in reconfigurable hardware"; 7,225,324 and 7,620,800, both entitled "Multi-adaptive processing systems and techniques for enhancing parallelism and performance of computational functions";

and 9,153,311, entitled “System and method for retaining DRAM data when reprogramming reconfigurable devices with DRAM memory controllers.” The complaint seeks an unspecified amount of damages, enhanced damages, interest, and a compulsory on-going royalty. In February 2018, the Virginia district court transferred the case to the United States District Court for the Western District of Washington. In November 2018, the case was stayed pending resolution of eight review petitions filed with the United States Patent and Trademark Office relating to the ‘324, ‘867, and ‘311 patents. We dispute the allegations of wrongdoing and intend to defend ourselves vigorously in this matter.

In May 2018, Rensselaer Polytechnic Institute and CF Dynamic Advances LLC filed a complaint against Amazon.com, Inc. in the United States District Court for the Northern District of New York. The complaint alleges, among other things, that “Alexa Voice Software and Alexa enabled devices” infringe U.S. Patent No. 7,177,798, entitled “Natural Language Interface Using Constrained Intermediate Dictionary of Results.” The complaint seeks an injunction, an unspecified amount of damages, enhanced damages, an ongoing royalty, pre- and post-judgment interest, attorneys’ fees, and costs. We dispute the allegations of wrongdoing and intend to defend ourselves vigorously in this matter.

In June 2018, VoIP-Pal.com, Inc. filed a complaint against Amazon Technologies, Inc. and Amazon.com, Inc. in the United States District Court for the District of Nevada. The complaint alleges, among other things, that the Alexa calling and messaging system, the Alexa app, and Echo, Tap, and Fire devices with Alexa support infringe U.S. Patent Nos. 9,537,762; 9,813,330; 9,826,002; and 9,948,549, all entitled “Producing Routing Messages For Voice Over IP Communications.” The complaint seeks an unspecified amount of damages, enhanced damages, attorneys’ fees, costs, and interest. In November 2018, the case was transferred to the United States District Court for the Northern District of California. In November 2019, the District Court entered judgment invalidating all asserted claims of U.S. Patent Nos. 9,537,762; 9,813,330; 9,826,002; and 9,948,549. We dispute the allegations of wrongdoing and intend to defend ourselves vigorously in this matter.

In December 2018, Kove IO, Inc. filed a complaint against Amazon Web Services, Inc. in the United States District Court for the Northern District of Illinois. The complaint alleges, among other things, that Amazon S3 and DynamoDB infringe U.S. Patent Nos. 7,814,170 and 7,103,640, both entitled “Network Distributed Tracking Wire Transfer Protocol,” and 7,233,978, entitled “Method And Apparatus For Managing Location Information In A Network Separate From The Data To Which The Location Information Pertains.” The complaint seeks an unspecified amount of damages, enhanced damages, attorneys’ fees, costs, interest, and injunctive relief. We dispute the allegations of wrongdoing and intend to defend ourselves vigorously in this matter.

In January 2019, Saint Lawrence Communications, LLC filed a complaint against Amazon.com, Inc. and Amazon.com LLC in the United States District Court for the Eastern District of Texas. The complaint alleges, among other things, that voice encoding functionality in Amazon devices infringes U.S. Patent Nos. 6,795,805, entitled “Periodicity Enhancement In Decoding Wideband Signals”; 6,807,524, entitled “Perceptual Weighting Device And Method For Efficient Coding Of Wideband Signals”; 7,151,802, entitled “High Frequency Content Recovering Method And Device For Over-Sampled Synthesized Wideband Signal”; 7,191,123, entitled “Gain-Smoothing In Wideband Speech And Audio Signal Decoder”; and 7,260,521, entitled “Method And Device For Adaptive Bandwidth Pitch Search In Coding Wideband Signals.” The complaint seeks an unspecified amount of damages, enhanced damages, attorneys’ fees, costs, and interest. We dispute the allegations of wrongdoing and intend to defend ourselves vigorously in this matter.

