

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

Form 10-K

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

For the fiscal year ended December 31, 2022

OR

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

For the transition period from to

Commission file number 001-34960



GENERAL MOTORS COMPANY

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

300 Renaissance Center, Detroit, Michigan

(Address of principal executive offices)

27-0756180

(I.R.S. Employer
Identification No.)

48265 -3000

(Zip Code)

(313) 667-1500

(Registrant's telephone number, including area code)

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

<u>Title of each class</u>	<u>Trading Symbol(s)</u>	<u>Name of each exchange on which registered</u>
Common Stock, \$0.01 par value	GM	New York Stock Exchange

Securities registered pursuant to Section 12 (g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

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

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

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

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

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

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

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

The aggregate market value of the voting stock held by non-affiliates of the registrant (assuming only for purposes of this computation that directors and executive officers may be affiliates) was approximately \$46.2 billion as of June 30, 2022.

As of January 17, 2023 there were 1,394,637,226 shares of common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive Proxy Statement related to the Annual Stockholders Meeting to be filed subsequently are incorporated by reference into Part III of this Form 10-K.

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GENERAL MOTORS COMPANY AND SUBSIDIARIES**PART I****Item 1. Business**

General Motors Company (sometimes referred to as we, our, us, ourselves, the Company, General Motors, or GM) was incorporated as a Delaware corporation in 2009. We design, build and sell trucks, crossovers, cars and automobile parts and provide software-enabled services and subscriptions worldwide. Our automotive operations meet the demands of our customers through our automotive segments: GM North America (GMNA) and GM International (GMI) with vehicles developed, manufactured and/or marketed under the Buick, Cadillac, Chevrolet and GMC brands. We also have equity ownership stakes in entities that meet the demands of customers in other countries, primarily in China, with vehicles developed, manufactured and/or marketed under the Baojun, Buick, Cadillac, Chevrolet and Wuling brands. Cruise is our global segment responsible for the development and commercialization of autonomous vehicle technology. We provide automotive financing services through our General Motors Financial Company, Inc. (GM Financial) segment. Refer to Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations (MD&A) and Note 23 to our consolidated financial statements for financial information about our segments. Except for per share amounts or as otherwise specified, amounts presented within tables are stated in millions. Certain columns and rows may not add due to rounding. Forward-looking statements in this Business section are not guarantees of future performance and may involve risks and uncertainties that could cause actual results to differ materially from those projected. Refer to Item 1A. Risk Factors and the "Forward-Looking Statements" section of Part II, Item 7. MD&A for a discussion of these risks and uncertainties.

Our vision for the future is a world with zero crashes, zero emissions and zero congestion, which guides our growth-focused strategy to invest in electric vehicles (EVs) and autonomous vehicles (AVs), software-enabled services and subscriptions and new business opportunities, while strengthening our market position in profitable internal combustion engine (ICE) vehicles, such as trucks and sport utility vehicles (SUVs).

We have an opportunity to grow our vehicle and financing revenue by continuing to capitalize on the strength of our established vehicle franchises and customer base and scaling our EV production through this decade. We also have the potential of growing our revenue through our software-enabled services and subscriptions, including OnStar, our advanced driver-assistance systems (ADAS), including Super Cruise, and future offerings, such as our next-generation ADAS, Ultra Cruise, and Ultifi, our end-to-end software platform. Additionally, we are incubating several new businesses with a start-up mindset that we believe will enable us to attract new customers and generate revenues in new areas.

Electric Vehicles We plan to rapidly scale our capacity to build one million EVs in North America and more than two million EVs globally by the end of 2025. A key element in our EV strategy is Ultium, our dedicated electric vehicle propulsion architecture. This platform is flexible and will be leveraged across multiple brands and vehicle sizes, styles and drive configurations, allowing for quick response to customer preferences and a shorter design and development lead time compared to our ICE vehicles. Our first Ultium-based products launched in 2021 with the GMC HUMMER EV and BrightDrop Zevo 600, followed by the Cadillac LYRIQ in 2022. We plan to leverage the versatility and flexibility of Ultium to expand our EV portfolio over a wide variety of segments and price points including the Chevrolet Equinox EV, the Chevrolet Blazer EV, the Chevrolet Silverado EV and the GMC Sierra EV, which are expected to be launched over 2023 and 2024.

In 2021, we began production at GM's Factory ZERO Detroit-Hamtramck Assembly Center (Factory ZERO), which was re-tooled into a fully dedicated EV facility to produce the GMC HUMMER EV, the upcoming Cruise Origin, the Chevrolet Silverado EV and the GMC Sierra EV. In January 2022, we announced that we will convert our assembly plant in Orion Township, Michigan for fully dedicated EV production, including the Chevrolet Silverado EV and the GMC Sierra EV. Additionally, we have announced plans to mass-produce battery cells for these and other future EVs through Ultium Cells Holdings LLC (an equally owned joint venture with LG Energy Solution) in Warren, Ohio, Spring Hill, Tennessee and Lansing, Michigan. A fourth U.S.-based battery cell plant is also planned.

To support mass market adoption of EVs, we are working to ensure that our customers will have access to comprehensive charging solutions. For personal vehicles, this means strategically addressing charging needs at home, the workplace and in public locations, for which we have committed to invest nearly \$750 million through 2025. For example, in November 2021, we announced a collaboration with EVgo to install 3,250 DC fast charging stalls in more than 50 U.S. metropolitan markets. In July 2022, we announced a collaboration with EVgo and Pilot Company targeting the installation of a coast-to-coast network of 2,000 DC fast charging stalls at 50-mile intervals across the U.S., enabling long-distance corridor charging. This network will be open to all EV brands at up to 500 Pilot and Flying J travel centers. For fleet vehicles, we are developing turnkey charging solutions and fleet and facility energy management services. In addition, we have announced collaborative work with several

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charge network operators to filter real-time data on their respective networks and charge station health into a holistic charging approach that integrates charging networks, GM vehicle mobile apps and other products and services to simplify the overall charging experience for GM EV owners in North America.

BrightDrop BrightDrop is developing a suite of solutions, including the BrightDrop Zevo all-electric delivery vans, BrightDrop Trace electrically propelled smart containers and the BrightDrop Core software platform, which is focused on helping companies better visualize and optimize their fleet operations. We expect these solutions will help the world's largest delivery and logistics companies do more with less, while helping to improve operating efficiencies, eliminate operating emissions and reduce congestion. BrightDrop's Zevo 600 and Zevo 400 full-scale production facility, CAMI Assembly, launched in late 2022, with start of regular production (SORP) targeted for the first quarter of 2023. BrightDrop delivered the first Zevo 600s to FedEx Express, our launch customer, and generated reservations and expressions of interest for Zevo vans from several major companies, including DHL Express Canada, Walmart and Merchants Fleet.

OnStar and Vehicle Connectivity We offer OnStar and connected services to more than 21 million connected vehicles globally through subscription-based and complimentary services. We are among the leaders in the industry, with global real-world experience in delivering connected services and advanced safety features. OnStar offers safety and security services for retail and fleet customers, including automatic crash response, emergency services, roadside assistance, crisis assist, stolen vehicle assistance and turn-by-turn navigation. Additionally, we offer OnStar Guardian in select markets, a mobile app that allows customers to access key OnStar safety and security services from their compatible mobile device. Fleet customers in some markets can leverage OnStar Vehicle Insights, our telematics solution across their entire fleet, regardless of vehicle make or model. We also offer a variety of connected services in certain markets, including mobile apps for owners to remotely control certain vehicle features and EV owners to locate charging stations, on-demand vehicle diagnostics, GM Smart Driver, Amazon Alexa in-vehicle voice, Google's Voice Assistant, navigation and app ecosystem, connected navigation, SiriusXM with 360L, 4G LTE wireless connectivity and 5G connectivity which will be available in select model year 2024 vehicles.

Super Cruise and Ultra Cruise We offer Super Cruise, the industry's first true hands-free driver assistance technology that enables drivers of eligible vehicles to travel hands-free on more than 400,000 miles of compatible roads in the U.S. and Canada. We will make Super Cruise available on 22 vehicles in North America and China by the end of 2023. Ultra Cruise is a significant next step in advanced driver assistance technology, designed to ultimately enable a hands-free driving experience in 95 percent of all driving scenarios, that will debut on the Cadillac CELESTIQ.

Ultifi Ultifi is our end-to-end software platform that will provide customers with software-defined features, apps and services over-the-air starting in 2023. Ultifi and the apps it enables will empower customers to update their ownership experiences with desirable features such as services and subscriptions, vehicle performance, Super Cruise and, when launched, Ultra Cruise, safety and security features, climate and comfort options, personal themes and EV ownership experience elements.

Cruise General Motors and Cruise are pursuing what we believe is the most comprehensive path to autonomous mobility in the industry. In September 2021, Cruise began operating a driverless ride hail service in San Francisco, California, and in June 2022, began charging the public for driverless rides. Cruise continues to make regulatory progress in California. In December 2022, Cruise received regulatory approval to expand its operational design domain in California. Cruise is also seeking regulatory approval to add the Cruise Origin to its driverless test permit. Additionally, in September 2022, Cruise acquired regulatory permits to operate driverless ride hail services in Phoenix, Arizona and began pursuing ride hail operations in Austin, Texas. Given the potential of all-electric self-driving vehicles to help save lives, reshape our cities and reduce emissions, the goal of Cruise is to deliver its self-driving services as soon as possible, but as Cruise continues to expand and scale its operations, safety will continue to be the gating metric, supported by Cruise's Safety Management System and its other risk identification, assessment and mitigation processes.

We believe that building all-electric vehicles with autonomous capabilities integrated from the beginning, rather than through retrofits, is the most efficient way to unlock the tremendous potential societal benefits of self-driving cars. The Cruise Origin, a purpose-built, all-electric, self-driving vehicle that is being co-developed by GM, Cruise and Honda Motor Company, Ltd. (Honda) will be built on GM's all-new modular architecture, powered by the Ultium platform, at Factory ZERO starting in 2023 pending government approvals. GM and Cruise are awaiting a decision on an exemption petition that was filed with the National Highway Traffic Safety Administration (NHTSA) seeking regulatory approval for the Origin's deployment.

HYDROTEC We are developing hydrogen fuel cell applications across transportation types and industries, including mobile power generation, class 7/8 truck, locomotive and aerospace. The development of HYDROTEC technology is another element of our long-term commitment toward a world with zero emissions. We believe hydrogen fuel cells will play an important role in many automotive and other mobility applications where customers will derive additional benefits from the ability to refuel quickly, an extended range, suitability for heavier payloads and central refueling of large fleets. GM and Honda, through our

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long-term strategic alliance to collaborate in research and advanced engineering efforts, are developing and commercializing fuel cell systems. In 2021, we announced a number of commercial relationships and, in November 2022, we announced a joint development agreement with Nel Hydrogen US to help enable cost competitive renewable hydrogen production.

OnStar Insurance Services OnStar Insurance is currently available in all 50 states. This innovative startup leverages GM's expertise in data and vehicle technology to learn, scale and move the company forward. As technology evolves, OnStar Insurance expects to transform traditional models to make the insurance process easier, smarter and more personalized for customers.

GM Defense GM Defense is developing products and solutions for global government and military customers by leveraging GM's commercial investments in vehicle, electrification, autonomy and connected vehicle technologies. GM Defense's growth strategy is focused on building a portfolio of products, including the Infantry Squad Vehicle and the armored Heavy Duty SUV.

Competitive Position and Vehicle Sales The principal factors that determine consumer vehicle preferences in the markets in which we operate include overall vehicle design, price, quality, available options, safety, reliability, fuel economy and functionality. Market leadership in individual countries in which we compete varies widely.

We present both wholesale and total vehicle sales data to assist in the analysis of our revenue and our market share. Wholesale vehicle sales data consists of sales to GM's dealers and distributors, as well as sales to the U.S. Government, and excludes vehicles sold by our joint ventures. Wholesale vehicle sales data correlates to our revenue recognized from the sale of vehicles, which is the largest component of Automotive net sales and revenue. In the year ended December 31, 2022, 30.5% of our wholesale vehicle sales volume was generated outside the U.S. The following table summarizes wholesale vehicle sales by automotive segment (vehicles in thousands):

	Years Ended December 31,					
	2022		2021		2020	
GMNA	2,926	81.8 %	2,308	80.7 %	2,707	80.3 %
GMI	653	18.2 %	551	19.3 %	663	19.7 %
Total	3,579	100.0 %	2,859	100.0 %	3,370	100.0 %

Total vehicle sales data represents: (1) retail sales (i.e., sales to consumers who purchase new vehicles from dealers or distributors); (2) fleet sales (i.e., sales to large and small businesses, governments and daily rental car companies); and (3) vehicles used by dealers in their businesses. Total vehicle sales data for periods presented prior to 2022 reflect courtesy transportation vehicles used by U.S. dealers in their business. Beginning in 2022, we stopped including such dealership courtesy transportation vehicles in total vehicle sales until such time as those vehicles were sold to the end customer. Total vehicle sales data includes all sales by joint ventures on a total vehicle basis, not based on our percentage ownership interest in the joint venture. Certain joint venture agreements in China allow for the contractual right to report vehicle sales of non-GM trademarked vehicles by those joint ventures, which are included in the total vehicle sales we report for China. While total vehicle sales data does not correlate directly to the revenue we recognize during a particular period, we believe it is indicative of the underlying demand for our vehicles. Total vehicle sales data represents management's good faith estimate based on sales reported by GM's dealers, distributors, and joint ventures, commercially available data sources such as registration and insurance data, and internal estimates and forecasts when other data is not available.

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The following table summarizes industry and GM total vehicle sales and our related competitive position by geographic region (vehicles in thousands):

	Years Ended December 31,									
	2022			2021			2020			
	Industry	GM	Market Share	Industry	GM	Market Share	Industry	GM	Market Share	
North America										
United States	14,200	2,274	16.0 %	15,410	2,218	14.4 %	14,882	2,547	17.1 %	
Other	3,071	406	13.2 %	3,081	355	11.5 %	2,804	377	13.4 %	
Total North America	17,270	2,680	15.5 %	18,491	2,574	13.9 %	17,686	2,924	16.5 %	
Asia/Pacific, Middle East and Africa										
China(a)	23,464	2,303	9.8 %	25,843	2,892	11.2 %	24,926	2,901	11.6 %	
Other	20,040	502	2.5 %	19,516	435	2.2 %	17,996	530	2.9 %	
Total Asia/Pacific, Middle East and Africa	43,504	2,805	6.4 %	45,359	3,326	7.3 %	42,922	3,431	8.0 %	
South America										
Brazil	2,103	291	13.8 %	2,119	242	11.4 %	2,055	338	16.4 %	
Other	1,563	161	10.3 %	1,490	152	10.2 %	1,106	132	12.0 %	
Total South America	3,666	452	12.3 %	3,609	394	10.9 %	3,160	470	14.9 %	
Total in GM markets	64,440	5,937	9.2 %	67,459	6,294	9.3 %	63,769	6,826	10.7 %	
Total Europe	14,101	2	— %	15,108	2	— %	15,043	1	— %	
Total Worldwide(b)(c)	78,542	5,939	7.6 %	82,567	6,296	7.6 %	78,812	6,826	8.7 %	
United States										
Cars	2,806	214	7.6 %	3,277	138	4.2 %	3,331	239	7.2 %	
Trucks	3,965	1,246	31.4 %	4,038	1,223	30.3 %	4,045	1,257	31.1 %	
Crossovers	7,428	814	11.0 %	8,095	857	10.6 %	7,506	1,051	14.0 %	
Total United States	14,200	2,274	16.0 %	15,410	2,218	14.4 %	14,882	2,547	17.1 %	
China(a)										
SGMS		1,037			1,277			1,407		
SGMW		1,266			1,615			1,494		
Total China	23,464	2,303	9.8 %	25,843	2,892	11.2 %	24,926	2,901	11.6 %	

- (a) Includes sales by the Automotive China Joint Ventures (Automotive China JVs): SAIC General Motors Sales Co., Ltd. (SGMS) and SAIC GM Wuling Automobile Co., Ltd. (SGMW).
- (b) Cuba, Iran, North Korea, Sudan and Syria are subject to broad economic sanctions. Accordingly, these countries are excluded from industry sales data and corresponding calculation of market share.
- (c) As of March 2022, GM is no longer importing vehicles or parts to Russia, Belarus and other sanctioned provinces in Ukraine.

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As discussed above, total vehicle sales and market share data provided in the table above includes fleet vehicles. We sell vehicles directly or through our dealer network to fleet customers, including daily rental car companies, commercial fleet customers, leasing companies and governments. Certain fleet transactions, particularly sales to daily rental car companies, are generally less profitable than retail sales to end customers. The following table summarizes estimated fleet sales and those sales as a percentage of total vehicle sales (vehicles in thousands):

	Years Ended December 31,		
	2022	2021	2020
GMNA	564	399	493
GMI	426	311	351
Total fleet sales	990	710	844
Fleet sales as a percentage of total vehicle sales	16.7 %	11.3 %	12.4 %

Product Pricing Several methods are used to promote our products, including the use of dealer, retail and fleet incentives, such as customer rebates and finance rate support. The level of incentives is dependent upon the level of competition in the markets in which we operate and the level of demand for our products.

Cyclical and Seasonal Nature of Business The market for vehicles is cyclical and depends in part on general economic conditions, credit availability and consumer spending. Vehicle markets are also seasonal. Production varies from month to month. Vehicle model changeovers occur throughout the year as a result of new market entries.

Relationship with Dealers We market vehicles and automotive parts worldwide primarily through a network of independent authorized retail dealers. These outlets include distributors, dealers and authorized sales, service and parts outlets. Our customers can obtain a wide range of after-sale vehicle services and products through our dealer network, such as maintenance, light repairs, collision repairs, vehicle accessories and extended service warranties. The number of authorized dealerships and other agents performing similar functions were 4,639 in GMNA and 7,318 in GMI at December 31, 2022.

We, and our joint ventures, enter into a contract with each authorized dealer agreeing to sell to the dealer one or more specified product lines at wholesale prices and granting the dealer the right to sell those products to customers from an approved location. Our dealers often offer more than one GM brand at a single dealership in a number of our markets. Authorized dealers offer parts, accessories, service and repairs for GM vehicles in the product lines that they sell using GM parts and accessories. Our dealers are authorized to service GM vehicles under our limited warranty, and those repairs are made almost exclusively with GM parts. Our dealers generally provide their customers with access to credit or lease financing, vehicle insurance and extended service contracts, which may be provided by GM Financial and other financial institutions.

The quality of GM dealerships and our relationship with our dealers are critical to our success, now, and as we transition to our all-electric future, given that they maintain the primary sales and service interface with the end consumer of our products. In addition to the terms of our contracts with our dealers, we are regulated by various country and state franchise laws and regulations that may supersede those contractual terms and impose specific regulatory requirements and standards for initiating dealer network changes, pursuing terminations for cause and other contractual matters.

Research, Product Development and Intellectual Property Costs for research, manufacturing engineering, product engineering and design and development activities primarily relate to developing new products or services or improving existing products or services, including activities related to vehicle and greenhouse gas (GHG) emissions control, improved fuel economy, EVs, AVs and the safety of drivers and passengers. Research and development expenses were \$9.8 billion, \$7.9 billion and \$6.2 billion in the years ended December 31, 2022, 2021 and 2020.

Product Development The Global Product Development organization is responsible for designing, developing and integrating all global products and their components while aiming to maximize part sharing across multiple vehicle segments. Our global vehicle architecture development is headquartered at our Global Technical Center in Warren, Michigan, where our global teams in Design, Program Management & Execution, Component & Subsystem Engineering, Product Safety, Systems & Integration, Software Defined Vehicle & Embedded Platforms, Electrification & Battery Systems, Technology Acceleration & Commercialization and Purchasing & Supply Chain collaborate to meet customer requirements and maximize global economies of scale.

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We continue to invest in key ICE segments, which are critical to fund our all-electric future. Cross-segment part sharing is an essential enabler to optimize our vehicle portfolio profitability, with more than 75% of our global internal combustion vehicle sales volume expected to come from five internal combustion vehicle architectures through this decade. We will continue to leverage our ICE portfolio to accommodate our customers around the world while achieving our financial goals.

In 2021, we announced our investment in the Wallace Battery Cell Innovation Center, an all-new facility that has significantly expanded the Company's battery technology operations and will continue to accelerate the development and commercialization of longer range, more affordable EV batteries. The Wallace Center is located on the campus of the Global Technical Center in Warren, Michigan.

Intellectual Property We are constantly innovating and hold a significant number of patents, copyrights, trade secrets and other intellectual property that protect those innovations in numerous countries. While no single piece of intellectual property is individually material to our business as a whole, our intellectual property is important to our operations and continued technological development. Additionally, we hold a number of trademarks and service marks that are very important to our identity and recognition in the marketplace.

Raw Materials, Services and Supplies We purchase a wide variety of raw materials, systems, components, parts, supplies, energy, freight, transportation and other services from numerous suppliers to manufacture our products. The raw materials primarily include steel, aluminum, resins, copper, lead, precious metals and raw materials used in EVs. We do not normally carry substantial inventories of these raw materials in excess of levels reasonably required to meet our production requirements, and while we have not experienced any significant shortages of raw materials, we have recently experienced supply disruptions resulting in temporary production stoppages. In addition, our transition to EVs will require developing a more resilient, scalable and sustainable North America-focused EV supply chain, which includes advancing our strategic sourcing initiatives to secure supply through investments in raw materials suppliers and the execution of strategic, multi-year supply agreements with suppliers throughout the value chain. This includes securing supply through offtake agreements for EV raw materials, such as lithium, cathode active material, synthetic and natural graphite, nickel, cobalt, rare earth elements and permanent motor magnets. These EV-related agreements may require us to hold higher than normal levels of EV raw materials inventory. Expected demand for these raw materials currently exceeds the capacity of the existing supply chain and our raw material sourcing strategy aims to secure raw material supply to support our EV transition.

Commodity costs are expected to remain elevated due to the macro-economic environment and the continuing existence of tariffs. In addition, global supply chain disruptions have had, and are continuing to have, wide-ranging effects across multiple industries, particularly the automotive industry. Refer to Item 1A. Risk Factors and to Part II, Item 7. MD&A for further discussion on the effect global supply chain disruptions have had on our results of operations. Furthermore, an increased demand for rare earth minerals is increasing scrutiny of the sustainability and human rights implications of rare earth mineral supply chains.

In some instances, we purchase systems, components, parts and supplies from a single source, which may increase risk to supply disruptions. The inability or unwillingness of these sources to provide us with parts and supplies could have a material adverse effect on our production. Combined purchases from our two largest suppliers were approximately 11% of our total purchases in the year ended December 31, 2022, approximately 12% of our total purchases in the year ended December 31, 2021, and approximately 11% of our total purchases in the year ended December 31, 2020. Refer to Item 1A. Risk Factors for further discussion of these risks.

Automotive Financing - GM Financial GM Financial is our global captive automotive finance company and our global provider of automobile finance solutions. GM Financial conducts its business in North America, South America and through joint ventures in China.

GM Financial provides retail loan and lease lending across the credit spectrum to support vehicle sales. Additionally, GM Financial offers commercial lending products to dealers including floorplan financing, which is lending to finance new and used vehicle inventory; and dealer loans, which are loans to finance improvements to dealership facilities, to provide working capital, or to purchase and/or finance dealership real estate. Other commercial lending products include financing for parts and accessories, dealer fleets and storage centers.

In North America, GM Financial offers a sub-prime lending program. The program is primarily offered to consumers with a FICO score or its equivalent of less than 620 who have limited access to automobile financing through banks and credit unions and is expected to sustain a higher level of credit losses than prime lending.

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GM Financial generally seeks to fund its operations in each country through local sources of funding to minimize currency and country risk. GM Financial primarily finances its loan, lease and commercial origination volume through the use of secured and unsecured credit facilities, securitization transactions and the issuance of unsecured debt in the capital markets.

Human Capital

The foundation of GM's business is our Purpose: We pioneer the innovations that move and connect people to what matters. It is why we exist. Our Purpose, growth strategy and culture all help us on our path towards achieving our vision of — a world with zero crashes, zero emissions and zero congestion. Our people are our most valuable asset, and we must continue to attract and retain the best talent in the world in order to achieve this vision. As a result, we strive to create a Workplace of Choice to attract, retain and develop top talent by adhering to a responsible employer philosophy, which includes, among other things, commitments to create job opportunities, pay workers fairly, ensure safety and well-being, and promote diversity, equity and inclusion (DEI). Fundamental to these commitments are our company values.

OUR VALUES

CUSTOMERS

We put the customer at the center of everything we do. We listen intently to our customers' needs. Each interaction matters. Safety and quality are foundational commitments, never compromised.

EXCELLENCE

We act with integrity. We are driven by ingenuity and innovation. We have the courage to do and say what's difficult. Each of us takes accountability for results, drives for continued efficiencies and has the tenacity to win.

RELATIONSHIPS

Our success depends on our relationships inside and outside the company. We encourage diverse thinking and collaboration from the world to create great customer experiences.

SEEK TRUTH

We pursue facts, respectfully challenge assumptions and clearly define objectives. When we disagree, we provide additional context and consider multiple perspectives.

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Our eight GM behaviors are the foundation of our culture; and how we behave encompasses key measures of our performance, including the ways we conduct ourselves as we work with one another.

EMPLOYEE BEHAVIORS



Be Inclusive

I create moments every day that value backgrounds, opinions and ideas that may be different than my own.



Think Customer

I consider the customers' needs in everything I do.



Innovate Now

I see things not as they are but as they could be.



Look Ahead

I make decisions now with the long-term view in mind and I anticipate what lies ahead.



One Team

I collaborate cross-functionally to achieve enterprise-wide results.



Be Bold

I respectfully speak up, exchange feedback and boldly share ideas without fear.



It's On Me

I take accountability for safety and my own actions, behaviors and results.



Win With Integrity

I have a relentless desire to win and do it with integrity.

Diversity, Equity and Inclusion At GM, we are committed to fostering a culture of diversity, equity and inclusion. In every moment, we must decide what we can do — individually and collectively — to drive meaningful, deliberate and long-lasting change. GM's unwavering commitment in this regard includes taking steps to ensure that all areas of our business are supportive of a world-class inclusive, equitable and diverse organization. Our ability to meet the needs of a diverse and global customer base is tied closely to the behaviors of the people within our company, which is why we are committed to fostering a culture that celebrates our differences. This commitment is embraced at all levels of the organization, including our diverse Board of Directors, which is currently made up of almost 50% women (6 out of 13 members) and is more than 30% racially or ethnically diverse (4 out of 13 members).

Based on these longstanding values, our Chair and CEO, Mary Barra, chairs an Inclusion Advisory Board (IAB) of internal and external leaders who guide our work to improve diversity and inclusion in our Company. The purpose of the IAB is to consult with GM's Senior Leadership Team with the long-term goal of inspiring the Company to be inclusive through our words, deeds and culture. We also have a number of programs and partnerships aimed at enhancing our culture of inclusion throughout the Company. For example, we have 12 voluntary, employee-led resource groups that provide a forum for diverse employees and allies from a variety of different backgrounds to share experiences and contribute to our collective cultural intelligence and growth. Each group also works to attract and retain new talent and offers employees opportunities to support our company's diversity initiatives within the community.

GM has added resources skilled in new areas like inclusive leadership coaching, workforce design, accessibility and community partnerships. These investments are designed to help increase DEI overall maturity, increasing pathways for talent entry and development in the company and fostering partnerships that improve equity inside and outside of GM. As an example, in January 2021, GM welcomed the industry's first chief engineer of accessibility to lead a new Accessibility Center of Excellence, driving GM's approach toward increasing inclusivity in products and services. The team works across four main areas: researching and innovating with the customer, defining what it means to have accessible solutions in our vehicles, working to create customizable solutions for a variety of customer needs and creating an ecosystem to grow the culture around accessibility.

Develop and Retain Talented People Today, we compete for talent against other automotive companies and against businesses in other sectors, such as technology. To win and keep top talent, we must provide a workplace culture that encourages employee behaviors aligned with our values, fulfills employees' long-term individual aspirations and provides experiences that make individuals feel valued, included and engaged. In furtherance of this goal, we invest significant resources to retain and develop our talent. In addition to mentoring and networking opportunities, we offer a vast array of career development resources to help develop, grow and enable employees to make the most of their careers at GM. Formal resources

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include, among other things, the Technical Education Program, which offers our employees an opportunity to complete corporate strategically aligned degrees and certificate programs at leading universities, and our Degreed Learning Platform, which brings forth a variety of external and in-house content in learning pathways and other micro learnings. It is also tied to our GM competency and skills model. Employees in some of our technical roles also have the opportunity to participate in the GM Technical Learning University — a training and upskilling program designed to expand and update the technical prowess of our workforce.

GM recognizes that leadership effectiveness is a critical business need. All new managers in the Company are automatically entered into a six-month immersive learning program and all new executives come together for an upskilling and targeted development program designed around the GM leadership profile.

Safety and Well-Being The safety and well-being of our employees is also a critical component of our ability to transform the future of personal mobility. At GM, we pride ourselves on our commitment to live values that return people home safely — Every Person, Every Site, Every Day. Our unwavering commitment to safety is manifested through empowering employees to “Speak Up for Safety” and the Employee Safety Concern Process. These resources make it easier for salaried, hourly or represented and contract employees to report potential vehicle or workplace safety issues, or to suggest safety related improvements without fear of retaliation. The well-being of our employees is equally as important to entice and stimulate creativity and innovation. In addition to traditional healthcare, paid time off, paid parental leave, wellness programs, flextime scheduling and telecommuting arrangements and retirement benefits, including a 401(k) company contribution and matching program, GM offers a variety of benefits and resources to support employees' physical and mental health, including access to fitness facilities in certain locations, which help us both attract talent and reap the benefits of a healthier workforce. Beginning January 1, 2023, where permissible, United States salaried employees are able to add their domestic partners and their children to various benefits plans and policies under the specific terms of such plans and policies.

Employees At December 31, 2022, we employed approximately 86,000 (52%) hourly employees and approximately 81,000 (48%) salaried employees. At December 31, 2022, approximately 46,000 (44%) of our U.S. employees were represented by unions, a majority of which were represented by the International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW). The following table summarizes worldwide employment (in thousands):

	December 31, 2022
GMNA(a)	124
GMI	34
GM Financial	9
Total Worldwide	167
U.S. - Salaried	58
U.S. - Hourly	46

(a) Includes Cruise.

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Information About our Executive Officers As of January 31, 2023, the names and ages of our executive officers and their positions with GM are as follows:

Name (Age)	Present GM Position (Effective Date)	Positions Held During the Past Five Years (Effective Date)
Mary T. Barra (61)	Chair and Chief Executive Officer (2016)	
Julian Blissett (56)	Executive Vice President and President, GM China (2020)	Senior Vice President, International Operations (2019) Vice President, Executive Shanghai GM (2014)
Stephen K. Carlisle (60)	Executive Vice President and President, North America (2020)	Senior Vice President and President, Cadillac (2018) President and Managing Director, GM Canada (2015)
Craig B. Glidden (65)	Executive Vice President, Global Public Policy, General Counsel and Corporate Secretary (2021)	Executive Vice President and General Counsel (2015)
Christopher T. Hatto (52)	Vice President, Global Business Solutions and Chief Accounting Officer (2020)	Vice President, Controller and Chief Accounting Officer (2018) Chief Financial Officer, U.S. Sales Operations (2016)
Paul A. Jacobson (51)	Executive Vice President and Chief Financial Officer (2020)	Delta Air Lines, Executive Vice President — Chief Financial Officer (2013)
Gerald Johnson (60)	Executive Vice President, Global Manufacturing and Sustainability (2019)	Vice President, North America Manufacturing and Labor Relations (2017)
Douglas L. Parks (61)	Executive Vice President, Global Product Development, Purchasing and Supply Chain (2019)	Vice President, Autonomous and Electric Vehicles (2017)
Mark L. Reuss (59)	President (2019)	Executive Vice President and President, Global Product Development Group and Cadillac (2018) Executive Vice President, Global Product Development, Purchasing & Supply Chain (2014)

There are no family relationships between any of the officers named above and there is no arrangement or understanding between any of the officers named above and any other person pursuant to which he or she was selected as an officer. Each of the officers named above was elected by the Board of Directors to hold office until his or her successor is elected and qualified or until his or her earlier resignation or removal.

Environmental and Regulatory Matters

Automotive Criteria Emissions Control Our products are subject to laws and regulations globally that require us to control certain non-GHG automotive emissions, including vehicle and engine exhaust emission standards, vehicle evaporative emission standards and onboard diagnostic (OBD) system requirements. Emission requirements have become more stringent as a result of stricter standards and new diagnostic requirements that have come into force in many markets around the world, often with very little harmonization. Regulatory authorities may conduct ongoing evaluations of products from all manufacturers. For additional information, refer to Item 1A. Risk Factors.

The U.S. federal government, through the Environmental Protection Agency (EPA), imposes stringent exhaust and evaporative emission control requirements on vehicles sold in the U.S. The California Air Resources Board (CARB) likewise imposes stringent exhaust and evaporative emission standards. The Clean Air Act permits states that have areas with air quality compliance issues to adopt California emission standards in lieu of federal requirements. Seventeen states have adopted California emission standards, and there is a possibility that additional U.S. jurisdictions could adopt California emission requirements in the future.

For each model year we must obtain certification that our vehicles and heavy-duty engines will meet emission requirements of the EPA before we can sell vehicles in the U.S. and Canada, and of CARB before we can sell vehicles in California and the states that have adopted California emission requirements.

The Canadian federal government's current vehicle pollutant emission requirements are generally aligned with U.S. federal requirements.

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In 2019, certain areas within China began implementation of the China 6 emission standard (China 6) requirements. China 6 combines elements of both European Union (EU) and U.S. standards and increases the time and mileage periods over which manufacturers are responsible for a vehicle's emission performance. Nationwide implementation of China 6a for new registrations occurred in January 2021, and the more stringent China 6b is expected to be implemented in July 2023. Finally in 2022, China began studies regarding the next generation of vehicle emission standards (China 7), which will likely be influenced by the European (Euro 7) standards.

Brazil has approved a set of national emission standards referred to as L7, implemented in 2022, and L8, to be implemented from 2025 onward. L7 standards cover tailpipe exhaust gases, durability for emissions, evaporative emissions and noise limits, and include additional OBD requirements and a phase-in for onboard refueling vapor recovery systems. L8 standards include targets for vehicle emissions and reduce corporate exhaust limits every two years until 2031. Some of the requirements are aligned with those of the EPA.

As a result of the sale of the Opel and Vauxhall businesses and certain other assets in Europe (the Opel/Vauxhall Business), GM's vehicle presence in Europe is smaller, but GM may still be affected by actions taken by regulators related both to Opel/Vauxhall vehicles sold before the sale of the Opel/Vauxhall Business as well as to other vehicles GM continues to sell in Europe. In the EU, increased scrutiny of compliance with emission standards may result in changes to these standards, as well as stricter interpretations or redefinition of these standards and more rigorous enforcement. Beyond this, as a part of the EU's desire to accelerate the shift to sustainable mobility, the EU is looking to develop stricter emission standards (Euro 7) for all petrol and diesel cars, vans, lorries and buses, as it is moving to end the sale of ICE vehicles past 2035, and place requirements on batteries to be used in EVs. For additional information, refer to Note 16 to our consolidated financial statements.

Automotive Fuel Economy and GHG Emissions In the U.S., NHTSA promulgates and enforces Corporate Average Fuel Economy (CAFE) standards for three separate fleets: domestic cars, import cars and light-duty trucks. Manufacturers may use one or a combination of the following to resolve fleet deficits: credits from the five prior model years, expected credits for the next three model years, credits obtained from other manufacturers, and payment of civil penalties. Manufacturers that do not resolve deficits for a model year may be subject to substantial civil penalties. In addition to federal CAFE standards, the EPA promulgates and enforces GHG emission standards. NHTSA and the EPA have separately finalized standards with differing stringency levels and affected model years, with the CAFE standards addressing the 2024–2026 model years and the GHG standards addressing the 2023–2026 model years. Both the CAFE and GHG standards have been challenged through litigation. NHTSA and the EPA also regulate the fuel efficiency and GHG emissions of medium- and heavy-duty vehicles, imposing more stringent standards over time.

In addition, CARB has asserted the right to promulgate and enforce its own state GHG standards for motor vehicles, and other states have asserted the right to adopt CARB's standards. CARB regulations previously stated that compliance with the light-duty EPA GHG program is deemed compliance with CARB standards. However, in December 2018 CARB amended this regulation to state that, in the event the EPA were to alter federal GHG stringency, which it now has, compliance with the EPA's GHG emission standards will no longer be deemed compliance with CARB's separate requirements. While NHTSA and the EPA previously took actions to preempt California's GHG standards, NHTSA repealed its assertion of preemption and the EPA rescinded its withdrawal of California's preemption waiver, enabling CARB to enforce GHG standards from the Advanced Clean Cars (ACC) program for the 2021–2025 model years. As a result, GM is required to meet state GHG standards in California and 17 states that have adopted California's GHG standards. The EPA's rescission of its withdrawal of California's waiver has been challenged through litigation.

CARB has also imposed a requirement that increases percentages of Zero Emission Vehicles (ZEVs) that must be sold in California. While NHTSA and the EPA previously took actions to preempt California's ZEV standards, NHTSA repealed its assertion of preemption and the EPA rescinded its withdrawal of California's waiver, enabling CARB and 15 adopting states to enforce ZEV standards from the ACC program. The EPA's rescission of its withdrawal of California's waiver has been challenged through litigation. Further, in August 2022, CARB finalized its Advanced Clean Cars II (ACC II) program, including ZEV standards requiring increasing percentages of ZEVs for the 2026–2035 model years, ending with a 100% sales target in the 2035 model year. CARB must obtain a waiver from EPA to implement its ACC II program. Additional U.S. jurisdictions could adopt CARB's ACC and ACC II requirements in the future.

