Item 7. *Management's Discussion and Analysis of Financial Condition and Results of Operations*

Forward-Looking Statements

This Annual Report on Form 10-K includes forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements other than statements of historical fact, including statements regarding guidance, industry prospects, or future results of operations or financial position, made in this Annual Report on Form 10-K are forward-looking. We use words such as anticipates, believes, expects, future, intends, and similar expressions to identify forward-looking statements. Forward-looking statements reflect management's current expectations and are inherently uncertain. Actual results and outcomes could differ materially for a variety of reasons, including, among others, fluctuations in foreign exchange rates, changes in global economic conditions and customer spending, inflation, labor market and global supply chain constraints, world events, the rate of growth of the Internet, online commerce, and cloud services, the amount that Amazon.com invests in new business opportunities and the timing of those investments, the mix of products and services sold to customers, the mix of net sales derived from products as compared with services, the extent to which we owe income or other taxes, competition, management of growth, potential fluctuations in operating results, international growth and expansion, the outcomes of claims, litigation, government investigations, and other proceedings, fulfillment, sortation, delivery, and data center optimization, risks of inventory management, variability in demand, the degree to which we enter into, maintain, and develop commercial agreements, proposed and completed acquisitions and strategic transactions, payments risks, and risks of fulfillment throughput and productivity. In addition, the global economic climate and additional or unforeseen effects from the COVID-19 pandemic amplify many of these risks. These risks and uncertainties, as well as other risks and uncertainties that could cause our actual results or outcomes to differ significantly from management's expectations, are described in greater detail in Item 1A of Part I, "Risk Factors."

Overview

Our primary source of revenue is the sale of a wide range of products and services to customers. The products offered through our stores include merchandise and content we have purchased for resale and products offered by third-party sellers, and we also manufacture and sell electronic devices and produce media content. Generally, we recognize gross revenue from items we sell from our inventory as product sales and recognize our net share of revenue of items sold by third-party sellers as service sales. We seek to increase unit sales across our stores, through increased product selection, across numerous product categories. We also offer other services such as compute, storage, and database offerings, fulfillment, advertising, publishing, and digital content subscriptions.

Our financial focus is on long-term, sustainable growth in free cash flows. Free cash flows are driven primarily by increasing operating income and efficiently managing accounts receivable, inventory, accounts payable, and cash capital expenditures, including our decision to purchase or lease property and equipment. Increases in operating income primarily result from increases in sales of products and services and efficiently managing our operating costs, partially offset by investments we make in longer-term strategic initiatives, including capital expenditures focused on improving the customer experience. To increase sales of products and services, we focus on improving all aspects of the customer experience, including lowering prices, improving availability, offering faster delivery and performance times, increasing selection, producing original content, increasing product categories and service offerings, expanding product information, improving ease of use, improving reliability, and earning customer trust. See "Results of Operations — Non-GAAP Financial Measures" below for additional information on our non-GAAP free cash flows financial measures.

We seek to reduce our variable costs per unit and work to leverage our fixed costs. Our variable costs include product and content costs, payment processing and related transaction costs, picking, packaging, and preparing orders for shipment, transportation, customer service support, costs necessary to run AWS, and a portion of our marketing costs. Our fixed costs include the costs necessary to build and run our technology infrastructure; to build, enhance, and add features to our online stores, web services, electronic devices, and digital offerings; and to build and optimize our fulfillment networks and related facilities. Variable costs generally change directly with sales volume, while fixed costs generally are dependent on the timing of capacity needs, geographic expansion, category expansion, and other factors. To decrease our variable costs on a per unit basis and enable us to lower prices for customers, we seek to increase our direct sourcing, increase discounts from suppliers, and reduce defects in our processes. To minimize unnecessary growth in fixed costs, we seek to improve process efficiencies and maintain a lean culture.

Because of our model we are able to turn our inventory quickly and have a cash-generating operating cycle[1]. On average, our high inventory velocity means we generally collect from consumers before our payments to suppliers come due. We expect variability in inventory turnover over time since it is affected by numerous factors, including our product mix, the mix of sales

[1] The operating cycle is the number of days of sales in inventory plus the number of days of sales in accounts receivable minus accounts payable days.

by us and by third-party sellers, our continuing focus on in-stock inventory availability and selection of product offerings, our investment in new geographies and product lines, and the extent to which we choose to utilize third-party fulfillment providers. We also expect some variability in accounts payable days over time since they are affected by several factors, including the mix of product sales, the mix of sales by third-party sellers, the mix of suppliers, seasonality, and changes in payment terms over time, including the effect of balancing pricing and timing of payment terms with suppliers.