In April 2019, Vocalife LLC filed a complaint against Amazon.com, Inc. and Amazon.com LLC in the United States District Court for the Eastern District of Texas. The complaint alleges, among other things, that Amazon Echo devices infringe U.S. Patent No. RE47,049, entitled “Microphone Array System.” The complaint seeks injunctive relief, an unspecified amount of damages, attorneys’ fees, costs, and interest. We dispute the allegations of wrongdoing and intend to defend ourselves vigorously in this matter.

In May 2019, Neodron Ltd. filed a petition with the United States International Trade Commission requesting that the International Trade Commission commence an investigation into the sale of Amazon Fire HD 10 tablets and certain Dell, Hewlett Packard, Lenovo, Microsoft, Motorola, and Samsung devices (the “accused devices”). Neodron’s petition alleges that the accused devices infringe at least one of U.S. Patent Nos. 8,422,173, entitled “Capacitive Position Sensor”; 8,791,910, entitled “Capacitive Keyboard With Position-Dependent Reduced Keying Ambiguity”; 9,024,790, entitled “Capacitive Keyboard With Non-Locking Reduced Keying Ambiguity”; and 9,372,580, entitled “Enhanced Touch Detection Methods.” Neodron is seeking a limited exclusion order preventing the importation of the accused devices into the United States. In December 2019, Neodron withdrew its infringement allegations against Amazon with regard to U.S. Patent No. 9,372,580. In May 2019, Neodron also filed a complaint against Amazon.com, Inc. in the United States District Court for the Western District of Texas. The complaint alleges, among other things, that Amazon’s Fire HD 10 tablet infringes U.S. Patent Nos. 8,422,173, entitled “Capacitive Position Sensor,” and 9,372,580, entitled “Enhanced Touch Detection Methods.” The May 2019 complaint seeks an unspecified amount of damages and interest, a permanent injunction, and enhanced damages. In June 2019, Neodron filed a second complaint against Amazon.com, Inc. in the United States District Court for the Western District of Texas. The complaint alleges, among other things, that Amazon’s Fire HD 10 tablet infringes U.S. Patent Nos. 9,823,784, entitled “Capacitive Touch Screen With Noise Suppression”; 9,489,072, entitled “Noise Reduction In Capacitive Touch Sensors”; and

8,502,547, entitled "Capacitive Sensor." The June 2019 complaint seeks an unspecified amount of damages and interest, a permanent injunction, and enhanced damages. We dispute the allegations of wrongdoing and intend to defend ourselves vigorously in these matters.

The outcomes of our legal proceedings and other contingencies are inherently unpredictable, subject to significant uncertainties, and could be material to our operating results and cash flows for a particular period. In addition, for the matters disclosed above that do not include an estimate of the amount of loss or range of losses, such an estimate is not possible or is immaterial, and we may be unable to estimate the possible loss or range of losses that could potentially result from the application of non-monetary remedies.

See also "Note 9 — Income Taxes."

Note 8 — STOCKHOLDERS' EQUITY

Preferred Stock

We have authorized 500 million shares of $0.01 par value preferred stock. No preferred stock was outstanding for any year presented.

Common Stock

Common shares outstanding plus shares underlying outstanding stock awards totaled 504 million, 507 million, and 512 million, as of December 31, 2017, 2018, and 2019. These totals include all vested and unvested stock awards outstanding, including those awards we estimate will be forfeited.

Stock Repurchase Activity

In February 2016, the Board of Directors authorized a program to repurchase up to $5.0 billion of our common stock, with no fixed expiration. There were no repurchases of common stock in 2017, 2018, or 2019.

Stock Award Plans

Employees vest in restricted stock unit awards and stock options over the corresponding service term, generally between two and five years.

Stock Award Activity

Stock-based compensation expense is as follows (in millions):

	Year Ended December 31,		
	2017	2018	2019
Cost of sales	$ 47	$ 73	$ 149
Fulfillment	911	1,121	1,182
Technology and content	2,305	2,888	3,725
Marketing	511	769	1,135
General and administrative	441	567	673
Total stock-based compensation expense (1)	$ 4,215	$ 5,418	$ 6,864

(1) The related tax benefits were $860 million, $1.1 billion, and $1.4 billion for 2017, 2018, and 2019.