In Canada, federal light- and heavy-duty GHG regulations are currently patterned after the EPA GHG emission standards given the integrated nature of the auto sector between Canada and the United States. The Canadian light-duty GHG standards continue to largely align with the U.S. GHG standards for the 2023–2025 model years. Additionally, the Canadian federal government issued an Emissions Reduction Plan requiring the implementation of increasingly stringent ZEV sales requirements for the 2026–2035 model years, ending with a 100% sales target in the 2035 model year. The Canadian province of Quebec has ZEV requirements regulating the 2018–2025 model years, largely based on California program requirements, and the province

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of British Columbia has similar ZEV regulations that were completed in July 2020 and cover the 2020–2039 model years. Both provinces have proposed amendments to their ZEV regulations for the 2026–2035 model years ending with a 100% ZEV sales target in the 2035 model year. A first draft of Canada’s national ZEV sales regulations was issued in December 2022.

China has two fuel economy requirements for passenger vehicles: an individual vehicle pass-fail type approval requirement and a fleet average fuel consumption requirement. With a focus on the fleet average fuel consumption requirement, the China Phase 5 launched in 2021 and full compliance is required by 2025. In addition, China has established a mandate that requires passenger car manufacturers to produce a certain volume of plug-in hybrid, battery electric and fuel cell vehicles, which are referred to as New Energy Vehicles (NEVs), to generate credits in 2019 and beyond. The number of credits per car is based on the level of electric range and energy efficiency, with the goal of increasing NEV volume penetrations and improving technological sophistication over time. Uncommitted NEV credits may be used to assist compliance with the fleet average fuel consumption requirement. China has issued NEV credit targets between 2019 and 2023 and is setting new NEV credit targets aimed at further increasing volumes of NEVs in 2024 and 2025. China has provided various levels of subsidies for NEVs, and certain subsidies were extended to the end of 2022. Also in 2022, China began to study the fleet average fuel consumption requirement and NEV credit mandate for 2026–2030 (Phase 6). These standards can potentially be more stringent, aligned with the trend we are seeing in other key global markets.

In Brazil, the Secretary of Industry and Development promulgates and enforces CAFE standards and has enforced a new CAFE program for the period October 2020–September 2026 for light-duty and mid-size trucks and SUVs, including diesel vehicles. The second and third phases of the program are yet to be finalized and are expected to gradually become more stringent for each period.

We have several options to comply with existing and potential new regulations that we have utilized and may continue to utilize, including increasing production and sale of certain vehicles, such as EVs, and curtailing production of others, which could include profitable ICE vehicles; technology changes, including fuel consumption efficiency and engine upgrades; payment of penalties; and/or the purchase of credits from third parties. We regularly evaluate our current and future product plans and strategies for compliance with fuel economy and GHG regulations.

We plan to be carbon neutral by 2040 in our global products and operations, supported by a commitment to science-based targets. In addition, the Company envisions an all-electric future and plans to eliminate tailpipe emissions from new U.S. light-duty vehicles by 2035. These targets align with our growth and transformation plan including our commitment to an all-electric future, which will be enabled by our Ultium platform and HYDROTEC technology as previously detailed. We also announced that we anticipate our total annual capital spending and our investments in our battery cell manufacturing joint ventures to be in the range of \$11.0 to \$13.0 billion through 2025 primarily to accelerate this transformation plan.

Industrial Environmental Control Our operations are subject to a wide range of environmental protection laws including those regulating air emissions, water discharge, waste management and environmental cleanup. Certain environmental statutes require that responsible parties fund remediation actions regardless of fault, legality of original disposal or ownership of a disposal site. Under certain circumstances these laws impose joint and several liability as well as liability for related damages to natural resources.

To further mitigate the impacts of our worldwide operations on the environment, including climate change, we are supplementing our compliance programs with sustainability efforts focused on reducing operational GHG emissions, water consumption and discharge and operational waste.

We aim to continue our progress toward becoming a Zero Waste company by diverting greater than 90% of our total operational waste from landfills, incinerators, and energy recovery facilities by 2025. We also continue our efforts to increase our use of renewable energy, improve our energy efficiency and work to drive growth and scale of renewables. We recently announced the finalization of energy sourcing agreements required to secure 100% of the energy needed to power all our U.S. facilities with renewable energy by 2025. This is in line with the accelerated target announced in September 2021 and 25 years ahead of the initial target of 2050, set in 2016. We are on target to meet the remaining needs of our global operations with 100% renewable energy by 2035.

Chemical Regulations We continually monitor the implementation of chemical regulations to maintain compliance and evaluate their effect on our business, suppliers and the automotive industry.

Globally, governments continue to introduce new legislation and regulations related to the selection and use of chemicals by mandating broad prohibitions or restrictions and implementing vehicle interior air quality, green chemistry, life cycle analysis

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and product stewardship initiatives. These initiatives give broad regulatory authority to ban or restrict the use of certain chemical substances and potentially affect automobile manufacturers' responsibilities for vehicle components at the end of a vehicle's life, as well as chemical selection for product development and manufacturing. Global treaties and initiatives such as the Stockholm, Basel and Rotterdam Conventions on Chemicals and Waste, the Minamata Convention on Mercury and EU Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), are driving chemical regulations across signatory countries. Increases in the use of circuit boards and other electronics may require additional assessment under the Restriction on Hazardous Substances and Waste from Electrical and Electronic Equipment directives. New European requirements require suppliers of parts and vehicles to the European market to disclose substances of concern in parts.

Chemical regulations are increasing in North America. In the U.S., the EPA is moving forward with risk analysis and management of high priority chemicals under the authority of the 2016 Lautenberg Chemical Safety for the 21st Century Act. In addition, several U.S. states have chemical management regulations that can affect vehicle design and manufacturing such as chemical restriction and use requirements. For example, Maine will likely require the reporting of per- and polyfluoroalkyl substances (PFAS) in 2023, and the elimination of PFAS in 2030, except for unavoidable uses. Chemical restrictions and export controls in Canada continue to steadily progress under the Environment and Climate Change Canada's Chemical Management Plan to assess existing substances and implement risk management controls on any chemical deemed toxic.

These emerging laws and regulations will potentially lead to increases in costs and supply chain complexity. Manufacturers, including joint venture partners and suppliers, that do not comply with global and specific country regulations could be subject to civil penalties, production disruptions, or limitations on the sale of affected products. We believe we are materially in compliance with substantially all these requirements or expect to be materially in compliance by the required dates.

Vehicle Safety

U.S. Requirements The National Traffic and Motor Vehicle Safety Act of 1966 (the Safety Act) regulates the vehicles and items of motor vehicle equipment that we manufacture and sell. The Safety Act prohibits the sale in the United States of any new vehicle or equipment that does not conform to applicable federal motor vehicle safety standards established by NHTSA. Meeting or exceeding the many safety standards is costly as global compliance and non-governmental assessment requirements continue to evolve and grow more complex, and lack harmonization globally. The Safety Act further requires that if we or NHTSA determine a vehicle or an item of vehicle equipment does not comply with a safety standard, or that vehicle or equipment contains a defect that poses an unreasonable safety risk, we must conduct a safety recall to remedy that condition in the affected vehicles. Should we or NHTSA determine a safety defect or noncompliance issue exists with respect to any of our vehicles, the cost of such recall campaigns could be substantial.

Other National Requirements Outside of the U.S., many countries have established vehicle safety standards and regulations and are likely to adopt additional, more stringent requirements in the future. The European General Safety Regulation has introduced United Nations Economic Commission for Europe (UN-ECE) regulations, which are required for the European Type Approval process. Globally, governments generally have been adopting UN-ECE based regulations with some variations to address local concerns. Any difference between North American and UN-ECE based regulations can add complexity and costs to vehicle development, and we continue to support efforts to harmonize regulations to reduce complexity. New safety and recall requirements in various countries around the world, including in China, Brazil, and Gulf Cooperation Council countries, also may add substantial costs and complexity to our safety and field action activities globally. In Canada, vehicle regulatory requirements are currently aligned with U.S. regulations; however, under the Canadian Motor Vehicle Safety Act, recall thresholds are different and the Minister of Transport has broad powers to order manufacturers to submit a notice of defect or non-compliance when the Minister considers it to be in the interest of safety. Further, various governments are beginning to mandate e-Call and other features that can be market-specific and add complexity and increase our cost of compliance globally.

Crash Test Ratings and New Car Assessment Programs Organizations in various regions around the world, including in the U.S., rate and compare motor vehicles through various New Car Assessment Programs (NCAPs) to provide consumers and businesses with additional information about the safety of new vehicles. NCAPs use crash tests and other evaluations that are different than what is required by applicable regulations, and use stars or other grading systems, depending on the region, to rate vehicle safety. Achieving high NCAP ratings, which can vary by country and region, can add complexity and cost to vehicles.

Website Access to Our Reports Our internet website address is <https://www.gm.com>. In addition to the information about us and our subsidiaries contained in this 2022 Form 10-K, information about us can be found on our website including information on our corporate governance principles and practices. Our Investor Relations website at <https://investor.gm.com> contains a

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significant amount of information about us, including financial and other information for investors. We encourage investors to visit our website, as we frequently update and post new information about our company on our website and it is possible that this information could be deemed to be material information. Our website and information included in or linked to our website are not part of this 2022 Form 10-K.

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (Exchange Act), are available free of charge through our website as soon as reasonably practicable after they are electronically filed with or furnished to the Securities and Exchange Commission (SEC). The SEC maintains a website that contains reports, proxy and information statements, and other information regarding our filings at <https://www.sec.gov>.

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Item 1A. Risk Factors

We have listed below the most material risk factors applicable to us. These risk factors are not necessarily in the order of importance or probability of occurrence:

Risks related to our competition and strategy

If we do not deliver new products, services, technologies and customer experiences in response to increased competition and changing consumer preferences in the automotive industry, our business could suffer. We believe that the automotive industry will continue to experience significant change in the coming years, particularly as traditional automotive original equipment manufacturers continue to shift resources to the development of EVs. In addition to our traditional competitors, we must also be responsive to the entrance of start-ups and other non-traditional competitors in the automotive industry, such as ridesharing services. These new competitors, as well as established industry participants, are disrupting the historic business model of our industry through the introduction of new technologies, products, services, direct-to-consumer sales channels, methods of transportation and vehicle ownership. To successfully execute our long-term strategy, we must continue to develop new products and services, including products and services that are outside of our historically core ICE business, such as EVs and AVs, software-enabled connected services and other new businesses.

Our vehicles and connected services increasingly rely on software and hardware that is highly technical and complex. The process of designing and developing new technology, products and services is costly and uncertain and requires extensive capital investment and the ability to retain and recruit the best talent. If our access to capital were to become significantly constrained, if costs of capital increased significantly, or if our ability to raise capital is challenged relative to our peers, in each case including as a result of any constraints on lending due to concerns about climate change, our ability to execute on our strategic plans could be adversely affected. Further, the market for highly skilled workers and leaders in our industry is extremely competitive. Failure to attract, hire, develop, motivate and retain highly qualified and diverse employees could disrupt our operations and adversely affect our strategic plans.

There can be no assurance that advances in technology will occur in a timely or feasible way, if at all, that others will not acquire similar or superior technologies sooner than we do, or that we will acquire technologies on an exclusive basis or at a significant price advantage. Further, if we are unable to prevent or effectively remedy errors, bugs, vulnerabilities or defects in our software and hardware, or fail to deploy updates to our software properly, or if we do not adequately prepare for and respond to new kinds of technological innovations, market developments and changing customer needs, our sales, profitability and long-term competitiveness may be harmed.

Our ability to maintain profitability is dependent upon our ability to timely fund and introduce new and improved vehicle models, including EVs, that are able to attract a sufficient number of consumers. We operate in a very competitive industry with market participants routinely introducing new and improved vehicle models and features designed to meet rapidly evolving consumer expectations. Producing new and improved vehicle models, including EVs, that preserve our reputation for designing, building and selling safe, high-quality cars, crossovers, trucks and SUVs is critical to our long-term profitability. Successful launches of our new vehicles are critical to our short-term profitability. The new vehicle development process can take two years or more, and a number of factors may lengthen that time period. Because of this product development cycle and the various elements that may contribute to consumers' acceptance of new vehicle designs, including competitors' product introductions, technological innovations, fuel prices, general economic conditions, regulatory developments, transportation infrastructure and changes in quality, safety, reliability and styling demands and preferences, an initial product concept or design may not result in a saleable vehicle or a vehicle that generates sales in sufficient quantities and at high enough prices to be profitable. Our high proportion of fixed costs, both due to our significant investment in property, plant and equipment as

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well as other requirements of our collective bargaining agreements, which limit our flexibility to adjust personnel costs to changes in demands for our products, may further exacerbate the risks associated with incorrectly assessing demand for our vehicles.

Our long-term strategy is dependent upon our ability to profitably deliver a broad portfolio of EVs. The production and profitable sale of EVs has become increasingly important to our long-term business as we accelerate our transition to an all-electric future. Our EV strategy is dependent on our ability to deliver a broad portfolio of high-quality EVs that are competitive and meet consumer demands; scale our EV manufacturing capabilities; reduce the costs associated with the manufacture of EVs, particularly with respect to battery cells and packs; increase vehicle range and the energy density of our batteries; efficiently source sufficient materials for the manufacture of EV battery cells; license and monetize our proprietary platforms and related innovations; successfully invest in new technologies relative to our peers; develop new software and services; and leverage our scale, manufacturing capabilities and synergies with existing ICE vehicles.

In addition, consumer adoption of EVs will be critical to the success of our strategy. Consumer adoption of EVs could be impacted by numerous factors, including the breadth of the portfolio of EVs available; perceptions about EV features, quality, safety, performance and cost relative to ICE vehicles; the range over which EVs may be driven on a given battery charge; the proliferation of charging infrastructure, in particular with respect to public EV charging stations, and the success of the Company's charging infrastructure programs and strategic joint ventures and other relationships; cost and availability of high fuel-economy ICE vehicles; volatility, or a sustained decrease, in the cost of petroleum-based fuel; failure by governments and other third parties to make the investments necessary to make infrastructure improvements, such as greater availability of cleaner energy grids and EV charging stations, and to provide economic incentives promoting the adoption of EVs, including those contemplated by the Inflation Reduction Act; and negative feedback from stakeholders impacting investor and consumer confidence in our company or industry. If we are unable to successfully deliver on our EV strategy, it could materially and adversely affect our results of operations, financial condition and growth prospects, and could negatively impact our brand and reputation.

Our near-term profitability is dependent upon the success of our current line of full-size ICE SUVs and full-size ICE pickup trucks. While we offer a broad portfolio of cars, crossovers, SUVs and trucks, and we have announced significant plans to design, build and sell a broad portfolio of EVs, we currently recognize the highest profit margins on our full-size ICE SUVs and full-size ICE trucks. As a result, our near-term success is dependent upon our ability to sell higher margin vehicles in sufficient volumes. We are also using the cash generated by our ICE vehicles to fund our growth strategy, including with respect to EVs and AVs. Any near-term shift in consumer preferences toward smaller, more fuel-efficient vehicles, whether as a result of increases in the price of oil or any sustained shortage of oil, including as a result of global political instability (such as related to Russia's invasion of Ukraine), concerns about fuel consumption or GHG emissions, or other reasons, could weaken the demand for our higher margin vehicles. More stringent fuel economy regulations could also impact our ability to sell these vehicles or could result in additional costs associated with these vehicles. See "Our operations and products are subject to extensive laws, regulations and policies, including those related to vehicle emissions and fuel economy standards, which can significantly increase our costs and affect how we do business."

We operate in a highly competitive industry that has historically had excess manufacturing capacity, and attempts by our competitors to sell more vehicles could have a significant negative effect on our vehicle pricing, market share and operating results. The global automotive industry is highly competitive in terms of the quality, innovation, new technologies, pricing, fuel economy, reliability, safety, customer service and financial services offered. Additionally, overall manufacturing capacity in the industry has historically far exceeded demand. In addition, we have made, and plan to continue to make, significant investments in EV manufacturing capacity based on our expectations for EV demand, which is subject to various risks and uncertainties as described above. Many manufacturers, including GM, have relatively high fixed labor costs as well as limitations on their ability to efficiently close facilities and reduce fixed costs, often as a result of collective bargaining agreements. In light of any excess capacity and high fixed costs, many industry participants have attempted to sell more vehicles by providing subsidized financing or leasing programs, offering marketing incentives or reducing vehicle prices. As a result, we have had, and may in the future need, to offer similar incentives, which may result in vehicle prices that do not offset our costs, including any cost increases or the impact of adverse currency fluctuations, which could affect our profitability. Our competitors may also seek to benefit from economies of scale by consolidating or entering into other strategic agreements such as alliances or joint ventures intended to enhance their competitiveness.

Manufacturers in countries that have lower production costs, such as China and India, have become competitors in key emerging markets and have announced their intention to export their products to established markets as a low-cost alternative to established entry-level automobiles. In addition, foreign governments may decide to implement tax and other policies that favor their domestic manufacturers at the expense of international manufacturers, including GM and its joint venture partners. These actions have had, and are expected to continue to have, a significant negative effect on our vehicle pricing, market share and operating results in these markets.

Our AV strategy is dependent upon our ability to successfully mitigate unique technological, operational and regulatory risks. GM Cruise Holdings LLC (Cruise Holdings), our majority-owned subsidiary, is responsible for the development and commercialization of AV technology. Our AV operations are capital intensive and subject to a variety of risks inherent with the development of new technologies, including our ability to continue to develop self-driving software and hardware, such as Light Detection and Ranging (LiDAR) sensors and other components; access to sufficient capital; risks related to the manufacture of purpose-built AVs; and significant competition from both established automotive companies and technology companies, some of which may have more resources and capital to devote to AV technologies than we do. In addition, we face risks related to the commercial deployment of AVs on our targeted timeline or at all, including consumer acceptance, achievement of adequate safety and other performance standards and compliance with uncertain, evolving and potentially conflicting federal, state, provincial or local regulations. Advanced technologies such as AVs present novel issues with which domestic and foreign regulators have only limited experience, and will be subject to evolving regulatory frameworks. Any current or future regulations in these areas could impede the successful commercialization of these technologies and impact whether and how these technologies are designed and integrated into our products, and may ultimately subject us to increased costs and uncertainty. In order for Cruise to successfully execute its business plan and achieve its revenue targets, legislation and regulations must evolve to permit widespread commercial AV deployment. To the extent accidents, cybersecurity breaches or other adverse events associated with our autonomous driving systems occur, we could be subject to liability, reputational harm, government scrutiny and further regulation, and it could deter consumer adoption of AV technology. Any of the foregoing could materially and adversely affect our results of operations, financial condition and growth prospects.

We are subject to risks associated with climate change, including increased regulation of GHG emissions, changing consumer preferences and other risks related to our transition to EVs and the potential increased impacts of severe weather events on our operations and infrastructure. Increasing attention to climate change, increasing societal expectations on companies to address climate change and changes in consumer preferences may result in increased costs, reduced demand for our products, reduced profits, risks associated with new regulatory requirements, risks to our reputation and the potential for increased litigation and governmental investigations. Climate change regulations at the federal, state or local level or in international jurisdictions could require us to further limit emissions associated with customer use of products we sell, change our manufacturing processes or product portfolio or undertake other activities that may require us to incur additional expense, which may be material. These requirements may increase the cost of, and/or diminish demand for, our ICE vehicles. See “Our operations and products are subject to extensive laws, regulations and policies, including those related to vehicle emissions and fuel economy standards, which can significantly increase our costs and affect how we do business.” In addition, in the U.S. and abroad there are an increasing number of sustainability-related rules and regulations that have been adopted or proposed. Such regulations may also subject us to new disclosure requirements, which could result in risks to our reputation or consumer demand for our products if we do not meet increasingly demanding stakeholder expectations and standards.

Part of our strategy to address these risks includes our transition to EVs, which presents additional risks, including reduced demand for, and therefore profits from, our ICE vehicles, which we are using to fund our growth strategy; higher costs or reduced availability of materials related to EV technologies impacting profitability, particularly with respect to batteries and battery raw material; and risks related to the success of our EV strategy, particularly with respect to advancement of battery cell technology, charging infrastructure and competition. See “Our long-term strategy is dependent upon our ability to profitably deliver a broad portfolio of EVs” and “Our near-term profitability is dependent upon the success of our current line of full-size ICE SUVs and full-size ICE pickup trucks.”

Finally, increased intensity, frequency or duration of storms, droughts or other severe weather events as a result of climate change may disrupt our production and the production, logistics, cost and procurement of products from our suppliers and timely delivery of vehicles to customers, and could negatively impact working conditions at our plants and those of our suppliers. Such weather events may also adversely impact the financial condition of our customers, and thereby reduce demand for our products and services. Any of the foregoing could have a material adverse effect on our financial condition and results of operations.

Risks related to our operations

Our business is highly dependent upon global automobile market sales volume, which can be volatile. Because we have a high proportion of relatively fixed structural costs, small changes in sales volume can have a disproportionately large effect on our profitability. A number of economic and market conditions drive changes in new vehicle sales, including disruptions in the new vehicle supply chain, the availability and prices of used vehicles, levels of unemployment and inflation, availability of affordable financing, fluctuations in the cost of fuel, consumer confidence and demand for vehicles, political unrest or uncertainty, the occurrence of a public health crisis, barriers to trade and other global economic conditions. For a discussion of economic and market trends, see the “Overview” section in Part II, Item 7. MD&A. If our operating environment deteriorates for these or other reasons, such as a moderate to severe recession, it could lead to a significant decrease in new vehicle sales, which could materially and adversely affect our results of operations and financial condition.

Inflationary pressures and persistently high prices and uncertain availability of commodities, raw materials or other inputs used by us and our suppliers, or instability in logistics and related costs, could negatively impact our profitability. Increases in prices, including as a result of inflation and rising interest rates, for commodities, raw materials or other inputs that we and our suppliers use in manufacturing products, systems, components and parts, such as steel, precious metals, non-ferrous metals, critical minerals or other similar raw materials, or increases in logistics and related costs, have led and may continue to lead to higher production costs for parts, components and vehicles. In addition, any increase in the cost, or reduced availability, of critical materials for our EV propulsion systems, including lithium, nickel, cobalt and certain rare earth metals, could lead to higher production costs for our EVs and could impede our ability to successfully deliver on our EV strategy. Further, increasing global demand for, and uncertain supply of, such materials could disrupt our or our suppliers' ability to obtain such materials in a timely manner and/or could lead to increased costs. Geopolitical risk, fluctuations in supply and demand, fluctuations in interest rates, any weakening of the U.S. dollar and other economic and political factors have created and may continue to create pricing pressure for commodities, raw materials and other inputs. These inflationary pressures could, in turn, negatively impact our profitability because we may not be able to pass all of those costs on to our customers or require our suppliers to absorb such costs.

Our business in China subjects us to unique operational, competitive and regulatory risks. Our business in China is subject to aggressive competition from many of the largest global manufacturers and numerous domestic manufacturers as well as non-traditional market participants, such as domestic technology companies. In addition, our success in China depends upon our ability to adequately address unique market and consumer preferences driven by advancements related to EVs, infotainment, software-enabled connected services and other new technologies. Our ability to fully deploy our technologies in China may be impacted by evolving laws and regulations in the U.S. and China. Increased competition, continued U.S.-China trade tensions or weakening economic conditions in China, among other factors, may result in cost increases, price reductions, reduced sales, profitability and margins, and challenges to gaining or holding market share. In addition, the public health and policy response to COVID-19 in China may continue to present geopolitical, macroeconomic and operating challenges.

Certain risks and uncertainties of doing business in China are solely within the control of the Chinese government, and Chinese law regulates the scope of our investments and business conducted within China. The Chinese government may adopt new regulations that may impact entities operating in China, potentially with little advance notice. In order to maintain access to the Chinese market, we may be required to comply with significant technical and other regulatory requirements, including under such regulatory actions, that are unique to the Chinese market, at times with short notice. These actions may increase the cost of doing business in China or limit how we may do business in China, which could materially and adversely affect the profitability and financial condition of our China business.

We benefit from many ongoing strategic business relationships, and a significant amount of our operations are conducted by joint ventures, which we cannot operate solely for our benefit. We are engaged in many strategic business relationships, and we expect that such arrangements will continue to be an important factor in the growth and success of our business, particularly in light of industry consolidation. However, there are no assurances that we will be able to identify or secure suitable business relationships in the future or that our competitors will not capitalize on such opportunities before we do, or that any strategic business relationships that we enter into will be successful. If we are unable to successfully source and execute on strategic business relationships in the future, our overall growth could be impaired, and our business, prospects and results of operations could be materially adversely affected. In particular, to secure critical materials for production of EVs, we have entered, and plan to continue to enter, into offtake agreements with raw material suppliers and make investments in certain raw material suppliers. The terms of these offtake agreements may obligate us to purchase defined quantities of output over a specified period of time, subject to certain conditions. If we are unable to utilize or otherwise monetize the raw materials we are obligated to purchase under these offtake agreements, it could materially adversely affect our cash flows and increase our inventory.

In addition, many of our operations, primarily in China and Korea as well as certain of our battery manufacturing operations in the U.S. and Canada, are carried out by joint ventures. In joint ventures we share ownership and management of a company with one or more parties who may not have the same goals, strategies, priorities or resources as we do and may compete with us outside the joint venture. Joint ventures are intended to be operated for the benefit of all co-owners, rather than for our exclusive benefit. Operating a business as a joint venture often requires additional organizational formalities as well as time-consuming procedures for sharing information and making decisions that must further take into consideration our partners' interests. In joint ventures we are required to foster our relationships with our co-owners as well as promote the overall success of the joint venture, and if a co-owner changes, relationships deteriorate or strategic objectives diverge, our success in the joint venture may be materially adversely affected. Further, some of the benefits from a successful joint venture are shared among the co-owners, therefore we do not receive all the benefits from our successful joint ventures.

In addition, because we share ownership and management with one or more parties, we may have limited control over the actions of a joint venture, particularly when we own a minority interest. As a result, we may be unable to prevent violations of applicable laws or other misconduct by a joint venture or the failure to satisfy contractual obligations by one or more parties. Moreover, a joint venture may not be subject to the same financial reporting, corporate governance, or compliance approaches

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that we follow. To the extent another party makes decisions that negatively impact the joint venture or internal control issues arise within the joint venture, we may have to take responsive actions, or we may be subject to penalties, fines or other punitive actions for these activities.

The international scale and footprint of our operations expose us to additional risks. We manufacture, sell and service products globally and rely upon an integrated global supply chain to deliver the raw materials, components, systems and parts that we need to manufacture our products. Our global operations subject us to extensive domestic and foreign legal and regulatory requirements, and a variety of other political, economic and regulatory risks, which may have a material adverse effect on our financial condition or results of operations, including: (1) changes in government leadership; (2) changes in trade compliance, labor, employment, tax, privacy, environmental and other laws, regulations or government policies impacting our overall business model or practices or restricting our ability to manufacture, purchase or sell products consistent with market demand and our business objectives; (3) political pressures to change any aspect of our business model or practices or that impair our ability to source raw materials, services, components, systems and parts, or manufacture products on competitive terms in a manner consistent with our business objectives (including with respect to full utilization of the incentives contemplated by the Inflation Reduction Act); (4) political uncertainty, instability, civil unrest, government controls over certain sectors (including as a result of Russia's invasion of Ukraine and related impacts of the global supply of oil and other raw materials) or human rights concerns; (5) political and economic tensions between governments and changes in international economic policies, including restrictions on the repatriation of dividends or in the export of technology, especially between China and the U.S.; (6) changes to customs requirements or procedures (e.g., inspections) or new or higher tariffs, for example, on products imported into or exported from the U.S., including under U.S. or other trade laws or measures; (7) new or evolving non-tariff barriers or domestic preference procurement requirements, or enforcement of, changes to, withdrawals from or impediments to implementing free trade agreements, or preferences of foreign nationals for domestically manufactured products; (8) changes in foreign currency exchange rates, particularly in Brazil and Argentina, and interest rates; (9) economic downturns or significant changes in conditions in the countries in which we operate; (10) differing local product preferences and product requirements, including government certification requirements related to, among other things, fuel economy, vehicle emissions, EVs and AVs, connected services and safety; (11) impact of changes to and compliance with U.S. and foreign countries' export controls, economic sanctions and other similar measures; (12) liabilities resulting from U.S. and foreign laws and regulations, including, but not limited to, those related to the Foreign Corrupt Practices Act and certain other anti-corruption laws; (13) differing labor regulations, agreements, requirements and union relationships; (14) differing dealer and franchise regulations and relationships; (15) difficulties in obtaining financing in foreign countries for local operations; and (16) natural disasters, public health crises, including the occurrence of a contagious disease or illness, such as COVID-19, and other catastrophic events.

Any significant disruption at one of our manufacturing facilities could disrupt our production schedule. We assemble vehicles at various facilities around the world. Our facilities are typically designed to produce particular models for particular geographic markets. No single facility is designed to manufacture our full range of vehicles. In some cases, certain facilities produce products, systems, components and parts that disproportionately contribute a greater degree to our profitability than others and create significant interdependencies among manufacturing facilities around the world. When these or other facilities become unavailable either temporarily or permanently for any number of reasons, including labor disruptions, supply chain disruptions, the occurrence of a contagious disease or illness or catastrophic weather events, whether or not as a result of climate change, the inability to manufacture at the affected facility has resulted, and may in the future result, in harm to our reputation, increased costs, lower revenues and the loss of customers. We may not be able to easily shift production to other facilities or to make up for lost production. Any new facility needed to replace an inoperable manufacturing facility would need to comply with the necessary regulatory requirements, need to satisfy our specialized manufacturing requirements and require specialized equipment.

In addition, substantially all of our hourly employees are represented by unions and covered by collective bargaining agreements that must be negotiated from time-to-time, including at the local facility level. In 2023, our collective bargaining agreements with the UAW in the United States and Unifor in Canada, as well as collective bargaining agreements in Mexico, will expire, which will require negotiation of new agreements. As a result, we may be subject to an increased risk of strikes, work stoppages or other types of conflicts with labor unions and employees.

Disruption in our suppliers' operations have disrupted, and could in the future disrupt, our production schedule. Our automotive operations are dependent upon the continued ability of our suppliers to deliver the systems, components, raw materials and parts that we need to manufacture our products. Our use of "just-in-time" manufacturing processes allows us to maintain minimal inventory. As a result, our ability to maintain production is dependent upon our suppliers delivering sufficient quantities of systems, components, raw materials and parts on time to meet our production schedules. In some instances, we purchase systems, components, raw materials and parts that are ultimately derived from a single source and may be at an increased risk for supply disruptions. Any number of factors, including labor disruptions, catastrophic weather events, the occurrence of a public health crisis, such as a global pandemic, contractual or other disputes, unfavorable economic or industry conditions, delivery delays or other performance problems or financial difficulties or solvency problems, could disrupt our

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suppliers' operations and lead to uncertainty in our supply chain or cause supply disruptions for us, which could, in turn, disrupt our operations, including the production of certain higher margin vehicles. If the COVID-19 pandemic continues to spread or reemerges and results in a prolonged period of travel, commercial, social and other similar restrictions, we could experience continued and/or additional global supply disruptions. When we experience supply disruptions, we may not be able to develop alternate sourcing quickly. Any disruption of our production schedule caused by an unexpected shortage of systems, components, raw materials or parts even for a relatively short period of time could cause us to alter production schedules, increase work-in-process inventory or suspend production entirely, which could cause a loss of revenues or an increase in working capital, which would adversely affect our profitability and financial condition.

In particular, while the global semiconductor supply shortage is easing, it has had, and is continuing to have, wide-ranging effects across multiple industries, particularly the automotive industry, and it has impacted multiple suppliers that incorporate semiconductors into the parts they supply to us. As a result, the semiconductor supply shortage has had, and depending on how long it persists, could continue to have, a material impact on our operations.

Pandemics, epidemics, disease outbreaks and other public health crises, such as the COVID-19 pandemic, have disrupted our business and operations, and future public health crises could materially adversely impact our business, financial condition, liquidity and results of operations.

Pandemics, epidemics or disease outbreaks in the U.S. or globally, including the COVID-19 pandemic, has disrupted, and may in the future disrupt, our business, which could materially affect our results of operations, financial condition, liquidity and future expectations. Any such events may adversely impact our global supply chain and global manufacturing operations and cause us to again suspend our operations in the U.S., China and elsewhere. In particular, we could experience among other things: (1) continued or additional global supply disruptions, including a delayed recovery from the global semiconductor supply shortage; (2) labor disruptions; (3) an inability to manufacture; (4) an inability to sell to our customers; (5) a decline in showroom traffic and customer demand during and following the pandemic; (6) customer defaults on automobile loans and leases; (7) lower than expected pricing on vehicles sold at auction; and (8) an impaired ability to access credit and the capital markets. Any new pandemic or other public health crises, or future public health crises, could have a material impact on our business, financial condition and results of operations going forward.

Risks related to our intellectual property, cybersecurity, information technology and data management practices

Competitors may independently develop products and services similar to ours, and there are no guarantees that GM's intellectual property rights would prevent competitors from independently developing or selling those products and services. There may be instances where, notwithstanding our intellectual property position, competitive products or services may impact the value of our brands and other intangible assets, and our business may be adversely affected. Moreover, although GM takes reasonable steps to maintain the confidentiality of GM proprietary information, there can be no assurance that such efforts will completely deter or prevent misappropriation or improper use of our intellectual property. We sometimes face attempts to gain unauthorized access to our information technology networks and systems for the purpose of improperly acquiring our trade secrets or confidential business information. The theft or unauthorized use or publication of our trade secrets and other confidential business information as a result of such an incident could adversely affect our competitive position. In addition, we have been, and in the future may be, the target of patent enforcement actions by third parties, including aggressive and opportunistic enforcement claims by non-practicing entities. Regardless of the merit of such claims, responding to infringement claims can be expensive and time-consuming. Although we have taken steps to mitigate such risks, if we are found to have infringed any third-party intellectual property rights, we could be required to pay substantial damages, or we could be enjoined from offering some of our products and services. In addition, to prevent unauthorized use of our intellectual property, it may be necessary to prosecute actions for infringement, misappropriation or other violation of our intellectual property against third parties. Any such action could result in significant costs and diversion of our resources and management's attention, and there can be no assurance that we will be successful in any such action.

Security breaches and other disruptions to information technology systems and networked products, including connected vehicles, owned or maintained by us, GM Financial, or third-parties, such as vendors or suppliers, could interfere with our operations and could compromise the confidentiality of private customer data or our proprietary information. We rely upon information technology systems and manufacture networked and connected products, some of which are managed by third parties, to process, transmit and store electronic information and to manage or support a variety of our business processes, activities and products. Additionally, we and GM Financial collect and store sensitive data, including intellectual property and proprietary business information (including that of our dealers and suppliers), as well as personally identifiable information of our customers and employees, in data centers and on information technology networks (including networks that may be controlled or maintained by third parties). The secure operation of these systems and products, and the processing and maintenance of the information processed by these systems and products, is critical to our business operations and strategy. Further, customers using our systems rely on the security of our infrastructure, including hardware and other elements provided by third parties, to ensure the reliability of our products and the protection of their data. We also face the risk of operational disruption, failure, termination or capacity constraints of any of the third parties that facilitate our business activities, including vendors, service providers, suppliers, customers, counterparties, exchanges, clearing agents, clearinghouses or other financial

intermediaries. Such parties and other third parties who provide us services or with whom we communicate could also be the source of a cyberattack on, or breach of, our operational systems, network, data or infrastructure. Despite our security measures and business continuity plans, our information technology systems and networked and connected products may be vulnerable to damage, disruptions or shutdowns caused by attacks by hackers, computer viruses, malware (including “ransomware”), phishing attacks or breaches due to errors or malfeasance by employees, contractors and others who have access to these systems and products. Techniques used in cybersecurity attacks to obtain unauthorized access, disable or sabotage information technology systems change frequently, as data breaches and other cybersecurity events have become increasingly commonplace, including as a result of the intensification of state-sponsored cybersecurity attacks during periods of geopolitical conflict, such as the ongoing conflict in Ukraine. The occurrence of any of these events could compromise the confidentiality, operational integrity and accessibility of these systems and products and the data that resides within them. Similarly, such an occurrence could result in the compromise or loss of the information processed by these systems and products. Such events could result in, among other things, the loss of proprietary data, interruptions or delays in our business operations and damage to our reputation. In addition, such events could increase the risk of claims alleging that we are non-compliant with applicable laws or regulations, subjecting us to potential liability or regulatory penalties and related costs under laws protecting the privacy of personal information; disrupt our operations; or reduce the competitive advantage we hope to derive from our investment in advanced technologies. Various events described above have occurred in the past and may occur in the future. Although impacts of past events have been immaterial, the impacts of such events in the future may be material.

Security breaches and other disruptions of our in-vehicle systems could impact the safety of our customers and reduce confidence in GM and our products. Our vehicles contain complex information technology systems. These systems control various vehicle functions including engine, transmission, safety, steering, navigation, acceleration, braking, window, door lock functions and battery and electric motors. We have designed, implemented and tested security measures intended to prevent unauthorized access to these systems. However, hackers have reportedly attempted, and may attempt in the future, to gain unauthorized access to modify, alter and use such systems to gain control of, or to change, our vehicles’ functionality, user interface and performance characteristics, or to gain access to data stored in or generated by the vehicle. Any unauthorized access to or control of our vehicles or their systems could adversely impact the safety of our customers or result in legal claims or proceedings, liability or regulatory penalties. Laws that would permit third-party access to vehicle data and related systems could expose our vehicles and vehicle systems to third-party access without appropriate security measures in place, leading to new safety and security risks for our customers and reducing customer trust and confidence in our products. In addition, regardless of their veracity, reports of unauthorized access to our vehicles or their systems could negatively affect our brand and harm our reputation, which could adversely impact our business and operating results.

Our enterprise data practices, including the collection, use, sharing and security of the Personal Identifiable Information of our customers, employees and suppliers, are subject to increasingly complex and restrictive regulations in all key market regions. Under these regulations, the failure to maintain compliant data practices could result in consumer complaints and regulatory inquiry, resulting in civil or criminal penalties, as well as brand impact or other harm to our business. In addition, increased consumer sensitivity to real or perceived failures in maintaining acceptable data practices could damage our reputation and deter current and potential users or customers from using our products and services. The cost of compliance with these laws and regulations will be high and is likely to increase in the future. The growing patchwork of state and country regulations imposes burdensome obligations on companies to quickly respond to consumer requests, such as requests to delete, disclose and stop selling personal information, with significant fines for noncompliance. Complying with these new laws has significantly increased, and may continue to increase, our operating costs and is driving increased complexity in our operations.