We expect spending in technology and content will increase over time as we add computer scientists, designers, software and hardware engineers, and merchandising employees. Our technology and content investment and capital spending projects often support a variety of product and service offerings due to geographic expansion and the cross-functionality of our systems and operations. We seek to invest efficiently in several areas of technology and content, including AWS, and expansion of new and existing product categories and service offerings, as well as in technology infrastructure to enhance the customer experience and improve our process efficiencies. We believe that advances in technology, specifically the speed and reduced cost of processing power, data storage and analytics, improved wireless connectivity, and the practical applications of artificial intelligence and machine learning, will continue to improve users' experience on the Internet and increase its ubiquity in people's lives. To best take advantage of these continued advances in technology, we are investing in AWS, which offers a broad set of on-demand technology services, including compute, storage, database, analytics, and machine learning, and other services, to developers and enterprises of all sizes. We are also investing in initiatives to build and deploy innovative and efficient software and electronic devices.

We seek to efficiently manage shareholder dilution while maintaining the flexibility to issue shares for strategic purposes, such as financings, acquisitions, and aligning employee compensation with shareholders' interests. We utilize restricted stock units as our primary vehicle for equity compensation because we believe this compensation model aligns the long-term interests of our shareholders and employees. In measuring shareholder dilution, we include all vested and unvested stock awards outstanding, without regard to estimated forfeitures. Total shares outstanding plus outstanding stock awards were 518 million and 523 million as of December 31, 2020 and 2021.

Our financial reporting currency is the U.S. Dollar and changes in foreign exchange rates significantly affect our reported results and consolidated trends. For example, if the U.S. Dollar weakens year-over-year relative to currencies in our international locations, our consolidated net sales and operating expenses will be higher than if currencies had remained constant. Likewise, if the U.S. Dollar strengthens year-over-year relative to currencies in our international locations, our consolidated net sales and operating expenses will be lower than if currencies had remained constant. We believe that our increasing diversification beyond the U.S. economy through our growing international businesses benefits our shareholders over the long-term. We also believe it is useful to evaluate our operating results and growth rates before and after the effect of currency changes.

In addition, the remeasurement of our intercompany balances can result in significant gains and losses associated with the effect of movements in foreign currency exchange rates. Currency volatilities may continue, which may significantly impact (either positively or negatively) our reported results and consolidated trends and comparisons.

For additional information about each line item addressed above, refer to Item 8 of Part II, "Financial Statements and Supplementary Data — Note 1 — Description of Business, Accounting Policies, and Supplemental Disclosures."

Our Annual Report on Form 10-K for the year ended December 31, 2020 includes a discussion and analysis of our financial condition and results of operations for the year ended December 31, 2019 in Item 7 of Part II, "Management's Discussion and Analysis of Financial Condition and Results of Operations."

Critical Accounting Judgments

The preparation of financial statements in conformity with generally accepted accounting principles of the United States ("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. The SEC has defined a company's critical accounting policies as the ones that are most important to the portrayal of the company's financial condition and results of operations, and which require the company to make its most difficult and subjective judgments, often as a result of the need to make estimates of matters that are inherently uncertain. Based on this definition, we have identified the critical accounting policies and judgments addressed below. We also have other key accounting policies, which involve the use of estimates, judgments, and assumptions that are significant to understanding our results. For additional information, see Item 8 of Part II, "Financial Statements and Supplementary Data — Note 1 — Description of Business, Accounting Policies, and Supplemental Disclosures." Although we believe that our estimates, assumptions, and judgments are reasonable, they are based upon information presently available. Actual results may differ significantly from these estimates under different assumptions, judgments, or conditions.

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. These assumptions about future disposition of inventory are inherently uncertain and changes in our estimates and assumptions may cause us to realize material write-downs in the future. As a measure of sensitivity, for every 1% of additional inventory valuation allowance as of December 31, 2021, we would have recorded an additional cost of sales of approximately $370 million.

In addition, we enter into supplier commitments for certain electronic device components and certain products. These commitments are based on forecasted customer demand. If we reduce these commitments, we may incur additional costs.

Income Taxes

We are subject to income taxes in the U.S. (federal and state) and numerous foreign jurisdictions. Tax laws, regulations, administrative practices, principles, and interpretations in various jurisdictions may be subject to significant change, with or without notice, due to economic, political, and other conditions, and significant judgment is required in evaluating and estimating our provision and accruals for these taxes. There are many transactions that occur during the ordinary course of business for which the ultimate tax determination is uncertain. In addition, our actual and forecasted earnings are subject to change due to economic, political, and other conditions and significant judgment is required in determining our ability to use our deferred tax assets.