The following table summarizes our restricted stock unit activity (in millions):

	Number of Units	Weighted Average Grant-Date Fair Value
Outstanding as of January 1, 2017	19.8	$ 506
Units granted	8.9	946
Units vested	(6.8)	400
Units forfeited	(1.8)	649
Outstanding as of December 31, 2017	20.1	725
Units granted	5.0	1,522
Units vested	(7.1)	578
Units forfeited	(2.1)	862
Outstanding as of December 31, 2018	15.9	1,024
Units granted	6.7	1,808
Units vested	(6.6)	827
Units forfeited	(1.7)	1,223
Outstanding as of December 31, 2019	14.3	1,458

Scheduled vesting for outstanding restricted stock units as of December 31, 2019, is as follows (in millions):

	Year Ended						
	2020	2021	2022	2023	2024	Thereafter	Total
Scheduled vesting — restricted stock units	6.0	5.1	2.1	1.0	—	0.1	14.3

As of December 31, 2019, there was $8.8 billion of net unrecognized compensation cost related to unvested stock-based compensation arrangements. This compensation is recognized on an accelerated basis with approximately half of the compensation expected to be expensed in the next twelve months, and has a weighted-average recognition period of 1.1 years. The estimated forfeiture rate as of December 31, 2017, 2018, and 2019 was 28%, 27%, and 27%. Changes in our estimates and assumptions relating to forfeitures may cause us to realize material changes in stock-based compensation expense in the future.

During 2017, 2018, and 2019, the fair value of restricted stock units that vested was $6.8 billion, $11.4 billion, and $11.7 billion.

Common Stock Available for Future Issuance

As of December 31, 2019, common stock available for future issuance to employees is 108 million shares.

Note 9 — INCOME TAXES

In 2017, 2018, and 2019, we recorded net tax provisions of $769 million, $1.2 billion, and $2.4 billion. Tax benefits relating to excess stock-based compensation deductions and accelerated depreciation deductions are reducing our U.S. taxable income. Cash taxes paid, net of refunds, were $957 million, $1.2 billion, and $881 million for 2017, 2018, and 2019.

The U.S. Tax Act was signed into law on December 22, 2017. The U.S. Tax Act significantly revised the U.S. corporate income tax by, among other things, lowering the statutory corporate tax rate from 35% to 21%, eliminating certain deductions, imposing a mandatory one-time tax on accumulated earnings of foreign subsidiaries, introducing new tax regimes, and changing how foreign earnings are subject to U.S. tax. The U.S. Tax Act also enhanced and extended accelerated depreciation deductions by allowing full expensing of qualified property, primarily equipment, through 2022. We reasonably estimated the effects of the U.S. Tax Act and recorded provisional amounts in our financial statements as of December 31, 2017. We recorded a provisional tax benefit for the impact of the U.S. Tax Act of approximately $789 million. This amount was primarily comprised of the remeasurement of federal net deferred tax liabilities resulting from the permanent reduction in the U.S. statutory corporate tax rate to 21% from 35%, after taking into account the mandatory one-time tax on the accumulated earnings of our foreign subsidiaries. The amount of this one-time tax was not material. In 2018, we completed our determination of the accounting implications of the U.S. Tax Act.

The components of the provision for income taxes, net are as follows (in millions):

	Year Ended December 31,		
	2017	2018	2019
U.S. Federal:			
Current	$ (137)	$ (129)	$ 162
Deferred	(202)	565	914
Total	(339)	436	1,076
U.S. State:			
Current	211	322	276
Deferred	(26)	5	8
Total	185	327	284
International:			
Current	724	563	1,140
Deferred	199	(129)	(126)
Total	923	434	1,014
Provision for income taxes, net	$ 769	$ 1,197	$ 2,374

U.S. and international components of income before income taxes are as follows (in millions):

	Year Ended December 31,		
	2017	2018	2019
U.S.	$ 5,630	$ 11,157	$ 13,285
International	(1,824)	104	691
Income before income taxes	$ 3,806	$ 11,261	$ 13,976

The items accounting for differences between income taxes computed at the federal statutory rate and the provision recorded for income taxes are as follows (in millions):