Risks related to government regulations and litigation

Our operations and products are subject to extensive laws, regulations and policies, including those related to vehicle emissions and fuel economy standards, which can significantly increase our costs and affect how we do business. We are significantly affected by governmental regulations on a global basis that can increase costs related to the production of our vehicles and affect our product portfolio, particularly regulations relating to fuel economy standards and GHG emissions. Meeting or exceeding the requirements of these regulations is costly, often technologically challenging and may require phase-out of internal combustion propulsion in certain major jurisdictions, and these standards are often not harmonized across jurisdictions. We anticipate that the number and extent of these and other regulations, laws and policies, and the related costs and changes to our product portfolio, may increase significantly in the future, primarily motivated by efforts to reduce GHG emissions. Specifically, fuel economy and GHG emission regulations at the federal, state or local level or in international jurisdictions could require us to further limit the sale of certain profitable products, subsidize the sale of less profitable ones, change our manufacturing processes, pay penalties or undertake other activities that may require us to incur additional expense, which may be material. These requirements may increase the cost of, and/or diminish demand for, our vehicles. These regulatory requirements, among others, could significantly affect our plans for global product development and, given the uncertainty surrounding enforcement and regulatory definitions and interpretations, may result in substantial costs, including civil or criminal penalties. In addition, an evolving but un-harmonized emissions and fuel economy regulatory framework that could include specific sales mandates may limit or dictate the types of vehicles we sell and where we sell them, which can

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affect our revenues. Refer to the “Environmental and Regulatory Matters” section of Item 1. Business for further information on regulatory and environmental requirements.

We expect that to comply with fuel economy and GHG emission standards and mandates to sell specific volumes of ZEV in certain jurisdictions, we will be required to sell a significant volume of EVs, and potentially develop and implement new technologies for conventional internal combustion engines, all of which will require substantial investment and expense. There are limits on our ability to achieve fuel economy improvements over a given time frame, primarily relating to the cost and effectiveness of available technologies, lack of sufficient consumer acceptance of new technologies and of changes in vehicle mix, lack of willingness of consumers to absorb the additional costs of new technologies, the appropriateness (or lack thereof) of certain technologies for use in particular vehicles, the widespread availability (or lack thereof) of supporting infrastructure for new technologies, especially for EVs, and the human, engineering and financial resources necessary to deploy new technologies across a wide range of products and powertrains in a short time. There is no assurance that we will be able to produce and sell vehicles that use such new technologies on a profitable basis or that our customers will purchase such vehicles in the quantities necessary for us to comply with current or future regulatory requirements.

In the current uncertain regulatory framework, compliance costs for which we may be responsible and that are not reasonably estimable could be substantial. Alleged violations of fuel economy or emission standards could result in legal proceedings, the recall of one or more of our products, negotiated remedial actions, fines, restricted product offerings or a combination of any of those items. Any of these actions could have a material adverse effect on our profitability, financial condition and operations, including facility idling, reduced employment, increased costs and loss of revenue.

In addition, many of our advanced technologies, including AVs, present novel issues with which domestic and foreign regulators have only limited experience, and will be subject to evolving regulatory frameworks. Any current or future regulations in these areas could impede the successful commercialization of these technologies and impact whether and how these technologies are designed and integrated into our products, and may ultimately subject us to increased costs and uncertainty.

We could be materially adversely affected by unusual or significant litigation, governmental investigations or other proceedings. We are subject to legal proceedings in the U.S. and elsewhere involving various issues, including product liability lawsuits, warranty litigation, class action litigations alleging product defects, emissions litigation, stockholder litigation, labor and employment litigation and claims and actions arising from restructurings and divestitures of operations and assets. In addition, we are subject to governmental proceedings and investigations. A negative outcome in one or more of these legal proceedings could result in the imposition of damages, including punitive damages, fines, reputational harm, civil lawsuits and criminal penalties, interruptions of business, modification of business practices, equitable remedies and other sanctions against us or our personnel as well as legal and other costs, all of which may be significant. For a further discussion of these matters refer to Note 16 to our consolidated financial statements.

The costs and effect on our reputation of product safety recalls and alleged defects in products and services could materially adversely affect our business. Government safety standards require manufacturers to remedy certain product safety defects through recall campaigns and vehicle repurchases. Under these standards, we could be subject to civil or criminal penalties or may incur various costs, including significant costs for repairs made at no cost to the consumer. The costs we incur in connection with these recalls typically include the cost of the part being replaced and labor to remove and replace the defective part. The costs to complete a recall could be exacerbated to the extent that such action relates to a global platform. Concerns about the safety of our products, including advanced technologies like AVs, whether raised internally or by regulators or consumer advocates, and whether or not based on scientific evidence or supported by data, can result in product delays, recalls, field actions, lost sales, governmental investigations, regulatory action, private claims, lawsuits and settlements and reputational damage. These circumstances can also result in damage to brand image, brand equity and consumer trust in our products and ability to lead the disruption occurring in the automotive industry.

We currently source a variety of systems, components, raw materials and parts from third parties. From time to time these items may have performance or quality issues that could harm our reputation and cause us to incur significant costs, particularly if the affected items relate to global platforms or involve defects that are identified years after production. Our ability to recover costs associated with recalls or other campaigns caused by parts or components purchased from suppliers may be limited by the suppliers’ financial condition or a number of other reasons or defenses.

We may incur additional tax expense or become subject to additional tax exposure. We are subject to the tax laws and regulations of the U.S. and numerous other jurisdictions in which we do business. Many judgments are required in determining our worldwide provision for income taxes and other tax liabilities, and we are regularly under audit by the U.S. Internal Revenue Service and other tax authorities, which may not agree with our tax positions. In addition, our tax liabilities are subject to other significant risks and uncertainties, including those arising from potential changes in laws and regulations in the countries in which we do business, the possibility of adverse determinations with respect to the application of existing laws (in

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particular with respect to full realization of the incentives contemplated by the Inflation Reduction Act), changes in our business or structure and changes in the valuation of our deferred tax assets and liabilities. Any unfavorable resolution of these and other uncertainties may have a significant adverse impact on our tax rate and results of operations. If our tax expense were to increase, or if the ultimate determination of our taxes owed is for an amount in excess of amounts previously accrued, our operating results, cash flows and financial condition could be adversely affected.

Risks related to Automotive Financing - GM Financial

We rely on GM Financial to provide financial services to our customers and dealers. GM Financial faces a number of business, economic and financial risks that could impair its access to capital and negatively affect its business and operations, which in turn could impede its ability to provide leasing and financing to customers and commercial lending to our dealers. Any reduction in GM Financial's ability to provide such financial services would negatively affect our efforts to support additional sales of our vehicles and expand our market penetration among customers and dealers.

The primary factors that could adversely affect GM Financial's business and operations and reduce its ability to provide financing services at competitive rates include the sufficiency, availability and cost of sources of financing, including credit facilities, securitization programs and secured and unsecured debt issuances; the performance of loans and leases in its portfolio, which could be materially affected by charge-offs, delinquencies and prepayments; wholesale auction values of used vehicles; vehicle return rates and the residual value performance on vehicles GM Financial leases to customers; fluctuations in interest rates and currencies; competition for customers from commercial banks, credit unions and other financing and leasing companies; and changes to regulation, supervision, enforcement and licensing across various jurisdictions.

In addition, GM Financial has certain floating-rate obligations, hedging transactions and floating-rate dealer loans that determine their applicable interest rate or payment amount by reference to the London Interbank Offered Rate (LIBOR). The United Kingdom Financial Conduct Authority, which regulates LIBOR, has announced that it will no longer persuade or compel banks to submit rates for the calculation of LIBOR. In March 2021, the ICE Benchmark Administration Limited, the administrator of LIBOR, extended the transition dates of certain U.S. Dollar LIBOR tenors to June 30, 2023, after which LIBOR reference rates will cease to be provided. Despite this deferral, the LIBOR administrator has advised that no new contracts using U.S. Dollar LIBOR should be entered into after December 31, 2021. It is unknown whether LIBOR will continue to be published by its administrator based on continued bank submissions or on any other basis, after such dates. There is a risk that continued developments, modifications, or other reforms effecting the discontinuation of LIBOR may impact GM Financial's ability to manage interest rate risk effectively.

Further, as an entity operating in the financial services sector, GM Financial is required to comply with a wide variety of laws and regulations that may be costly to adhere to and may affect our consolidated operating results. Compliance with these laws and regulations requires that GM Financial maintain forms, processes, procedures, controls and the infrastructure to support these requirements, and these laws and regulations often create operational constraints both on GM Financial's ability to implement servicing procedures and on pricing. Laws in the financial services industry are designed primarily for the protection of consumers. The failure to comply with these laws could result in significant statutory civil and criminal penalties, monetary damages, attorneys' fees and costs, possible revocation of licenses and damage to reputation, brand and valued customer relationships.

Risks related to defined benefit pension plans

Our pension funding requirements could increase significantly due to a reduction in funded status as a result of a variety of factors, including weak performance of financial markets, declining interest rates, changes in laws or regulations, or changes in assumptions or investments that do not achieve adequate returns. Our employee benefit plans currently hold a significant amount of equity and fixed income securities. A detailed description of the investment funds and strategies and our potential funding requirements are disclosed in Note 15 to our consolidated financial statements, which also describes significant concentrations of risk to the plan investments.

Our future funding requirements for our defined benefit pension plans depend upon the future performance of assets placed in trusts for these plans, the level of interest rates used to determine funding levels, the level of benefits provided for by the plans and any changes in laws and regulations. Future funding requirements generally increase if the discount rate decreases or if actual asset returns are lower than expected asset returns, assuming other factors are held constant. We estimate future contributions to these plans using assumptions with respect to these and other items. Changes to those assumptions could have a significant effect on future contributions.

There are additional risks due to the complexity and magnitude of our investments. Examples include implementation of significant changes in investment policy, insufficient market liquidity in particular asset classes and the inability to quickly rebalance illiquid and long-term investments.

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Factors that affect future funding requirements for our U.S. defined benefit plans generally affect the required funding for non-U.S. plans. Certain plans outside the U.S. do not have assets and therefore the obligation is funded as benefits are paid. If local legal authorities increase the minimum funding requirements for our non-U.S. plans, we could be required to contribute more funds, which could negatively affect our liquidity and financial condition.

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Item 1B. Unresolved Staff Comments

None.

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Item 2. Properties

At December 31, 2022, we had over 100 locations in the U.S. (excluding our automotive financing operations and dealerships), which are primarily for manufacturing, assembly, distribution, warehousing, engineering and testing. We, our subsidiaries or associated companies in which we own an equity interest, own most of these properties and/or lease a portion of these properties. Leased properties are primarily composed of warehouses and administration, engineering and sales offices.

We have manufacturing, assembly, distribution, office or warehousing operations in 29 countries, including equity interests in associated companies, which perform manufacturing, assembly or distribution operations. The major facilities outside the U.S., which are principally vehicle manufacturing and assembly operations, are located in Brazil, Canada, China, Mexico and South Korea.

GM Financial owns or leases facilities for administration and regional credit centers. GM Financial has 35 facilities, of which 22 are located in the U.S. The major facilities outside the U.S. are located in Brazil, Canada, China and Mexico.

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Item 3. Legal Proceedings

SEC regulations require us to disclose certain information about environmental proceedings if a governmental authority is a party to such proceedings and such proceedings involve potential monetary sanctions that we reasonably believe will exceed a stated threshold. Pursuant to the SEC regulations, the Company will use a threshold of \$1 million for purposes of determining whether disclosure of any such proceedings is required.

The discussion under Note 16 to our consolidated financial statements is incorporated by reference into this Part I, Item 3.

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Item 4. Mine Safety Disclosures

Not applicable.

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PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

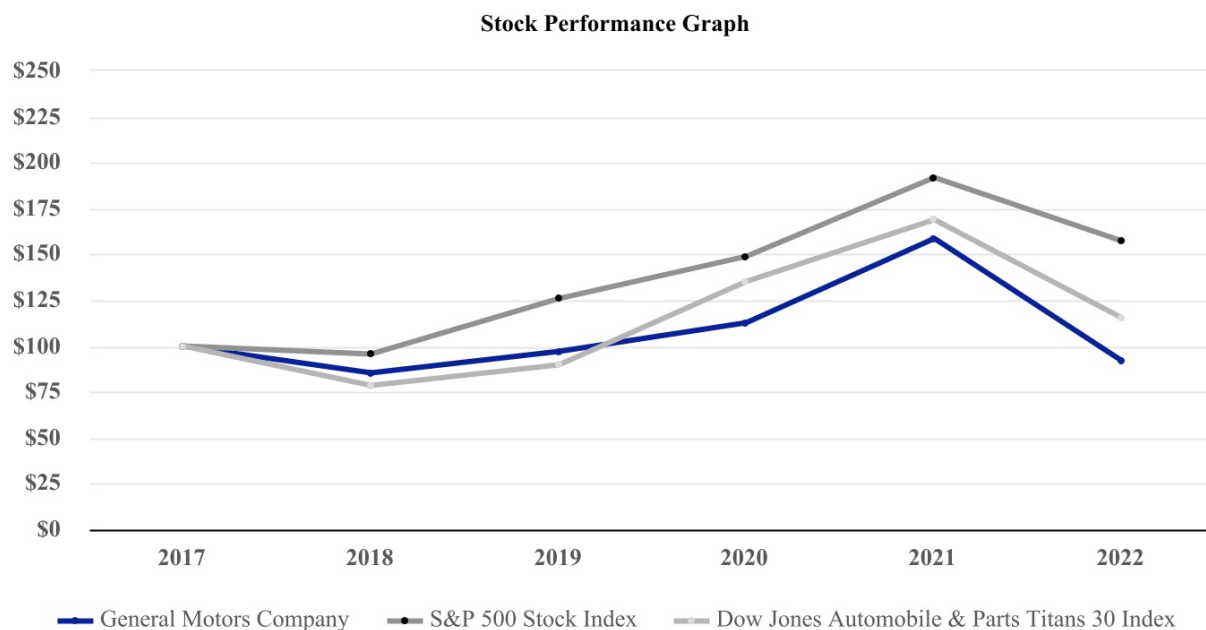
Market Information Shares of our common stock are publicly traded on the New York Stock Exchange under the symbol "GM".

Holders At January 17, 2023, we had 1.4 billion issued and outstanding shares of common stock held by 472 holders of record.

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Dividends In September 2022, our Board of Directors reinstated a quarterly dividend of \$0.09 per share of our common stock. We anticipate that we will continue to declare and pay dividends on our common stock quarterly. However, the declaration of any dividend on our common stock is a matter to be acted upon by our Board of Directors in its sole discretion and will depend on various factors, including our financial condition, operating results, available cash, and current and anticipated cash needs, as described further in the "Liquidity and Capital Resources" section of the MD&A.

Stock Performance Graph The following graph compares the performance of our common stock to the Standard & Poor's 500 Stock Index and the Dow Jones Automobile & Parts Titans 30 Index for the last five years. It assumes \$100 was invested on December 31, 2017, with dividends being reinvested.



The following table summarizes stock performance graph data points in dollars:

	Years ended December 31,					
	2017	2018	2019	2020	2021	2022
General Motors Company	\$ 100	\$ 85	\$ 97	\$ 113	\$ 159	\$ 91
S&P 500 Stock Index	\$ 100	\$ 96	\$ 126	\$ 149	\$ 192	\$ 157
Dow Jones Automobile & Parts Titans 30 Index	\$ 100	\$ 79	\$ 89	\$ 135	\$ 169	\$ 115

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Purchases of Equity Securities The following table summarizes our purchases of common stock in the three months ended December 31, 2022:

	Total Number of Shares Purchased(a) (b)	Weighted Average Price Paid per Share(c)	Total Number of Shares Purchased Under Announced Programs(b)	Approximate Dollar Value of Shares That May Yet be Purchased Under Announced Programs
October 1, 2022 through October 31, 2022	313,425	\$ 32.09	—	\$3.5 billion
November 1, 2022 through November 30, 2022	8,540,718	\$ 39.71	8,540,718	\$3.2 billion
December 1, 2022 through December 31, 2022	17,604,218	\$ 37.57	17,591,600	\$2.5 billion
Total	26,458,361	\$ 38.20	26,132,318	

- (a) Shares purchased include shares delivered by employees or directors to us for the payment of taxes resulting from issuance of common stock upon the vesting of Restricted Stock Units (RSUs) and Performance Stock Units (PSUs) relating to compensation plans. In June 2020, our shareholders approved the 2020 Long-Term Incentive Plan (LTIP), which authorizes awards of stock options, stock appreciation rights, RSUs, PSUs or other stock-based awards to selected employees, consultants, advisors and non-employee Directors of the Company. Refer to Note 22 to our consolidated financial statements for additional details on employee stock incentive plans.
- (b) In January 2017, we announced that our Board of Directors had authorized the purchase of up to \$5.0 billion of our common stock with no expiration date. In August 2022, the Board of Directors increased the capacity to \$5.0 billion from the \$3.3 billion that remained as of June 30, 2022, with no expiration date.
- (c) The weighted-average price paid per share excludes broker commissions.

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Item 6. [Reserved]

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

This MD&A should be read in conjunction with the accompanying audited consolidated financial statements and notes. Forward-looking statements in this MD&A are not guarantees of future performance and may involve risks and uncertainties that could cause actual results to differ materially from those projected. Refer to the "Forward-Looking Statements" section of this MD&A and Part I, Item 1A. Risk Factors for a discussion of these risks and uncertainties. The discussion of our financial condition and results of operations for the year ended December 31, 2020 included in Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations in our [Annual Report on Form 10-K for the year ended December 31, 2021](#) is incorporated by reference into this MD&A.

Non-GAAP Measures Our non-GAAP measures include: earnings before interest and taxes (EBIT)-adjusted, presented net of noncontrolling interests; earnings before income taxes (EBT)-adjusted for our GM Financial segment; earnings per share (EPS)-diluted-adjusted; effective tax rate-adjusted (ETR-adjusted); return on invested capital-adjusted (ROIC-adjusted) and adjusted automotive free cash flow. Our calculation of these non-GAAP measures may not be comparable to similarly titled measures of other companies due to potential differences between companies in the method of calculation. As a result, the use of these non-GAAP measures has limitations and should not be considered superior to, in isolation from, or as a substitute for, related U.S. GAAP measures.

These non-GAAP measures allow management and investors to view operating trends, perform analytical comparisons and benchmark performance between periods and among geographic regions to understand operating performance without regard to items we do not consider a component of our core operating performance. Furthermore, these non-GAAP measures allow investors the opportunity to measure and monitor our performance against our externally communicated targets and evaluate the investment decisions being made by management to improve ROIC-adjusted. Management uses these measures in its financial, investment and operational decision-making processes, for internal reporting and as part of its forecasting and budgeting processes. Further, our Board of Directors uses certain of these and other measures as key metrics to determine management performance under our performance-based compensation plans. For these reasons, we believe these non-GAAP measures are useful for our investors.

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EBIT-adjusted EBIT-adjusted is presented net of noncontrolling interests and is used by management and can be used by investors to review our consolidated operating results because it excludes automotive interest income, automotive interest expense and income taxes as well as certain additional adjustments that are not considered part of our core operations. Examples of adjustments to EBIT include, but are not limited to, impairment charges on long-lived assets and other exit costs resulting from strategic shifts in our operations or discrete market and business conditions, and certain costs arising from legal matters. For EBIT-adjusted and our other non-GAAP measures, once we have made an adjustment in the current period for an item, we will also adjust the related non-GAAP measure in any future periods in which there is an impact from the item. Our corresponding measure for our GM Financial segment is EBT-adjusted because interest income and interest expense are part of operating results when assessing and measuring the operational and financial performance of the segment.

EPS-diluted-adjusted EPS-diluted-adjusted is used by management and can be used by investors to review our consolidated diluted EPS results on a consistent basis. EPS-diluted-adjusted is calculated as net income attributable to common stockholders-diluted less adjustments noted above for EBIT-adjusted and certain income tax adjustments divided by weighted-average common shares outstanding-diluted. Examples of income tax adjustments include the establishment or reversal of significant deferred tax asset valuation allowances.

ETR-adjusted ETR-adjusted is used by management and can be used by investors to review the consolidated effective tax rate for our core operations on a consistent basis. ETR-adjusted is calculated as Income tax expense less the income tax related to the adjustments noted above for EBIT-adjusted and the income tax adjustments noted above for EPS-diluted-adjusted divided by Income before income taxes less adjustments. When we provide an expected adjusted effective tax rate, we do not provide an expected effective tax rate because the U.S. GAAP measure may include significant adjustments that are difficult to predict.

ROIC-adjusted ROIC-adjusted is used by management and can be used by investors to review our investment and capital allocation decisions. We define ROIC-adjusted as EBIT-adjusted for the trailing four quarters divided by ROIC-adjusted average net assets, which is considered to be the average equity balances adjusted for average automotive debt and interest liabilities, exclusive of finance leases; average automotive net pension and other postretirement benefits (OPEB) liabilities; and average automotive net income tax assets during the same period.

Adjusted automotive free cash flow Adjusted automotive free cash flow is used by management and can be used by investors to review the liquidity of our automotive operations and to measure and monitor our performance against our capital allocation program and evaluate our automotive liquidity against the substantial cash requirements of our automotive operations. We measure adjusted automotive free cash flow as automotive operating cash flow from operations less capital expenditures adjusted for management actions. Management actions can include voluntary events such as discretionary contributions to employee benefit plans or nonrecurring specific events such as a closure of a facility that are considered special for EBIT-adjusted purposes. Refer to the "Liquidity and Capital Resources" section of this MD&A for additional information.

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The following table reconciles Net income attributable to stockholders under U.S. GAAP to EBIT-adjusted:

	Years Ended December 31,		
	2022	2021	2020
Net income attributable to stockholders	\$ 9,934	\$ 10,019	\$ 6,427
Income tax expense	1,888	2,771	1,774
Automotive interest expense	987	950	1,098
Automotive interest income	(460)	(146)	(241)
Adjustments			
Cruise compensation modifications(a)	1,057	—	—
Russia exit(b)	657	—	—
Buick dealer strategy(c)	511	—	—
Patent royalty matters(d)	(100)	250	—
GM Brazil indirect tax matters(e)	—	194	—
Cadillac dealer strategy(f)	—	175	99
GM Korea wage litigation(g)	—	82	—
GMI restructuring(h)	—	—	683
Ignition switch recall and related legal matters(i)	—	—	(130)
Total adjustments	2,125	701	652
EBIT-adjusted	<u>\$ 14,474</u>	<u>\$ 14,295</u>	<u>\$ 9,710</u>

(a) This adjustment was excluded because it relates to the one-time modification of Cruise stock incentive awards.

(b) This adjustment was excluded because it relates to the shutdown of our Russia business including the write off of our net investment and release of accumulated translation losses into earnings.

(c) This adjustment was excluded because it relates to strategic activities to transition certain Buick dealers out of our dealer network as part of Buick's EV strategy. In 2023, we expect to incur additional charges as we continue to optimize our Buick dealer network. The ultimate amount of any future charges will depend on negotiations with our dealers.

(d) These adjustments were excluded because they relate to certain royalties accrued with respect to past-year vehicle sales in 2021 and the resolution of substantially all of these matters in 2022.

(e) This adjustment was excluded because it relates to a settlement with third parties relating to retrospective recoveries of indirect taxes in Brazil realized in prior periods.

(f) These adjustments were excluded because they relate to strategic activities to transition certain Cadillac dealers out of our dealer network as part of Cadillac's EV strategy.

(g) This adjustment was excluded because of the unique events associated with Supreme Court of the Republic of Korea (Korea Supreme Court) decisions related to our salaried workers.

(h) This adjustment was excluded because of a strategic decision to rationalize our core operations by exiting or significantly reducing our presence in various international markets to focus resources on opportunities expected to deliver higher returns. The adjustments primarily consist of dealer restructurings, asset impairments, inventory provisions and employee separation charges in Australia, New Zealand, Thailand and India.

(i) This adjustment was excluded because of the unique events associated with the ignition switch recall.

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The following table reconciles diluted earnings per common share under U.S. GAAP to EPS-diluted-adjusted:

	Years Ended December 31,					
	2022		2021		2020	
	Amount	Per Share	Amount	Per Share	Amount	Per Share
Diluted earnings per common share	\$ 8,915	\$ 6.13	\$ 9,837	\$ 6.70	\$ 6,247	\$ 4.33
Adjustments(a)	2,125	1.46	701	0.47	652	0.46
Tax effect on adjustments(b)	(423)	(0.29)	(105)	(0.07)	(70)	(0.05)
Tax adjustments(c)	(482)	(0.33)	(51)	(0.03)	236	0.16
Deemed dividend adjustment(d)	909	0.63	—	—	—	—
EPS-diluted-adjusted	\$ 11,044	\$ 7.59	\$ 10,382	\$ 7.07	\$ 7,065	\$ 4.90

- (a) Refer to the reconciliation of Net income attributable to stockholders under U.S. GAAP to EBIT-adjusted within this section of the MD&A for adjustment details.
- (b) The tax effect of each adjustment is determined based on the tax laws and valuation allowance status of the jurisdiction to which the adjustment relates.
- (c) In the year ended December 31, 2022, the adjustment consists of tax benefit related to the release of a valuation allowance against deferred tax assets considered realizable as a result of Cruise tax reconsolidation. In the year ended December 31, 2021, the adjustments consist of tax benefits related to a deduction for an investment in a subsidiary and resolution of uncertainty relating to an indirect tax refund claim in Brazil, partially offset by tax expense related to the establishment of a valuation allowance against Cruise deferred tax assets. In the year ended December 31, 2020, the adjustment consists of tax expense related to the establishment of a valuation allowance against deferred tax assets in Australia and New Zealand. This adjustment was excluded because significant impacts of valuation allowances are not considered part of our core operations.
- (d) This adjustment consists of a deemed dividend related to the redemption of Cruise preferred shares from SoftBank Vision Fund (AIV M2) L.P. (SoftBank) in the year ended December 31, 2022.

The following table reconciles our effective tax rate under U.S. GAAP to ETR-adjusted:

	Years Ended December 31,								
	2022			2021			2020		
	Income before income taxes	Income tax expense	Effective tax rate	Income before income taxes	Income tax expense	Effective tax rate	Income before income taxes	Income tax expense	Effective tax rate
Effective tax rate	\$ 11,597	\$ 1,888	16.3 %	\$ 12,716	\$ 2,771	21.8 %	\$ 8,095	\$ 1,774	21.9 %
Adjustments(a)	2,221	423		726	105		652	70	
Tax adjustments(b)		482			51			(236)	
ETR-adjusted	\$ 13,818	\$ 2,793	20.2 %	\$ 13,442	\$ 2,927	21.8 %	\$ 8,747	\$ 1,608	18.4 %

- (a) Refer to the reconciliation of Net income attributable to stockholders under U.S. GAAP to EBIT-adjusted within this section of the MD&A for adjustment details. Net income attributable to noncontrolling interests for these adjustments is included in the years ended December 31, 2022 and 2021. The tax effect of each adjustment is determined based on the tax laws and valuation allowance status of the jurisdiction to which the adjustment relates.
- (b) Refer to the reconciliation of diluted earnings per common share under U.S. GAAP to EPS-diluted-adjusted within this section of the MD&A for adjustment details.

We define return on equity (ROE) as Net income attributable to stockholders for the trailing four quarters divided by average equity for the same period. Management uses average equity to provide comparable amounts in the calculation of ROE. The following table summarizes the calculation of ROE (dollars in billions):

	Years Ended December 31,		
	2022	2021	2020
Net income attributable to stockholders	\$ 9.9	\$ 10.0	\$ 6.4
Average equity(a)	\$ 66.6	\$ 56.5	\$ 43.3
ROE	14.9 %	17.7 %	14.9 %

- (a) Includes equity of noncontrolling interests where the corresponding earnings (loss) are included in Net income attributable to stockholders.

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The following table summarizes the calculation of ROIC-adjusted (dollars in billions):

	Years Ended December 31,		
	2022	2021	2020
EBIT-adjusted(a)	\$ 14.5	\$ 14.3	\$ 9.7
Average equity(b)	\$ 66.6	\$ 56.5	\$ 43.3
Add: Average automotive debt and interest liabilities (excluding finance leases)	17.6	17.1	27.8
Add: Average automotive net pension & OPEB liability	9.4	15.8	17.6
Less: Average automotive net income tax asset	(21.2)	(22.2)	(24.0)
ROIC-adjusted average net assets	\$ 72.3	\$ 67.2	\$ 64.7
ROIC-adjusted	20.0 %	21.3 %	15.0 %

(a) Refer to the reconciliation of Net income attributable to stockholders under U.S. GAAP to EBIT-adjusted within this section of the MD&A.

(b) Includes equity of noncontrolling interests where the corresponding earnings (loss) are included in EBIT-adjusted.

Overview Our vision for the future is a world with zero crashes, zero emissions and zero congestion, which guides our growth-focused strategy to invest in EVs and AVs, software-enabled services and subscriptions and new business opportunities, while strengthening our market position in profitable ICE vehicles, such as trucks and SUVs. We will execute our strategy with a diverse team and a steadfast commitment to good citizenship through sustainable operations and a leading health and safety culture.

The automotive industry and GM continue to experience supply chain and logistics disruptions from multiple suppliers that have impacted, and may continue to impact, our planned production schedules. Despite these challenges, in the second half of 2022, we experienced improved parts availability that enabled us to increase production and improve dealer inventory levels for certain vehicles.

In addition, we faced significant inflationary pressure in 2022 that resulted in approximately \$5.5 billion in higher commodity and logistics costs. These increases were more than offset by strong product pricing. While we anticipate incentives to increase from the low levels in 2022, we expect product pricing to remain strong in 2023, particularly for our full-size SUVs, full-size trucks and expected new launches. We also expect commodity and logistics cost to improve, but be partially offset by costs we expect to incur as we strategically localize our battery raw materials supply chain in North America. Refer to the Consolidated Results and regional analysis sections of this MD&A for additional information.

In 2022, the Board of Governors of the Federal Reserve System raised interest rates to lower the rate of inflation. The higher interest rate environment did not have a material impact on our 2022 financial results, but we expect it will have an approximately \$1.0 billion unfavorable impact on our results of operations in 2023, as a result of lower forecasted pension income. Refer to the Critical Accounting Estimates section of this MD&A for additional information including our interest rate sensitivity analysis. We expect higher interest rates to have an immaterial impact on our Automotive interest expense in 2023, as substantially all of our debt instruments are fixed rate. For a discussion of the net interest income sensitivity of GM Financial, see Item 7A. Quantitative and Qualitative Disclosures About Market Risk. Furthermore, holding other factors constant, the higher interest rate environment may decrease the affordability of our vehicles for customers who rely on financing to purchase a vehicle.

We also face continuing market, operating and regulatory challenges in several countries across the globe due to, among other factors, competitive pressures, our product portfolio offerings, heightened emission standards, potentially weakening economic conditions, labor disruptions, foreign exchange volatility, evolving trade policy and political uncertainty. Refer to Part I, Item 1A. Risk Factors for a discussion of these challenges.

We also continue to monitor the impact of the COVID-19 pandemic, and government actions and measures taken to prevent its spread, and the potential to affect our operations. Refer to Part I, Item 1A. Risk Factors for further discussion of these risks.

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As we continue to assess our performance and the needs of our evolving business, additional restructuring and rationalization actions could be required. These actions could give rise to future asset impairments or other charges, which may have a material impact on our operating results.

On August 16, 2022, the Inflation Reduction Act of 2022 (the “Act”) was signed into law. The Act implements a new 15% corporate minimum tax based on modified U.S. financial statement net income that is effective beginning in 2023. The new corporate minimum tax is not expected to have a significant impact on our net earnings or cash flow in 2023. The Act also modified climate and clean energy corporate tax provisions, including the consumer credit for EV purchases, and beginning in 2023, new tax credits for commercial EV purchases and investments in clean energy production, supply chains and manufacturing facilities became effective. We expect to generate commercial EV tax credits and credits from our production of battery components that will increase net income and impact income tax cash payments. While waiting on pending Department of Treasury regulatory guidance, we are continuing to evaluate the ultimate impact of the tax credits on our financial results, including our net earnings and cash flow.

For the year ending December 31, 2023, we expect EPS-diluted and EPS-diluted-adjusted of between \$6.00 and \$7.00, Net income attributable to stockholders of between \$8.7 billion and \$10.1 billion and EBIT-adjusted of between \$10.5 billion and \$12.5 billion. We do not consider the potential impact of future adjustments on our expected financial results.

The following table reconciles expected Net income attributable to stockholders under U.S. GAAP to expected EBIT-adjusted (dollars in billions):

	Year Ending December 31, 2023
Net income attributable to stockholders	\$ 8.7-10.1
Income tax expense	1.6-2.2
Automotive interest expense, net	0.2
EBIT-adjusted(a)	\$ 10.5-12.5

(a) We do not consider the potential future impact of adjustments on our expected financial results.

GMNA Industry sales in North America were 17.3 million units in the year ended December 31, 2022, representing a decrease of 6.6% compared to the corresponding period in 2021. U.S. industry sales were 14.2 million units in the year ended December 31, 2022, representing a decrease of 7.9% compared to the corresponding period in 2021. The COVID-19 pandemic originally resulted in a contraction of total North America industry volumes in 2020 that continued through 2022. Dealer inventory remains constrained for several critical vehicles, including our full-size SUVs.

Our total vehicle sales in the U.S., our largest market in North America, were 2.3 million units for a market share of 16.0% in the year ended December 31, 2022, representing an increase of 1.6 percentage points compared to the corresponding period in 2021.

We expect to sustain relatively strong EBIT-adjusted margins in 2023 on the continued strength of vehicle pricing and healthy U.S. industry light vehicle demand, partially offset by elevated costs associated with commodities, raw materials and logistics. Our outlook is dependent on the pricing environment, continuing improvement of supply chain availability and overall economic conditions. As a result of supply chain disruptions in 2022, we experienced interruptions to our planned production schedules and prioritized production of our most popular and in-demand products, including our full-size trucks, full-size SUVs and EVs.

In 2023, our collective bargaining agreements with the UAW in the United States and Unifor in Canada, as well as collective bargaining agreements in Mexico, will expire, which will require negotiation of new agreements. Refer to Part I, Item 1A. Risk Factors for a discussion of the risks related to any significant disruption at one of our manufacturing facilities.

GMI Industry sales in China were 23.5 million units in the year ended December 31, 2022, representing a decrease of 9.2% compared to the corresponding period in 2021. Our total vehicle sales in China were 2.3 million units resulting in a market share of 9.8% in the year ended December 31, 2022, representing a decrease of 1.4 percentage points compared to the corresponding period in 2021. The ongoing supply chain disruptions, macro-economic impact of COVID-19 and geopolitical tensions continue to place pressure on China's automotive industry and our vehicle sales in China. Our Automotive China JVs

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generated equity income of \$0.7 billion in the year ended December 31, 2022. Although price competition, higher costs associated with commodities and raw materials, and a more challenging regulatory environment related to emissions, fuel consumption and NEV requirements will place pressure on our operations in China, we will continue to build upon our strong brands, network, and partnerships in China as well as drive improvements in vehicle mix and cost.

Outside of China, industry sales were 23.7 million units in the year ended December 31, 2022, representing an increase of 2.5% compared to the corresponding period in 2021. Our total vehicle sales outside of China were 1.0 million units for a market share of 4.0% in the year ended December 31, 2022, representing an increase of 0.4 percentage points compared to the corresponding period in 2021.

We historically operated a small import business in Russia and sold GM-badged vehicles into Russia through GM's alliance partner in Uzbekistan. GM's direct and indirect profitability in Russia was insignificant. With Russia's invasion of Ukraine, western sanctions on Russia have and may continue to progressively increase. In addition, reputational, legal and other concerns impacted our ability to continue to operate in Russia. In February 2022, we suspended our exports into Russia and instructed our Russian sales company to cease selling vehicles within Russia. In April 2022, we took additional actions to extend the suspension of our Russian business, including the cessation of commercial operations. In November 2022, we shut down our Russia business and recorded a \$0.7 billion charge to write off our net investment and release accumulated translation losses into earnings. The predominately non-cash charge associated with our exit is considered special for EBIT-adjusted, adjusted automotive free cash flow and EPS-diluted-adjusted purposes. Currently, we do not believe any loss contingencies arising from our exit are probable and we are unable to estimate any reasonably possible losses that may result from claims that may be asserted against us by third parties, including retail customers or government authorities in Russia.

We continue to monitor the situation and its macroeconomic impacts on our financial position and results of operations. Although we have limited supply chain exposure to Russia and Ukraine, we are working closely with our supply base to mitigate any potential risks.

Cruise Gated by safety and regulation, Cruise continues to make significant progress towards commercialization of a network of on-demand AVs in the United States and globally. In 2021, Cruise received a driverless test permit from the California Public Utilities Commission (CPUC) to provide unpaid rides to the public in driverless vehicles and received approval of its Autonomous Vehicle Deployment Permit from the California Department of Motor Vehicles to commercially deploy driverless AVs. In June 2022, Cruise received the first ever Driverless Deployment Permit granted by the CPUC, which allows them to charge a fare for the driverless rides they are providing to members of the public in certain parts of San Francisco. Additionally, in September 2022, Cruise acquired regulatory permits to operate driverless ride hail services in Phoenix, Arizona and began pursuing ride hail operations in Austin, Texas. GM and Cruise are also awaiting a decision on an exemption petition that was filed with NHTSA seeking regulatory approval for the deployment of the Cruise Origin. Refer to the "Liquidity and Capital Resources" section of this MD&A for information about GM's additional investment in Cruise.