Our effective tax rates could be affected by numerous factors, such as changes in our business operations, acquisitions, investments, entry into new businesses and geographies, intercompany transactions, the relative amount of our foreign earnings, including earnings being lower than anticipated in jurisdictions where we have lower statutory rates and higher than anticipated in jurisdictions where we have higher statutory rates, losses incurred in jurisdictions for which we are not able to realize related tax benefits, the applicability of special tax regimes, changes in foreign currency exchange rates, changes in our stock price, changes to our forecasts of income and loss and the mix of jurisdictions to which they relate, changes in our deferred tax assets and liabilities and their valuation, changes in the laws, regulations, administrative practices, principles, and interpretations related to tax, including changes to the global tax framework, competition, and other laws and accounting rules in various jurisdictions. In addition, a number of countries have enacted or are actively pursuing changes to their tax laws applicable to corporate multinationals.

We are also currently subject to tax controversies in various jurisdictions, and these jurisdictions may assess additional income tax liabilities against us. Developments in an audit, investigation, or other tax controversy could have a material effect on our operating results or cash flows in the period or periods for which that development occurs, as well as for prior and subsequent periods. We regularly assess the likelihood of an adverse outcome resulting from these proceedings to determine the adequacy of our tax accruals. Although we believe our tax estimates are reasonable, the final outcome of audits, investigations, and any other tax controversies could be materially different from our historical income tax provisions and accruals.

Liquidity and Capital Resources

Cash flow information is as follows (in millions):

	Year Ended December 31,	
	2020	**2021**
Cash provided by (used in):		
Operating activities	$ 66,064	$ 46,327
Investing activities	(59,611)	(58,154)
Financing activities	(1,104)	6,291

Our principal sources of liquidity are cash flows generated from operations and our cash, cash equivalents, and marketable securities balances, which, at fair value, were $84.4 billion and $96.0 billion as of December 31, 2020 and 2021. Amounts held in foreign currencies were $23.5 billion and $22.7 billion as of December 31, 2020 and 2021, and were primarily British Pounds, Euros, Japanese Yen, and Canadian Dollars.

Cash provided by (used in) operating activities was $66.1 billion and $46.3 billion in 2020 and 2021. Our operating cash flows result primarily from cash received from our consumer, seller, developer, enterprise, and content creator customers, and advertisers, offset by cash payments we make for products and services, employee compensation, payment processing and related transaction costs, operating leases, and interest payments on our long-term obligations. Cash received from our customers and other activities generally corresponds to our net sales. Because consumers primarily use credit cards to buy from us, our receivables from consumers settle quickly. The decrease in operating cash flow in 2021, compared to the prior year, was primarily due to changes in working capital, partially offset by the increase in net income, excluding non-cash expenses. Working capital at any specific point in time is subject to many variables, including variability in demand, inventory management and category expansion, the timing of cash receipts and payments, vendor payment terms, and fluctuations in foreign exchange rates.

Cash provided by (used in) investing activities corresponds with cash capital expenditures, including leasehold improvements, incentives received from property and equipment vendors, proceeds from asset sales, cash outlays for acquisitions, investments in other companies and intellectual property rights, and purchases, sales, and maturities of marketable securities. Cash provided by (used in) investing activities was $(59.6) billion and $(58.2) billion in 2020 and 2021, with the variability caused primarily by our decision to purchase or lease property and equipment and purchases, sales, and maturities of marketable securities. Cash capital expenditures were $35.0 billion, and $55.4 billion in 2020 and 2021, which primarily reflect investments in additional capacity to support our fulfillment operations and in support of continued business growth in technology infrastructure (the majority of which is to support AWS), which investments we expect to continue over time. We made cash payments, net of acquired cash, related to acquisition and other investment activity of $2.3 billion and $2.0 billion in 2020 and 2021.

Cash provided by (used in) financing activities was $(1.1) billion and $6.3 billion in 2020 and 2021. Cash inflows from financing activities resulted from proceeds from short-term debt, and other and long-term-debt of $17.3 billion and $27.0 billion in 2020 and 2021. Cash outflows from financing activities resulted from payments of short-term debt, and other, long-term debt, finance leases, and financing obligations of $18.4 billion and $20.7 billion in 2020 and 2021. Property and equipment acquired under finance leases was $11.6 billion and $7.1 billion in 2020 and 2021, reflecting investments in support of continued business growth primarily due to investments in technology infrastructure for AWS.

We had no borrowings outstanding under the unsecured revolving credit facility, $725 million of borrowings outstanding under the commercial paper programs, and $803 million of borrowings outstanding under our secured revolving credit facility (the “Credit Facility”) as of December 31, 2021. See Item 8 of Part II, “Financial Statements and Supplementary Data — Note 6 — Debt” for additional information.