	Year Ended December 31,		
	2017	2018	2019
Income taxes computed at the federal statutory rate (1)	$ 1,332	$ 2,365	$ 2,935
Effect of:			
Tax impact of foreign earnings	1,178	119	381
State taxes, net of federal benefits	114	263	221
Tax credits	(220)	(419)	(466)
Stock-based compensation (2)	(917)	(1,086)	(850)
2017 Impact of U.S. Tax Act	(789)	(157)	—
Other, net	71	112	153
Total	$ 769	$ 1,197	$ 2,374

(1) The U.S. Tax Act reduced the U.S. federal statutory rate from 35% to 21% beginning in 2018.
(2) Includes non-deductible stock-based compensation and excess tax benefits from stock-based compensation. Our tax provision includes $1.3 billion, $1.6 billion, and $1.4 billion of excess tax benefits from stock-based compensation for 2017, 2018, and 2019.

Our provision for income taxes in 2018 was higher than in 2017 primarily due to an increase in U.S. pre-tax income and the one-time provisional tax benefit of the U.S. Tax Act recognized in 2017. This was partially offset by the reduction to the U.S. federal statutory tax rate in 2018, a decline in the proportion of foreign losses for which we may not realize a tax benefit and an increase in excess tax benefits from stock-based compensation.

We regularly assess whether it is more likely than not that we will realize our deferred tax assets in each taxing jurisdiction in which we operate. In performing this assessment with respect to each jurisdiction, we review all available evidence, including recent cumulative loss experience and expectations of future earnings, capital gains, and investment in such jurisdiction, the carry-forward periods available to us for tax reporting purposes, and other relevant factors. In Q2 2017, we

recognized an estimated charge to tax expense of $600 million to record a valuation allowance against the net deferred tax assets in Luxembourg.

Our provision for income taxes in 2019 was higher than in 2018 primarily due to an increase in U.S. pre-tax income, a decline in excess tax benefits from stock-based compensation, and the one-time provisional tax benefit of the U.S. Tax Act recognized in 2018.

Certain foreign subsidiary earnings are subject to U.S. taxation under the U.S. Tax Act, which also repeals U.S. taxation on the subsequent repatriation of those earnings. We intend to invest substantially all of our foreign subsidiary earnings, as well as our capital in our foreign subsidiaries, indefinitely outside of the U.S. in those jurisdictions in which we would incur significant, additional costs upon repatriation of such amounts.

Deferred income tax assets and liabilities are as follows (in millions):

	December 31,	
	2018	2019
Deferred tax assets (1):		
Loss carryforwards U.S. - Federal/States	222	188
Loss carryforwards - Foreign	2,551	3,232
Accrued liabilities, reserves, and other expenses	1,064	1,373
Stock-based compensation	1,293	1,585
Depreciation and amortization	2,386	2,385
Operating lease liabilities	—	6,648
Other items	484	728
Tax credits	734	772
Total gross deferred tax assets	8,734	16,911
Less valuation allowances (2)	(4,950)	(5,754)
Deferred tax assets, net of valuation allowances	3,784	11,157
Deferred tax liabilities:		
Depreciation and amortization	(3,579)	(5,507)
Operating lease assets	—	(6,331)
Other items	(749)	(640)
Net deferred tax assets (liabilities), net of valuation allowances	$ (544)	$ (1,321)

(1) Deferred tax assets are presented after tax effects and net of tax contingencies.
(2) Relates primarily to deferred tax assets that would only be realizable upon the generation of net income in certain foreign taxing jurisdictions.

Our valuation allowances primarily relate to foreign deferred tax assets, including substantially all of our foreign net operating loss carryforwards as of December 31, 2019. Our foreign net operating loss carryforwards for income tax purposes as of December 31, 2019 were approximately $8.6 billion before tax effects and certain of these amounts are subject to annual limitations under applicable tax law. If not utilized, a portion of these losses will begin to expire in 2020. As of December 31, 2019, our federal tax credit carryforwards for income tax purposes were approximately $1.7 billion. If not utilized, a portion of the tax credit carryforwards will begin to expire in 2027.