Automotive Financing - GM Financial Summary and Outlook We believe that offering a comprehensive suite of financing products will generate incremental sales of our vehicles, drive incremental GM Financial earnings and help support our sales throughout various economic cycles. GM Financial's leasing program is exposed to residual values, which are heavily dependent on used vehicle prices. Used vehicle prices were generally higher than contractual residual values in 2022, primarily due to low new vehicle inventory. In 2023, we expect used vehicle prices to continue moderating through the year as market prices on used vehicles fall below contractual residual values. The increase in used vehicle prices resulted in gains on terminations of leased vehicles of \$1.2 billion in GM Financial interest, operating and other expenses for the year ended December 31, 2022, and \$2.0 billion in the corresponding period in 2021. The following table summarizes the estimated residual value based on GM Financial's most recent estimates and the number of units included in GM Financial Equipment on operating leases, net by vehicle type (units in thousands):

	December 31, 2022			December 31, 2021		
	Residual Value	Units	Percentage	Residual Value	Units	Percentage
Crossovers	\$ 14,207	736	67.3 %	\$ 16,696	897	67.3 %
Trucks	6,961	228	20.9 %	7,886	264	19.8 %
SUVs	2,595	66	6.0 %	3,104	80	5.9 %
Cars	964	63	5.8 %	1,430	93	7.0 %
Total	\$ 24,727	1,092	100.0 %	\$ 29,116	1,334	100.0 %

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GM Financial's penetration of our retail sales in the U.S. was 43% in the year ended December 31, 2022 and 44% in the corresponding period in 2021. Penetration levels vary depending on incentive financing programs available and competing third-party financing products in the market. GM Financial's prime loan originations as a percentage of total loan originations in North America was 80% in the year ended December 31, 2022 and 73% in the corresponding period in 2021. In the year ended December 31, 2022, GM Financial's revenue consisted of leased vehicle income of 61%, retail finance charge income of 32% and commercial finance charge income of 3%.

Consolidated Results We review changes in our results of operations under five categories: volume, mix, price, cost and other. Volume measures the impact of changes in wholesale vehicle volumes driven by industry volume, market share and changes in dealer stock levels. Mix measures the impact of changes to the regional portfolio due to product, model, trim, country and option penetration in current year wholesale vehicle volumes. Price measures the impact of changes related to Manufacturer's Suggested Retail Price and various sales allowances. Cost primarily includes: (1) material and freight; (2) manufacturing, engineering, advertising, administrative and selling and warranty expense; and (3) non-vehicle related activity. Other primarily includes foreign exchange and non-vehicle related automotive revenues as well as equity income or loss from our nonconsolidated affiliates. Refer to the regional sections of this MD&A for additional information.

Total Net Sales and Revenue

	Years Ended December 31,		Favorable/ (Unfavorable)	%	Variance Due To			
	2022	2021			Volume	Mix	Price	Other
	(Dollars in billions)							
GMNA	\$ 128,378	\$ 101,308	\$ 27,070	26.7 %	\$ 24.9	\$ (5.3)	\$ 7.1	\$ 0.3
GMI	15,420	12,172	3,248	26.7 %	\$ 2.0	\$ 0.1	\$ 1.4	\$ (0.3)
Corporate	177	104	73	70.2 %		\$ —		\$ 0.1
Automotive	143,974	113,584	30,390	26.8 %	\$ 26.9	\$ (5.1)	\$ 8.5	\$ 0.1
Cruise	102	106	(4)	(3.8)%				\$ —
GM Financial	12,766	13,419	(653)	(4.9)%				\$ (0.7)
Eliminations/reclassifications	(107)	(105)	(2)	(1.9)%		\$ —		\$ —
Total net sales and revenue	<u>\$ 156,735</u>	<u>\$ 127,004</u>	<u>\$ 29,731</u>	23.4 %	\$ 26.9	\$ (5.1)	\$ 8.5	\$ (0.6)

Refer to the regional sections of this MD&A for additional information on volume, mix and price.

Automotive and Other Cost of Sales

	Years Ended December 31,		Favorable/ (Unfavorable)	%	Variance Due To			
	2022	2021			Volume	Mix	Cost	Other
	(Dollars in billions)							
GMNA	\$ 109,651	\$ 87,419	\$ (22,232)	(25.4)%	\$ (16.7)	\$ (0.3)	\$ (5.7)	\$ 0.4
GMI	14,166	11,802	(2,364)	(20.0)%	\$ (1.6)	\$ —	\$ (1.0)	\$ 0.2
Corporate	500	200	(300)	n.m.		\$ —	\$ (0.3)	\$ —
Cruise	2,576	1,124	(1,452)	n.m.			\$ (1.5)	
Eliminations	(2)	(1)	1	n.m.			\$ —	
Total automotive and other cost of sales	<u>\$ 126,892</u>	<u>\$ 100,544</u>	<u>\$ (26,348)</u>	(26.2)%	\$ (18.3)	\$ (0.2)	\$ (8.4)	\$ 0.6

n.m. = not meaningful

The most significant element of our Automotive and other cost of sales is material cost, which makes up approximately two-thirds of the total amount. The remaining portion includes labor costs, depreciation and amortization, engineering, freight and product warranty and recall campaigns.

Factors that most significantly influence a region's profitability are industry volume, market share, and the relative mix of vehicles (trucks, crossovers, cars) sold. Variable profit is a key indicator of product profitability. Variable profit is defined as

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revenue less material cost, freight, the variable component of manufacturing expense and warranty and recall-related costs. Vehicles with higher selling prices generally have higher variable profit. Refer to the regional sections of this MD&A for additional information on volume and mix.

In the year ended December 31, 2022, increased Cost was primarily due to: (1) increased material and freight costs of \$5.5 billion; (2) increased costs of \$1.1 billion primarily related to parts and accessories; (3) increased manufacturing costs of \$1.1 billion; (4) increased engineering costs of \$1.0 billion primarily related to accelerating our EV portfolio and an increase in development costs as Cruise progresses towards the commercialization of a network of on-demand AVs in the United States and globally; and (5) increased costs of \$0.8 billion related to modification of Cruise stock incentive awards; partially offset by (6) decreased campaigns and other warranty-related costs of \$0.4 billion; and (7) a decrease of \$0.4 billion related to the resolution of substantially all patent royalty matters accrued with respect to past-year vehicle sales. In the year ended December 31, 2022, favorable Other was due to the weakening of the Korean Won and other currencies against the U.S. Dollar, partially offset by the strengthening of the Brazilian Real and other currencies against the U.S. Dollar.

Automotive and Other Selling, General and Administrative Expense

	Years Ended December 31,			Year Ended 2022 vs. 2021 Change	
	2022	2021	2020	Favorable/ (Unfavorable)	%
Automotive and other selling, general and administrative expense	\$ 10,667	\$ 8,554	\$ 7,038	\$ (2,113)	(24.7)%

In the year ended December 31, 2022, Automotive and other selling, general and administrative expense increased primarily due to: (1) increased advertising, selling, and administrative costs of \$1.3 billion; (2) charges of \$0.5 billion for strategic activities related to Buick dealerships; and (3) increased costs of \$0.3 billion related to modification of Cruise stock incentive awards.

Interest Income and Other Non-operating Income, net

	Years Ended December 31,			Year Ended 2022 vs. 2021 Change	
	2022	2021	2020	Favorable/ (Unfavorable)	%
Interest income and other non-operating income, net	\$ 1,432	\$ 3,041	\$ 1,885	\$ (1,609)	(52.9)%

In the year ended December 31, 2022, Interest income and other non-operating income, net decreased primarily due to: (1) \$0.4 billion in losses in 2022 compared to \$0.3 billion in gains in 2021 related to Stellantis N.V. (Stellantis) warrants; and (2) \$0.7 billion related to the shutdown of our Russia business.

Income Tax Expense

	Years Ended December 31,			Year Ended 2022 vs. 2021 Change	
	2022	2021	2020	Favorable/ (Unfavorable)	%
Income tax expense	\$ 1,888	\$ 2,771	\$ 1,774	\$ 883	31.9 %

In the year ended December 31, 2022, Income tax expense decreased primarily due to Cruise valuation allowance adjustments, lower effective tax rate as a result of Cruise reconsolidation and lower pre-tax income. The decrease was partially offset by absence of tax benefit related to a deduction for an investment in a subsidiary, which occurred in the year ended December 31, 2021.

For the year ended December 31, 2022 our ETR-adjusted was 20.2%. We expect our adjusted effective tax rate to be between 16% and 18% for the year ending December 31, 2023.

Refer to Note 17 to our consolidated financial statements for additional information related to Income tax expense.

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GM North America

	Years Ended December 31,		Favorable/ (Unfavorable)	%	Variance Due To				
	2022	2021			Volume	Mix	Price	Cost	Other
	(Dollars in billions)								
Total net sales and revenue	\$ 128,378	\$ 101,308	\$ 27,070	26.7 %	\$ 24.9	\$ (5.3)	\$ 7.1		\$ 0.3
EBIT-adjusted	\$ 12,988	\$ 10,318	\$ 2,670	25.9 %	\$ 8.2	\$ (5.5)	\$ 7.1	\$ (6.9)	\$ (0.1)
EBIT-adjusted margin	10.1 %	10.2 %	(0.1)%						
	(Vehicles in thousands)								
Wholesale vehicle sales	2,926	2,308	618	26.8 %					

GMNA Total Net Sales and Revenue In the year ended December 31, 2022, Total net sales and revenue increased primarily due to: (1) increased net wholesale volumes primarily due to increased sales of crossover vehicles, passenger cars, full-size pickup trucks, vans, mid-size pickup trucks and full-size SUVs due to improved parts availability that allowed us to increase production in 2022; (2) favorable price as a result of low dealer inventory levels and strong demand for our products; and (3) favorable Other due to increased sales of parts and accessories, partially offset by the foreign currency effect resulting from the weakening of the Canadian Dollar against the U.S. Dollar; partially offset by (4) unfavorable mix associated with increased sales of crossover vehicles, passenger cars, vans and mid-size pickup trucks, partially offset by increased sales of full-size pickup trucks and full-size SUVs.

GMNA EBIT-Adjusted The most significant factors that influence profitability are industry volume and market share. While not as significant as industry volume and market share, another factor affecting profitability is the relative mix of vehicles sold. Trucks, crossovers and cars sold currently have a variable profit of approximately 150%, 50% and 40% of our GMNA portfolio on a weighted-average basis.

In the year ended December 31, 2022, EBIT-adjusted increased primarily due to: (1) favorable volume; and (2) favorable price; partially offset by (3) increased Cost primarily due to increased material and freight cost of \$4.7 billion, increased selling, general and administrative costs of \$1.2 billion, increased manufacturing cost of \$0.8 billion and increased engineering cost of \$0.4 billion including accelerating our EV portfolio, partially offset by a decrease in campaigns and other warranty-related costs of \$0.4 billion; and (4) unfavorable mix.

GM International

	Years Ended December 31,		Favorable/ (Unfavorable)	%	Variance Due To				
	2022	2021			Volume	Mix	Price	Cost	Other
	(Dollars in billions)								
Total net sales and revenue	\$ 15,420	\$ 12,172	\$ 3,248	26.7 %	\$ 2.0	\$ 0.1	\$ 1.4		\$ (0.3)
EBIT-adjusted	\$ 1,143	\$ 827	\$ 316	38.2 %	\$ 0.4	\$ 0.2	\$ 1.4	\$ (1.1)	\$ (0.6)
EBIT-adjusted margin	7.4 %	6.8 %	0.6 %						
Equity income — Automotive China	\$ 677	\$ 1,098	\$ (421)	(38.3)%					
EBIT (loss)-adjusted — excluding Equity income	\$ 466	\$ (271)	\$ 737	n.m.					
	(Vehicles in thousands)								
Wholesale vehicle sales	653	551	102	18.5 %					

n.m. = not meaningful

The vehicle sales of our Automotive China JVs are not recorded in Total net sales and revenue. The results of our joint ventures are recorded in Equity income, which is included in EBIT-adjusted above.

GMI Total Net Sales and Revenue In the year ended December 31, 2022, Total net sales and revenue increased primarily due to: (1) increased net wholesale volumes due to improved parts availability that allowed us to increase production in 2022; (2) favorable pricing across multiple vehicle lines in South America and the Middle East; and (3) favorable mix in the Middle East and Asia/Pacific, partially offset by unfavorable mix in South America; partially offset by (4) unfavorable Other primarily due to the foreign currency effect resulting from the weakening of various currencies against the U.S. dollar, partially offset by increased components, parts and accessories sales.

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GMI EBIT-Adjusted In the year ended December 31, 2022, EBIT-adjusted increased primarily due to: (1) favorable price; (2) increased net wholesale volumes; and (3) favorable mix; partially offset by (4) unfavorable Cost primarily due to increased material and logistic costs; and (5) unfavorable Other primarily due to foreign currency effect resulting from the weakening of various currencies against the U.S. dollar and decreased equity income.

We view the Chinese market as important to our global growth strategy and are employing a multi-brand strategy. In the coming years, we plan to leverage our global architectures to increase the number of product offerings under the Buick, Chevrolet and Cadillac brands in China and continue to grow our business under the local Baojun and Wuling brands while we are accelerating the development and rollout of EVs across our brands in China in response to our commitment to an all-electric future. We operate in the Chinese market through a number of joint ventures and maintaining strong relationships with our joint venture partners is an important part of our China growth strategy.

The following table summarizes certain key operational and financial data for the Automotive China JVs (vehicles in thousands):

	Years Ended December 31,		
	2022	2021	2020
Wholesale vehicle sales including vehicles exported to markets outside of China	2,639	3,007	3,029
Total net sales and revenue	\$ 35,857	\$ 42,776	\$ 38,736
Net income	\$ 1,407	\$ 2,109	\$ 1,239

	December 31, 2022	December 31, 2021
Cash and cash equivalents	\$ 8,552	\$ 10,254
Debt	\$ 197	\$ 374

Cruise

	Years Ended December 31,			2022 vs. 2021 Change	
	2022	2021	2020	Favorable/ (Unfavorable)	%
Total net sales and revenue(a)	\$ 102	\$ 106	\$ 103	\$ (4)	(3.8)%
EBIT (loss)-adjusted(b)	\$ (1,890)	\$ (1,196)	\$ (887)	\$ (694)	(58.0)%

(a) Primarily reclassified to Interest income and other non-operating income, net in our consolidated income statements in each of the years ended December 31, 2022, 2021 and 2020.

(b) Excludes \$1.1 billion in compensation expense in the year ended December 31, 2022 resulting from modification of the Cruise stock incentive awards.

Cruise EBIT (Loss)-Adjusted In the year ended December 31, 2022, EBIT (loss)-adjusted increased primarily due to an increase in development costs as we progress towards the commercialization of a network of on-demand rideshare and delivery AVs in the U.S. and globally.

GM Financial

	Years Ended December 31,			2022 vs. 2021 Change	
	2022	2021	2020	Amount	%
Total revenue	\$ 12,766	\$ 13,419	\$ 13,831	\$ (653)	(4.9)%
Provision for loan losses	\$ 654	\$ 248	\$ 881	\$ 406	n.m.
EBT-adjusted	\$ 4,076	\$ 5,036	\$ 2,702	\$ (960)	(19.1)%
Average debt outstanding (dollars in billions)	\$ 93.8	\$ 94.1	\$ 91.4	\$ (0.3)	(0.3)%
Effective rate of interest paid	3.1 %	2.7 %	3.3 %	0.4 %	

n.m. = not meaningful

GM Financial Revenue In the year ended December 31, 2022, Total revenue decreased primarily due to decreased leased vehicle income of \$1.2 billion primarily due to a decrease in the average balance of the leased vehicles portfolio; partially offset

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by increased finance charge income of \$0.4 billion primarily due to growth in the retail finance receivables portfolio, partially offset by a decrease in the effective yield due to increased lending to borrowers with prime credit; and an increase in the effective yield on commercial finance receivables as a result of higher benchmark rates, as well as an increase in the size of the portfolio.

GM Financial EBT-Adjusted In the year ended December 31, 2022, EBT-adjusted decreased primarily due to: (1) decreased leased vehicle income net of leased vehicle expenses of \$0.7 billion primarily due to decreased depreciation on leased vehicles resulting from increased residual value estimates and a decrease in the size of the portfolio, decreased lease vehicle income primarily due to a decrease in the average balance of the leased vehicles portfolio, and decreased lease termination gains; (2) increased provision for loan losses of \$0.4 billion primarily due to increased loan origination volume in 2022, and the reduction in reserve levels recorded in 2021 as a result of actual credit performance that was better than forecast and favorable expectations for future charge-offs and recoveries, as well as an economic forecast weighted more heavily to a weaker outlook as of December 31, 2022; and (3) increased interest expense of \$0.3 billion primarily due to an increased effective rate of interest on our debt; partially offset by (4) increased finance charge income of \$0.4 billion primarily due to growth in the retail finance receivables portfolio, partially offset by a decrease in the effective yield due to increased lending to borrowers with prime credit; and an increase in the effective yield on commercial finance receivables as a result of higher benchmark rates, as well as an increase in the size of the portfolio.

Liquidity and Capital Resources We believe our current levels of cash, cash equivalents, marketable debt securities, available borrowing capacity under our revolving credit facilities and other liquidity actions currently available to us are sufficient to meet our liquidity requirements. We also maintain access to the capital markets and may issue debt or equity securities, which may provide an additional source of liquidity. We have substantial cash requirements going forward, which we plan to fund through our total available liquidity, cash flows from operating activities and additional liquidity measures, if determined to be necessary.

Our known current material uses of cash include, among other possible demands: (1) capital spending and our investments in our battery cell manufacturing joint ventures of approximately \$11.0 billion to \$13.0 billion per year through 2025; (2) payments for engineering and product development activities; (3) payments associated with previously announced vehicle recalls and any other recall-related contingencies; (4) payments to service debt and other long-term obligations, including discretionary and mandatory contributions to our pension plans; (5) payments associated with the liquidity program for holders of equity-based incentive awards issued to employees of Cruise; (6) dividend payments on our common stock that are declared by our Board of Directors; and (7) payments to purchase shares of our common stock authorized by our Board of Directors. Refer to Note 7, Note 13 and Note 15 to our consolidated financial statements for additional funding requirements for our operating leases, debt and pension plans. Our material future uses of cash, which may vary from time to time based on market conditions and other factors, are focused on the three objectives of our capital allocation program: (1) grow our business at an average target ROIC-adjusted rate of 20% or greater; (2) maintain a strong investment-grade balance sheet, including a target average automotive cash balance of \$18.0 billion; and (3) after the first two objectives are met, return available cash to shareholders. Our senior management evaluates our capital allocation program on an ongoing basis and recommends any modifications to the program to our Board of Directors not less than once annually.

We continue to monitor and evaluate opportunities to strengthen our competitive position over the long term while maintaining a strong investment-grade balance sheet. These actions may include opportunistic payments to reduce our long-term obligations, as well as the possibility of acquisitions, dispositions and investments with joint venture partners, as well as strategic alliances that we believe would generate significant advantages and substantially strengthen our business. To support our transition to EVs, we anticipate making investments in suppliers or providing funding towards the execution of strategic, multi-year supply agreements to secure critical materials. In addition, we have entered, and plan to continue to enter, into offtake agreements that generally obligate us to purchase defined quantities of output. These arrangements could have a short-term adverse impact on our cash and increase our inventory.

Our liquidity plans are subject to a number of risks and uncertainties, including those described in the "Forward-Looking Statements" section of this MD&A and Part I, Item 1A. Risk Factors, some of which are outside of our control.

In August 2022, our Board of Directors increased the capacity under our previously announced common stock repurchase program to \$5.0 billion from the \$3.3 billion that remained under the program as of June 30, 2022. During the year ended December 31, 2022, we completed \$2.5 billion of repurchases under the program and retired approximately 64 million shares of our common stock.

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In September 2022, we reinstated a quarterly dividend of \$0.09 per share of our common stock. During the year ended December 31, 2022, we paid dividends of \$0.3 billion to holders of our common stock.

In November 2022, Ultium Cells LLC, a wholly owned subsidiary of Ultium Cells Holding LLC, entered into a loan agreement with the U.S. Department of Energy (DOE) through the Advanced Technology Vehicles Manufacturing program, pursuant to which Ultium Cells LLC may borrow up to \$2.5 billion. The proceeds of the loans will be used to finance the construction of new battery cell manufacturing facilities in the U.S. Under the terms of the loan agreement, the DOE will not have recourse on the principal and interest of the loan against General Motors Company or any of its consolidated subsidiaries.

In December 2022, we early redeemed our \$1.0 billion 5.40% senior unsecured notes with a maturity date of October 2023 and recorded an insignificant loss. Additionally, during 2022, we paid, prior to maturity, \$0.5 billion of unsecured term loans in GMI.

In January 2023, we gave notice to early redeem our \$1.5 billion 4.875% senior unsecured notes with a maturity date of October 2023. The settlement of the early redemption of these senior unsecured notes is expected to occur during the first quarter of 2023 and is expected to have an immaterial impact on our 2023 results.

Cash flows that occur amongst our Automotive, Cruise and GM Financial operations are eliminated when we consolidate our cash flows. Such eliminations include, among other things, collections by Automotive on wholesale accounts receivables financed by dealers through GM Financial, payments between Automotive and GM Financial for accounts receivables transferred by Automotive to GM Financial, loans to Automotive and Cruise from GM Financial, dividends issued by GM Financial to Automotive, tax payments by GM Financial to Automotive and Automotive cash injections in Cruise. The presentation of Automotive liquidity, Cruise liquidity and GM Financial liquidity presented below includes the impact of cash transactions amongst the sectors that are ultimately eliminated in consolidation.

Automotive Liquidity Total available liquidity includes cash, cash equivalents, marketable debt securities and funds available under credit facilities. The amount of available liquidity is subject to seasonal fluctuations and includes balances held by various business units and subsidiaries worldwide that are needed to fund their operations.

We manage our liquidity primarily at our treasury centers as well as at certain of our significant consolidated overseas subsidiaries. Over 90% of our cash and marketable debt securities were managed within North America and at our regional treasury centers at December 31, 2022. We have used, and will continue to use, other methods including intercompany loans to utilize these funds across our global operations as needed.

Our cash equivalents and marketable debt securities balances are primarily denominated in U.S. Dollars and include investments in U.S. government and agency obligations, foreign government securities, time deposits, corporate debt securities and mortgage and asset-backed securities. Our investment guidelines, which we may change from time to time, prescribe certain minimum credit worthiness thresholds and limit our exposures to any particular sector, asset class, issuance or security type. The majority of our current investments in debt securities are with A/A2 or better rated issuers.

We use credit facilities as a mechanism to provide additional flexibility in managing our global liquidity. Our Automotive borrowing capacity under credit facilities totaled \$15.5 billion at December 31, 2022 and 2021, which consisted primarily of two credit facilities. Total Automotive borrowing capacity under our credit facilities does not include our 364-day, \$2.0 billion facility allocated for exclusive use of GM Financial. We did not have any borrowings against our primary facilities, but had letters of credit outstanding under our sub-facility of \$0.4 billion and \$0.3 billion at December 31, 2022 and 2021.

In April 2022, we renewed our 364-day, \$2.0 billion revolving credit facility allocated for the exclusive use of GM Financial, which now matures on April 4, 2023. If available capacity permits, GM Financial continues to have access to our automotive credit facilities. GM Financial did not have borrowings outstanding against any of these facilities at December 31, 2022 and 2021. We had intercompany loans from GM Financial of \$0.2 billion at December 31, 2022 and 2021, which primarily consisted of commercial loans to dealers we consolidate. We did not have intercompany loans to GM Financial at December 31, 2022 and 2021. Refer to Note 5 to our consolidated financial statements for additional information.

In August 2022, we issued \$2.25 billion in aggregate principal amount of senior unsecured notes under our new Sustainable Finance Framework with a weighted average interest rate of 5.51% and maturity dates in 2029 and 2032. We intend to allocate an amount equal to the net proceeds from these senior unsecured notes to finance or refinance, in whole or in part, new or existing green projects, assets or activities undertaken or owned by the Company that meet one or more eligibility criteria outlined in our Sustainable Finance Framework.

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Several of our loan facilities, including our revolving credit facilities, require compliance with certain financial and operational covenants as well as regular reporting to lenders. We have reviewed our covenants in effect as of December 31, 2022 and determined we are in compliance and expect to remain in compliance in the future.

In March 2022, under the Share Purchase Agreement, we acquired SoftBank's equity ownership stake in Cruise for \$2.1 billion and, separately, we made an additional \$1.35 billion investment in Cruise in place of SoftBank. During the year ended December 31, 2022, we made additional investments in Cruise of \$1.1 billion.

In September 2022, we exercised our 39.7 million warrants in Stellantis. Upon exercise, the warrants converted into 69.1 million common shares of Stellantis, which we immediately sold back to Stellantis. Total net pre-tax proceeds, including dividends received, in connection with this transaction were approximately \$1.1 billion.

GM Financial's Board of Directors declared and paid dividends of \$1.7 billion, \$3.5 billion, and \$0.8 billion on its common stock in 2022, 2021, and 2020. Future dividends from GM Financial will depend on several factors including business and economic conditions, its financial condition, earnings, liquidity requirements and leverage ratio.

The following table summarizes our Automotive available liquidity (dollars in billions):

	December 31, 2022	December 31, 2021
Automotive cash and cash equivalents	\$ 13.6	\$ 14.5
Marketable debt securities	10.8	7.1
Automotive cash, cash equivalents and marketable debt securities	24.4	21.6
Available under credit facilities(a)	15.1	15.2
Total Automotive available liquidity	\$ 39.5	\$ 36.8

(a) We had letters of credit outstanding under our sub-facility of \$0.4 billion and \$0.3 billion at December 31, 2022 and 2021.

The following table summarizes the changes in our Automotive available liquidity (dollars in billions):

	Year Ended December 31, 2022
Operating cash flow	\$ 19.1
Capital expenditures	(9.0)
Dividends paid and payments to purchase common stock	(2.8)
GM investment in Cruise	(2.4)
Purchase of SoftBank's equity stake in Cruise	(2.1)
Issuance of senior unsecured notes	2.2
Net proceeds from sale of Stellantis common shares(a)	0.9
Payment of senior unsecured note	(1.0)
Investment in Ultium Cells Holdings LLC	(0.8)
Payment of GMI unsecured term debt	(0.5)
Other non-operating	(0.9)
Total change in automotive available liquidity	\$ 2.7

(a) Excludes dividends received and tax withholding.

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Automotive Cash Flow (Dollars in billions)

	Years Ended December 31,			2022 vs. 2021 Change
	2022	2021	2020	
Operating Activities				
Net income	\$ 8.5	\$ 7.8	\$ 5.0	\$ 0.7
Depreciation, amortization and impairment charges	6.3	5.9	5.5	0.4
Pension and OPEB activities	(2.0)	(2.4)	(1.6)	0.4
Working capital	0.5	(4.0)	(1.7)	4.5
Accrued and other liabilities and income taxes	3.1	0.9	(1.4)	2.2
Other	2.7	1.5	1.7	1.2
Net automotive cash provided by (used in) operating activities	<u>\$ 19.1</u>	<u>\$ 9.7</u>	<u>\$ 7.5</u>	<u>\$ 9.4</u>

In the year ended December 31, 2022, the increase in Net automotive cash provided by operating activities was primarily due to: (1) lower sales incentive payments of \$4.7 billion; and (2) working capital; partially offset by (3) lower dividends received from GM Financial of \$1.8 billion.

	Years Ended December 31,			2022 vs. 2021 Change
	2022	2021	2020	
Investing Activities				
Capital expenditures	\$ (9.0)	\$ (7.4)	\$ (5.3)	\$ (1.6)
Acquisitions and liquidations of marketable securities, net(a)	(3.9)	1.0	(3.6)	(4.9)
Other(b)	(4.5)	(1.8)	0.1	(2.7)
Net automotive cash provided by (used in) investing activities	<u>\$ (17.5)</u>	<u>\$ (8.2)</u>	<u>\$ (8.8)</u>	<u>\$ (9.3)</u>

(a) Amount includes \$0.6 billion of proceeds for the sale of our share in Lyft, Inc. in the year ended December 31, 2020.

(b) Includes \$2.4 billion and \$1.0 billion for GM's investment in Cruise in the years ended December 31, 2022 and 2021, \$2.1 billion related to the redemption of Cruise preferred shares from SoftBank in the year ended December 31, 2022, \$0.9 billion related to the sale of Stellantis common shares, excluding dividends received and tax withholding, in the year ended December 31, 2022, and a \$0.8 billion and \$0.5 billion investment in Ultium Cells Holdings LLC in the years ended December 31, 2022 and 2021.

In the year ended December 31, 2022, cash used in acquisitions and liquidations of marketable securities, net increased due to acquisitions of securities and investments compared to liquidations of securities to fund operating activities and investments during the year ended December 31, 2021.

	Years Ended December 31,			2022 vs. 2021 Change
	2022	2021	2020	
Financing Activities				
Net proceeds (payments) from short-term debt	\$ (1.4)	\$ (0.5)	\$ (0.5)	\$ (0.9)
Issuance of senior notes	2.3	—	4.0	2.3
Other(a)	(3.3)	(0.4)	(1.4)	(2.9)
Net automotive cash provided by (used in) financing activities	<u>\$ (2.5)</u>	<u>\$ (0.9)</u>	<u>\$ 2.1</u>	<u>\$ (1.6)</u>

(a) Includes \$2.8 billion and \$0.6 billion for dividends paid and payments to purchase common stock in the years ended December 31, 2022 and December 31, 2020, and \$0.5 billion for repayments of senior unsecured notes for the years ended December 31, 2021 and 2020.

Adjusted Automotive Free Cash Flow We measure adjusted automotive free cash flow as automotive operating cash flow from operations less capital expenditures adjusted for management actions. For the year ended December 31, 2022, net automotive cash provided by operating activities under U.S. GAAP was \$19.1 billion, capital expenditures were \$9.0 billion and adjustments for management actions were \$0.4 billion. For the year ended December 31, 2021, net automotive cash provided by operating activities under U.S. GAAP was \$9.7 billion, capital expenditures were \$7.4 billion and adjustments for management actions, were \$0.3 billion.

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Status of Credit Ratings We receive ratings from four independent credit rating agencies: DBRS Limited (DBRS), Fitch Ratings (Fitch), Moody's Investor Service (Moody's) and Standard & Poor's (S&P). All four credit rating agencies currently rate our corporate credit at investment grade. The following table summarizes our credit ratings at January 17, 2023:

	Corporate	Revolving Credit Facilities	Senior Unsecured	Outlook
DBRS	BBB (high)	BBB (high)	N/A	Stable
Fitch	BBB-	BBB-	BBB-	Positive
Moody's	Investment Grade	Baa2	Baa3	Stable
S&P	BBB	BBB	BBB	Stable

Cruise Liquidity In January 2022, Cruise Holdings met the requirements for commercial deployment under its agreements with SoftBank, which triggered SoftBank's obligation to purchase additional Cruise convertible preferred shares for \$1.35 billion. In March 2022, GM made the additional \$1.35 billion investment in Cruise in place of SoftBank following GM's acquisition of SoftBank's equity ownership stake in Cruise pursuant to the Share Purchase Agreement.

Additionally, in March 2022, GM and Cruise announced a liquidity program for holders of equity-based incentive awards issued to the employees of Cruise pursuant to Cruise's 2018 Employee Incentive Plan, under which GM will purchase newly issued Cruise Class B Common Shares to fund the tax withholding on vested awards and GM will conduct tender offers for Cruise Class B Common Shares issued to settle vested awards. During the year ended December 31, 2022, Cruise issued approximately \$0.5 billion of Cruise Class B Common Shares, primarily to us, to fund the payment of statutory tax withholding obligations resulting from the settlement or exercise of vested awards. Also, GM conducted quarterly tender offers, and paid approximately \$0.6 billion in cash to settle tendered Cruise Class B Common Shares under the announced liquidity program during the year ended December 31, 2022. Refer to Note 20 to our consolidated financial statements for additional information.

The following table summarizes Cruise's available liquidity (dollars in billions):

	December 31, 2022	December 31, 2021
Cruise cash and cash equivalents	\$ 1.5	\$ 1.6
Cruise marketable securities	1.4	1.5
Total Cruise available liquidity(a)	\$ 2.9	\$ 3.1

(a) Excludes a multi-year credit agreement between Cruise and GM Financial whereby Cruise can request to borrow, over time, up to an additional aggregate of \$4.5 billion, through 2024, to fund exclusively the purchase of AVs from GM.

The following table summarizes the changes in Cruise's available liquidity (dollars in billions):

	Year Ended December 31, 2022
Operating cash flow(a)	\$ (1.8)
GM investment in Cruise	2.4
Employee Incentive Plan	(0.6)
Other non-operating	(0.1)
Total change in Cruise available liquidity	\$ (0.2)

(a) Includes \$0.4 billion cash outflows related to tendered Cruise Class B Common Shares classified as liabilities.

Cruise Cash Flow (Dollars in billions)

	Years Ended December 31,			2022 vs. 2021 Change
	2022	2021	2020	
Net cash provided by (used in) operating activities	\$ (1.8)	\$ (1.2)	\$ (0.8)	\$ (0.6)
Net cash provided by (used in) investing activities	\$ —	\$ (0.7)	\$ (0.7)	\$ 0.7
Net cash provided by (used in) financing activities	\$ 1.8	\$ 2.6	\$ —	\$ (0.8)

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Automotive Financing – GM Financial Liquidity GM Financial's primary sources of cash are finance charge income, leasing income and proceeds from the sale of terminated leased vehicles, net distributions from credit facilities, securitizations, secured and unsecured borrowings and collections and recoveries on finance receivables. GM Financial's primary uses of cash are purchases and funding of finance receivables and leased vehicles, repayment or repurchases of secured and unsecured debt, funding credit enhancement requirements in connection with securitizations and secured credit facilities, interest costs, operating expenses, income taxes and dividend payments. GM Financial continues to monitor and evaluate opportunities to optimize its liquidity position and the mix of its debt between secured and unsecured debt. The following table summarizes GM Financial's available liquidity (dollars in billions):

	December 31, 2022	December 31, 2021
Cash and cash equivalents	\$ 4.0	\$ 4.0
Borrowing capacity on unpledged eligible assets	22.0	19.2
Borrowing capacity on committed unsecured lines of credit	0.5	0.5
Borrowing capacity on revolving credit facility, exclusive to GM Financial	2.0	2.0
Total GM Financial available liquidity	\$ 28.5	\$ 25.7

In the year ended December 31, 2022, GM Financial's available liquidity increased primarily due to increased available borrowing capacity on unpledged eligible assets, resulting from the issuance of securitization transactions and unsecured debt. GM Financial structures liquidity to support at least six months of GM Financial's expected net cash flows, including new originations, without access to new debt financing transactions or other capital markets activity.

GM Financial has access to \$15.5 billion of our revolving credit facilities with exclusive access to the 364-day, \$2.0 billion facility. Refer to the "Automotive Liquidity" section of this MD&A for additional details. We have a support agreement with GM Financial which, among other things, establishes commitments of funding from us to GM Financial. This agreement also provides that we will continue to own all of GM Financial's outstanding voting shares so long as any unsecured debt securities remain outstanding at GM Financial. In addition, we are required to use our commercially reasonable efforts to ensure GM Financial remains a subsidiary borrower under our corporate revolving credit facilities.

Credit Facilities In the normal course of business, in addition to using its available cash, GM Financial utilizes borrowings under its credit facilities, which may be secured or unsecured, and GM Financial repays these borrowings as appropriate under its cash management strategy. At December 31, 2022, secured, committed unsecured and uncommitted unsecured credit facilities totaled \$26.2 billion, \$0.5 billion and \$1.4 billion with advances outstanding of \$3.9 billion, an insignificant amount and \$1.4 billion.

GM Financial Cash Flow (Dollars in billions)

	Years Ended December 31,			2022 vs. 2021 Change
	2022	2021	2020	
Net cash provided by (used in) operating activities	\$ 5.5	\$ 7.3	\$ 8.0	\$ (1.8)
Net cash provided by (used in) investing activities	\$ (10.0)	\$ (5.5)	\$ (9.3)	\$ (4.5)
Net cash provided by (used in) financing activities	\$ 4.0	\$ (2.6)	\$ 2.4	\$ 6.6

In the year ended December 31, 2022, Net cash provided by operating activities decreased primarily due to: (1) a decrease in leased vehicle income of \$1.2 billion; and (2) a net increase in cash used in counterparty derivative collateral posting activities of \$0.9 billion.

In the year ended December 31, 2022, Net cash used in investing activities increased primarily due to: (1) an increase in purchases and originations of finance receivables of \$6.1 billion; (2) a decrease in collections and recoveries on finance receivables of \$0.7 billion; and (3) a decrease in the proceeds from termination of leased vehicles of \$0.2 billion; partially offset by (4) a decrease in purchases of leased vehicles of \$2.7 billion.

In the year ended December 31, 2022, Net cash provided by financing activities increased primarily due to: (1) a decrease in debt repayments of \$8.8 billion; and (2) a decrease in dividend payments of \$1.8 billion; partially offset by (3) a decrease in borrowings of \$4.0 billion.

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LIBOR Transition As discussed in Part I, Item 1A. Risk Factors, banks will no longer be persuaded or compelled to submit rates for the calculation of LIBOR. GM Financial established a LIBOR transition initiative in 2019 to evaluate the potential impacts of the transition, and continues to implement strategies to mitigate the risks associated with the LIBOR discontinuation such as amending existing LIBOR-based transactions where feasible. GM Financial has only a limited amount of LIBOR-based debt outstanding that is currently scheduled to mature after June 30, 2023 and if not amendable, would utilize the Alternative Reference Rates Committee fallback process where applicable. Furthermore, GM Financial has adhered to the International Swaps and Derivatives Association's Fallbacks Protocol and is transitioning its existing LIBOR-based derivative exposure in advance of the June 30, 2023 date when applicable LIBOR will no longer be published. For any residual exposure after the end of 2022, GM Financial expects to leverage relevant contractual and statutory solutions to transition such exposure.

Critical Accounting Estimates The consolidated financial statements are prepared in conformity with U.S. GAAP, which requires the use of estimates, judgments and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses in the periods presented. We believe the accounting estimates employed are appropriate and the resulting balances are reasonable; however, due to the inherent uncertainties in developing estimates, actual results could differ from the original estimates, requiring adjustments to these balances in future periods. Refer to Note 2 to our consolidated financial statements for our significant accounting policies related to our critical accounting estimates.

Product Warranty and Recall Campaigns The estimates related to product warranties are established using historical information on the nature, frequency and average cost of claims of each vehicle line or each model year of the vehicle line and assumptions about future activity and events. When little or no claims experience exists for a model year or a vehicle line, the estimate is based on comparable models.

We accrue the costs related to product warranty at the time of vehicle sale and we accrue the estimated cost of recall campaigns when they are probable and estimable.