As of December 31, 2021, cash, cash equivalents, and marketable securities held by foreign subsidiaries were $7.6 billion. 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.

Tax benefits relating to excess stock-based compensation deductions and accelerated depreciation deductions are reducing our U.S. taxable income. U.S. tax rules provide for enhanced accelerated depreciation deductions by allowing the election of full expensing of qualified property, primarily equipment, through 2022. Our federal tax provision included the election of full expensing of qualified property for 2019 and a partial election for 2020 and 2021. Cash taxes paid (net of refunds) were $1.7 billion and $3.7 billion for 2020 and 2021. Effective January 1, 2022, research and development expenses are required to be capitalized and amortized for U.S. tax purposes, which will delay the deductibility of these expenses and potentially increase the amount of cash taxes we pay.

As of December 31, 2020 and 2021, restricted cash, cash equivalents, and marketable securities were $257 million and $260 million. See Item 8 of Part II, “Financial Statements and Supplementary Data — Note 6 — Debt” and “Financial Statements and Supplementary Data — Note 7 — Commitments and Contingencies” for additional discussion of our principal contractual commitments, as well as our pledged assets. Additionally, we have purchase obligations and open purchase orders, including for inventory and capital expenditures, that support normal operations and are primarily due in the next twelve months. These purchase obligations and open purchase orders are generally cancellable in full or in part through the contractual provisions.

We believe that cash flows generated from operations and our cash, cash equivalents, and marketable securities balances, as well as our borrowing arrangements, will be sufficient to meet our anticipated operating cash needs for at least the next twelve months. However, any projections of future cash needs and cash flows are subject to substantial uncertainty. See Item 1A of Part I, “Risk Factors.” We continually evaluate opportunities to sell additional equity or debt securities, obtain credit facilities, obtain finance and operating lease arrangements, enter into financing obligations, repurchase common stock, pay dividends, or repurchase, refinance, or otherwise restructure our debt for strategic reasons or to further strengthen our financial position. We expect to fund the acquisition of MGM Holdings Inc. with cash on hand.

The sale of additional equity or convertible debt securities would be dilutive to our shareholders. In addition, we will, from time to time, consider the acquisition of, or investment in, complementary businesses, products, services, capital infrastructure, and technologies, which might affect our liquidity requirements or cause us to secure additional financing, or issue additional equity or debt securities. There can be no assurance that additional credit lines or financing instruments will be available in amounts or on terms acceptable to us, if at all.

Results of Operations

We have organized our operations into three segments: North America, International, and AWS. These segments reflect the way the Company evaluates its business performance and manages its operations. See Item 8 of Part II, "Financial Statements and Supplementary Data — Note 10 — Segment Information."

Overview

As reflected in the discussion below, ongoing direct and indirect impacts of the COVID-19 pandemic and actions taken in response to them had varying effects on our 2021 results of operations, although some effects, including customer demand, are mitigating or becoming more difficult to isolate or quantify. Moreover, it is not possible to determine the duration and scope of the pandemic, the scale and rate of economic recovery from the pandemic, any ongoing effects on consumer demand and spending patterns, supply chain disruptions, and labor availability and costs, or the impact of other indirect factors that may be attributable to the pandemic, and the extent to which these or other currently unanticipated consequences of the pandemic are reasonably likely to materially affect our results of operations. However, we expect our net sales growth rate to decelerate in Q1 2022 compared to the increase we experienced in Q1 2021. In addition, these direct and indirect factors can make it difficult to isolate and quantify the portion of our costs that are a direct result of the pandemic and costs arising from factors that may have been influenced by the pandemic, including increased wage rates and incentives, increased carrier rates, and fulfillment network inefficiencies resulting from constrained labor markets and global supply chain constraints. We expect these factors and their effects on our operations to continue into Q1 2022.

Net Sales

Net sales include product and service sales. Product sales represent revenue from the sale of products and related shipping fees and digital media content where we record revenue gross. Service sales primarily represent third-party seller fees, which includes commissions and any related fulfillment and shipping fees, AWS sales, advertising services, Amazon Prime membership fees, and certain digital content subscriptions. Net sales information is as follows (in millions):

	Year Ended December 31,	
	2020	2021
Net Sales:		
North America	$ 236,282	$ 279,833
International	104,412	127,787
AWS	45,370	62,202
Consolidated	$ 386,064	$ 469,822
Year-over-year Percentage Growth:		
North America	38 %	18 %
International	40	22
AWS	30	37
Consolidated	38	22
Year-over-year Percentage Growth, excluding the effect of foreign exchange rates:		
North America	38 %	18 %
International	38	20
AWS	30	37
Consolidated	37	21
Net sales mix:		
North America	61 %	60 %
International	27	27
AWS	12	13
Consolidated	100 %	100 %

Sales increased 22% in 2021, compared to the prior year. Changes in foreign currency exchange rates impacted net sales by $1.4 billion and $3.8 billion for 2020 and 2021. For a discussion of the effect of foreign exchange rates on sales growth, see "Effect of Foreign Exchange Rates" below.