Tax Contingencies

We are subject to income taxes in the U.S. (federal and state) and numerous foreign jurisdictions. Significant judgment is required in evaluating our tax positions and determining our provision for income taxes. During the ordinary course of business, there are many transactions and calculations for which the ultimate tax determination is uncertain. We establish reserves for tax-related uncertainties based on estimates of whether, and the extent to which, additional taxes will be due. These reserves are established when we believe that certain positions might be challenged despite our belief that our tax return positions are fully supportable. We adjust these reserves in light of changing facts and circumstances, such as the outcome of tax audits. The provision for income taxes includes the impact of reserve provisions and changes to reserves that are considered appropriate.

The reconciliation of our tax contingencies is as follows (in millions):

	December 31,		
	2017	2018	2019
Gross tax contingencies – January 1	$ 1,710	$ 2,309	$ 3,414
Gross increases to tax positions in prior periods	223	164	216
Gross decreases to tax positions in prior periods	(139)	(90)	(181)
Gross increases to current period tax positions	518	1,088	707
Settlements with tax authorities	—	(36)	(207)
Lapse of statute of limitations	(3)	(21)	(26)
Gross tax contingencies – December 31 (1)	$ 2,309	$ 3,414	$ 3,923

(1) As of December 31, 2019, we had approximately $3.9 billion of accrued tax contingencies of which $2.1 billion, if fully recognized, would decrease our effective tax rate.

As of December 31, 2018 and 2019, we had accrued interest and penalties, net of federal income tax benefit, related to tax contingencies of $127 million and $131 million. Interest and penalties, net of federal income tax benefit, recognized for the years ended December 31, 2017, 2018, and 2019 was $40 million, $20 million, and $4 million.

We are under examination, or may be subject to examination, by the Internal Revenue Service ("IRS") for the calendar year 2007 and thereafter. These examinations may lead to ordinary course adjustments or proposed adjustments to our taxes or our net operating losses with respect to years under examination as well as subsequent periods.

In October 2014, the European Commission opened a formal investigation to examine whether decisions by the tax authorities in Luxembourg with regard to the corporate income tax paid by certain of our subsidiaries comply with European Union rules on state aid. On October 4, 2017, the European Commission announced its decision that determinations by the tax authorities in Luxembourg did not comply with European Union rules on state aid. Based on that decision the European Commission announced an estimated recovery amount of approximately €250 million, plus interest, for the period May 2006 through June 2014, and ordered Luxembourg tax authorities to calculate the actual amount of additional taxes subject to recovery. Luxembourg computed an initial recovery amount, consistent with the European Commission's decision, that we deposited into escrow in March 2018, subject to adjustment pending conclusion of all appeals. In December 2017, Luxembourg appealed the European Commission's decision. In May 2018, we appealed. We believe the European Commission's decision to be without merit and will continue to defend ourselves vigorously in this matter. We are also subject to taxation in various states and other foreign jurisdictions including China, Germany, India, Japan, Luxembourg, and the United Kingdom. We are under, or may be subject to, audit or examination and additional assessments by the relevant authorities in respect of these particular jurisdictions primarily for 2009 and thereafter.

Changes in state, federal, and foreign tax laws may increase our tax contingencies. The timing of the resolution of income tax examinations is highly uncertain, and the amounts ultimately paid, if any, upon resolution of the issues raised by the taxing authorities may differ from the amounts accrued. It is reasonably possible that within the next twelve months we will receive additional assessments by various tax authorities or possibly reach resolution of income tax examinations in one or more jurisdictions. These assessments or settlements could result in changes to our contingencies related to positions on tax filings in years through 2019. The actual amount of any change could vary significantly depending on the ultimate timing and nature of any settlements. We cannot currently provide an estimate of the range of possible outcomes.

Note 10 — SEGMENT INFORMATION

We have organized our operations into three segments: North America, International, and AWS. We allocate to segment results the operating expenses "Fulfillment," "Technology and content," "Marketing," and "General and administrative" based on usage, which is generally reflected in the segment in which the costs are incurred. The majority of technology infrastructure costs are allocated to the AWS segment based on usage. The majority of the remaining non-infrastructure technology costs are incurred in the U.S. and are allocated to our North America segment. There are no internal revenue transactions between our reportable segments. These segments reflect the way our chief operating decision maker evaluates the Company's business performance and manages its operations.