The estimates related to recall campaigns accrued at the time of vehicle sale are established by applying a paid loss approach that considers the number of historical recall campaigns and the estimated cost for each recall campaign. These estimates consider the nature, frequency and magnitude of historical recall campaigns, and use key assumptions including the number of historical periods and the weighting of historical data in the reserve studies. Costs associated with recall campaigns not accrued at the time of vehicle sale are estimated based on the estimated cost of repairs and the estimated vehicles to be repaired. Depending on part availability and time to complete repairs we may, from time to time, offer courtesy transportation at no cost to our customers. These estimates are re-evaluated on an ongoing basis and based on the best available information. Revisions are made when necessary based on changes in these factors.

The estimated amount accrued for recall campaigns at the time of vehicle sale is most sensitive to the estimated number of recall events, the number of vehicles per recall event, the assumed number of vehicles that will be brought in by customers for repair (take rate) and the cost per vehicle for each recall event. The estimated cost of a recall campaign that is accrued on an individual basis is most sensitive to our estimated assumed take rate that is primarily developed based on our historical take rate experience. A 10% increase in the estimated take rate for all recall campaigns would increase the estimated cost by approximately \$0.4 billion.

Actual experience could differ from the amounts estimated requiring adjustments to these liabilities in future periods. Due to the uncertainty and potential volatility of the factors contributing to developing estimates, changes in our assumptions could materially affect our results of operations.

Sales Incentives The estimated effect of sales incentives offered to dealers and end customers is recorded as a reduction of Automotive net sales and revenue at the time of sale. There may be numerous types of incentives available at any particular time. Incentive programs are generally specific to brand, model or sales region and are for specified time periods, which may be extended. Significant factors used in estimating the cost of incentives include type of program, forecasted sales volume, product mix, and the rate of customer acceptance of incentive programs, all of which are estimated based on historical experience and assumptions concerning future customer behavior and market conditions. A change in any of these factors affecting the estimate could have a significant effect on recorded sales incentives. A 10% increase in the cost of incentives would increase the sales incentive liability by an insignificant amount. Subsequent adjustments to incentive estimates are possible as facts and circumstances change over time, which could affect the revenue previously recognized in Automotive net sales and revenue.

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GM Financial Allowance for Loan Losses The GM Financial retail finance receivables portfolio consists of smaller-balance, homogeneous loans that are carried at amortized cost, net of allowance for loan losses. The allowance for loan losses on retail finance receivables reflects net credit losses expected to be incurred over the remaining life of the retail finance receivables, which have a weighted average remaining life of approximately two years. GM Financial forecasts net credit losses based on relevant information about past events, current conditions and forecast economic performance. GM Financial believes that the allowance is adequate to cover expected credit losses on the retail finance receivables; however, because the allowance for loan losses is based on estimates, there can be no assurance that the ultimate charge-off amount will not exceed such estimates or that our credit loss assumptions will not increase.

GM Financial incorporates its outlook on forecast recovery rates and overall economic performance in its allowance estimate. Each 5% relative decrease/increase in the forecast recovery rates would increase/decrease the allowance for loan losses by \$0.1 billion.

At December 31, 2022, the weightings applied to the economic forecast scenarios considered resulted in an allowance for loan losses on the retail finance receivables portfolio of \$2.1 billion. If the forecast economic conditions were based entirely on the weakest scenario considered, the allowance for loan losses would increase by \$74 million. Actual economic data and recovery rates that are lower than those forecasted by GM Financial could result in an increase to the allowance for loan losses.

The GM Financial commercial finance receivables portfolio consists of floorplan financing as well as dealer loans, which are loans to finance improvements to dealership facilities, to provide working capital, or to purchase and/or finance dealership real estate. The allowance for loan losses on commercial finance receivables is based on historical loss experience for the consolidated portfolio, in addition to forecasted industry vehicle sales. There can be no assurance that the ultimate charge-off amount will not exceed such estimates or that GM Financial's credit loss assumptions will not increase.

Valuation of GM Financial Equipment on Operating Lease Assets and Residuals GM Financial has investments in leased vehicles recorded as operating leases. Each leased asset in the portfolio represents a vehicle that GM Financial owns and has leased to a customer. At lease inception, an estimate is made of the expected residual value for the vehicle at the end of the lease term, which typically ranges from two to five years. GM Financial estimates the expected residual value based on third-party data that considers various data points and assumptions, including, but not limited to, recent auction values, the expected future volume of returning leased vehicles, significant liquidation of rental or fleet inventory, used vehicle prices, manufacturer incentive programs and fuel prices.

During the term of a lease, GM Financial periodically evaluates the estimated residual value and may adjust the value downward, which increases the prospective depreciation, or upward (limited to the contractual residual value), which decreases the prospective depreciation.

The customer is obligated to make payments during the lease term for the difference between the purchase price and the contract residual value plus a money factor. However, since the customer is not obligated to purchase the vehicle at the end of the contract, GM Financial is exposed to a risk of loss to the extent the customer returns the vehicle prior to or at the end of the lease term and the proceeds GM Financial receives on the disposition of the vehicle are lower than the residual value estimated at lease inception. Realization of the residual values is dependent on GM Financial's future ability to market the vehicles under prevailing market conditions.

At December 31, 2022, the estimated residual value of GM Financial's leased vehicles was \$24.7 billion. Depreciation reduces the carrying value of each leased asset in GM Financial's operating lease portfolio over time from its original acquisition value to its expected residual value at the end of the lease term. If used vehicle prices weaken compared to estimates, GM Financial would increase depreciation expense and/or record an impairment charge on the lease portfolio. If an impairment exists, GM Financial would determine any shortfall in recoverability of the leased vehicle asset groups by year, make and model. Recoverability is calculated as the excess of: (1) the sum of remaining lease payments plus estimated residual value; over (2) leased vehicles, net less deferred revenue. Alternatively, if used vehicle prices outperform GM Financial's latest estimates, it may record gains on sales of off-lease vehicles and/or decreased depreciation expense.

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The following table illustrates the effect of a 1% relative change in the estimated residual values at December 31, 2022, which could increase or decrease depreciation expense over the remaining term of the leased vehicle portfolio, holding all other assumptions constant (dollars in millions):

	Impact to Depreciation Expense
2023	\$ 181
2024	52
2025	13
2026 and thereafter	1
Total	\$ 247

Changes to residual values are rarely simultaneous across all maturities and segments, and also may impact return rates. If a decrease in residual values is concentrated among specific asset groups, the decrease could result in an immediate impairment charge. GM Financial reviewed the leased vehicle portfolio for indicators of impairment and determined that no impairment indicators were present at December 31, 2022 and 2021.

Used vehicle prices decreased since the end of 2021 due to normalization of supply and demand; however, prices remain above pre-pandemic levels. In 2023, GM Financial expects used vehicle prices to continue moderating through the year.

Pension and OPEB Plans Our defined benefit pension plans are accounted for on an actuarial basis, which requires the selection of various assumptions, including an expected long-term rate of return on plan assets, a discount rate, mortality rates of participants and expectation of mortality improvement. Our pension obligations include Korean statutory pension payments that are valued on a walk away basis. The expected long-term rate of return on U.S. plan assets that is utilized in determining pension expense is derived from periodic studies, which include a review of asset allocation strategies, anticipated future long-term performance of individual asset classes, risks using standard deviations and correlations of returns among the asset classes that comprise the plans' asset mix. While the studies give appropriate consideration to recent plan performance and historical returns, the assumptions are primarily long-term, prospective rates of return.

In December 2022, an investment policy study was completed for the U.S. pension plans. As a result of changes to our capital market assumptions, the weighted-average long-term rate of return on assets increased from 5.4% at December 31, 2021 to 6.3% at December 31, 2022. The expected long-term rate of return on plan assets used in determining pension expense for non-U.S. plans is determined in a similar manner to the U.S. plans.

Another key assumption in determining net pension and OPEB expense is the assumed discount rate used to discount plan obligations. We estimate the assumed discount rate for U.S. plans using a cash flow matching approach, which uses projected cash flows matched to spot rates along a high quality corporate bond yield curve to determine the weighted-average discount rate for the calculation of the present value of cash flows. We apply the individual yield curve rates instead of the assumed discount rate to determine the service cost and interest cost, which more specifically links the cash flows related to service cost and interest cost to bonds maturing in their year of payment.

The Society of Actuaries (SOA) issued mortality improvement tables in the three months ended December 31, 2022. We reviewed our recent mortality experience and we determined our current mortality assumptions are appropriate to measure our U.S. pension and OPEB plans obligations as of December 31, 2022.

Significant differences in actual experience or significant changes in assumptions may materially affect the pension obligations. The effects of actual results differing from assumptions and the changing of assumptions are included in unamortized net actuarial gains and losses that are subject to amortization to pension expense over future periods. The unamortized pre-tax actuarial loss on our pension plans was \$3.3 billion and \$3.7 billion at December 31, 2022 and 2021. The year-over-year change is primarily due to an increase in discount rates partially offset by lower than expected asset returns.

The funded status of the U.S. pension plans improved in the year ended December 31, 2022 to \$0.1 billion overfunded status from \$0.3 billion underfunded status primarily due to: (1) the favorable effect of an increase in discount rates of \$11.9 billion; and (2) changes in actuarial assumptions, demographic data updates and contributions of \$0.3 billion; partially offset by (3) the unfavorable effect of negative actual returns on plan assets of \$10.3 billion; and (4) service and interest costs of \$1.5 billion.

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The following table illustrates the sensitivity to a change in certain assumptions for the pension plans, holding all other assumptions constant:

	U.S. Plans(a)		Non-U.S. Plans(a)	
	Effect on 2023 Pension Expense	Effect on December 31, 2022 PBO	Effect on 2023 Pension Expense	Effect on December 31, 2022 PBO
25 basis point decrease in discount rate	-\$48	+\$918	-\$4	+\$296
25 basis point increase in discount rate	+\$32	-\$885	+\$9	-\$284
25 basis point decrease in expected rate of return on assets	+\$116	N/A	+\$25	N/A
25 basis point increase in expected rate of return on assets	-\$116	N/A	-\$25	N/A

(a) The sensitivity does not include the effects of the individual annual yield curve rates applied for the calculation of the service and interest cost.

Refer to Note 15 to our consolidated financial statements for additional information on pension contributions, investment strategies, assumptions, the change in benefit obligations and related plan assets, pension funding requirements and future net benefit payments. Refer to Note 2 to our consolidated financial statements for a discussion of the inputs used to determine fair value for each significant asset class or category.

Valuation of Deferred Tax Assets The ability to realize deferred tax assets depends on the ability to generate sufficient taxable income within the carryback or carryforward periods provided for in the tax law for each applicable tax jurisdiction. The assessment regarding whether a valuation allowance is required or should be adjusted is based on an evaluation of possible sources of taxable income and also considers all available positive and negative evidence factors. Our accounting for the valuation of deferred tax assets represents our best estimate of future events. Changes in our current estimates, due to unanticipated market conditions, governmental legislative actions or events, could have a material effect on our ability to utilize deferred tax assets. Refer to Note 17 to our consolidated financial statements for additional information on the composition of valuation allowances.

Forward-Looking Statements This report and the other reports filed by us with the SEC from time to time, as well as statements incorporated by reference herein and related comments by our management, may include "forward-looking statements" within the meaning of the U.S. federal securities laws. Forward-looking statements are any statements other than statements of historical fact. Forward-looking statements represent our current judgment about possible future events and are often identified by words like "aim," "anticipate," "appears," "approximately," "believe," "continue," "could," "designed," "effect," "estimate," "evaluate," "expect," "forecast," "goal," "initiative," "intend," "may," "objective," "outlook," "plan," "potential," "priorities," "project," "pursue," "seek," "should," "target," "when," "will," "would," or the negative of any of those words or similar expressions. In making these statements, we rely on assumptions and analysis based on our experience and perception of historical trends, current conditions and expected future developments as well as other factors we consider appropriate under the circumstances. We believe these judgments are reasonable, but these statements are not guarantees of any future events or financial results, and our actual results may differ materially due to a variety of important factors, many of which are beyond our control. These factors, which may be revised or supplemented in subsequent reports we file with the SEC, include, among others, the following: (1) our ability to deliver new products, services, technologies and customer experiences in response to increased competition and changing consumer preferences in the automotive industry; (2) our ability to timely fund and introduce new and improved vehicle models, including electric vehicles, that are able to attract a sufficient number of consumers; (3) our ability to profitably deliver a broad portfolio of electric vehicles that will help drive consumer adoption; (4) the success of our current line of full-size SUVs and full-size pickup trucks; (5) our highly competitive industry, which has been historically characterized by excess manufacturing capacity and the use of incentives, and the introduction of new and improved vehicle models by our competitors; (6) the unique technological, operational, regulatory and competitive risks related to the timing and commercialization of autonomous vehicles; (7) risks associated with climate change, including increased regulation of GHG emissions, our transition to electric vehicles and the potential increased impacts of severe weather events; (8) global automobile market sales volume, which can be volatile; (9) inflationary pressures and persistently high prices and uncertain availability of raw materials and commodities used by us and our suppliers, and instability in logistics and related costs; (10) our business in China, which is subject to unique operational, competitive, regulatory and economic risks; (11) the success of our ongoing strategic business relationships and of our joint ventures, which we cannot operate solely for our benefit and over which we may have limited control; (12) the international scale and footprint of our operations, which exposes us to a variety of unique political, economic, competitive and regulatory risks, including the risk of changes in government leadership

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and laws (including labor, trade, tax and other laws), political uncertainty or instability and economic tensions between governments and changes in international trade policies, new barriers to entry and changes to or withdrawals from free trade agreements, changes in foreign exchange rates and interest rates, economic downturns in the countries in which we operate, differing local product preferences and product requirements, changes to and compliance with U.S. and foreign countries' export controls and economic sanctions, differing labor regulations, requirements and union relationships, differing dealer and franchise regulations and relationships, difficulties in obtaining financing in foreign countries, and public health crises, including the occurrence of a contagious disease or illness, such as the COVID-19 pandemic; (13) any significant disruption, including any work stoppages, at any of our manufacturing facilities; (14) the ability of our suppliers to deliver parts, systems and components without disruption and at such times to allow us to meet production schedules; (15) pandemics, epidemics, disease outbreaks and other public health crises, including the COVID-19 pandemic; (16) the possibility that competitors may independently develop products and services similar to ours, or that our intellectual property rights are not sufficient to prevent competitors from developing or selling those products or services; (17) our ability to manage risks related to security breaches and other disruptions to our information technology systems and networked products, including connected vehicles and in-vehicle systems; (18) our ability to comply with increasingly complex, restrictive and punitive regulations relating to our enterprise data practices, including the collection, use, sharing and security of the Personal Identifiable Information of our customers, employees, or suppliers; (19) our ability to comply with extensive laws, regulations and policies applicable to our operations and products, including those relating to fuel economy, emissions and autonomous vehicles; (20) costs and risks associated with litigation and government investigations; (21) the costs and effect on our reputation of product safety recalls and alleged defects in products and services; (22) any additional tax expense or exposure or failure to fully realize available tax incentives; (23) our continued ability to develop captive financing capability through GM Financial; and (24) any significant increase in our pension funding requirements. For a further discussion of these and other risks and uncertainties, refer to Part I, Item 1A. Risk Factors.

We caution readers not to place undue reliance on forward-looking statements. Forward-looking statements speak only as of the date they are made, and we undertake no obligation to update publicly or otherwise revise any forward-looking statements, whether as a result of new information, future events or other factors, except where we are expressly required to do so by law.

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Item 7A. Quantitative and Qualitative Disclosures About Market Risk

The overall financial risk management program is under the responsibility of the Chief Financial Officer with support from the Financial Risk Council, which reviews and, where appropriate, approves strategies to be pursued to mitigate these risks. The Financial Risk Council comprises members of our management and functions under the oversight of the Audit Committee and Finance Committee of the Board of Directors. The Audit Committee and Finance Committee assist and guide the Board of Directors in its oversight of our financial and risk management strategies. A risk management control framework is utilized to monitor the strategies, risks and related hedge positions in accordance with the policies and procedures approved by the Financial Risk Council. Our financial risk management policy is designed to protect against risk arising from extreme adverse market movements on our key exposures.

Automotive The following analyses provide quantitative information regarding exposure to foreign currency exchange rate risk and interest rate risk. Sensitivity analysis is used to measure the potential loss in the fair value of financial instruments with exposure to market risk. The models used assume instantaneous, parallel shifts in exchange rates and interest rate yield curves. For options and other instruments with nonlinear returns, models appropriate to these types of instruments are utilized to determine the effect of market shifts. There are certain shortcomings inherent in the sensitivity analyses presented, primarily due to the assumption that interest rates change in a parallel fashion and that spot exchange rates change instantaneously. In addition, the analyses are unable to reflect the complex market reactions that normally would arise from the market shifts modeled and do not contemplate the effects of correlations between foreign currency exposures and offsetting long-short positions in currency or other exposures, such as interest rates, which may significantly reduce the potential loss in value.

Foreign Currency Exchange Rate Risk We have foreign currency exposures related to buying, selling and financing in currencies other than the functional currencies of our operations. At December 31, 2022, our most significant foreign currency exposures were between the U.S. Dollar and the Canadian Dollar, Chinese Yuan, Korean Won, Brazilian Real, and Mexican Peso. Derivative instruments such as foreign currency forwards, swaps and options are primarily used to hedge exposures with respect to forecasted revenues, costs and commitments denominated in foreign currencies. Such contracts had remaining maturities of up to 12 months at December 31, 2022.

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The net fair value liability of financial instruments with exposure to foreign currency risk was \$0.2 billion and \$0.7 billion at December 31, 2022 and 2021. These amounts are calculated utilizing a population of foreign currency exchange derivatives and foreign currency denominated debt and exclude the offsetting effect of foreign currency cash, cash equivalents and other assets. The potential loss in fair value for such financial instruments from a 10% adverse change in all quoted foreign currency exchange rates would have been insignificant at December 31, 2022 and 2021.

We are exposed to foreign currency risk due to the translation and remeasurement of the results of certain international operations into U.S. Dollars as part of the consolidation process. We had foreign currency derivatives with notional amounts of \$4.1 billion and \$4.2 billion at December 31, 2022 and 2021. The fair value of these derivative financial instruments was insignificant. Fluctuations in foreign currency exchange rates can therefore create volatility in the results of operations and may adversely affect our financial condition.

The following table summarizes the amounts of automotive foreign currency translation and transaction and remeasurement (gains) losses:

	Years Ended December 31,	
	2022	2021
Translation (gains) losses recorded in Accumulated other comprehensive loss	\$ (37)	\$ (132)
Transaction and remeasurement (gains) losses recorded in earnings	\$ 173	\$ (15)

Interest Rate Risk We are subject to market risk from exposure to changes in interest rates related to certain financial instruments, primarily debt, finance lease obligations and certain marketable debt securities. We did not have any interest rate swap positions to manage interest rate exposures in our automotive operations at December 31, 2022 and 2021. The fair value of debt and finance leases was \$16.8 billion and \$20.6 billion at December 31, 2022 and 2021. The potential increase in fair value resulting from a 10% decrease in quoted interest rates would have been \$0.8 billion and \$0.6 billion at December 31, 2022 and 2021.

We had marketable debt securities, including those held by Cruise, of \$12.2 billion and \$8.6 billion classified as available-for-sale at December 31, 2022 and 2021. The potential decrease in fair value from a 50 basis point increase in interest rates would have been insignificant at December 31, 2022 and 2021.

Automotive Financing - GM Financial

Interest Rate Risk Fluctuations in market interest rates can affect GM Financial's gross interest rate spread, which is the difference between interest earned on finance receivables and interest paid on debt. GM Financial is exposed to interest rate risks as financial assets and liabilities have different characteristics that may impact financial performance. These differences may include tenor, yield, re-pricing timing, and prepayment expectations. Typically, retail finance receivables and leases purchased by GM Financial earn fixed interest and commercial finance receivables originated by GM Financial earn variable interest. GM Financial funds its business with variable or fixed rate debt. The variable rate debt is subject to adjustments to reflect prevailing market interest rates. To help mitigate interest rate risk or mismatched funding, GM Financial may employ hedging.

Quantitative Disclosure GM Financial measures the sensitivity of its net interest income to changes in interest rates by using interest rate scenarios that assume a hypothetical, instantaneous parallel shift of one hundred basis points in all interest rates across all maturities, as well as a base case that assumes that rates perform at the current market forward curve. However, interest rate changes are rarely instantaneous or parallel and rates could move more or less than the one percentage point assumed in our analysis. Therefore, the actual impact to net interest income could be higher or lower than the results detailed in the table below. These interest rate scenarios are purely hypothetical and do not represent our view of future interest rate movements.

At December 31, 2022 and 2021, GM Financial was liability-sensitive, meaning that more liabilities than assets were expected to re-price within the next 12 months. During a period of rising interest rates, the interest paid on liabilities would increase more than the interest earned on assets, which would initially decrease net interest income. During a period of falling interest rates, net interest income would be expected to initially increase. GM Financial's hedging strategies approved by its Global Asset Liability Committee are used to manage interest rate risk within policy guidelines.

GENERAL MOTORS COMPANY AND SUBSIDIARIES

The following table presents GM Financial's net interest income sensitivity to interest rate movement:

	Years Ended December 31,	
	2022	2021
One hundred basis points instantaneous increase in interest rates	\$ (4.3)	\$ (5.1)
One hundred basis points instantaneous decrease in interest rates(a)	\$ 4.3	\$ 5.1

(a) Net interest income sensitivity given a one hundred basis point decrease in interest rates requires an assumption of negative interest rates in markets where existing interest rates are below one percent.

Additional Model Assumptions The sensitivity analysis presented is GM Financial's best estimate of the effect of the hypothetical interest rate scenarios; however, actual results could differ. The estimates are also based on assumptions including the amortization and prepayment of the finance receivable portfolio, originations of finance receivables and leases, refinancing of maturing debt, replacement of maturing derivatives and exercise of options embedded in debt and derivatives. The prepayment projections are based on historical experience. If interest rates or other factors change, actual prepayment experience could be different than projected.

Foreign Currency Exchange Rate Risk GM Financial is exposed to foreign currency risk due to the translation and remeasurement of the results of certain international operations into U.S. Dollars as part of the consolidation process. Fluctuations in foreign currency exchange rates can therefore create volatility in the results of operations and may adversely affect GM Financial's financial condition.

GM Financial primarily finances its receivables and leased assets with debt in the same currency. When a different currency is used, GM Financial may use foreign currency swaps to convert substantially all of its foreign currency debt obligations to the local currency of the receivables and leased assets to minimize any impact to earnings. As a result, GM Financial believes its market risk exposure relating to changes in currency exchange rates at December 31, 2022 was insignificant.

GM Financial had foreign currency swaps with notional amounts of \$6.9 billion and \$8.2 billion at December 31, 2022 and 2021. The net fair value of these derivative financial instruments was a liability of \$0.6 billion and \$0.2 billion at December 31, 2022 and 2021.

The following table summarizes GM Financial's foreign currency translation and transaction and remeasurement (gains) losses:

	Years Ended December 31,	
	2022	2021
Translation (gains) losses recorded in Accumulated other comprehensive loss	\$ 156	\$ 44
Transaction and remeasurement (gains) losses recorded in earnings	\$ (1)	\$ (3)

* * * * *

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and the Board of Directors of General Motors Company

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of General Motors Company and subsidiaries (the Company) as of December 31, 2022 and 2021, the related consolidated statements of income, comprehensive income, cash flows, and equity for each of the three years in the period ended December 31, 2022, and the related notes (collectively referred to as the “financial statements”). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022, 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, 2022, 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 31, 2023 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's 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 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 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 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

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

Product warranty and recall campaigns

Description of the matter

As discussed in Note 12 to the financial statements, the liabilities for product warranty and recall campaigns amount to \$8.5 billion at December 31, 2022. The Company accrues for costs related to product warranty at the time of vehicle sale and accrues the estimated cost of recall campaigns when they are probable and estimable.

Auditing these liabilities involved a high degree of subjectivity in evaluating management's estimates, due to the size, uncertainties, and potential volatility related to the estimated liabilities. Management's estimates consider historical claims experience, including the nature, frequency, and average cost of claims of each vehicle line or each model year of the vehicle line, and the key assumptions of historical data being predictive of future activity and events, in particular, the number of historical periods used and the weighing of historical data in the reserve studies.

How we addressed the matter in our audit

We evaluated the design and tested the operating effectiveness of internal controls over the Company's product warranty and recall campaign processes. We tested internal controls over management's review of the valuation models and significant assumptions for product warranty and recall, including the warranty claims forecasted based on the frequency and average cost per warranty claim for product warranty, and the cost estimates related to recall campaigns. Our audit also included the evaluation of controls that address the completeness and accuracy of the data utilized in the valuation models.

Our audit procedures related to product warranty and recall campaigns also included, among others, evaluating the Company's estimation methodology, the related significant assumptions and underlying data, and performing analytical procedures to corroborate cost per vehicle based on historical claims data. Furthermore, we performed sensitivity analyses to evaluate the significant judgments made by management, including cost estimates to evaluate the impact on reserves from changes in assumptions. We performed analysis over the vehicle lines and model years that had little or no claims experience to ensure the vehicle and model substitutions are comparable. We also involved actuarial specialists to evaluate the methodologies and assumptions, and to test the actuarial calculations used by the Company.

Sales incentives

Description of the matter

Automotive sales and revenue represents the amount of consideration to which the Company expects to be entitled in exchange for transferring goods or providing services, which is net of dealer and customer sales incentives the Company expects to pay. As discussed in Note 2 to the financial statements, provisions for dealer and customer incentives are recorded as a reduction to Automotive net sales and revenue at the time of vehicle sale. The liabilities for dealer and customer allowances, claims and discounts amount to \$4.8 billion at December 31, 2022.

Auditing the estimate of sales incentives involved a high degree of judgment. Significant factors used by the Company in estimating its liability for retail incentives include type of program, forecasted sales volumes, product mix, and the rate of customer acceptance of incentive programs, all of which are estimated based on historical experience and assumptions concerning future customer behavior and market conditions. The Company's estimation model reflects the best estimate of the total incentive amount that the Company reasonably expects to pay at the time of sale. The estimated cost of incentives is forward-looking, and could be materially affected by future economic and market conditions.

How we addressed the matter in our audit

We evaluated the design and tested the operating effectiveness of internal controls over the Company's sales incentive process, including management's review of the estimation model, the significant assumptions (e.g., incentive cost per unit, customer take rate, and market conditions), and the data inputs used in the model.

Our audit procedures included, among others, the performance of analytical procedures to develop an independent range of the liability for retail incentives as of the balance sheet date. Our independent range was developed for comparison to the Company's recorded liability, and is based on historical claims, forecasted spend, and the specific vehicle mix of current dealer stock. In addition, we performed sensitivity analyses over the cost per unit assumption developed by management to evaluate the impact on the liability resulting from a change in the assumption. Lastly, we assessed management's forecasting process by performing quarterly hindsight analyses to assess the adequacy of prior forecasts.

Valuation of GM Financial Equipment on Operating Leases

Description of the matter

GM Financial has recorded investments in vehicles leased to retail customers under operating leases. As discussed in Note 2 to the financial statements, at the beginning of the lease, management establishes an expected residual value for each vehicle at the end of the lease term. The Company's estimated residual value of leased vehicles at the end of lease term was \$24.7 billion as of December 31, 2022.

Auditing management's estimate of the residual value of leased vehicles involved a high degree of judgment. Management's estimate is based, in part, on third-party data which considers inputs including recent auction values and significant assumptions regarding the expected future volume of leased vehicles that will be returned to the Company, used car prices, manufacturer incentive programs and fuel prices. Realization of the residual values is dependent on the future ability to market the vehicles under future prevailing market conditions.

How we addressed the matter in our audit

We evaluated the design and tested the operating effectiveness of the Company's controls over the lease residual estimation process, including controls over management's review of residual value estimates obtained from the Company's third-party provider and other significant assumptions.

Our procedures also included, among others, independently recalculating depreciation related to equipment on operating leases and performing sensitivity analyses related to significant assumptions. We also performed hindsight analyses to assess the propriety of management's estimate of residual values, as well as tested the completeness and accuracy of data from underlying systems and data warehouses that are used in the estimation models.

/s/ ERNST & YOUNG LLP

We have served as the Company's auditor since 2017.

Detroit, Michigan
January 31, 2023

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and the Board of Directors of General Motors Company

Opinion on Internal Control over Financial Reporting

We have audited General Motors Company and subsidiaries' internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control - Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, General Motors Company and subsidiaries (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of the Company as of December 31, 2022 and 2021, the related consolidated statements of income, comprehensive income, cash flows and equity for each of the three years in the period ended December 31, 2022, and the related notes and our report dated January 31, 2023 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ ERNST & YOUNG LLP

Detroit, Michigan
January 31, 2023

GENERAL MOTORS COMPANY AND SUBSIDIARIES
Item 8. Financial Statements and Supplementary Data
CONSOLIDATED INCOME STATEMENTS
(In millions, except per share amounts)

	Years Ended December 31,		
	2022	2021	2020
Net sales and revenue			
Automotive	\$ 143,975	\$ 113,590	\$ 108,673
GM Financial	12,760	13,414	13,812
Total net sales and revenue (Note 3)	<u>156,735</u>	<u>127,004</u>	<u>122,485</u>
Costs and expenses			
Automotive and other cost of sales	126,892	100,544	97,539
GM Financial interest, operating and other expenses	8,862	8,582	11,274
Automotive and other selling, general and administrative expense	10,667	8,554	7,038
Total costs and expenses	<u>146,421</u>	<u>117,680</u>	<u>115,851</u>
Operating income (loss)	10,315	9,324	6,634
Automotive interest expense	987	950	1,098
Interest income and other non-operating income, net (Note 19)	1,432	3,041	1,885
Equity income (loss) (Note 8)	837	1,301	674
Income (loss) before income taxes	<u>11,597</u>	<u>12,716</u>	<u>8,095</u>
Income tax expense (benefit) (Note 17)	1,888	2,771	1,774
Net income (loss)	<u>9,708</u>	<u>9,945</u>	<u>6,321</u>
Net loss (income) attributable to noncontrolling interests	226	74	106
Net income (loss) attributable to stockholders	<u>\$ 9,934</u>	<u>\$ 10,019</u>	<u>\$ 6,427</u>
Net income (loss) attributable to common stockholders	<u>\$ 8,915</u>	<u>\$ 9,837</u>	<u>\$ 6,247</u>
Earnings per share (Note 21)			
Basic earnings per common share	\$ 6.17	\$ 6.78	\$ 4.36
Weighted-average common shares outstanding – basic	1,445	1,451	1,433
Diluted earnings per common share	\$ 6.13	\$ 6.70	\$ 4.33
Weighted-average common shares outstanding – diluted	1,454	1,468	1,442

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(In millions)

	Years Ended December 31,		
	2022	2021	2020
Net income (loss)	\$ 9,708	\$ 9,945	\$ 6,321
Other comprehensive income (loss), net of tax (Note 20)			
Foreign currency translation adjustments and other	(340)	80	(523)
Defined benefit plans	1,677	4,126	(1,795)
Other comprehensive income (loss), net of tax	<u>1,337</u>	<u>4,206</u>	<u>(2,318)</u>
Comprehensive income (loss)	11,045	14,151	4,003
Comprehensive loss (income) attributable to noncontrolling interests	257	87	92
Comprehensive income attributable to stockholders (loss)	<u>\$ 11,303</u>	<u>\$ 14,238</u>	<u>\$ 4,095</u>

Reference should be made to the notes to consolidated financial statements.
Amounts may not add due to rounding.

GENERAL MOTORS COMPANY AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

(In millions, except per share amounts)

	December 31, 2022	December 31, 2021
ASSETS		
Current Assets		
Cash and cash equivalents	\$ 19,153	\$ 20,067
Marketable debt securities (Note 4)	12,150	8,609
Accounts and notes receivable, net of allowance of \$260 and \$192	13,333	7,394
GM Financial receivables, net of allowance of \$869 and \$703 (Note 5; Note 11 at VIEs)	33,623	26,649
Inventories (Note 6)	15,366	12,988
Other current assets (Note 4; Note 11 at VIEs)	6,825	6,396
Total current assets	100,451	82,103
Non-current Assets		
GM Financial receivables, net of allowance of \$1,227 and \$1,183 (Note 5; Note 11 at VIEs)	40,591	36,167
Equity in net assets of nonconsolidated affiliates (Note 8)	10,176	9,677
Property, net (Note 9)	45,248	41,115
Goodwill and intangible assets, net (Note 10)	4,945	5,087
Equipment on operating leases, net (Note 7; Note 11 at VIEs)	32,701	37,929
Deferred income taxes (Note 17)	20,539	21,152
Other assets (Note 4; Note 11 at VIEs)	9,386	11,488
Total non-current assets	163,586	162,615
Total Assets	\$ 264,037	\$ 244,718
LIABILITIES AND EQUITY		
Current Liabilities		
Accounts payable (principally trade)	\$ 27,486	\$ 20,391
Short-term debt and current portion of long-term debt (Note 13)		
Automotive	1,959	463
GM Financial (Note 11 at VIEs)	36,819	33,257
Accrued liabilities (Note 12)	24,910	20,297
Total current liabilities	91,173	74,408
Non-current Liabilities		
Long-term debt (Note 13)		
Automotive	15,885	16,355
GM Financial (Note 11 at VIEs)	60,036	59,304
Postretirement benefits other than pensions (Note 15)	4,193	5,743
Pensions (Note 15)	5,698	8,008
Other liabilities (Note 12)	14,767	15,085
Total non-current liabilities	100,579	104,495
Total Liabilities	191,752	178,903
Commitments and contingencies (Note 16)		
Noncontrolling interest - Cruise stock incentive awards (Note 20)	357	—
Equity (Note 20)		
Common stock, \$0.01 par value	14	15
Additional paid-in capital	26,428	27,061
Retained earnings	49,251	41,937
Accumulated other comprehensive loss	(7,901)	(9,269)
Total stockholders' equity	67,792	59,744
Noncontrolling interests	4,135	6,071
Total Equity	71,927	65,815
Total Liabilities and Equity	\$ 264,037	\$ 244,718

Reference should be made to the notes to consolidated financial statements.
Amounts may not add due to rounding.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In millions)

	Years Ended December 31,		
	2022	2021	2020
Cash flows from operating activities			
Net income (loss)	\$ 9,708	\$ 9,945	\$ 6,321
Depreciation and impairment of Equipment on operating leases, net	4,839	6,076	7,178
Depreciation, amortization and impairment charges on Property, net	6,451	5,975	5,637
Foreign currency remeasurement and transaction (gains) losses	172	(17)	203
Undistributed earnings of nonconsolidated affiliates, net	193	(517)	524
Pension contributions and OPEB payments	(790)	(838)	(851)
Pension and OPEB income, net	(1,189)	(1,605)	(765)
Provision (benefit) for deferred taxes	425	2,214	925
Change in other operating assets and liabilities (Note 24)	(2,977)	(3,366)	(399)
Other operating activities	(790)	(2,679)	(2,103)
Net cash provided by (used in) operating activities	16,043	15,188	16,670
Cash flows from investing activities			
Expenditures for property	(9,238)	(7,509)	(5,300)
Available-for-sale marketable securities, acquisitions	(11,837)	(8,962)	(16,204)
Available-for-sale marketable securities, liquidations	8,057	9,347	11,941
Purchases of finance receivables, net	(33,974)	(33,009)	(30,090)
Principal collections and recoveries on finance receivables	26,887	24,622	19,726
Purchases of leased vehicles, net	(11,949)	(14,602)	(15,233)
Proceeds from termination of leased vehicles	14,234	14,393	13,399
Other investing activities	(62)	(635)	(65)
Net cash provided by (used in) investing activities	(17,882)	(16,355)	(21,826)
Cash flows from financing activities			
Net increase (decrease) in short-term debt	373	2,912	277
Proceeds from issuance of debt (original maturities greater than three months)	45,813	45,300	78,527
Payments on debt (original maturities greater than three months)	(39,606)	(47,806)	(72,663)
Payments to purchase common stock	(2,500)	—	(90)
Issuance (redemption) of subsidiary stock (Note 20)	(2,121)	1,736	492
Dividends paid	(397)	(186)	(669)
Other financing activities	(1,178)	(212)	(322)
Net cash provided by (used in) financing activities	383	1,744	5,552
Effect of exchange rate changes on cash, cash equivalents and restricted cash	(138)	(152)	(222)
Net increase (decrease) in cash, cash equivalents and restricted cash	(1,594)	425	174
Cash, cash equivalents and restricted cash at beginning of period	23,542	23,117	22,943
Cash, cash equivalents and restricted cash at end of period	\$ 21,948	\$ 23,542	\$ 23,117
Significant Non-cash Investing and Financing Activity			
Non-cash property additions	\$ 5,376	\$ 4,305	\$ 2,300

Reference should be made to the notes to consolidated financial statements.
Amounts may not add due to rounding.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF EQUITY
(In millions)

	Common Stockholders*					Noncontrolling Interests	Total Equity	Noncontrolling Interest Cruise Stock Incentive Awards (Temporary Equity)
	Common Stock	Additional Paid-in Capital	Retained Earnings	Accumulated Other Comprehensive Loss				
Balance at January 1, 2020	\$ 14	\$ 26,074	\$ 26,860	\$ (11,156)	\$ 4,165	\$ 45,957	\$ —	
Adoption of accounting standards	—	—	(660)	—	—	(660)	—	
Net income (loss)	—	—	6,427	—	(106)	6,321	—	
Other comprehensive income (loss)	—	—	—	(2,332)	14	(2,318)	—	
Issuance (redemption) of subsidiary stock (Note 20)	—	—	—	—	544	544	—	
Purchase of common stock	—	(57)	(33)	—	—	(90)	—	
Stock based compensation	—	525	(10)	—	—	515	—	
Cash dividends paid on common stock	—	—	(545)	—	—	(545)	—	
Dividends to noncontrolling interests	—	—	—	—	(46)	(46)	—	
Other	—	—	(77)	—	76	(1)	—	
Balance at December 31, 2020	14	26,542	31,962	(13,488)	4,647	49,677	—	
Net income (loss)	—	—	10,019	—	(74)	9,945	—	
Other comprehensive income (loss)	—	—	—	4,219	(13)	4,206	—	
Issuance (redemption) of subsidiary stock (Note 20)	—	—	—	—	1,736	1,736	—	
Stock based compensation	—	526	(3)	—	—	523	—	
Dividends to noncontrolling interests	—	—	—	—	(186)	(186)	—	
Other	1	(7)	(41)	—	(39)	(86)	—	
Balance at December 31, 2021	15	27,061	41,937	(9,269)	6,071	65,815	—	
Net income (loss)	—	—	9,934	—	(226)	9,708	—	
Other comprehensive income (loss)	—	—	—	1,368	(31)	1,337	—	
Issuance (redemption) of subsidiary stock (Note 20)	—	—	(909)	—	(1,212)	(2,121)	—	
Purchase of common stock	(1)	(1,153)	(1,347)	—	—	(2,500)	—	
Stock based compensation	—	299	(5)	—	—	294	299	
Cash dividends paid on common stock	—	—	(257)	—	—	(257)	—	
Dividends to noncontrolling interests	—	—	(12)	—	(127)	(140)	—	
Other	—	221	(90)	—	(340)	(208)	59	
Balance at December 31, 2022	\$ 14	\$ 26,428	\$ 49,251	\$ (7,901)	\$ 4,135	\$ 71,927	\$ 357	

Reference should be made to the notes to consolidated financial statements.
Amounts may not add due to rounding.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1. Nature of Operations and Basis of Presentation

General Motors Company was incorporated as a Delaware corporation in 2009. We design, build and sell trucks, crossovers, cars and automobile parts and provide software-enabled services and subscriptions worldwide. Additionally, we are investing in and growing an AV business. We also provide automotive financing services through GM Financial. We analyze the results of our operations through the following segments: GMNA, GMI, Cruise and GM Financial. Cruise is our global segment responsible for the development and commercialization of AV technology. Nonsegment operations are classified as Corporate. Corporate includes certain centrally recorded income and costs such as interest, income taxes, corporate expenditures and certain nonsegment-specific revenues and expenses. The consolidated financial statements are prepared in conformity with U.S. GAAP. Except for per share amounts or as otherwise specified, amounts presented within tables are stated in millions. Certain columns and rows may not add due to rounding.