North America sales increased 18% in 2021, compared to the prior year. The sales growth primarily reflects increased unit sales, including sales by third-party sellers, and advertising sales. Increased unit sales were driven largely by our continued efforts to reduce prices for our customers, including from our shipping offers, and increased demand, partially offset by fulfillment network inefficiencies and supply chain constraints. We expect our North America sales growth rate to decelerate in Q1 2022 compared to the increase we experienced in Q1 2021.

International sales increased 22% in 2021, compared to the prior year. The sales growth primarily reflects increased unit sales, including sales by third-party sellers, and advertising sales. Increased unit sales were driven largely by our continued efforts to reduce prices for our customers, including from our shipping offers, and increased demand, partially offset by fulfillment network inefficiencies and supply chain constraints. We expect our International sales growth rate to decelerate in Q1 2022 compared to the increase we experienced in Q1 2021. Changes in foreign currency exchange rates impacted International net sales by $1.7 billion and $3.0 billion in 2020 and 2021.

AWS sales increased 37% in 2021, compared to the prior year. The sales growth primarily reflects increased customer usage, partially offset by pricing changes. Pricing changes were driven largely by our continued efforts to reduce prices for our customers.

Operating Income (Loss)

Operating income (loss) by segment is as follows (in millions):

	Year Ended December 31,	
	2020	2021
Operating Income (Loss):		
North America	$ 8,651	$ 7,271
International	717	(924)
AWS	13,531	18,532
Consolidated	$ 22,899	$ 24,879

Operating income was $22.9 billion and $24.9 billion for 2020 and 2021. We believe that operating income (loss) is a more meaningful measure than gross profit and gross margin due to the diversity of our product categories and services.

The decrease in North America operating income in absolute dollars in 2021, compared to the prior year, is primarily due to increased shipping and fulfillment costs, due in part to increased investments in our fulfillment network, increased wage rates and incentives, increased carrier rates, and fulfillment network inefficiencies, and growth in certain operating expenses, including marketing, partially offset by increased unit sales, including sales by third-party sellers, and advertising sales. Changes in foreign exchange rates impacted operating income by $8 million and $88 million for 2020 and 2021.

The International operating loss in 2021, as compared to the operating income in the prior year, is primarily due to increased shipping and fulfillment costs, due in part to increased investments in our fulfillment network, increased wage rates and incentives, and increased carrier rates, and growth in certain operating expenses, including marketing, partially offset by increased unit sales, including sales by third-party sellers, and advertising sales. Changes in foreign exchange rates impacted operating income (loss) by $411 million and $435 million for 2020 and 2021.

The increase in AWS operating income in absolute dollars in 2021, compared to the prior year, is primarily due to increased customer usage and cost structure productivity, partially offset by increased spending on technology infrastructure and payroll and related expenses, all of which were primarily driven by additional investments to support the business growth, and reduced prices for our customers. Changes in foreign exchange rates impacted operating income by $30 million and $(372) million for 2020 and 2021.

Operating Expenses

Information about operating expenses is as follows (in millions):

	Year Ended December 31,	
	2020	2021
Operating expenses:		
Cost of sales	$ 233,307	$ 272,344
Fulfillment	58,517	75,111
Technology and content	42,740	56,052
Marketing	22,008	32,551
General and administrative	6,668	8,823
Other operating expense (income), net	(75)	62
Total operating expenses	$ 363,165	$ 444,943
Year-over-year Percentage Growth:		
Cost of sales	41 %	17 %
Fulfillment	45	28
Technology and content	19	31
Marketing	17	48
General and administrative	28	32
Other operating expense (income), net	(137)	(183)
Percent of Net Sales:		
Cost of sales	60.4 %	58.0 %
Fulfillment	15.2	16.0
Technology and content	11.1	11.9
Marketing	5.7	6.9
General and administrative	1.7	1.9
Other operating expense (income), net	—	—

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.

The increase in cost of sales in absolute dollars in 2021, compared to the prior year, is primarily due to increased product and shipping costs resulting from increased sales, costs from expanding our fulfillment network, as well as increased carrier rates, increased wage rates and incentives, and fulfillment network inefficiencies resulting from a constrained labor market and global supply chain constraints.