North America

The North America segment primarily consists of amounts earned from retail sales of consumer products (including from sellers) and subscriptions through North America-focused online and physical stores. This segment includes export sales from these online stores.

International

The International segment primarily consists of amounts earned from retail sales of consumer products (including from sellers) and subscriptions through internationally-focused online stores. This segment includes export sales from these internationally-focused online stores (including export sales from these online stores to customers in the U.S., Mexico, and Canada), but excludes export sales from our North America-focused online stores.

AWS

The AWS segment consists of amounts earned from global sales of compute, storage, database, and other service offerings for start-ups, enterprises, government agencies, and academic institutions.

Information on reportable segments and reconciliation to consolidated net income (loss) is as follows (in millions):

	Year Ended December 31,		
	2017	2018	2019
North America			
Net sales	$ 106,110	$ 141,366	$ 170,773
Operating expenses	103,273	134,099	163,740
Operating income	$ 2,837	$ 7,267	$ 7,033
International			
Net sales	$ 54,297	$ 65,866	$ 74,723
Operating expenses	57,359	68,008	76,416
Operating income (loss)	$ (3,062)	$ (2,142)	$ (1,693)
AWS			
Net sales	$ 17,459	$ 25,655	$ 35,026
Operating expenses	13,128	18,359	25,825
Operating income	$ 4,331	$ 7,296	$ 9,201
Consolidated			
Net sales	$ 177,866	$ 232,887	$ 280,522
Operating expenses	173,760	220,466	265,981
Operating income	4,106	12,421	14,541
Total non-operating income (expense)	(300)	(1,160)	(565)
Provision for income taxes	(769)	(1,197)	(2,374)
Equity-method investment activity, net of tax	(4)	9	(14)
Net income	$ 3,033	$ 10,073	$ 11,588

Net sales by groups of similar products and services, which also have similar economic characteristics, is as follows (in millions):

	Year Ended December 31,		
	2017	2018	2019
Net Sales:			
Online stores (1)	$ 108,354	$ 122,987	$ 141,247
Physical stores (2)	5,798	17,224	17,192
Third-party seller services (3)	31,881	42,745	53,762
Subscription services (4)	9,721	14,168	19,210
AWS	17,459	25,655	35,026
Other (5)	4,653	10,108	14,085
Consolidated	$ 177,866	$ 232,887	$ 280,522

(1) Includes product sales and digital media content where we record revenue gross. We leverage our retail infrastructure to offer a wide selection of consumable and durable goods that includes media products available in both a physical and digital format, such as books, music, videos, games, and software. These product sales include digital products sold on a transactional basis. Digital product subscriptions that provide unlimited viewing or usage rights are included in "Subscription services."
(2) Includes product sales where our customers physically select items in a store. Sales from customers who order goods online for delivery or pickup at our physical stores are included in "Online stores."
(3) Includes commissions and any related fulfillment and shipping fees, and other third-party seller services.
(4) Includes annual and monthly fees associated with Amazon Prime memberships, as well as audiobook, digital video, digital music, e-book, and other non-AWS subscription services.
(5) Primarily includes sales of advertising services, as well as sales related to our other service offerings.

Net sales generated from our internationally-focused online stores are denominated in local functional currencies. Revenues are translated at average rates prevailing throughout the period. Net sales attributed to countries that represent a significant portion of consolidated net sales are as follows (in millions):

	Year Ended December 31,		
	2017	2018	2019
United States	$ 120,486	$ 160,146	$ 193,636
Germany	16,951	19,881	22,232
United Kingdom	11,372	14,524	17,527
Japan	11,907	13,829	16,002
Rest of world	17,150	24,507	31,125
Consolidated	$ 177,866	$ 232,887	$ 280,522

Total segment assets exclude corporate assets, such as cash and cash equivalents, marketable securities, other long-term investments, corporate facilities, goodwill and other acquired intangible assets, and tax assets. Technology infrastructure assets are allocated among the segments based on usage, with the majority allocated to the AWS segment. Total segment assets reconciled to consolidated amounts are as follows (in millions):

	December 31,		
	2017	2018	2019
North America (1)	$ 35,844	$ 47,251	$ 72,277
International (1)	18,014	19,923	30,709
AWS (2)	18,660	26,340	36,500
Corporate	58,792	69,134	85,762
Consolidated	$ 131,310	$ 162,648	$ 225,248

(1) North America and International segment assets primarily consist of property and equipment, inventory, and accounts receivable.
(2) AWS segment assets primarily consist of property and equipment and accounts receivable.