Principles of Consolidation We consolidate entities that we control due to ownership of a majority voting interest and we consolidate variable interest entities (VIEs) when we are the primary beneficiary. All intercompany balances and transactions are eliminated in consolidation. Our share of earnings or losses of nonconsolidated affiliates is included in our consolidated operating results using the equity method of accounting when we are able to exercise significant influence over the operating and financial decisions of the affiliate.

Use of Estimates in the Preparation of the Financial Statements Accounting estimates are an integral part of the consolidated financial statements. These estimates require the use of judgments and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses in the periods presented. We believe that the accounting estimates employed are appropriate and the resulting balances are reasonable; however, due to the inherent uncertainties in making estimates, actual results could differ from the original estimates, requiring adjustments to these balances in future periods.

GM Financial The amounts presented for GM Financial are adjusted to reflect the impact on GM Financial's deferred tax positions and provision for income taxes resulting from the inclusion of GM Financial in our consolidated tax return and to eliminate the effect of transactions between GM Financial and the other members of the consolidated group. Accordingly, the amounts presented will differ from those presented by GM Financial on a stand-alone basis.

Note 2. Significant Accounting Policies

The accounting policies that follow are utilized by our automotive, automotive financing and Cruise operations, unless otherwise indicated.

Revenue Recognition

Automotive Automotive net sales and revenue represents the amount of consideration to which we expect to be entitled in exchange for vehicle, parts and accessories and services and other sales. The consideration recognized represents the amount received, typically shortly after the sale to a customer, net of estimated dealer and customer sales incentives we reasonably expect to pay. Significant factors in determining our estimates of incentives include forecasted sales volume, product mix and the rate of customer acceptance of incentive programs, all of which are estimated based on historical experience and assumptions concerning future customer behavior and market conditions. Subsequent adjustments to incentive estimates are possible as facts and circumstances change over time. A portion of the consideration received is deferred for separate performance obligations, such as maintenance, services and vehicle connectivity, that will be provided to our customers at a future date. Taxes assessed by various government entities, such as sales, use and value-added taxes, collected at the time of the vehicle sale are excluded from Automotive net sales and revenue. Costs for shipping and handling activities that occur after control of the vehicle transfers to the dealer are recognized at the time of sale and presented in Automotive and other cost of sales.

Vehicle, Parts and Accessories For the majority of vehicle and accessories sales, our customers obtain control and we recognize revenue when the vehicle transfers to the dealer, which typically occurs either when the vehicle is released to the carrier responsible for transporting it to a dealer or upon delivery to a dealer. Revenue, net of estimated returns, is recognized on the sale of parts upon delivery to the customer. When our customers have a right to return eligible parts and accessories, we consider the returns in our estimation of the transaction price.

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Typically, transfers to daily rental companies are accounted for as sales, with revenue recognized at the time of transfer. We defer revenue for remarketing obligations, record a residual value guarantee and reflect a liability for amounts expected to be paid once the remarketing services are complete at the time of sale and recognize deferred revenue in earnings upon completion of the remarketing service.

Used Vehicles Proceeds from the auction of vehicles utilized by our employees are recognized in Automotive net sales and revenue upon transfer of control of the vehicle to the customer and the related vehicle carrying value is recognized in Automotive and other cost of sales.

Services and Other Services and other revenue primarily consists of revenue from vehicle-related service arrangements and after-sale services such as maintenance, OnStar, Super Cruise, vehicle connectivity and extended service warranties. For those service arrangements that are bundled with a vehicle sale, a portion of the revenue from the sale is allocated to the service component and recognized as deferred revenue within Accrued liabilities or Other liabilities. We recognize revenue for bundled services and services sold separately as services are performed, typically over a period of up to seven years.

Automotive Financing - GM Financial Finance charge income earned on finance receivables is recognized using the effective interest method. Fees and commissions received (including manufacturer subvention) and direct costs of originating loans are deferred and amortized over the term of the related finance receivables using the effective interest method and are removed from the consolidated balance sheets when the related finance receivables are fully charged off or paid in full. Accrual of finance charge income on retail finance receivables is generally suspended on accounts that are more than 60 days delinquent, accounts in bankruptcy and accounts in repossession. Payments received on nonaccrual loans are first applied to any fees due, then to any interest due and then any remaining amounts are applied to principal. Interest accrual generally resumes once an account has received payments bringing the delinquency to less than 60 days past due. Accrual of finance charge income on commercial finance receivables is generally suspended on accounts that are more than 90 days delinquent, upon receipt of a bankruptcy notice from a borrower, or where reasonable doubt exists about the full collectability of contractually agreed upon principal and interest. Payments received on nonaccrual loans are first applied to principal. Interest accrual resumes once an account has received payments bringing the account fully current and collection of contractual principal and interest is reasonably assured (including amounts previously charged off).

Income from operating lease assets, which includes lease origination fees, net of lease origination costs, is recorded as operating lease revenue on a straight-line basis over the term of the lease agreement. Gains or losses realized upon disposition of off-lease assets including any payments received from lessees upon lease termination, are included in GM Financial interest, operating and other expenses.

Advertising and Promotion Expenditures Advertising and promotion expenditures, which are expensed as incurred in Automotive and other selling, general and administrative expense, were \$4.0 billion, \$3.3 billion and \$2.7 billion in the years ended December 31, 2022, 2021 and 2020.

Research and Development Expenditures Research and development expenditures, which are expensed as incurred in Automotive and other cost of sales, were \$9.8 billion, \$7.9 billion and \$6.2 billion in the years ended December 31, 2022, 2021 and 2020. We enter into co-development arrangements with third parties or nonconsolidated affiliates for product-related research, engineering, design and development activities. Cost sharing payments and fees related to these arrangements are presented in Automotive and other cost of sales.

Cash Equivalents and Restricted Cash Cash equivalents are defined as short-term, highly-liquid investments with original maturities of 90 days or less. Certain operating agreements require us to post cash as collateral. Cash and cash equivalents subject to contractual restrictions and not readily available are classified as restricted cash. Restricted cash is invested in accordance with the terms of the underlying agreements and include amounts related to various deposits, escrows and other cash collateral. Restricted cash is included in Other current assets and Other assets in the consolidated balance sheets.

Fair Value Measurements A three-level valuation hierarchy, based upon observable and unobservable inputs, is used for fair value measurements. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect market assumptions based on the best evidence available. These two types of inputs create the following fair value hierarchy: Level 1 – Quoted prices for identical instruments in active markets; Level 2 – Quoted prices for similar instruments

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

in active markets, quoted prices for identical or similar instruments in markets that are not active and model-derived valuations whose significant inputs are observable; and Level 3 – Instruments whose significant inputs are unobservable.

Marketable Debt Securities We generally classify marketable debt securities as available-for-sale. Various factors, including turnover of holdings and investment guidelines, are considered in determining the classification of securities. Available-for-sale debt securities are recorded at fair value with non-credit related unrealized gains and losses recorded in Accumulated other comprehensive loss until realized. Credit losses are recorded in Interest income and other non-operating income, net. An evaluation is made quarterly to determine if any portion of unrealized losses recorded in Accumulated other comprehensive loss needs to be reclassified. Non-credit related unrealized losses are reclassified to Interest income and other non-operating income, net if we intend to sell the security or it is more likely than not that we will be required to sell the security before the recovery of the unrealized loss.

We determine realized gains and losses for all debt securities using the specific identification method and measure the fair value of our marketable debt securities using a market approach where identical or comparable prices are available and an income approach in other cases. If quoted market prices are not available, fair values of securities are determined using prices from a pricing service, pricing models, quoted prices of securities with similar characteristics or discounted cash flow models. These prices represent non-binding quotes. Our pricing service utilizes industry-standard pricing models that consider various inputs. We review our pricing service quarterly and believe the prices received from our pricing service are a reliable representation of exit prices.

Accounts and Notes Receivable Accounts and notes receivable primarily consists of amounts that are due and payable from our customers for the sale of vehicles, parts and accessories. We evaluate the collectability of receivables each reporting period and record an allowance for doubtful accounts to present the net amount expected to be collected on our receivables. Additions to the allowance are charged to bad debt expense reported in Automotive and other selling, general and administrative expense and were insignificant in the years ended December 31, 2022, 2021 and 2020.

GM Financial Receivables Finance receivables are carried at amortized cost, net of allowance for loan losses. Provisions for loan losses are charged to operations in amounts sufficient to maintain the allowance for loan losses at levels considered adequate to cover expected credit losses on the finance receivables. For retail finance receivables, GM Financial uses static pool modeling techniques to determine the allowance for loan losses expected over the remaining life of the receivables, which is supplemented by management judgment. The modeling techniques incorporate reasonable and supportable forecasts of economic conditions over the expected remaining life of the finance receivables. The economic forecasts incorporate factors which vary by region that GM Financial believes will have the largest impact on expected losses, including unemployment rates, interest rate spreads, disposable personal income and growth rates in gross domestic product.

Troubled debt restructurings (TDRs) are grouped separately for purposes of measuring the allowance. The allowance for TDRs uses static pool modeling techniques like non-TDR retail finance receivables to determine the expected loss amount. The expected cash flows of the receivables are then discounted at the original weighted average effective interest rate of the pool. Factors considered when estimating the allowance for TDRs are based on an evaluation of historical and current information, which may be supplemented by management judgment. Finance charge income from loans classified as TDRs is accounted for in the same manner as other accruing loans. Cash collections on these loans are allocated according to the same payment hierarchy methodology applied to loans that are not classified as TDRs.

Commercial finance receivables are carried at amortized cost, net of allowance for loan losses and amounts held under a cash management program. GM Financial establishes the allowance for loan losses based on historical loss experience, as well as forecasted auto industry conditions, which is the economic indicator believed to have the largest impact on expected losses.

Inventories Inventories are stated at the lower of cost or net realizable value. Net realizable value is the estimated selling price in the ordinary course of business less cost to sell, and considers general market and economic conditions, periodic reviews of current profitability of vehicles, product warranty costs and the effect of estimated sales incentives. Net realizable value for off-lease and other vehicles is current auction sales proceeds less disposal and warranty costs. Productive material, supplies, work in process and service parts are reviewed to determine if inventory quantities are in excess of forecasted usage or if they have become obsolete.

Equipment on Operating Leases Equipment on operating leases, net primarily consists of vehicle leases to retail customers with lease terms of two to five years. We are exposed to changes in the residual values of these assets. The residual values represent estimates of the values of the leased vehicles at the end of the lease agreements and are determined based on

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forecasted auction proceeds when there is a reliable basis to make such a determination. Realization of the residual values is dependent on the future ability to market the vehicles under prevailing market conditions. The estimate of the residual value is evaluated over the life of the arrangement and adjustments may be made to the extent the expected value of the vehicle changes. Adjustments may be in the form of revisions to the depreciation rate or recognition of an impairment charge. A lease vehicle asset group is determined to be impaired if an impairment indicator exists and the expected future cash flows, which include estimated residual values, are lower than the carrying amount of the vehicle asset group. If the carrying amount is considered impaired an impairment charge is recorded for the amount by which the carrying amount exceeds fair value of the vehicle asset group. Fair value is determined primarily using the anticipated cash flows, including estimated residual values. In our automotive finance operations when a leased vehicle is returned or repossessed the asset is recorded in Other assets at the lower of amortized cost or net realizable value. Upon disposition a gain or loss is recorded in GM Financial interest, operating and other expenses for any difference between the net book value of the leased asset and the proceeds from the disposition of the asset.

Equity Investments When events and circumstances warrant, equity investments accounted for under the equity method of accounting are evaluated for impairment. An impairment charge is recorded whenever a decline in value of an equity investment below its carrying amount is determined to be other-than-temporary. Impairment charges related to equity method investments are recorded in Equity income. Equity investments that are not accounted for under the equity method of accounting are measured at fair value or in certain cases adjusted to fair value upon an observable price change, with changes in fair value recorded in Interest income and other non-operating income, net.

Property, net Property, plant and equipment, including internal use software, is recorded at cost. Major improvements that extend the useful life or add functionality are capitalized. The gross amount of assets under finance leases is included in property, plant and equipment. Expenditures for repairs and maintenance are charged to expense as incurred. We depreciate depreciable property using the straight-line method. Leasehold improvements are amortized over the period of lease or the life of the asset, whichever is shorter. The amortization of the assets under finance leases is included in depreciation expense. Upon retirement or disposition of property, plant and equipment, the cost and related accumulated depreciation are eliminated and any resulting gain or loss is recorded in earnings. Impairment charges related to property are recorded in Automotive and other cost of sales, Automotive and other selling, general and administrative expense or GM Financial interest, operating and other expenses.

Special Tools Special tools represent product-specific propulsion and non-propulsion related tools, dies, molds and other items used in the vehicle manufacturing process. Expenditures for special tools are recorded at cost and are capitalized. We amortize special tools over their estimated useful lives using the straight-line method or an accelerated amortization method based on their historical and estimated production volume. Impairment charges related to special tools are recorded in Automotive and other cost of sales.

Goodwill Goodwill is not amortized but rather tested for impairment annually on October 1 and when events warrant such a review. The impairment test entails an assessment of qualitative factors to determine whether it is more likely than not that an impairment exists. If it is more likely than not that an impairment exists, then a quantitative impairment test is performed. Impairment exists when the carrying amount of a reporting unit exceeds its fair value.

Intangible Assets, net Intangible assets, excluding goodwill, primarily include brand names, technology and intellectual property, customer relationships and dealer networks. Intangible assets are amortized on a straight-line or an accelerated method of amortization over their estimated useful lives. Amortization of developed technology and intellectual property is recorded in Automotive and other cost of sales. Amortization of brand names, customer relationships and our dealer networks is recorded in Automotive and other selling, general and administrative expense or GM Financial interest, operating and other expenses. Impairment charges, if any, related to intangible assets are recorded in Automotive and other selling, general and administrative expense or Automotive and other cost of sales.

Valuation of Long-Lived Assets The carrying amount of long-lived assets and finite-lived intangible assets to be held and used in the business is evaluated for impairment when events and circumstances warrant. If the carrying amount of a long-lived asset group is considered impaired, a loss is recorded based on the amount by which the carrying amount exceeds fair value. Product-specific long-lived asset groups and non-product specific long-lived assets are separately tested for impairment on an asset group basis. Fair value is determined using either the market or sales comparison approach, cost approach or anticipated cash flows discounted at a rate commensurate with the risk involved. Long-lived assets to be disposed of other than by sale are considered held for use until disposition.

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Government Incentives and Grants We receive incentives from federal, state and local governments in different regions of the world that primarily encourage us to establish, maintain, or increase investment, employment, or production in the region. We account for government incentives as a reduction of expense, a reduction of the cost of the capital investment, or other income based on the substance of the incentive received. Benefits are generally recorded when there is reasonable assurance of receipt and amounts are recorded in earnings as the expenses in which the incentive is meant to offset are incurred, as we meet the conditions of the grant or as the capital investment is depreciated. At December 31, 2022, cash incentives receivable in Accounts and notes receivable, net of allowance was \$300 million, cash incentives receivable in Other assets was \$248 million and deferred incentive income in Other liabilities was \$250 million. In the year ended December 31, 2022, we recognized \$234 million in Automotive and other cost of sales associated with incentives. Current agreements expire at various dates through 2031 and we consider the risk that any amounts recognized will be returned to be remote.

Pension and OPEB Plans

Attribution, Methods and Assumptions The cost of benefits provided by defined benefit pension plans is recorded in the period employees provide service. The cost of pension plan amendments that provide for benefits already earned by plan participants is amortized over the expected period of benefit which may be the duration of the applicable collective bargaining agreement specific to the plan, the expected future working lifetime or the life expectancy of the plan participants.

The cost of medical, dental, legal service and life insurance benefits provided through postretirement benefit plans is recorded in the period employees provide service. The cost of postretirement plan amendments that provide for benefits already earned by plan participants is amortized over the expected period of benefit which may be the average period to full eligibility or the average life expectancy of the plan participants.

An expected return on plan asset methodology is utilized to calculate future pension expense for certain significant funded benefit plans. A market-related value of plan assets methodology is also utilized that averages gains and losses on the plan assets over a period of years to determine future pension expense. The methodology recognizes 60% of the difference between the fair value of assets and the expected calculated value in the first year and 10% of that difference over each of the next four years.

The discount rate assumption is established for each of the retirement-related benefit plans at their respective measurement dates. In the U.S., we use a cash flow matching approach that uses projected cash flows matched to spot rates along a high-quality corporate bond yield curve to determine the present value of cash flows to calculate a single equivalent discount rate. We apply individual annual yield curve rates to determine the service cost and interest cost for our pension and OPEB plans to more specifically link the cash flows related to service cost and interest cost to bonds maturing in their year of payment.

The benefit obligation for pension plans in Canada, the United Kingdom and Germany represents 90% of the non-U.S. pension benefit obligation at December 31, 2022. The discount rates for plans in Canada, the United Kingdom and Germany are determined using a cash flow matching approach like the U.S.

Plan Asset Valuation Due to the lack of timely available market information for certain investments in the asset classes described below as well as the inherent uncertainty of valuation, reported fair values may differ from fair values that would have been used had timely available market information been available.

Common and Preferred Stock Common and preferred stock for which market prices are readily available at the measurement date are valued at the last reported sale price or official closing price on the primary market or exchange on which they are actively traded and are classified in Level 1. Such equity securities for which the market is not considered to be active are valued via the use of observable inputs, which may include the use of adjusted market prices last available, bids or last available sales prices and/or other observable inputs and are classified in Level 2. Common and preferred stock classified in Level 3 are privately issued securities or other issues that are valued via the use of valuation models using significant unobservable inputs that generally consider aged (stale) pricing, earnings multiples, discounted cash flows and/or other qualitative and quantitative factors.

Debt Securities Valuations for debt securities are based on quotations received from independent pricing services or from dealers who make markets in such securities. Debt securities priced via pricing services that utilize matrix pricing which considers readily observable inputs such as the yield or price of bonds of comparable quality, coupon, maturity and type as well

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as dealer supplied prices, are classified in Level 2. Debt securities that are typically priced by dealers and pricing services via the use of proprietary pricing models which incorporate significant unobservable inputs are classified in Level 3. These inputs primarily consist of yield and credit spread assumptions, discount rates, prepayment curves, default assumptions and recovery rates.

Investment Funds, Private Equity and Debt Investments and Real Estate Investments Investment funds, private equity and debt investments and real estate investments are valued based on the Net Asset Value (NAV) per Share (or its equivalent) as a practical expedient to estimate fair value due to the absence of readily available market prices.

NAVs are provided by the respective investment sponsors or investment advisers and are subsequently reviewed and approved by management. In the event management concludes a reported NAV does not reflect fair value or is not determined as of the financial reporting measurement date, we will consider whether and when deemed necessary to make an adjustment at the balance sheet date. In determining whether an adjustment to the external valuation is required, we will review material factors that could affect the valuation, such as changes in the composition or performance of the underlying investments or comparable investments, overall market conditions, expected sale prices for private investments which are probable of being sold in the short-term and other economic factors that may possibly have a favorable or unfavorable effect on the reported external valuation.

Stock Incentive Plans Our stock incentive plans include RSUs, PSUs, stock options and awards that may be settled in our stock, the stock of our subsidiaries or in cash. We measure and record compensation expense based on the fair value of GM or Cruise's common stock on the date of grant for RSUs and PSUs and the grant date fair value, determined utilizing a lattice model or the Black-Scholes formula, for stock options and PSUs. We record compensation cost for service-based RSUs, PSUs and service-based stock options on a straight-line basis over the entire vesting period, or for retirement eligible employees over the requisite service period. In March 2022, all outstanding RSUs that settle in Cruise's common stock were modified to remove the liquidity vesting condition. Prospectively, RSUs that will settle in Cruise's common stock will vest solely upon satisfaction of a service condition. Compensation cost for awards that do not have an established accounting grant date, but for which the service inception date has been established, or are settled in cash is based on the fair value of GM or Cruise's common stock at the end of each reporting period. Compensation cost is also recorded on stock issued to settle awards based on the fair value of Cruise's common stock until such time that the stock has been issued for more than six months.

Product Warranty and Recall Campaigns The estimated costs related to product warranties are accrued at the time products are sold and are charged to Automotive and other cost of sales. These estimates are established using historical information on the nature, frequency and average cost of claims of each vehicle line or each model year of the vehicle line and assumptions about future activity and events. Revisions are made when necessary and are based on changes in these factors.

The estimated costs related to recall campaigns are accrued when probable and estimable. In GMNA, we estimate the costs related to recall campaigns by applying a paid loss approach that considers the number of historical recall campaigns and the estimated cost for each recall campaign. The estimated costs associated with recall campaigns in other geographical regions are determined using the estimated costs of repairs and the estimated number of vehicles to be repaired. Costs associated with recall campaigns are charged to Automotive and other cost of sales. Revisions are made when necessary based on changes in these factors.

Income Taxes The liability method is used in accounting for income taxes. Deferred tax assets and liabilities are recorded for temporary differences between the tax basis of assets and liabilities and their reported amounts in the consolidated financial statements using the statutory tax rates in effect for the year in which the differences are expected to reverse. The effect on deferred tax assets and liabilities of a change in tax laws or rates is recorded in the results of operations in the period that includes the enactment date under the law. We record Global Intangible Low Tax Income (GILTI) as a current period expense when incurred.

We establish valuation allowances for deferred tax assets based on a more likely than not standard. Deferred income tax assets are evaluated quarterly to determine if valuation allowances are required or should be adjusted. The ability to realize deferred tax assets depends on the ability to generate sufficient taxable income within the carryback or carryforward periods provided for in the tax law for each applicable tax jurisdiction. The assessment regarding whether a valuation allowance is required or should be adjusted also considers all available positive and negative evidence factors. It is difficult to conclude a valuation allowance is not required when there is significant objective and verifiable negative evidence, such as cumulative

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

losses in recent years. We utilize a rolling three years of actual and current year results as the primary measure of cumulative losses in recent years.

We record uncertain tax positions on the basis of a two-step process whereby we determine whether it is more likely than not that the tax positions will be sustained based on the technical merits of the position, and for those tax positions that meet the more likely than not criteria, we recognize the largest amount of tax benefit that is greater than 50% likely to be realized upon ultimate settlement with the related tax authority. We record interest and penalties on uncertain tax positions in Income tax expense.

Foreign Currency Transactions and Translation The assets and liabilities of foreign subsidiaries that use the local currency as their functional currency are translated to U.S. Dollars based on the current exchange rate prevailing at each balance sheet date and any resulting translation adjustments are included in Accumulated other comprehensive loss. The assets and liabilities of foreign subsidiaries whose local currency is not their functional currency are remeasured from their local currency to their functional currency and then translated to U.S. Dollars. Revenues and expenses are translated into U.S. Dollars using the average exchange rates prevailing for each period presented. The financial statements of any foreign subsidiary that has been identified as having a highly inflationary economy are remeasured as if the functional currency were the U.S. Dollar.

Gains and losses arising from foreign currency transactions and the effects of remeasurements discussed in the preceding paragraph are recorded in Automotive and other cost of sales and GM Financial interest, operating and other expenses unless related to Automotive debt, which are recorded in Interest income and other non-operating income, net. Foreign currency transactions and remeasurements in the years ended December 31, 2022, 2021 and 2020 were \$172 million of losses, insignificant gains and \$203 million of losses.

Derivative Financial Instruments Derivative financial instruments are recognized as either assets or liabilities at fair value. The accounting for changes in the fair value of each derivative financial instrument depends on whether it has been designated and qualifies as an accounting hedge, as well as the type of hedging relationship identified. Cash flows for all derivative financial instruments are typically classified in cash flows from operating activities. Derivative instruments are not used for trading or speculative purposes.

Automotive We utilize options, swaps and forward contracts to manage foreign currency and commodity price risk. The change in the fair value of option, swap and forward contracts not designated as an accounting hedge is recorded in Interest income and other non-operating income, net.

Certain foreign currency and commodity forward contracts have been designated and qualify as cash flow hedges. The risk being hedged is foreign currency and commodity price risk related to forecasted transactions. The change in the fair value of these forward contracts is recorded in Accumulated other comprehensive loss and will be recognized in Automotive net sales and revenue or Automotive and other cost of sales when the hedged transaction impacts earnings. Forward contracts designated as cash flow hedges are evaluated for effectiveness using regression analysis at inception and throughout the hedge period.

Automotive Financing - GM Financial GM Financial utilizes interest rate derivative instruments to manage interest rate risk and foreign currency derivative instruments to manage foreign currency risk. The change in fair value of the derivative instruments not designated as an accounting hedge is recorded in GM Financial interest, operating and other expenses.

Certain interest rate and foreign currency swap agreements have been designated as fair value hedges. The risk being hedged is the risk of changes in the fair value of the hedged debt attributable to changes in the benchmark interest rate or the risk of changes in fair value attributable to changes in foreign currency exchange rates. If the swap has been designated as a fair value hedge, the changes in the fair value of the hedged item are recorded in GM Financial interest, operating and other expenses. The change in fair value of the related hedge is also recorded in GM Financial interest, operating and other expenses.

Certain interest rate swap and foreign currency swap agreements have been designated as cash flow hedges. The risk being hedged is the interest rate and foreign currency risk related to forecasted transactions. If the contract has been designated as a cash flow hedge, the change in the fair value of the cash flow hedge is deferred in Accumulated other comprehensive loss and is recognized in GM Financial interest, operating and other expenses along with the earnings effect of the hedged item when the hedged item affects earnings. Changes in the fair value of amounts excluded from the assessment of effectiveness are recorded currently in earnings and are presented in the same income statement line as the earnings effect of the hedged item.

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Recently Adopted Accounting Standards Effective October 1, 2022, we adopted Accounting Standard Update (ASU) 2022-03, "Fair Value Measurement (Topic 820): Fair Value Measurement of Equity Securities Subject to Contractual Sale Restrictions" (ASU 2022-03), which clarifies that a contractual restriction on the sale of an equity security is not considered in measuring fair value. The adoption of ASU 2022-03 was insignificant to our consolidated financial statements.

Accounting Standards Not Yet Adopted In March 2022, the Financial Accounting Standards Board (FASB) issued ASU 2022-02 "Financial Instruments - Credit Losses (Topic 326): Troubled Debt Restructurings and Vintage Disclosures" (ASU 2022-02), which eliminates the accounting guidance for TDRs and enhances certain disclosure requirements. We adopted ASU 2022-02 on a modified retrospective basis on January 1, 2023. The impact of the adoption of ASU 2022-02 was insignificant.

Note 3. Revenue

The following table disaggregates our revenue by major source for revenue generating segments:

	Year Ended December 31, 2022							
	GMNA	GMI	Corporate	Total Automotive	Cruise	GM Financial	Eliminations/Reclassifications	Total
Vehicle, parts and accessories	\$ 124,657	\$ 13,993	\$ 42	\$ 138,692	\$ —	\$ —	\$ —	\$ 138,692
Used vehicles	483	33	—	516	—	—	—	516
Services and other	3,238	1,393	134	4,765	102	—	(101)	4,766
Automotive net sales and revenue	128,378	15,420	177	143,974	102	—	(101)	143,975
Leased vehicle income	—	—	—	—	—	7,811	—	7,811
Finance charge income	—	—	—	—	—	4,521	(2)	4,519
Other income	—	—	—	—	—	435	(4)	431
GM Financial net sales and revenue	—	—	—	—	—	12,766	(6)	12,760
Net sales and revenue	\$ 128,378	\$ 15,420	\$ 177	\$ 143,974	\$ 102	\$ 12,766	\$ (107)	\$ 156,735

	Year Ended December 31, 2021							
	GMNA	GMI	Corporate	Total Automotive	Cruise	GM Financial	Eliminations/Reclassifications	Total
Vehicle, parts and accessories	\$ 97,515	\$ 10,956	\$ 14	\$ 108,485	\$ —	\$ —	\$ —	\$ 108,485
Used vehicles	545	49	—	594	—	—	—	594
Services and other	3,248	1,167	90	4,505	106	—	(100)	4,511
Automotive net sales and revenue	101,308	12,172	104	113,584	106	—	(100)	113,590
Leased vehicle income	—	—	—	—	—	9,026	—	9,026
Finance charge income	—	—	—	—	—	4,103	—	4,103
Other income	—	—	—	—	—	290	(5)	285
GM Financial net sales and revenue	—	—	—	—	—	13,419	(5)	13,414
Net sales and revenue	\$ 101,308	\$ 12,172	\$ 104	\$ 113,584	\$ 106	\$ 13,419	\$ (105)	\$ 127,004

	Year Ended December 31, 2020							
	GMNA	GMI	Corporate	Total Automotive	Cruise	GM Financial	Eliminations/Reclassifications	Total
Vehicle, parts and accessories	\$ 92,749	\$ 10,593	\$ 1	\$ 103,343	\$ —	\$ —	\$ —	\$ 103,343
Used vehicles	875	115	20	1,010	—	—	—	1,010
Services and other	3,109	878	329	4,316	103	—	(99)	4,320
Automotive net sales and revenue	96,733	11,586	350	108,669	103	—	(99)	108,673
Leased vehicle income	—	—	—	—	—	9,530	—	9,530
Finance charge income	—	—	—	—	—	3,996	(1)	3,995
Other income	—	—	—	—	—	305	(18)	287
GM Financial net sales and revenue	—	—	—	—	—	13,831	(19)	13,812
Net sales and revenue	\$ 96,733	\$ 11,586	\$ 350	\$ 108,669	\$ 103	\$ 13,831	\$ (118)	\$ 122,485

Revenue is measured as the amount of consideration we expect to receive in exchange for transferring goods or providing services. Adjustments to sales incentives for previously recognized sales were insignificant during the years ended December 31, 2022, 2021 and 2020.

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Contract liabilities in our Automotive segments primarily consist of maintenance, extended warranty and other service contracts of \$3.3 billion and \$2.5 billion at December 31, 2022 and 2021, which are included in Accrued liabilities and Other liabilities. We recognized revenue of \$1.3 billion and \$1.2 billion related to contract liabilities during the years ended December 31, 2022 and 2021. We expect to recognize revenue of \$1.3 billion, \$680 million and \$1.4 billion in the years ending December 31, 2023, 2024 and thereafter related to contract liabilities at December 31, 2022.

Note 4. Marketable and Other Securities

The following table summarizes the fair value of cash equivalents and marketable debt securities, which approximates cost:

	Fair Value Level	December 31, 2022	December 31, 2021
Cash and cash equivalents			
Cash and time deposits		\$ 8,921	\$ 7,881
Available-for-sale debt securities			
U.S. government and agencies	2	1,012	722
Corporate debt	2	2,778	5,321
Sovereign debt	2	1,828	2,105
Total available-for-sale debt securities – cash equivalents		5,618	8,148
Money market funds	1	4,613	4,038
Total cash and cash equivalents(a)		\$ 19,153	\$ 20,067
Marketable debt securities			
U.S. government and agencies	2	\$ 4,357	\$ 2,071
Corporate debt	2	5,147	3,396
Mortgage and asset-backed	2	538	575
Sovereign debt	2	2,108	2,567
Total available-for-sale debt securities – marketable securities(b)		\$ 12,150	\$ 8,609
Restricted cash			
Cash and cash equivalents		\$ 341	\$ 466
Money market funds	1	2,455	3,009
Total restricted cash		\$ 2,796	\$ 3,475
Available-for-sale debt securities included above with contractual maturities(c)			
Due in one year or less		\$ 10,909	
Due between one and five years		6,231	
Total available-for-sale debt securities with contractual maturities		\$ 17,139	

(a) Includes \$1.5 billion and \$1.6 billion in Cruise at December 31, 2022 and 2021.

(b) Includes \$1.4 billion and \$1.5 billion in Cruise at December 31, 2022 and 2021.

(c) Excludes mortgage and asset-backed securities of \$538 million at December 31, 2022 as these securities are not due at a single maturity date.

Proceeds from the sale of available-for-sale debt securities sold prior to maturity were \$1.8 billion in the year ended December 31, 2022, and \$1.9 billion in the years ended December 31, 2021 and 2020. Net unrealized losses on available-for-sale debt securities were \$319 million in the year ended December 31, 2022 and insignificant in the years ended December 31, 2021 and 2020. Cumulative unrealized losses on available-for-sale debt securities were \$344 million and insignificant at December 31, 2022 and 2021.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the consolidated balance sheets that sum to the total of the same amounts shown in the consolidated statements of cash flows:

	December 31, 2022	December 31, 2021
Cash and cash equivalents	\$ 19,153	\$ 20,067
Restricted cash included in Other current assets	2,356	2,935
Restricted cash included in Other assets	440	540
Total	<u>\$ 21,948</u>	<u>\$ 23,542</u>

Note 5. GM Financial Receivables and Transactions

	December 31, 2022			December 31, 2021		
	Retail	Commercial(a)	Total	Retail	Commercial(a)	Total
GM Financial receivables	\$ 65,322	\$ 10,988	\$ 76,310	\$ 58,093	\$ 6,609	\$ 64,702
Less: allowance for loan losses	(2,062)	(34)	(2,096)	(1,839)	(47)	(1,886)
GM Financial receivables, net	<u>\$ 63,260</u>	<u>\$ 10,954</u>	<u>\$ 74,214</u>	<u>\$ 56,254</u>	<u>\$ 6,562</u>	<u>\$ 62,816</u>
Fair value of GM Financial receivables utilizing Level 2 inputs			\$ 10,954			\$ 6,562
Fair value of GM Financial receivables utilizing Level 3 inputs			\$ 62,150			\$ 57,613

(a) Net of dealer cash management balances of \$1.9 billion and \$1.0 billion at December 31, 2022 and 2021. Under the cash management program, subject to certain conditions, a dealer may choose to reduce the amount of interest on its floorplan line by making principal payments to GM Financial in advance.