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. Shipping costs, which include sortation and delivery centers and transportation costs, were $61.1 billion and $76.7 billion in 2020 and 2021. We expect our cost of shipping to continue to increase to the extent our customers accept and use our shipping offers at an increasing rate, we use more expensive shipping methods, including faster delivery, and we offer additional services. We seek to mitigate costs of shipping over time in part through achieving higher sales volumes, optimizing our fulfillment network, negotiating better terms with our suppliers, and achieving better operating efficiencies. We believe that offering low prices to our customers is fundamental to our future success, and one way we offer lower prices is through shipping offers.

Costs to operate our AWS segment are primarily classified as "Technology and content" as we leverage a shared infrastructure that supports both our internal technology requirements and external sales to AWS customers.

Fulfillment

Fulfillment costs primarily consist of those costs incurred in operating and staffing our North America and International fulfillment centers, physical stores, and customer service centers and payment processing costs. While AWS payment processing and related transaction costs are included in "Fulfillment," AWS costs are primarily classified as "Technology and content.” Fulfillment costs as a percentage of net sales may vary due to several factors, such as payment processing and related transaction costs, our level of productivity and accuracy, changes in volume, size, and weight of units received and fulfilled, the extent to which third party sellers utilize Fulfillment by Amazon services, timing of fulfillment network and physical store expansion, the extent we utilize fulfillment services provided by third parties, mix of products and services sold, and our ability to affect customer service contacts per unit by implementing improvements in our operations and enhancements to our customer self-service features. Additionally, sales by our sellers have higher payment processing and related transaction costs as a percentage of net sales compared to our retail sales because payment processing costs are based on the gross purchase price of underlying transactions.

The increase in fulfillment costs in absolute dollars in 2021, compared to the prior year, is primarily due to variable costs corresponding with increased product and service sales volume and inventory levels, increased wage rates and incentives and fulfillment network inefficiencies resulting from a constrained labor market and global supply chain constraints, and costs from expanding our fulfillment network.

We seek to expand our fulfillment network to accommodate a greater selection and in-stock inventory levels and to meet anticipated shipment volumes from sales of our own products as well as sales by third parties for which we provide the fulfillment services. We regularly evaluate our facility requirements.

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.

We seek to invest efficiently in numerous areas of technology and content so we may continue to enhance the customer experience and improve our process efficiency through rapid technology developments, while operating at an ever increasing scale. Our technology and content investment and capital spending projects often support a variety of product and service offerings due to geographic expansion and the cross-functionality of our systems and operations. We expect spending in technology and content to increase over time as we continue to add employees and technology infrastructure. These costs are allocated to segments based on usage. The increase in technology and content costs in absolute dollars in 2021, compared to the prior year, is primarily due to an increase in spending on technology infrastructure and increased payroll and related costs associated with technical teams responsible for expanding our existing products and services and initiatives to introduce new products and service offerings. We expect technology and content costs to grow at a slower rate in 2022 due to increases in the estimated useful lives of our servers and networking equipment, which will primarily impact our AWS segment. See Item 8 of Part II, “Financial Statements and Supplementary Data — Note 1 — Description of Business, Accounting Policies, and Supplemental Disclosures — Use of Estimates” for additional information on the change in estimated useful lives of our servers and networking equipment.

Marketing

Marketing costs include advertising and payroll and related expenses for personnel engaged in marketing and selling activities, including sales commissions related to AWS. We direct customers to our stores primarily through a number of marketing channels, such as our sponsored search, social and online advertising, third party customer referrals, television advertising, and other initiatives. Our marketing costs are largely variable, based on growth in sales and changes in rates. To the extent there is increased or decreased competition for these traffic sources, or to the extent our mix of these channels shifts, we would expect to see a corresponding change in our marketing costs.

The increase in marketing costs in absolute dollars in 2021, compared to the prior year, is primarily due to higher marketing spend, which was constrained in 2020 in response to COVID-19, and increased payroll and related expenses for personnel engaged in marketing and selling activities.

While costs associated with Amazon Prime membership benefits and other shipping offers are not included in marketing expense, we view these offers as effective worldwide marketing tools, and intend to continue offering them indefinitely.

General and Administrative

The increase in general and administrative costs in absolute dollars in 2021, compared to the prior year, is primarily due to increases in payroll and related expenses and professional fees.

Other Operating Expense (Income), Net

Other operating expense (income), net was $(75) million and $62 million during 2020 and 2021, and was primarily related to a benefit from accelerated vesting of warrants to acquire equity of a vendor in 2020, offset by a lease impairment in 2020 and the amortization of intangible assets.