Property and equipment, net by segment is as follows (in millions):

	December 31,		
	2017	2018	2019
North America	$ 20,401	$ 27,052	$ 31,719
International	7,425	8,552	9,566
AWS	14,885	18,851	23,481
Corporate	6,155	7,342	7,939
Consolidated	$ 48,866	$ 61,797	$ 72,705

Total net additions to property and equipment by segment are as follows (in millions):

	Year Ended December 31,		
	2017	2018	2019
North America (1)	$ 13,200	$ 10,749	$ 11,752
International (1)	5,196	2,476	3,298
AWS (2)	9,190	9,783	13,058
Corporate	2,197	2,060	1,910
Consolidated	$ 29,783	$ 25,068	$ 30,018

(1) Includes property and equipment added under finance leases of $2.9 billion, $2.0 billion, and $3.8 billion in 2017, 2018, and 2019, and under financing obligations of $2.9 billion, $3.0 billion, and $1.3 billion in 2017, 2018, and 2019.
(2) Includes property and equipment added under finance leases of $7.3 billion, $8.4 billion, and $10.6 billion in 2017, 2018, and 2019, and under financing obligations of $134 million, $245 million, and $0 million in 2017, 2018, and 2019.

U.S. property and equipment, net was $35.5 billion, $45.1 billion, and $53.0 billion, in 2017, 2018, and 2019, and non-U.S. property and equipment, net was $13.4 billion, $16.7 billion, and $19.7 billion in 2017, 2018, and 2019. Except for the U.S., property and equipment, net, in any single country was less than 10% of consolidated property and equipment, net.

Depreciation and amortization expense, including other corporate property and equipment depreciation and amortization expense, are allocated to all segments based on usage. Total depreciation and amortization expense, by segment, is as follows (in millions):

	Year Ended December 31,		
	2017	2018	2019
North America	$ 3,029	$ 4,415	$ 5,106
International	1,278	1,628	1,886
AWS	4,524	6,095	8,158
Consolidated	$ 8,831	$ 12,138	$ 15,150

Note 11 — QUARTERLY RESULTS (UNAUDITED)

The following tables contain selected unaudited statement of operations information for each quarter of 2018 and 2019. The following information reflects all normal recurring adjustments necessary for a fair presentation of the information for the periods presented. The operating results for any quarter are not necessarily indicative of results for any future period. Our business is affected by seasonality, which historically has resulted in higher sales volume during our fourth quarter. Unaudited quarterly results are as follows (in millions, except per share data):

	Year Ended December 31, 2018 (1)			
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Net sales	$ 51,042	$ 52,886	$ 56,576	$ 72,383
Operating income	1,927	2,983	3,724	3,786
Income before income taxes	1,916	2,605	3,390	3,350
Provision for income taxes	(287)	(74)	(508)	(327)
Net income	1,629	2,534	2,883	3,027
Basic earnings per share	3.36	5.21	5.91	6.18
Diluted earnings per share	3.27	5.07	5.75	6.04
Shares used in computation of earnings per share:				
Basic	484	486	488	490
Diluted	498	500	501	501

	Year Ended December 31, 2019 (1)			
	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Net sales	$ 59,700	$ 63,404	$ 69,981	$ 87,437
Operating income	4,420	3,084	3,157	3,879
Income before income taxes	4,401	2,889	2,632	4,053
Provision for income taxes	(836)	(257)	(494)	(786)
Net income	3,561	2,625	2,134	3,268
Basic earnings per share	7.24	5.32	4.31	6.58
Diluted earnings per share	7.09	5.22	4.23	6.47
Shares used in computation of earnings per share:				
Basic	491	493	495	496
Diluted	502	503	504	505

(1) The sum of quarterly amounts, including per share amounts, may not equal amounts reported for year-to-date periods. This is due to the effects of rounding and changes in the number of weighted-average shares outstanding for each period.