	Years Ended December 31,		
	2022	2021	2020
Allowance for loan losses at beginning of period	\$ 1,886	\$ 1,978	\$ 944
Impact of adoption ASU 2016-13	—	—	801
Provision for loan losses	654	248	881
Charge-offs	(1,138)	(897)	(1,169)
Recoveries	686	574	542
Effect of foreign currency	9	(17)	(21)
Allowance for loan losses at end of period	<u>\$ 2,096</u>	<u>\$ 1,886</u>	<u>\$ 1,978</u>

Retail Finance Receivables GM Financial's retail finance receivable portfolio includes loans made to consumers and businesses to finance the purchase of vehicles for personal and commercial use. The following tables are consolidated summaries of the retail finance receivables by FICO score or its equivalent, determined at origination, for each vintage of the retail finance receivables portfolio at December 31, 2022 and 2021:

	Year of Origination						December 31, 2022	
	2022	2021	2020	2019	2018	Prior	Total	Percent
Prime – FICO score 680 and greater	\$ 22,677	\$ 13,399	\$ 7,991	\$ 2,254	\$ 1,019	\$ 205	\$ 47,543	72.8 %
Near-prime – FICO score 620 to 679	3,202	2,601	1,487	688	310	104	8,392	12.8 %
Sub-prime – FICO score less than 620	3,211	2,746	1,604	1,051	496	280	9,388	14.4 %
Retail finance receivables, net of fees	<u>\$ 29,090</u>	<u>\$ 18,745</u>	<u>\$ 11,081</u>	<u>\$ 3,992</u>	<u>\$ 1,824</u>	<u>\$ 589</u>	<u>\$ 65,322</u>	<u>100.0 %</u>

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

	Year of Origination						December 31, 2021	
	2021	2020	2019	2018	2017	Prior	Total	Percent
Prime – FICO score 680 and greater	\$ 19,729	\$ 12,408	\$ 4,078	\$ 2,298	\$ 763	\$ 143	\$ 39,419	67.9 %
Near-prime – FICO score 620 to 679	3,856	2,388	1,229	648	274	84	8,479	14.6 %
Sub-prime – FICO score less than 620	4,053	2,528	1,777	972	570	295	10,195	17.5 %
Retail finance receivables, net of fees	<u>\$ 27,638</u>	<u>\$ 17,324</u>	<u>\$ 7,084</u>	<u>\$ 3,918</u>	<u>\$ 1,607</u>	<u>\$ 522</u>	<u>\$ 58,093</u>	<u>100.0 %</u>

GM Financial reviews the ongoing credit quality of retail finance receivables based on customer payment activity. A retail account is considered delinquent if a substantial portion of a scheduled payment has not been received by the date the payment was contractually due. Retail finance receivables are collateralized by vehicle titles and, subject to local laws, GM Financial generally has the right to repossess the vehicle in the event the customer defaults on the payment terms of the contract. The accrual of finance charge income had been suspended on delinquent retail finance receivables with contractual amounts due of \$685 million and \$602 million at December 31, 2022 and 2021. The following tables are consolidated summaries of the delinquency status of the outstanding amortized cost of retail finance receivables for each vintage of the portfolio at December 31, 2022 and 2021:

	Year of Origination						December 31, 2022	
	2022	2021	2020	2019	2018	Prior	Total	Percent
0-to-30 days	\$ 28,676	\$ 18,128	\$ 10,702	\$ 3,743	\$ 1,685	\$ 493	\$ 63,426	97.1 %
31-to-60 days	310	452	275	184	103	69	1,393	2.1 %
Greater-than-60 days	93	150	98	62	35	26	465	0.7 %
Finance receivables more than 30 days delinquent	403	603	373	246	138	95	1,857	2.8 %
In repossession	11	14	6	4	2	1	39	0.1 %
Finance receivables more than 30 days delinquent or in repossession	414	617	380	249	140	96	1,896	2.9 %
Retail finance receivables, net of fees	<u>\$ 29,090</u>	<u>\$ 18,745</u>	<u>\$ 11,081</u>	<u>\$ 3,992</u>	<u>\$ 1,824</u>	<u>\$ 589</u>	<u>\$ 65,322</u>	<u>100.0 %</u>

	Year of Origination						December 31, 2021	
	2021	2020	2019	2018	2017	Prior	Total	Percent
0-to-30 days	\$ 27,270	\$ 16,945	\$ 6,772	\$ 3,721	\$ 1,478	\$ 440	\$ 56,626	97.5 %
31-to-60 days	273	276	230	147	97	60	1,083	1.8 %
Greater-than-60 days	83	93	76	46	30	21	349	0.6 %
Finance receivables more than 30 days delinquent	356	369	306	193	127	81	1,432	2.4 %
In repossession	12	10	6	4	2	1	35	0.1 %
Finance receivables more than 30 days delinquent or in repossession	368	379	312	197	129	82	1,467	2.5 %
Retail finance receivables, net of fees	<u>\$ 27,638</u>	<u>\$ 17,324</u>	<u>\$ 7,084</u>	<u>\$ 3,918</u>	<u>\$ 1,607</u>	<u>\$ 522</u>	<u>\$ 58,093</u>	<u>100.0 %</u>

The outstanding amortized cost of retail finance receivables that are considered TDRs was \$2.1 billion and \$1.9 billion, including \$241 million and \$219 million in nonaccrual loans at December 31, 2022 and 2021.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Commercial Finance Receivables GM Financial's commercial finance receivables consist of dealer financings, primarily for dealer inventory purchases. Proprietary models are used to assign a risk rating to each dealer. GM Financial performs periodic credit reviews of each dealership and adjusts the dealership's risk rating, if necessary. There were no commercial finance receivables on nonaccrual status at December 31, 2022 and 2021.

GM Financial's commercial risk model and risk rating categories are as follows:

Rating	Description
I	Performing accounts with strong to acceptable financial metrics with at least satisfactory capacity to meet financial commitments.
II	Performing accounts experiencing potential weakness in financial metrics and repayment prospects resulting in increased monitoring.
III	Non-Performing accounts with inadequate paying capacity for current obligations and have the distinct possibility of creating a loss if deficiencies are not corrected.
IV	Non-Performing accounts with inadequate paying capacity for current obligations and inherent weaknesses that make collection of liquidation in full highly questionable or improbable.

Dealers with III and IV risk ratings are subject to additional monitoring and restrictions on funding, including suspension of lines of credit and liquidation of assets. The following tables summarize the credit risk profile by dealer risk rating of commercial finance receivables at December 31, 2022 and 2021:

	Year of Origination(a)							December 31, 2022	
	Revolving	2022	2021	2020	2019	2018	Prior	Total	Percent
I	\$ 9,493	\$ 438	\$ 356	\$ 360	\$ 91	\$ 38	\$ 18	\$ 10,794	98.2 %
II	89	—	1	—	—	—	—	91	0.8 %
III	78	15	—	—	10	—	—	104	0.9 %
IV	—	—	—	—	—	—	—	—	— %
Commercial finance receivables, net of fees	\$ 9,660	\$ 453	\$ 357	\$ 360	\$ 102	\$ 38	\$ 18	\$ 10,988	100.0 %

(a) Floorplan advances comprise 97% of the total revolving balance. Dealer term loans are presented by year of origination.

	Year of Origination(a)							December 31, 2021	
	Revolving	2021	2020	2019	2018	2017	Prior	Total	Percent
I	\$ 5,210	\$ 420	\$ 396	\$ 120	\$ 50	\$ 50	\$ 10	\$ 6,256	94.7 %
II	207	3	16	12	—	3	—	241	3.6 %
III	81	8	15	2	—	2	4	112	1.7 %
IV	—	—	—	—	—	—	—	—	— %
Commercial finance receivables, net of fees	\$ 5,498	\$ 431	\$ 427	\$ 134	\$ 50	\$ 55	\$ 14	\$ 6,609	100.0 %

(a) Floorplan advances comprise 94% of the total revolving balance. Dealer term loans are presented by year of origination.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Equipment on Operating Leases

Equipment on operating leases primarily consists of leases to retail customers of GM Financial.

	December 31, 2022	December 31, 2021
Equipment on operating leases	\$ 40,919	\$ 47,423
Less: accumulated depreciation	(8,218)	(9,494)
Equipment on operating leases, net	<u>\$ 32,701</u>	<u>\$ 37,929</u>

At December 31, 2022, the estimated residual value of our leased assets at the end of the lease term was \$24.7 billion.

Depreciation expense related to Equipment on operating leases, net was \$4.8 billion, \$6.1 billion and \$7.2 billion in the years ended December 31, 2022, 2021 and 2020.

The following table summarizes lease payments due to GM Financial on leases to retail customers:

	Years Ending December 31,						Total
	2023	2024	2025	2026	2027	Thereafter	
Lease receipts under operating leases	\$ 4,880	\$ 2,804	\$ 1,049	\$ 117	\$ 2	\$ —	\$ 8,852

Note 8. Equity in Net Assets of Nonconsolidated Affiliates

Nonconsolidated affiliates are entities in which we maintain an equity ownership interest and for which we use the equity method of accounting due to our ability to exert significant influence over decisions relating to their operating and financial affairs. Revenue and expenses of our joint ventures are not consolidated into our financial statements; rather, our proportionate share of the earnings of each joint venture is reflected as Equity income.

	Years Ended December 31,		
	2022	2021	2020
Automotive China equity income (loss)	\$ 677	\$ 1,098	\$ 512
Other joint ventures equity income (loss)	159	203	162
Total Equity income (loss)	<u>\$ 837</u>	<u>\$ 1,301</u>	<u>\$ 674</u>

Investments in Nonconsolidated Affiliates

	December 31, 2022	December 31, 2021
Automotive China carrying amount	\$ 6,714	\$ 7,156
Ultium Cells Holdings LLC carrying amount	1,463	650
Other investments carrying amount	1,998	1,871
Total equity in net assets of nonconsolidated affiliates	<u>\$ 10,176</u>	<u>\$ 9,677</u>

The carrying amount of our investments in certain joint ventures exceeded our share of the underlying net assets by \$4.3 billion at December 31, 2022 and 2021 primarily due to goodwill from the application of fresh-start reporting and the purchase of additional interests in nonconsolidated affiliates.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

The following table summarizes our direct ownership interests in our China JVs:

	December 31, 2022	December 31, 2021
Automotive China JVs		
SAIC General Motors Corp., Ltd. (SGM)	50 %	50 %
Pan Asia Technical Automotive Center Co., Ltd.	50 %	50 %
SAIC General Motors Sales Co., Ltd. (SGMS)	49 %	49 %
SAIC GM Wuling Automobile Co., Ltd. (SGMW)	44 %	44 %
Shanghai OnStar Telematics Co., Ltd. (Shanghai OnStar)	40 %	40 %
SAIC GM (Shenyang) Norsom Motors Co., Ltd. (SGM Norsom)	25 %	25 %
SAIC GM Dong Yue Motors Co., Ltd. (SGM DY)	25 %	25 %
SAIC GM Dong Yue Powertrain Co., Ltd. (SGM DYPT)	25 %	25 %
Other joint ventures		
SAIC-GMAC Automotive Finance Company Limited (SAIC-GMAC)	35 %	35 %
SAIC-GMF Leasing Co., Ltd.	35 %	35 %

SGM is a joint venture we established with Shanghai Automotive Industry Corporation (SAIC) (50%). SGM has interests in three other joint ventures in China: SGM Norsom, SGM DY and SGM DYPT. These three joint ventures are jointly held by SGM (50%), SAIC (25%) and ourselves. These four joint ventures are engaged in the production, import and sale of a range of products under the Buick, Chevrolet and Cadillac brands. SGM also has interests in Shanghai OnStar (20%), SAIC-GMAC (20%) and SAIC-GMF Leasing Co., Ltd. (20%). Shanghai Automotive Group Finance Company Ltd., a subsidiary of SAIC, owns 45% of SAIC-GMAC. SAIC Financial Holdings Company, a subsidiary of SAIC, owns 45% of SAIC-GMF Leasing Co., Ltd.

Summarized Financial Data of Nonconsolidated Affiliates

	December 31, 2022			December 31, 2021		
	Automotive China JVs	Others	Total	Automotive China JVs	Others	Total
Summarized Balance Sheet Data						
Current assets	\$ 17,735	\$ 17,405	\$ 35,140	\$ 18,176	\$ 18,166	\$ 36,342
Non-current assets	12,428	10,826	23,254	13,948	10,042	23,990
Total assets	<u>\$ 30,163</u>	<u>\$ 28,231</u>	<u>\$ 58,394</u>	<u>\$ 32,124</u>	<u>\$ 28,208</u>	<u>\$ 60,332</u>
Current liabilities	\$ 23,267	\$ 17,498	\$ 40,765	\$ 24,320	\$ 17,141	\$ 41,461
Non-current liabilities	1,167	3,184	4,351	1,223	5,607	6,830
Total liabilities	<u>\$ 24,434</u>	<u>\$ 20,682</u>	<u>\$ 45,116</u>	<u>\$ 25,543</u>	<u>\$ 22,748</u>	<u>\$ 48,291</u>
Noncontrolling interests	\$ 904	\$ —	\$ 904	\$ 867	\$ —	\$ 867

	Years Ended December 31,		
	2022	2021	2020
Summarized Operating Data			
Automotive China JVs' net sales	\$ 35,857	\$ 42,776	\$ 38,736
Others' net sales	2,029	2,017	1,850
Total net sales	<u>\$ 37,886</u>	<u>\$ 44,793</u>	<u>\$ 40,586</u>
Automotive China JVs' net income	\$ 1,407	\$ 2,109	\$ 1,239
Others' net income	426	587	436
Total net income	<u>\$ 1,833</u>	<u>\$ 2,696</u>	<u>\$ 1,675</u>

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Transactions with Nonconsolidated Affiliates Our nonconsolidated affiliates are involved in various aspects of the development, production and marketing of trucks, crossovers, cars and automobile parts. We enter into transactions with certain nonconsolidated affiliates to purchase and sell component parts and vehicles. The following tables summarize transactions with and balances related to our nonconsolidated affiliates:

	Years Ended December 31,		
	2022	2021	2020
Automotive sales and revenue	\$ 218	\$ 227	\$ 235
Automotive purchases, net	\$ 2,637	\$ 1,551	\$ 165
Dividends received	\$ 1,030	\$ 783	\$ 1,198
Operating cash flows	\$ (1,133)	\$ (616)	\$ 1,473

	December 31, 2022	December 31, 2021
Accounts and notes receivable, net	\$ 1,089	\$ 1,004
Accounts payable	\$ 942	\$ 555
Undistributed earnings	\$ 1,918	\$ 2,111

Note 9. Property

	Estimated Useful Lives in Years	December 31, 2022	December 31, 2021
Land		\$ 1,307	\$ 1,301
Buildings and improvements	5-40	11,461	10,542
Machinery and equipment	3-27	33,413	31,444
Special tools	1-13	24,775	23,719
Construction in progress		7,340	5,395
Total property		78,295	72,401
Less: accumulated depreciation		(33,047)	(31,286)
Total property, net		\$ 45,248	\$ 41,115

The amount of capitalized software included in Property, net was \$1.8 billion and \$1.4 billion at December 31, 2022 and 2021. The amount of interest capitalized and excluded from Automotive interest expense related to Property, net was insignificant in the years ended December 31, 2022, 2021 and 2020.

	Years Ended December 31,		
	2022	2021	2020
Depreciation and amortization expense	\$ 6,297	\$ 5,829	\$ 5,354
Impairment charges	\$ 12	\$ —	\$ 86
Capitalized software amortization expense(a)	\$ 614	\$ 515	\$ 457

(a) Included in depreciation and amortization expense.

Note 10. Goodwill and Intangible Assets

Goodwill of \$1.9 billion consisted of \$1.3 billion in GM Financial and \$571 million and \$574 million in Cruise at December 31, 2022 and 2021.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

	December 31, 2022			December 31, 2021		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Technology and intellectual property	\$ 767	\$ 564	\$ 203	\$ 764	\$ 555	\$ 209
Brands	4,294	1,658	2,636	4,296	1,550	2,746
Dealer network, customer relationships and other	960	765	195	966	748	218
Total intangible assets	<u>\$ 6,021</u>	<u>\$ 2,987</u>	<u>\$ 3,034</u>	<u>\$ 6,026</u>	<u>\$ 2,853</u>	<u>\$ 3,173</u>

Our amortization expense related to intangible assets was \$139 million, \$141 million and \$144 million in the years ended December 31, 2022, 2021 and 2020.

Amortization expense related to intangible assets is estimated to be approximately \$166 million in each of the next five years.

Note 11. Variable Interest Entities
Consolidated VIEs
Automotive Financing - GM Financial

GM Financial uses special purpose entities (SPEs) that are considered VIEs to issue variable funding notes to third party bank-sponsored warehouse facilities or asset-backed securities to investors in securitization transactions. The debt issued by these VIEs is backed by finance receivables and leasing-related assets transferred to the VIEs (Securitized Assets). GM Financial determined that it is the primary beneficiary of the SPEs because the servicing responsibilities for the Securitized Assets give GM Financial the power to direct the activities that most significantly impact the performance of the VIEs and the variable interests in the VIEs give GM Financial the obligation to absorb losses and the right to receive residual returns that could potentially be significant. The assets of the VIEs serve as the sole source of repayment for the debt issued by these entities. Investors in the notes issued by the VIEs do not have recourse to GM Financial or its other assets, with the exception of customary representation and warranty repurchase provisions and indemnities that GM Financial provides as the servicer. GM Financial is not required to provide additional financial support to these SPEs. While these subsidiaries are included in GM Financial's consolidated financial statements, they are separate legal entities and their assets are legally owned by them and are not available to GM Financial's creditors or creditors of GM Financial's other subsidiaries.

The following table summarizes the assets and liabilities related to GM Financial's consolidated VIEs:

	December 31, 2022	December 31, 2021
Restricted cash – current	\$ 2,176	\$ 2,291
Restricted cash – non-current	\$ 360	\$ 449
GM Financial receivables, net of fees – current	\$ 19,896	\$ 15,344
GM Financial receivables, net of fees – non-current	\$ 18,748	\$ 16,518
GM Financial equipment on operating leases, net	\$ 18,456	\$ 16,143
GM Financial short-term debt and current portion of long-term debt	\$ 21,643	\$ 19,876
GM Financial long-term debt	\$ 20,545	\$ 19,401

GM Financial recognizes finance charge, leased vehicle and fee income on the Securitized Assets and interest expense on the secured debt issued in a securitization transaction and records a provision for loan losses to recognize loan losses expected over the remaining life of the finance receivables.

Nonconsolidated VIEs
Automotive

Nonconsolidated VIEs principally include automotive related operating entities to which we provided financial support to ensure that our supply needs for production are met or are not disrupted. Our variable interests in these nonconsolidated VIEs include equity investments, accounts and loans receivable, committed financial support and other off-balance sheet

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

arrangements. The carrying amounts of assets were approximately \$1.6 billion and \$850 million and liabilities were insignificant related to our nonconsolidated VIEs at December 31, 2022 and 2021. Our maximum exposure to loss as a result of our involvement with these VIEs was \$3.3 billion and \$2.1 billion, inclusive of \$1.4 billion and \$1.2 billion in committed capital contributions to Ultium Cells Holdings LLC at December 31, 2022 and 2021. We currently lack the power through voting or similar rights to direct the activities of these entities that most significantly affect their economic performance.

Note 12. Accrued and Other Liabilities

	December 31, 2022	December 31, 2021
Accrued liabilities		
Dealer and customer allowances, claims and discounts	\$ 4,813	\$ 3,211
Deferred revenue	2,489	2,461
Product warranty and related liabilities	3,042	3,769
Payrolls and employee benefits excluding postemployment benefits	3,298	2,937
Other	11,268	7,919
Total accrued liabilities	<u>\$ 24,910</u>	<u>\$ 20,297</u>
Other liabilities		
Deferred revenue	\$ 3,552	\$ 3,010
Product warranty and related liabilities	5,488	6,005
Operating lease liabilities	967	1,012
Employee benefits excluding postemployment benefits	512	622
Postemployment benefits including facility idling reserves	507	775
Other	3,740	3,661
Total other liabilities	<u>\$ 14,767</u>	<u>\$ 15,085</u>

	Years Ended December 31,		
	2022	2021	2020
Product Warranty and Related Liabilities			
Warranty balance at beginning of period	\$ 9,774	\$ 8,242	\$ 7,798
Warranties issued and assumed in period – recall campaigns	651	2,820	1,628
Warranties issued and assumed in period – product warranty	1,943	1,665	1,773
Payments	(4,097)	(3,249)	(2,986)
Adjustments to pre-existing warranties	297	315	41
Effect of foreign currency and other	(37)	(19)	(12)
Warranty balance at end of period	<u>8,530</u>	<u>9,774</u>	<u>8,242</u>
Less: Supplier recoveries balance at end of period(a)	1,184	2,039	224
Warranty balance, net of supplier recoveries at end of period	<u>\$ 7,345</u>	<u>\$ 7,735</u>	<u>\$ 8,018</u>

(a) The current portion of supplier recoveries is recorded in Accounts and notes receivable, net of allowance and the non-current portion is recorded in Other assets.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

	Years Ended December 31,		
	2022	2021	2020
Product warranty expense, net of recoveries			
Warranties issued and assumed in period	\$ 2,593	\$ 4,485	\$ 3,401
Supplier recoveries accrued in period	(261)	(2,175)	(322)
Adjustments and other	260	296	29
Warranty expense, net of supplier recoveries	<u>\$ 2,592</u>	<u>\$ 2,606</u>	<u>\$ 3,108</u>

We estimate our reasonably possible loss in excess of amounts accrued for recall campaigns to be insignificant at December 31, 2022. Refer to Note 16 to our consolidated financial statements for more details.

Note 13. Debt

Automotive The following table presents debt in our automotive operations:

	December 31, 2022		December 31, 2021	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
Secured debt	\$ 124	\$ 123	\$ 192	\$ 212
Unsecured debt(a)	17,340	16,323	16,277	19,995
Finance lease liabilities	381	381	349	362
Total automotive debt(b)	<u>\$ 17,844</u>	<u>\$ 16,828</u>	<u>\$ 16,818</u>	<u>\$ 20,569</u>
Fair value utilizing Level 1 inputs		\$ 15,971		\$ 19,085
Fair value utilizing Level 2 inputs		\$ 857		\$ 1,484
Available under credit facility agreements(c)		\$ 15,095		\$ 15,208
Weighted-average interest rate on outstanding short-term debt(d)		6.1 %		9.8 %
Weighted-average interest rate on outstanding long-term debt(d)		5.8 %		5.8 %

(a) Primarily consist of senior notes.

(b) Includes net discount and debt issuance costs of \$525 million and \$512 million at December 31, 2022 and 2021.

(c) Excludes our 364-day, \$2.0 billion facility designated for exclusive use by GM Financial.

(d) Includes coupon rates on debt denominated in various foreign currencies and interest free loans.

In April 2022, we renewed our 364-day, \$2.0 billion revolving credit facility allocated for the exclusive use of GM Financial, which now matures on April 4, 2023.

In August 2022, we issued \$2.25 billion in aggregate principal amount of senior unsecured notes under our new Sustainable Finance Framework with a weighted-average interest rate of 5.51% and maturity dates in 2029 and 2032. We intend to allocate an amount equal to the net proceeds from these senior unsecured notes to finance or refinance, in whole or in part, new or existing green projects, assets or activities undertaken or owned by the Company that meet one or more eligibility criteria outlined in our Sustainable Finance Framework.

In December 2022, we early redeemed our \$1.0 billion 5.40% senior unsecured notes with a maturity date of October 2023 and recorded an insignificant loss. Additionally, in the year ended December 31, 2022, we paid, prior to maturity, \$529 million of unsecured term loans in GMI.

In January 2023, we gave notice to early redeem our \$1.5 billion 4.875% senior unsecured notes with a maturity date of October 2023. The settlement of the early redemption of these senior unsecured notes is expected to occur during the first quarter of 2023 and is expected to have an immaterial impact on our 2023 results.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

GM Financial The following table presents debt of GM Financial:

	December 31, 2022		December 31, 2021	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
Secured debt	\$ 42,131	\$ 41,467	\$ 39,338	\$ 39,401
Unsecured debt	54,723	52,270	53,223	54,357
Total GM Financial debt	\$ 96,854	\$ 93,738	\$ 92,561	\$ 93,758
Fair value utilizing Level 2 inputs		\$ 91,545		\$ 92,250
Fair value utilizing Level 3 inputs		\$ 2,192		\$ 1,508

Secured debt consists of revolving credit facilities and securitization notes payable. Most of the secured debt was issued by VIEs and is repayable only from proceeds related to the underlying pledged assets. Refer to Note 11 for additional information on GM Financial's involvement with VIEs. GM Financial is required to hold certain funds in restricted cash accounts to provide additional collateral for borrowings under certain secured credit facilities. The weighted-average interest rate on secured debt was 1.70% at December 31, 2022. The revolving credit facilities have maturity dates ranging from 2023 to 2028 and securitization notes payable have maturity dates ranging from 2023 to 2035. At the end of the revolving period, if not renewed, the debt of revolving credit facilities will amortize over a defined period. In the year ended December 31, 2022, GM Financial renewed revolving credit facilities with total borrowing capacity of \$26.3 billion and issued \$24.3 billion in aggregate principal amount of securitization notes payable with an initial weighted-average interest rate of 3.40% and maturity dates ranging from 2023 to 2035.

Unsecured debt consists of senior notes, credit facilities and other unsecured debt. Senior notes outstanding at December 31, 2022 have maturity dates ranging from 2023 to 2032 and have a weighted-average interest rate of 3.20%. In the year ended December 31, 2022, GM Financial issued \$9.0 billion in aggregate principal amount of senior notes with an initial weighted-average interest rate of 3.78% and maturity dates ranging from 2024 to 2032.

In 2021, GM Financial redeemed \$1.5 billion in aggregate principal amount of 5.20% senior notes due in 2023. The redemption resulted in a \$105 million loss on the early extinguishment of debt. The loss is included in GM Financial interest, operating and other expenses.

Unsecured credit facilities and other unsecured debt have original maturities of up to five years. The weighted-average interest rate on these credit facilities and other unsecured debt was 6.97% at December 31, 2022.

	Years Ended December 31,		
	2022	2021	2020
Automotive interest expense	\$ 987	\$ 950	\$ 1,098
Automotive Financing - GM Financial interest expense	2,881	2,546	3,023
Total interest expense	\$ 3,868	\$ 3,496	\$ 4,121

The following table summarizes contractual maturities including finance leases at December 31, 2022:

	Automotive	Automotive Financing	Total
2023	\$ 1,961	\$ 36,912	\$ 38,873
2024	118	21,144	21,262
2025	2,597	15,340	17,937
2026	61	7,817	7,878
2027	1,805	6,505	8,310
Thereafter	11,827	10,130	21,957
	\$ 18,369	\$ 97,847	\$ 116,217

GENERAL MOTORS COMPANY AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Compliance with Debt Covenants Several of our loan facilities, including our revolving credit facilities, require compliance with certain financial and operational covenants as well as regular reporting to lenders, including providing certain subsidiary financial statements. Certain of GM Financial's secured debt agreements also contain various covenants, including maintaining portfolio performance ratios as well as limits on deferment levels. GM Financial's unsecured debt obligations contain covenants including limitations on GM Financial's ability to incur certain liens. Failure to meet certain of these requirements may result in a covenant violation or an event of default depending on the terms of the agreement. An event of default may allow lenders to declare amounts outstanding under these agreements immediately due and payable, to enforce their interests against collateral pledged under these agreements or restrict our ability or GM Financial's ability to obtain additional borrowings. No technical defaults or covenant violations existed at December 31, 2022.

Note 14. Derivative Financial Instruments

Automotive The following table presents the notional amounts of derivative financial instruments in our automotive operations:

	Fair Value Level	December 31, 2022	December 31, 2021
Derivatives not designated as hedges(a)			
Foreign currency	2	\$ 4,072	\$ 4,228
Commodity	2	1,075	1,549
Stellantis warrants(b)	2	—	45
Total derivative financial instruments		<u>\$ 5,148</u>	<u>\$ 5,822</u>

(a) The fair value of these derivative instruments at December 31, 2022 and 2021 and the gains/losses included in our consolidated income statements for the years ended December 31, 2022, 2021 and 2020 were insignificant, unless otherwise noted.

(b) At December 31, 2021, we held 39.7 million warrants in Stellantis, which we exercised in September 2022. Upon exercise, the warrants converted into 69.1 million common shares of Stellantis, which we immediately sold back to Stellantis. Total net pre-tax proceeds, including dividends received, in connection with this transaction were approximately \$1.1 billion. The fair value of these warrants, located in Other assets, was \$1.4 billion at December 31, 2021. We recorded a loss in Interest income and other non-operating income of \$363 million for the year ended December 31, 2022 and gains of \$316 million and \$139 million for the years ended December, 2021 and 2020.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

GM Financial The following table presents the gross fair value amounts of GM Financial's derivative financial instruments and the associated notional amounts:

	Fair Value Level	December 31, 2022			December 31, 2021		
		Notional	Fair Value of Assets	Fair Value of Liabilities	Notional	Fair Value of Assets	Fair Value of Liabilities
Derivatives designated as hedges(a)							
Fair value hedges							
Interest rate swaps	2	\$ 19,950	\$ —	\$ 821	\$ 15,058	\$ 74	\$ 88
Foreign currency swaps	2	—	—	—	682	—	59
Cash flow hedges							
Interest rate swaps	2	1,434	34	1	611	12	4
Foreign currency swaps(b)	2	6,852	—	586	7,419	85	201
Derivatives not designated as hedges(a)							
Interest rate contracts	2	113,975	2,268	1,984	110,053	846	339
Foreign currency contracts	2	—	—	—	148	—	—
Total derivative financial instruments(c)		\$ 142,212	\$ 2,302	\$ 3,392	\$ 133,971	\$ 1,017	\$ 691

- (a) The gains/losses included in our consolidated income statements and statements of comprehensive income for the years ended December 31, 2022, 2021 and 2020 were insignificant, unless otherwise noted. Amounts accrued for interest payments in a net receivable position are included in Other assets. Amounts accrued for interest payments in a net payable position are included in Other liabilities.
- (b) The effect of foreign currency cash flow hedges in the consolidated statements of comprehensive income include a \$529 million loss recognized in Accumulated other comprehensive loss and a \$578 million loss reclassified from Accumulated other comprehensive loss into income for the year ended December 31, 2022 and insignificant activity in the years ended December 31, 2021 and 2020.
- (c) GM Financial held \$553 million and \$376 million of collateral from counterparties available for netting against GM Financial's asset positions, and posted \$1.5 billion and an insignificant amount of collateral to counterparties available for netting against GM Financial's liability positions at December 31, 2022 and 2021.

The fair value for Level 2 instruments was derived using the market approach based on observable market inputs including quoted prices of similar instruments and foreign exchange and interest rate forward curves.

The following amounts were recorded in the consolidated balance sheets related to items designated and qualifying as hedged items in fair value hedging relationships:

	December 31, 2022		December 31, 2021	
	Carrying Amount of Hedged Items	Cumulative Amount of Fair Value Hedging Adjustments(a)	Carrying Amount of Hedged Items	Cumulative Amount of Fair Value Hedging Adjustments(a)
Short-term unsecured debt	\$ 3,048	\$ 2	\$ 1,338	\$ (1)
Long-term unsecured debt	25,271	779	23,626	(225)
GM Financial unsecured debt	\$ 28,319	\$ 781	\$ 24,964	\$ (226)

- (a) Includes an insignificant amount and \$246 million of unamortized gains remaining on hedged items for which hedge accounting has been discontinued at December 31, 2022 and 2021.

Note 15. Pensions and Other Postretirement Benefits
Employee Pension and Other Postretirement Benefit Plans

Defined Benefit Pension Plans Defined benefit pension plans covering eligible U.S. hourly employees (hired prior to October 2007) and Canadian hourly employees (hired prior to October 2016) generally provide benefits of negotiated, stated amounts for each year of service and supplemental benefits for employees who retire with 30 years of service before normal retirement age. The benefits provided by the defined benefit pension plans covering eligible U.S. (hired prior to January 1, 2001) and Canadian salaried employees and employees in certain other non-U.S. locations are generally based on years of

GENERAL MOTORS COMPANY AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

service and compensation history. Accrual of defined pension benefits ceased in 2012 for U.S. and Canadian salaried employees. There is also an unfunded nonqualified pension plan primarily covering U.S. executives for service prior to January 1, 2007 and it is based on an “excess plan” for service after that date.

The funding policy for qualified defined benefit pension plans is to contribute annually not less than the minimum required by applicable laws and regulations or to directly pay benefit payments where appropriate. In the year ended December 31, 2022 all legal funding requirements were met. The following table summarizes contributions made to the defined benefit pension plans:

	Years Ended December 31,		
	2022	2021	2020
U.S. hourly and salaried	\$ 71	\$ 67	\$ 68
Non-U.S.	332	371	396
Total	\$ 403	\$ 438	\$ 464

We expect to contribute approximately \$60 million to our U.S. non-qualified plans and approximately \$600 million to our non-U.S. pension plans in 2023.

Based on our current assumptions, over the next five years, we expect no significant mandatory contributions to our U.S. qualified pension plans and mandatory contributions totaling \$269 million to our United Kingdom and Canada pension plans.

Other Postretirement Benefit Plans Certain hourly and salaried defined benefit plans provide postretirement medical, dental, legal service and life insurance to eligible U.S. and Canadian retirees and their eligible dependents. Certain other non-U.S. subsidiaries have postretirement benefit plans, although most non-U.S. employees are covered by government sponsored or administered programs. We made contributions to the U.S. OPEB plans of \$335 million, \$351 million and \$343 million in the years ended December 31, 2022, 2021 and 2020. Plan participants' contributions were insignificant in the years ended December 31, 2022, 2021 and 2020.

Defined Contribution Plans We have defined contribution plans for eligible U.S. salaried and hourly employees that provide discretionary matching contributions. Contributions are also made to certain non-U.S. defined contribution plans. We made contributions to our defined contribution plans of \$724 million, \$606 million and \$573 million in the years ended December 31, 2022, 2021 and 2020.

Significant Plan Amendments, Benefit Modifications and Related Events

Other Remeasurements The SOA issued mortality improvement tables in the three months ended December 31, 2022 and December 31, 2021. We reviewed our recent mortality experience and we determined our current mortality assumptions are appropriate to measure our U.S. pension and OPEB plans obligations as of December 31, 2022. In 2020, we incorporated the SOA mortality improvement tables into our December 31, 2020 measurement of U.S. pension and OPEB plans' benefit obligations. The change in these assumptions decreased U.S. pension and OPEB plans' obligations by \$686 million as of December 31, 2020.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)
Pension and OPEB Obligations and Plan Assets

	Year Ended December 31, 2022			Year Ended December 31, 2021		
	Pension Benefits		Global OPEB Plans	Pension Benefits		Global OPEB Plans
	U.S.	Non-U.S.		U.S.	Non-U.S.	
Change in benefit obligations						
Beginning benefit obligation	\$ 60,208	\$ 18,314	\$ 6,124	\$ 66,468	\$ 20,807	\$ 6,656
Service cost	161	146	16	187	109	18
Interest cost	1,292	293	148	1,074	236	123
Actuarial (gains) losses	(12,010)	(3,797)	(1,289)	(2,564)	(1,015)	(282)
Benefits paid	(4,239)	(955)	(410)	(4,414)	(1,151)	(424)
Foreign currency translation adjustments	—	(1,361)	(69)	—	(509)	4
Curtailments, settlements and other	(595)	(58)	23	(543)	(163)	29
Ending benefit obligation	44,817	12,582	4,543	60,208	18,314	6,124
Change in plan assets						
Beginning fair value of plan assets	59,921	13,521	—	61,077	13,846	—
Actual return on plan assets	(10,258)	(2,257)	—	3,734	602	—
Employer contributions	71	332	387	67	371	400
Benefits paid	(4,239)	(955)	(410)	(4,414)	(1,151)	(424)
Foreign currency translation adjustments	—	(1,024)	—	—	10	—
Settlements and other	(594)	(87)	23	(543)	(157)	24
Ending fair value of plan assets	44,901	9,530	—	59,921	13,521	—
Ending funded status	\$ 84	\$ (3,052)	\$ (4,543)	\$ (287)	\$ (4,793)	\$ (6,124)
Amounts recorded in the consolidated balance sheets						
Non-current assets	\$ 1,557	\$ 1,552	\$ —	\$ 1,896	\$ 1,440	\$ —
Current liabilities	(62)	(316)	(350)	(70)	(338)	(381)
Non-current liabilities	(1,411)	(4,288)	(4,193)	(2,113)	(5,895)	(5,743)
Net amount recorded	\$ 84	\$ (3,052)	\$ (4,543)	\$ (287)	\$ (4,793)	\$ (6,124)
Amounts recorded in Accumulated other comprehensive loss						
Net actuarial loss	\$ (1,186)	\$ (2,157)	\$ (86)	\$ (13)	\$ (3,675)	\$ (1,439)
Net prior service (cost) credit	5	(56)	10	7	(54)	15
Total recorded in Accumulated other comprehensive loss	\$ (1,181)	\$ (2,213)	\$ (76)	\$ (6)	\$ (3,729)	\$ (1,424)

In the years ended December 31, 2022 and 2021, the decrease in benefit obligations was primarily due to an increase in actuarial gains experienced by all plans as a result of an increase in discount rates.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

The following table summarizes the total accumulated benefit obligations (ABO), the ABO and fair value of plan assets for defined benefit pension plans with ABO in excess of plan assets, and the projected benefit obligation (PBO) and fair value of plan assets for defined benefit pension plans with PBO in excess of plan assets:

	December 31, 2022		December 31, 2021	
	U.S.	Non-U.S.	U.S.	Non-U.S.
ABO	\$ 44,798	\$ 12,505	\$ 60,188	\$ 18,244
Plans with ABO in excess of plan assets				
ABO	\$ 5,668	\$ 4,739	\$ 8,396	\$ 6,464
Fair value of plan assets	\$ 4,214	\$ 211	\$ 6,233	\$ 300
Plans with PBO in excess of plan assets				
PBO	\$ 5,687	\$ 4,815	\$ 8,415	\$ 6,533
Fair value of plan assets	\$ 4,214	\$ 211	\$ 6,223	\$ 300

The following table summarizes the components of net periodic pension and OPEB expense along with the assumptions used to determine benefit obligations:

	Year Ended December 31, 2022			Year Ended December 31, 2021			Year Ended December 31, 2020		
	Pension Benefits		Global OPEB Plans	Pension Benefits		Global OPEB Plans	Pension Benefits		Global OPEB Plans
	U.S.	Non-U.S.		U.S.	Non-U.S.		U.S.	Non-U.S.	
Components of expense									
Service cost	\$ 233	\$ 157	\$ 16	\$ 260	\$ 121	\$ 18	\$ 251	\$ 145	\$ 19
Interest cost	1,292	293	148	1,074	236	123	1,716	362	173
Expected return on plan assets	(3,000)	(534)	—	(3,178)	(610)	—	(3,267)	(675)	—
Amortization of net actuarial losses	18	133	67	26	212	97	16	171	74
Curtailments, settlements and other	(17)	10	(5)	15	7	(6)	17	241	(8)
Net periodic pension and OPEB (income) expense	\$ (1,474)	\$ 59	\$ 226	\$ (1,803)	\$ (34)	\$ 232	\$ (1,267)	\$ 244	\$ 258
Weighted-average assumptions used to determine benefit obligations(a)									
Discount rate	5.47 %	4.85 %	5.51 %	2.78 %	2.13 %	2.97 %	2.37 %	1.62 %	2.53 %
Weighted-average assumptions used to determine net expense(a)									
Discount rate	2.34 %	2.98 %	2.84 %	1.86 %	2.38 %	2.24 %	2.84 %	2.80 %	3.00 %
Expected rate of return on plan assets	5.38 %	4.39 %	N/A	5.63 %	4.67 %	N/A	5.88 %	4.96 %	N/A

(a) The rate of compensation increase and the cash balance interest crediting rates do not have a significant effect on our U.S. pension and OPEB plans.

The non-service cost components of the net periodic pension and OPEB income are presented in Interest income and other non-operating income, net. Refer to Note 19 for additional information.

U.S. pension plan service cost, which includes administrative expenses and Pension Benefit Guarantee Corporation premiums, were insignificant for the years ended December 31, 2022, 2021 and 2020. Weighted-average assumptions used to determine net expense are determined at the beginning of the period and updated for remeasurements. Non-U.S. pension plan administrative expenses included in service cost were insignificant in the years ended December 31, 2022, 2021 and 2020.