Interest Income and Expense

Our interest income was $555 million and $448 million during 2020 and 2021. We generally invest our excess cash in AAA-rated money market funds and investment grade short- to intermediate-term fixed income securities. Our interest income corresponds with the average balance of invested funds based on the prevailing rates, which vary depending on the geographies and currencies in which they are invested.

Interest expense was $1.6 billion and $1.8 billion in 2020 and 2021 and was primarily related to debt and finance leases.

Our long-term lease liabilities were $52.6 billion and $67.7 billion as of December 31, 2020 and 2021. Our long-term debt was $31.8 billion and $48.7 billion as of December 31, 2020 and 2021. See Item 8 of Part II, “Financial Statements and Supplementary Data — Note 4 — Leases and Note 6 — Debt” for additional information.

Other Income (Expense), Net

Other income (expense), net was $2.4 billion and $14.6 billion during 2020 and 2021. The primary components of other income (expense), net are related to equity securities valuations and adjustments, equity warrant valuations, and foreign currency. Included in other income (expense), net in 2021 is a valuation gain of $11.8 billion from our equity securities of Rivian Automotive, Inc., which completed an initial public offering in November 2021.

Income Taxes

Our effective tax rate is subject to significant variation due to several factors, including variability in our pre-tax and taxable income and loss and the mix of jurisdictions to which they relate, intercompany transactions, the applicability of special tax regimes, changes in how we do business, acquisitions, investments, audit-related developments, changes in our stock price, changes in our deferred tax assets and liabilities and their valuation, foreign currency gains (losses), changes in statutes, regulations, case law, and administrative practices, principles, and interpretations related to tax, including changes to the global tax framework, competition, and other laws and accounting rules in various jurisdictions, and relative changes of expenses or losses for which tax benefits are not recognized. In addition, we record valuation allowances against deferred tax assets when there is uncertainty about our ability to generate future income in relevant jurisdictions.

We recorded a provision for income taxes of $2.9 billion and $4.8 billion in 2020 and 2021. See Item 8 of Part II, “Financial Statements and Supplementary Data — Note 9 — Income Taxes” for additional information.

Non-GAAP Financial Measures

Regulation G, Conditions for Use of Non-GAAP Financial Measures, and other SEC regulations define and prescribe the conditions for use of certain non-GAAP financial information. Our measures of free cash flows and the effect of foreign exchange rates on our consolidated statements of operations meet the definition of non-GAAP financial measures.

We provide multiple measures of free cash flows because we believe these measures provide additional perspective on the impact of acquiring property and equipment with cash and through finance leases and financing obligations.

Free Cash Flow

Free cash flow is cash flow from operations reduced by “Purchases of property and equipment, net of proceeds from sales and incentives.” The following is a reconciliation of free cash flow to the most comparable GAAP cash flow measure, “Net cash provided by (used in) operating activities,” for 2020 and 2021 (in millions):

	Year Ended December 31,	
	2020	2021
Net cash provided by (used in) operating activities	$ 66,064	$ 46,327
Purchases of property and equipment, net of proceeds from sales and incentives	(35,044)	(55,396)
Free cash flow	$ 31,020	$ (9,069)
Net cash provided by (used in) investing activities	$ (59,611)	$ (58,154)
Net cash provided by (used in) financing activities	$ (1,104)	$ 6,291

Free Cash Flow Less Principal Repayments of Finance Leases and Financing Obligations

Free cash flow less principal repayments of finance leases and financing obligations is free cash flow reduced by “Principal repayments of finance leases” and “Principal repayments of financing obligations.” Principal repayments of finance leases and financing obligations approximates the actual payments of cash for our finance leases and financing obligations. The following is a reconciliation of free cash flow less principal repayments of finance leases and financing obligations to the most comparable GAAP cash flow measure, “Net cash provided by (used in) operating activities,” for 2020 and 2021 (in millions):

	Year Ended December 31,	
	2020	2021
Net cash provided by (used in) operating activities	$ 66,064	$ 46,327
Purchases of property and equipment, net of proceeds from sales and incentives	(35,044)	(55,396)
Free cash flow	31,020	(9,069)
Principal repayments of finance leases	(10,642)	(11,163)
Principal repayments of financing obligations	(53)	(162)
Free cash flow less principal repayments of finance leases and financing obligations	$ 20,325	$ (20,394)
Net cash provided by (used in) investing activities	$ (59,611)	$ (58,154)
Net cash provided by (used in) financing activities	$ (1,104)	$ 6,291

Free Cash Flow Less Equipment Finance Leases and Principal Repayments of All Other Finance Leases and Financing Obligations

Free cash flow less equipment finance leases and principal repayments of all other finance leases and financing obligations is free cash flow reduced by equipment acquired under finance leases, which is included in “Property and equipment acquired under finance leases,” principal repayments of all other finance lease liabilities, which is included in “Principal repayments of finance leases,” and “Principal repayments of financing obligations.” All other finance lease liabilities and financing obligations consists of property. In this measure, equipment acquired under finance leases is reflected as if these assets had been purchased with cash, which is not the case as these assets have been leased. The following is a reconciliation of free cash flow less equipment finance leases and principal repayments of all other finance leases and financing obligations to the most comparable GAAP cash flow measure, “Net cash provided by (used in) operating activities,” for 2020 and 2021 (in millions):

	Year Ended December 31,	
	2020	2021
Net cash provided by (used in) operating activities	$ 66,064	$ 46,327
Purchases of property and equipment, net of proceeds from sales and incentives	(35,044)	(55,396)
Free cash flow	31,020	(9,069)
Equipment acquired under finance leases (1)	(9,104)	(4,422)
Principal repayments of all other finance leases (2)	(427)	(687)
Principal repayments of financing obligations	(53)	(162)
Free cash flow less equipment finance leases and principal repayments of all other finance leases and financing obligations	$ 21,436	$ (14,340)
Net cash provided by (used in) investing activities	$ (59,611)	$ (58,154)
Net cash provided by (used in) financing activities	$ (1,104)	$ 6,291

(1) For the year ended December 31, 2020 and 2021, this amount relates to equipment included in “Property and equipment acquired under finance leases” of $11,588 million and $7,061 million.
(2) For the year ended December 31, 2020 and 2021, this amount relates to property included in “Principal repayments of finance leases” of $10,642 million and $11,163 million.

All of these free cash flows measures have limitations as they omit certain components of the overall cash flow statement and do not represent the residual cash flow available for discretionary expenditures. For example, these measures of free cash flows do not incorporate the portion of payments representing principal reductions of debt or cash payments for business acquisitions. Additionally, our mix of property and equipment acquisitions with cash or other financing options may change over time. Therefore, we believe it is important to view free cash flows measures only as a complement to our entire consolidated statements of cash flows.

Effect of Foreign Exchange Rates

Information regarding the effect of foreign exchange rates, versus the U.S. Dollar, on our net sales, operating expenses, and operating income is provided to show reported period operating results had the foreign exchange rates remained the same as those in effect in the comparable prior year period. The effect on our net sales, operating expenses, and operating income from changes in our foreign exchange rates versus the U.S. Dollar is as follows (in millions):

	Year Ended December 31, 2020			Year Ended December 31, 2021		
	As Reported	Exchange Rate Effect (1)	At Prior Year Rates (2)	As Reported	Exchange Rate Effect (1)	At Prior Year Rates (2)
Net sales	$ 386,064	$ (1,438)	$ 384,626	$ 469,822	$ (3,804)	$ 466,018
Operating expenses	363,165	(989)	362,176	444,943	(3,653)	441,290
Operating income	22,899	(449)	22,450	24,879	(151)	24,728

(1) Represents the change in reported amounts resulting from changes in foreign exchange rates from those in effect in the comparable prior year period for operating results.
(2) Represents the outcome that would have resulted had foreign exchange rates in the reported period been the same as those in effect in the comparable prior year period for operating results.

Guidance

We provided guidance on February 3, 2022, in our earnings release furnished on Form 8-K as set forth below. These forward-looking statements reflect Amazon.com's expectations as of February 3, 2022, and are subject to substantial uncertainty. Our results are inherently unpredictable and may be materially affected by many factors, such as uncertainty regarding the impacts of the COVID-19 pandemic, fluctuations in foreign exchange rates, changes in global economic conditions and customer demand and spending, inflation, labor market and global supply chain constraints, world events, the rate of growth of the Internet, online commerce, and cloud services, as well as those outlined in Item 1A of Part I, "Risk Factors." This guidance reflects our estimates as of February 3, 2022 regarding the impacts of the COVID-19 pandemic on our operations as well as the effect of other factors discussed above.

First Quarter 2022 Guidance

- Net sales are expected to be between $112.0 billion and $117.0 billion, or to grow between 3% and 8% compared with first quarter 2021. This guidance anticipates an unfavorable impact of approximately 150 basis points from foreign exchange rates.
- Operating income is expected to be between $3.0 billion and $6.0 billion, compared with $8.9 billion in first quarter 2021. This guidance includes approximately $1.0 billion lower depreciation expense due to increases in the estimated useful lives of our servers and networking equipment beginning on January 1, 2022.
- This guidance assumes, among other things, that no additional business acquisitions, restructurings, or legal settlements are concluded.