In the three months ended December 31, 2020, we completed a \$1.5 billion annuity purchase for salaried retirees in Canada. This resulted in a non-operating pension settlement charge of \$130 million.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Assumptions

Investment Strategies and Long-Term Rate of Return Detailed periodic studies are conducted by our internal asset management group as well as outside actuaries and are used to determine the long-term strategic mix among asset classes, risk mitigation strategies and the expected long-term return on asset assumptions for the U.S. pension plans. The U.S. study includes a review of alternative asset allocation and risk mitigation strategies, anticipated future long-term performance and risk of the individual asset classes that comprise the plans' asset mix. Similar studies are performed for the significant non-U.S. pension plans with the assistance of outside actuaries and asset managers. While the studies incorporate data from recent plan performance and historical returns, the expected rate of return on plan assets represents our estimate of long-term prospective rates of return.

We continue to pursue various options to fund and de-risk our pension plans, including continued changes to the pension asset portfolio mix to reduce funded status volatility. The strategic asset mix and risk mitigation strategies for the plans are tailored specifically for each plan. Individual plans have distinct liabilities, liquidity needs and regulatory requirements. Consequently, there are different investment policies set by individual plan fiduciaries. Although investment policies and risk mitigation strategies may differ among plans, each investment strategy is considered to be appropriate in the context of the specific factors affecting each plan.

In setting new strategic asset mixes, consideration is given to the likelihood that the selected asset mixes will effectively fund the projected pension plan liabilities, while aligning with the risk tolerance of the plans' fiduciaries. The strategic asset mixes for U.S. defined benefit pension plans are increasingly designed to satisfy the competing objectives of improving funded positions (market value of assets equal to or greater than the present value of the liabilities) and mitigating the possibility of a deterioration in funded status.

Derivatives may be used to provide cost effective solutions for rebalancing investment portfolios, increasing or decreasing exposure to various asset classes and for mitigating risks, primarily interest rate, equity and currency risks. Equity and fixed income managers are permitted to utilize derivatives as efficient substitutes for traditional securities. Interest rate derivatives may be used to adjust portfolio duration to align with a plan's targeted investment policy and equity derivatives may be used to protect equity positions from downside market losses. Alternative investment managers are permitted to employ leverage, including through the use of derivatives, which may alter economic exposure.

In December 2022, an investment policy study was completed for the U.S. pension plans. As a result of changes to our capital market assumptions, the weighted-average long-term rate of return on assets increased from 5.4% at December 31, 2021 to 6.3% at December 31, 2022. The expected long-term rate of return on plan assets used in determining pension expense for non-U.S. plans is determined in a similar manner to the U.S. plans.

Target Allocation Percentages The following table summarizes the target allocations by asset category for U.S. and non-U.S. defined benefit pension plans:

	December 31, 2022		December 31, 2021	
	U.S.	Non-U.S.	U.S.	Non-U.S.
Equity	8 %	10 %	9 %	14 %
Debt	69 %	75 %	68 %	69 %
Other(a)	23 %	15 %	23 %	17 %
Total	100 %	100 %	100 %	100 %

(a) Primarily includes private equity, real estate and absolute return strategies, which mainly consist of hedge funds.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Assets and Fair Value Measurements The following tables summarize the fair value of U.S. and non-U.S. defined benefit pension plan assets by asset class:

	December 31, 2022				December 31, 2021			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
U.S. Pension Plan Assets								
Common and preferred stocks	\$ 1,222	\$ —	\$ 3	\$ 1,225	\$ 2,554	\$ —	\$ —	\$ 2,554
Government and agency debt securities(a)	—	9,606	—	9,606	—	14,924	—	14,924
Corporate and other debt securities	—	21,816	—	21,816	—	26,064	—	26,064
Other investments, net(b)	125	60	254	439	421	21	246	688
Net plan assets subject to leveling	<u>\$ 1,347</u>	<u>\$ 31,482</u>	<u>\$ 257</u>	<u>33,086</u>	<u>\$ 2,975</u>	<u>\$ 41,009</u>	<u>\$ 246</u>	<u>44,230</u>
Plan assets measured at net asset value								
Investment funds				5,124				7,304
Private equity and debt investments				3,936				4,415
Real estate investments				3,491				3,604
Total plan assets measured at net asset value				12,551				15,323
Other plan assets (liabilities), net(c)				(736)				368
Net plan assets				<u>\$ 44,901</u>				<u>\$ 59,921</u>

	December 31, 2022				December 31, 2021			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Non-U.S. Pension Plan Assets								
Common and preferred stocks	\$ 143	\$ —	\$ —	\$ 143	\$ 372	\$ —	\$ —	\$ 372
Government and agency debt securities(a)	—	2,185	—	2,185	—	3,084	—	3,084
Corporate and other debt securities	—	2,570	1	2,571	—	3,379	2	3,381
Other investments, net(b)(d)	24	(70)	84	38	52	(66)	116	102
Net plan assets subject to leveling	<u>\$ 167</u>	<u>\$ 4,685</u>	<u>\$ 85</u>	<u>4,937</u>	<u>\$ 424</u>	<u>\$ 6,397</u>	<u>\$ 118</u>	<u>6,939</u>
Plan assets measured at net asset value								
Investment funds				3,124				4,963
Private equity and debt investments				483				593
Real estate investments				878				989
Total plan assets measured at net asset value				4,485				6,545
Other plan assets (liabilities), net(c)				108				37
Net plan assets				<u>\$ 9,530</u>				<u>\$ 13,521</u>

(a) Includes U.S. and sovereign government and agency issues.

(b) Includes net derivative assets (liabilities).

(c) Cash held by the plans, net of amounts receivable/payable for unsettled security transactions and payables for investment manager fees, custody fees and other expenses.

(d) Level 2 Other investments, net includes Canadian repurchase agreements of approximately \$150 million and \$271 million at December 31, 2022 and 2021.

The activity attributable to U.S. and non-U.S. Level 3 defined benefit pension plan investments was insignificant in the years ended December 31, 2022 and 2021.

Investment Fund Strategies Investment funds include hedge funds, funds of hedge funds, equity funds and fixed income funds. Hedge funds and funds of hedge funds managers typically seek to achieve their objectives by allocating capital across a broad array of funds and/or investment managers. Equity funds invest in U.S. common and preferred stocks as well as similar equity securities issued by companies incorporated, listed or domiciled in developed and/or emerging market countries. Fixed income funds include investments in high quality funds and, to a lesser extent, high yield funds. High quality fixed income

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

funds invest in government securities, investment-grade corporate bonds and mortgage and asset-backed securities. High yield fixed income funds invest in high yield fixed income securities issued by corporations, which are rated below investment grade. Other investment funds also included in this category primarily represent multi-strategy funds that invest in broadly diversified portfolios of equity, fixed income and derivative instruments.

Private equity and debt investments primarily consist of investments in private equity and debt funds. These investments provide exposure to and benefit from long-term equity investments in private companies, including leveraged buy-outs, venture capital and distressed debt strategies.

Real estate investments include funds that invest in entities that are primarily engaged in the ownership, acquisition, development, financing, sale and/or management of income-producing real estate properties, both commercial and residential. These funds typically seek long-term growth of capital and current income that is above average relative to public equity funds.

Significant Concentrations of Risk The assets of the pension plans include certain investment funds, private equity and debt investments and real estate investments. Investment managers may be unable to quickly sell or redeem some or all of these investments at an amount close or equal to fair value in order to meet a plan's liquidity requirements or to respond to specific events such as deterioration in the creditworthiness of any particular issuer or counterparty.

Illiquid investments held by the plans are generally long-term investments that complement the long-term nature of pension obligations and are not used to fund benefit payments when currently due. Plan management monitors liquidity risk on an ongoing basis and has procedures in place that are designed to maintain flexibility in addressing plan-specific, broader industry and market liquidity events.

The pension plans may invest in financial instruments denominated in foreign currencies and may be exposed to risks that the foreign currency exchange rates might change in a manner that has an adverse effect on the value of the foreign currency denominated assets or liabilities. Forward currency contracts may be used to manage and mitigate foreign currency risk.

The pension plans may invest in debt securities for which any change in the relevant interest rates for particular securities might result in an investment manager being unable to secure similar returns upon the maturity or the sale of securities. In addition, changes to prevailing interest rates or changes in expectations of future interest rates might result in an increase or decrease in the fair value of the securities held. Interest rate swaps and other financial derivative instruments may be used to manage interest rate risk.

Benefit Payments Benefits for most U.S. pension plans and certain non-U.S. pension plans are paid out of plan assets rather than our Cash and cash equivalents. The following table summarizes net benefit payments expected to be paid in the future, which include assumptions related to estimated future employee service:

	Pension Benefits		
	U.S. Plans	Non-U.S. Plans	Global OPEB Plans
2023	\$ 4,523	\$ 995	\$ 358
2024	\$ 4,246	\$ 934	\$ 354
2025	\$ 4,144	\$ 916	\$ 351
2026	\$ 4,036	\$ 892	\$ 349
2027	\$ 3,919	\$ 873	\$ 346
2028–2032	\$ 17,614	\$ 4,142	\$ 1,690

Note 16. Commitments and Contingencies

Litigation-Related Liability and Tax Administrative Matters In the normal course of our business, we are named from time to time as a defendant in various legal actions, including arbitrations, class actions and other litigation. We identify below the material individual proceedings and investigations where we believe a material loss is reasonably possible or probable. We accrue for matters when we believe that losses are probable and can be reasonably estimated. At December 31, 2022 and 2021, we had accruals of \$1.1 billion and \$1.4 billion in Accrued liabilities and Other liabilities. In many matters, it is inherently difficult to determine whether loss is probable or reasonably possible or to estimate the size or range of the possible loss.

GENERAL MOTORS COMPANY AND SUBSIDIARIES

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Accordingly, while we believe that appropriate accruals have been established for losses that are probable and can be reasonably estimated, it is possible that adverse outcomes from such proceedings could exceed the amounts accrued by an amount that could be material to our results of operations or cash flows in any particular reporting period.

GM Korea Wage Litigation GM Korea Company (GM Korea) is party to litigation with current and former subcontract workers over allegations that they are entitled to the same wages and benefits provided to full-time employees, and to be hired as full-time employees. In May 2018 and September 2020, the Korean labor authorities issued adverse administrative orders finding that GM Korea must hire certain current subcontract workers as full-time employees. GM Korea appealed the May 2018 and September 2020 orders. In June 2020, the Seoul High Court (an intermediate-level appellate court) ruled against GM Korea in one of the subcontract worker claims. Although GM Korea has appealed this decision to the Korea Supreme Court, GM Korea has since hired certain of its subcontract workers as full-time employees. At December 31, 2022, our accrual covering certain asserted claims and claims that we believe are probable of assertion and for which liability is probable was approximately \$282 million. We estimate the reasonably possible loss in excess of amounts accrued for other current subcontract workers who may assert similar claims to be approximately \$97 million at December 31, 2022. We are currently unable to estimate any reasonably possible material loss or range of loss that may result from additional claims that may be asserted by former subcontract workers.

Other Litigation-Related Liability and Tax Administrative Matters Various other legal actions, including class actions, governmental investigations, claims and proceedings, are pending against us or our related companies or joint ventures, including, but not limited to, matters arising out of alleged product defects; employment-related matters; product and workplace safety, vehicle emissions and fuel economy regulations; product warranties; financial services; dealer, supplier and other contractual relationships; government regulations relating to competition issues; tax-related matters not subject to the provision of Accounting Standards Codification 740, Income Taxes (indirect tax-related matters); product design, manufacture and performance; consumer protection laws; and environmental protection laws, including laws regulating air emissions, water discharges, waste management and environmental remediation from stationary sources. We also from time to time receive subpoenas and other inquiries or requests for information from agencies or other representatives of U.S. federal, state and foreign governments on a variety of issues.

There are several putative class actions pending against GM in federal courts in the U.S. and in the Provincial Courts in Canada alleging that various vehicles sold, including model year 2011–2016 Duramax Diesel Chevrolet Silverado and GMC Sierra vehicles, violate federal, state and foreign emission standards. We are currently unable to estimate any reasonably possible material loss or range of loss that may result from these actions. GM has also faced a series of additional lawsuits in the U.S. based on these allegations, including a shareholder demand lawsuit that remains pending.

There are several putative class actions and one certified class action pending against GM in federal courts in the U.S. alleging that various 2011–2014 model year vehicles are defective because they excessively consume oil. While many of these proceedings have been dismissed or have been settled for insignificant amounts, several remain outstanding, and in October 2022, we received an adverse jury verdict in a certified class action proceeding involving three states. We do not believe that the verdict is supported by the evidence and have filed post-trial motions and, if necessary, will appeal. We are currently unable to estimate any reasonably possible material loss or range of loss that may result from the putative class action proceedings and have previously accrued an immaterial amount related to the certified class action proceeding.

Beyond the class action litigations disclosed, we have several other class action litigations pending at any given time. Historically, relatively few classes have been certified in these types of cases. Therefore, we will generally only disclose specific class actions if a class is certified and we believe there is a reasonably possible material exposure to the Company.

Indirect tax-related matters are being litigated globally pertaining to value added taxes, customs, duties, sales taxes and other non-income tax-related tax exposures. The various non-U.S. labor-related matters include claims from current and former employees related to alleged unpaid wage, benefit, severance and other compensation matters. Certain administrative proceedings are indirect tax-related and may require that we deposit funds in escrow or provide an alternative form of security. Some of the matters may involve compensatory, punitive or other treble damage claims, environmental remediation programs or sanctions or environmental compliance requirements and claims that, if granted, could require us to pay damages or make other expenditures in amounts that could not be reasonably estimated at December 31, 2022. For indirect tax-related matters we estimate our reasonably possible loss in excess of amounts accrued to be up to approximately \$900 million at December 31, 2022.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Takata Matters In November 2020, NHTSA directed that we replace the Takata Corporation (Takata) airbag inflators in our GMT900 vehicles, which are full-size pickup trucks and SUVs, and we decided not to contest NHTSA's decision. While we have already begun the process of executing the recall, given the number of vehicles in this population, the recall will take several years to be completed. Accordingly, in the year ended December 31, 2020, we recorded a warranty accrual of \$1.1 billion for the expected costs of complying with the recall remedy, and we believe the currently accrued amount remains reasonable.

GM has recalled certain vehicles sold outside of the U.S. to replace Takata inflators in those vehicles. There are significant differences in vehicle and inflator design between the relevant vehicles sold internationally and those sold in the U.S. We continue to gather and analyze evidence about these inflators and to share our findings with regulators. Any additional recalls relating to these inflators could be material to our results of operations and cash flows.

There are several putative class actions that have been filed against GM, including in the federal courts in the U.S., in the Provincial Courts in Canada and in Mexico, arising out of allegations that airbag inflators manufactured by Takata are defective. At this stage of these proceedings, we are unable to provide an estimate of the amounts or range of reasonably possible material loss.

Chevrolet Bolt Recall In July 2021, we initiated a voluntary recall for certain 2017–2019 model year Chevrolet Bolt EVs due to the risk that two manufacturing defects present in the same battery cell could cause a high voltage battery fire in certain of these vehicles. Accordingly, in the three months ended June 30, 2021, we recorded a warranty accrual of \$812 million. After further investigation into the manufacturing processes at our battery supplier, LG, and disassembling battery packs, we determined that the risk of battery cell defects was not confined to the initial recall population. As a result, in August 2021, we expanded the recall to include all 2017-2022 model year Chevrolet Bolt EV and Chevrolet Bolt Electric Utility Vehicles (EUVs) and recorded an additional warranty accrual of \$1.2 billion in the three months ended September 30, 2021. In October 2021, we reached an agreement with LG, under which LG will reimburse GM for costs and expenses associated with the recall. As a result, in the three months ended September 30, 2021, we recognized a receivable of \$1.9 billion, which substantially offsets the warranty charges we recognized in connection with the recall. These charges reflect our current best estimate for the cost of the recall remedy. The actual costs of the recall and GM's associated recovery from LG could be materially higher or lower. For 2017-2019 model year vehicles, the recall remedy will be to replace the high voltage battery modules in these vehicles with new modules. For 2020-2022 model year vehicles, the recall remedy will be to replace any defective high voltage battery modules in these vehicles with new modules.

In addition, putative class actions have been filed against GM in federal courts in the U.S. and in the Provincial Courts in Canada alleging that the batteries contained in the Bolt EVs and EUVs included in the recall population are defective. At this stage of these proceedings, we are unable to provide an estimate of the amounts or range of reasonably possible material loss.

Opel/Vauxhall Sale In 2017, we sold the Opel/Vauxhall Business to PSA Group (now Stellantis) under a Master Agreement (the Agreement). We also sold the European financing subsidiaries and branches to Banque PSA Finance S.A. and BNP Paribas Personal Finance S.A. Although the sale reduced our new vehicle presence in Europe, we may still be impacted by actions taken by regulators related to vehicles sold before the sale. Our wholly owned subsidiary (the Seller) agreed to indemnify Stellantis for certain losses resulting from any inaccuracy of the representations and warranties or breaches of our covenants included in the Agreement and for certain other liabilities, including costs related to certain emissions claims, product liabilities and recalls. The Company entered into a guarantee for the benefit of Stellantis, pursuant to which the Company agreed to guarantee the Seller's obligation to indemnify Stellantis. We are unable to estimate any reasonably possible material loss or range of loss that may result from these actions either directly or through an indemnification claim from Stellantis. Certain of these indemnification obligations are subject to time limitations, thresholds and/or caps as to the amount of required payments.

Currently, various consumer lawsuits have been filed against the Seller and Stellantis in Germany, the United Kingdom and the Netherlands alleging that Opel and Vauxhall vehicles sold by the Seller violated applicable emissions standards. In addition, in the year ended December 31, 2022, we agreed to indemnify Stellantis for an immaterial amount for certain recalls that Stellantis has conducted or will conduct, including recalls in certain geographic locations that Stellantis intends to conduct related to Takata inflators in legacy Opel vehicles. We may in the future be required to further indemnify Stellantis relating to its Takata recalls, but we believe such further indemnification to be remote at this time.

Product Liability We recorded liabilities of \$561 million and \$587 million in Accrued liabilities and Other liabilities at December 31, 2022 and 2021, for the expected cost of all known product liability claims, plus an estimate of the expected cost

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

for product liability claims that have already been incurred and are expected to be filed in the future for which we are self-insured. It is reasonably possible that our accruals for product liability claims may increase in future periods in material amounts, although we cannot estimate a reasonable range of incremental loss based on currently available information. We believe that any judgment against us involving our products for actual damages will be adequately covered by our recorded accruals and, where applicable, excess liability insurance coverage.

Guarantees We enter into indemnification agreements for liability claims involving products manufactured primarily by certain joint ventures. These guarantees terminate in years ranging from 2023 to 2027 or upon the occurrence of specific events or are ongoing. We believe that the related potential costs incurred are adequately covered by our recorded accruals, which are insignificant. The maximum future undiscounted payments mainly based on royalties received associated with vehicles sold to date were \$3.1 billion for these guarantees at December 31, 2022 and 2021, the majority of which relates to the indemnification agreements.

We provide payment guarantees on commercial loans outstanding with third parties such as dealers. In some instances, certain assets of the party or our payables to the party whose debt or performance we have guaranteed may offset, to some degree, the amount of any potential future payments. We are also exposed to residual value guarantees associated with certain sales to rental car companies.

We periodically enter into agreements that incorporate indemnification provisions in the normal course of business. It is not possible to estimate our maximum exposure under these indemnifications or guarantees due to the conditional nature of these obligations. Insignificant amounts have been recorded for such obligations as the majority of them are not probable or estimable at this time and the fair value of the guarantees at issuance was insignificant. Refer to the Opel/Vauxhall Sale section of this note for additional information on our indemnification obligations to Stellantis under the Agreement.

Credit Cards Credit card programs offer rebates that can be applied primarily against the purchase or lease of our vehicles. At December 31, 2022 and 2021, our redemption liability was insignificant, our deferred revenue was \$353 million and \$309 million, and qualified cardholders had rebates available, net of deferred program revenue, of \$1.1 billion and \$1.2 billion. Our redemption liability and deferred revenue are recorded in Accrued liabilities and Other liabilities.

Note 17. Income Taxes

	Years Ended December 31,		
	2022	2021	2020
U.S. income (loss)	\$ 9,454	\$ 9,513	\$ 6,881
Non-U.S. income (loss)	1,306	1,902	540
Income (loss) before income taxes and equity income (loss)	<u>\$ 10,760</u>	<u>\$ 11,415</u>	<u>\$ 7,421</u>
	Years Ended December 31,		
	2022	2021	2020
Current income tax expense (benefit)			
U.S. federal	\$ 389	\$ 20	\$ 84
U.S. state and local	368	142	272
Non-U.S.	707	395	493
Total current income tax expense (benefit)	1,464	557	849
Deferred income tax expense (benefit)			
U.S. federal	263	1,699	632
U.S. state and local	109	229	(15)
Non-U.S.	53	286	308
Total deferred income tax expense (benefit)	425	2,214	925
Total income tax expense (benefit)	<u>\$ 1,888</u>	<u>\$ 2,771</u>	<u>\$ 1,774</u>

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Provisions are made for estimated U.S. and non-U.S. income taxes which may be incurred on the reversal of our basis differences in investments in foreign subsidiaries and corporate joint ventures not deemed to be indefinitely reinvested. Taxes have not been provided on basis differences in investments primarily as a result of earnings in foreign subsidiaries which are deemed indefinitely reinvested of \$3.5 billion and \$3.2 billion at December 31, 2022 and 2021. We have indefinitely reinvested basis differences related to investments in non-consolidated China JVs of \$3.4 billion at December 31, 2022 and 2021 as a result of fresh-start reporting. Quantification of the deferred tax liability, if any, associated with indefinitely reinvested basis differences is not practicable.

	Years Ended December 31,		
	2022	2021	2020
Income tax expense at U.S. federal statutory income tax rate	\$ 2,260	\$ 2,397	\$ 1,558
State and local tax expense (benefit)	388	301	219
Non-U.S. income taxed at other than the U.S. federal statutory tax rate	32	36	(1)
U.S. tax impact on Non-U.S. income and activities	5	129	(160)
Change in valuation allowances	(392)	665	370
Change in tax laws	78	(93)	—
General business credits and manufacturing incentives	(829)	(492)	(366)
Settlements of prior year tax matters	—	11	(18)
Realization of basis differences in affiliates	209	(295)	(12)
Foreign currency remeasurement	36	28	(7)
Other adjustments	102	84	191
Total income tax expense (benefit)	\$ 1,888	\$ 2,771	\$ 1,774

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Deferred Income Tax Assets and Liabilities Deferred income tax assets and liabilities at December 31, 2022 and 2021 reflect the effect of temporary differences between amounts of assets, liabilities and equity for financial reporting purposes and the bases of such assets, liabilities and equity as measured based on tax laws, as well as tax loss and tax credit carryforwards. The following table summarizes the components of temporary differences and carryforwards that give rise to deferred tax assets and liabilities:

	December 31, 2022	December 31, 2021
Deferred tax assets		
Postretirement benefits other than pensions	\$ 1,120	\$ 1,572
Pension and other employee benefit plans	997	1,540
Warranties, dealer and customer allowances, claims and discounts	4,341	4,253
U.S. capitalized research expenditures	8,851	7,285
U.S. operating loss and tax credit carryforwards(a)	5,861	6,959
Non-U.S. operating loss and tax credit carryforwards(b)	6,296	6,593
Miscellaneous	2,773	3,468
Total deferred tax assets before valuation allowances	30,240	31,670
Less: valuation allowances	(7,744)	(8,855)
Total deferred tax assets	22,495	22,815
Deferred tax liabilities		
Property, plant and equipment	1,957	1,775
Intangible assets	707	729
Total deferred tax liabilities	2,664	2,504
Net deferred tax assets	\$ 19,832	\$ 20,311

(a) At December 31, 2022, U.S. operating loss deferred tax assets were \$417 million, where \$129 million can be carried forward indefinitely and \$288 million will expire by 2040, if not utilized. At December 31, 2022, U.S. tax credit carryforwards were \$5.4 billion, where \$292 million can be carried forward indefinitely and \$5.2 billion will expire by 2042, if not utilized.

(b) At December 31, 2022, Non-U.S. operating loss deferred tax assets were \$6.1 billion, where \$5.1 billion can be carried forward indefinitely and \$1.1 billion will expire by 2042, if not utilized. At December 31, 2022, Non-U.S. tax credit carryforwards were \$148 million, where \$112 million can be carried forward indefinitely and \$36 million will expire by 2042, if not utilized.

Valuation Allowances During the years ended December 31, 2022 and 2021, valuation allowances against deferred tax assets of \$7.7 billion and \$8.9 billion were comprised of cumulative losses, credits and other timing differences, primarily in Germany, Spain, South Korea, the U.S. and Brazil.

In the year ended December 31, 2022, GM entered into a Share Purchase Agreement with SoftBank, pursuant to which GM acquired SoftBank's equity ownership stake in Cruise Holdings and, separately, made an additional \$1.35 billion investment in Cruise in place of SoftBank. As of March 31, 2022, GM's ownership in Cruise increased above the 80% threshold which allowed for inclusion of Cruise in our U.S. Federal consolidated income tax return and the release of a valuation allowance of \$482 million against certain Cruise deferred tax assets. Refer to Note 20 to our consolidated financial statements for additional information regarding the Share Purchase Agreement with SoftBank.

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Uncertain Tax Positions The following table summarizes activity of the total amounts of unrecognized tax benefits:

	Years Ended December 31,		
	2022	2021	2020
Balance at beginning of period	\$ 634	\$ 1,086	\$ 775
Additions to current year tax positions	12	22	435
Additions to prior years' tax positions	14	46	26
Reductions to prior years' tax positions	(98)	(473)	(132)
Reductions in tax positions due to lapse of statutory limitations	(20)	(17)	(3)
Settlements	(10)	(26)	(10)
Other	(12)	(4)	(5)
Balance at end of period	<u>\$ 520</u>	<u>\$ 634</u>	<u>\$ 1,086</u>

At December 31, 2022 and 2021, there were \$356 million and \$411 million of unrecognized tax benefits that if recognized would favorably affect our effective tax rate in the future. In the years ended December 31, 2022, 2021 and 2020, income tax related interest and penalties were insignificant. At December 31, 2022 and 2021, we had liabilities of \$86 million for income tax related interest and penalties.

At December 31, 2022, it is not possible to reasonably estimate the expected change to the total amount of unrecognized tax benefits in the next twelve months.

Other Matters Income tax returns are filed in multiple jurisdictions and are subject to examination by taxing authorities throughout the world. We have open tax years from 2011 to 2022 with various significant tax jurisdictions. Tax authorities may have the ability to review and adjust net operating loss or tax credit carryforwards that were generated prior to these periods if utilized in an open tax year. These open years contain matters that could be subject to differing interpretations of applicable tax laws and regulations as they relate to the amount, character, timing or inclusion of revenue and expenses or the sustainability of income tax credits for a given audit cycle.

Note 18. Restructuring and Other Initiatives

We have executed various restructuring and other initiatives and we may execute additional initiatives in the future, if necessary, to streamline manufacturing capacity and reduce other costs to improve the utilization of remaining facilities. To the extent these programs involve voluntary separations, a liability is generally recorded at the time offers to employees are accepted. To the extent these programs provide separation benefits in accordance with pre-existing agreements, a liability is recorded once the amount is probable and reasonably estimable. If employees are involuntarily terminated, a liability is generally recorded at the communication date. Related charges are recorded in Automotive and other cost of sales and Automotive and other selling, general and administrative expense.

The following table summarizes the reserves and charges related to restructuring and other initiatives, including postemployment benefit reserves and charges:

	Years Ended December 31,		
	2022	2021	2020
Balance at beginning of period	\$ 285	\$ 352	\$ 564
Additions, interest accretion and other	522	216	565
Payments	(275)	(278)	(678)
Revisions to estimates and effect of foreign currency	(12)	(5)	(99)
Balance at end of period	<u>\$ 520</u>	<u>\$ 285</u>	<u>\$ 352</u>

In the year ended December 31, 2022, restructuring and other initiatives primarily included strategic activities in GMNA related to Buick dealerships. We recorded charges of \$511 million, which are included in the table above, and incurred \$120 million in net cash outflows resulting from these dealer restructurings. The remaining \$391 million is expected to be paid in 2023.

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In the year ended December 31, 2020, restructuring and other initiatives primarily included actions in GMI related to the wind-down of GM Holden, Ltd. (Holden) sales, design and engineering operations in Australia and New Zealand, the sale of our vehicle and powertrain manufacturing facilities in Thailand and the execution of a binding term sheet to sell our manufacturing facility in India. We recorded charges of \$683 million in the year ended December 31, 2020, primarily consisting of \$360 million in dealer restructurings, employee separations and supplier claim charges, which are reflected in the table above, and \$323 million in property and intangible asset impairments, inventory provisions, sales allowances and other charges, not reflected in the table above. We also recorded a \$236 million charge to Income tax expense due to the establishment of a valuation allowance against deferred tax assets in Australia and New Zealand in the year ended December 31, 2020. We incurred \$197 million in net cash outflows in the year ended December 31, 2020 and \$254 million in net cash outflows since program inception resulting from these restructuring actions primarily for dealer restructuring payments and employee separation payments, which includes proceeds of \$143 million from the sale of our manufacturing facilities in Thailand. Holden and Thailand programs were substantially complete at December 31, 2020.

Note 19. Interest Income and Other Non-Operating Income

	Years Ended December 31,		
	2022	2021	2020
Non-service pension and OPEB income (loss)	\$ 1,512	\$ 1,909	\$ 1,095
Interest income	460	146	241
Licensing agreements income	238	195	211
Revaluation of investments	(236)	571	265
Other	(542)	220	73
Total interest income and other non-operating income, net	\$ 1,432	\$ 3,041	\$ 1,885

In the year ended December 31, 2022, we shut down our Russia business and recorded a \$657 million charge, included in Other in the table above, to write off our net investment and release accumulated translation losses into earnings.

Note 20. Stockholders' Equity and Noncontrolling Interests

Preferred and Common Stock We have 2.0 billion shares of preferred stock and 5.0 billion shares of common stock authorized for issuance. We had no shares of preferred stock issued and outstanding at December 31, 2022 and 2021. We had 1.4 billion and 1.5 billion shares of common stock issued and outstanding at December 31, 2022 and 2021.

Common Stock Holders of our common stock are entitled to dividends at the sole discretion of our Board of Directors. Our dividends declared per common share were \$0.18 and \$0.38 and our total dividends paid on common stock were \$257 million and \$545 million for the years ended December 31, 2022 and 2020. Dividends were not declared or paid on our common stock for the year ended December 31, 2021. Holders of common stock are entitled to one vote per share on all matters submitted to our stockholders for a vote. The liquidation rights of holders of our common stock are secondary to the payment or provision for payment of all our debts and liabilities and to holders of our preferred stock, if any such shares are then outstanding.

In August 2022, our Board of Directors increased the capacity under our previously announced common stock repurchase program to \$5.0 billion from the \$3.3 billion that remained under the program as of June 30, 2022. In the year ended December 31, 2022, we purchased approximately 64 million shares of our outstanding common stock for \$2.5 billion as part of the program. We did not purchase any shares of our outstanding common stock in the year ended December 31, 2021. We purchased approximately three million shares of our outstanding common stock for \$90 million in the year ended December 31, 2020.

Cruise Preferred Shares In 2021, Cruise Holdings issued \$2.7 billion of Class G Preferred Shares (Cruise Class G Preferred Shares) to Microsoft Corporation (Microsoft), Walmart Inc. (Walmart) and other investors, including \$1.0 billion to General Motors Holdings LLC. All proceeds related to the Cruise Class G Preferred Shares are designated exclusively for working capital and general corporate purposes of Cruise Holdings. In addition, we, Cruise Holdings and Microsoft entered into a long-term strategic relationship to accelerate the commercialization of self-driving vehicles with Microsoft being the preferred public cloud provider.

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The Cruise Class G Preferred Shares participate pari passu with holders of Cruise Holdings common stock and Class F Preferred Shares (Cruise Class F Preferred Shares) in any dividends declared. The Cruise Class G and Cruise Class F Preferred Shares convert into the class of shares to be issued to the public in an initial public offering (IPO) at specified exchange ratios. No covenants or other events of default exist that can trigger redemption of the Cruise Class G and Cruise Class F Preferred Shares. The Cruise Class G and Cruise Class F Preferred Shares are entitled to receive the greater of their carrying value or a pro-rata share of any proceeds or distributions upon the occurrence of a merger, sale, liquidation or dissolution of Cruise Holdings, and are classified as noncontrolling interests in our consolidated financial statements.

In March 2022, under the Share Purchase Agreement, we acquired SoftBank's Cruise Class A-1, Class F and Class G Preferred Shares for \$2.1 billion and made an additional \$1.35 billion investment in Cruise in place of SoftBank. SoftBank no longer has an ownership interest in or has any rights with respect to Cruise.

Cruise Common Shares During the year ended December 31, 2022, Cruise Holdings issued approximately \$0.8 billion of Class B Common Shares to net settle vested awards under Cruise's 2018 Employee Incentive Plan and issued approximately \$0.5 billion of Class B Common Shares, primarily to us, to fund the payment of statutory tax withholding obligations resulting from the settlement or exercise of vested awards. Also, GM conducted quarterly tender offers and paid approximately \$0.6 billion in cash to purchase tendered Cruise Class B Common Shares during the year ended December 31, 2022. The Class B Common Shares are classified as noncontrolling interests in our consolidated financial statements except for certain shares that are liability classified that have a recorded value of approximately \$60 million at December 31, 2022. Refer to Note 22 for additional information on Cruise stock incentive awards.

During the year ended December 31, 2022, the effect on the equity attributable to us for changes in our ownership interest in Cruise was insignificant. For the year ended December 31, 2022, net income attributable to shareholders and transfers to the noncontrolling interest in Cruise and other subsidiaries was \$9.2 billion, which included a \$0.7 billion decrease in equity attributable to us, mainly due to the redemption of Cruise preferred shares.

GM Financial Preferred Stock In 2020, GM Financial issued \$500 million of Fixed-Rate Reset Cumulative Perpetual Preferred Stock, Series C, \$0.01 par value, with a liquidation preference of \$1,000 per share. Dividends will be paid semi-annually when declared, which started March 30, 2021 at a fixed rate of 5.70%. The preferred stock is classified as noncontrolling interests in our consolidated financial statements.

The following table summarizes the significant components of Accumulated other comprehensive loss:

	Years Ended December 31,		
	2022	2021	2020
Foreign Currency Translation Adjustments			
Balance at beginning of period	\$ (2,654)	\$ (2,735)	\$ (2,278)
Other comprehensive income (loss) and noncontrolling interests, net of reclassification adjustment and tax(a)(b)(c)	(123)	81	(457)
Balance at end of period	<u>\$ (2,776)</u>	<u>\$ (2,654)</u>	<u>\$ (2,735)</u>
Defined Benefit Plans			
Balance at beginning of period	\$ (6,528)	\$ (10,654)	\$ (8,859)
Other comprehensive income (loss) and noncontrolling interests before reclassification adjustment(a)	1,487	4,714	(2,661)
Tax benefit (expense)	2	(906)	444
Other comprehensive income (loss) and noncontrolling interests before reclassification adjustment, net of tax(a)	1,488	3,808	(2,217)
Reclassification adjustment, net of tax(c)	188	318	422
Other comprehensive income (loss), net of tax	1,677	4,126	(1,795)
Balance at end of period(d)	<u>\$ (4,851)</u>	<u>\$ (6,528)</u>	<u>\$ (10,654)</u>

(a) The noncontrolling interests were insignificant in the years ended December 31, 2022, 2021 and 2020.

(b) The reclassification adjustment was insignificant in the years ended December 31, 2022, 2021 and 2020.

(c) The income tax effect was insignificant in the years ended December 31, 2022, 2021 and 2020.

(d) Primarily consists of unamortized actuarial loss on our defined benefit plans.

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Note 21. Earnings Per Share

Basic and diluted earnings per share are computed by dividing Net income attributable to common stockholders by the weighted-average common shares outstanding in the period. Diluted earnings per share is computed by giving effect to all potentially dilutive securities that are outstanding.

	Years Ended December 31,		
	2022	2021	2020
Basic earnings per share			
Net income (loss) attributable to stockholders	\$ 9,934	\$ 10,019	\$ 6,427
Less: cumulative dividends on subsidiary preferred stock(a)	(1,019)	(182)	(180)
Net income (loss) attributable to common stockholders	\$ 8,915	\$ 9,837	\$ 6,247
Weighted-average common shares outstanding	1,445	1,451	1,433
Basic earnings per common share	\$ 6.17	\$ 6.78	\$ 4.36
Diluted earnings per share			
Net income (loss) attributable to common stockholders – diluted	\$ 8,915	\$ 9,837	\$ 6,247
Weighted-average common shares outstanding – basic	1,445	1,451	1,433
Dilutive effect of warrants and awards under stock incentive plans	10	17	9
Weighted-average common shares outstanding – diluted	1,454	1,468	1,442
Diluted earnings per common share	\$ 6.13	\$ 6.70	\$ 4.33
Potentially dilutive securities(b)	10	2	7

(a) Includes a \$909 million deemed dividend related to the redemption of Cruise preferred shares from SoftBank and an insignificant amount in participating securities income from a subsidiary for the year ended December 31, 2022.

(b) Potentially dilutive securities attributable to outstanding stock options at December 31, 2022, 2021 and 2020 and RSUs at December 31, 2022 and 2020, were excluded from the computation of diluted EPS because the securities would have had an antidilutive effect.

Note 22. Stock Incentive Plans

GM Stock Incentive Awards We grant to certain employees RSUs, Restricted Stock Awards (RSAs), PSUs and stock options (collectively, stock incentive awards) under our 2016 Equity Incentive Plan and 2020 LTIP and prior to the 2020 LTIP, under our 2017 and 2014 LTIP. The 2020 LTIP was approved by stockholders in June 2020. Any new awards granted after the approval of the 2020 LTIP in June 2020 will be issued under the 2020 LTIP. To the extent any shares remain available for issuance under the 2017 LTIP, the 2016 Equity Incentive Plan, and/or the 2014 LTIP, such shares will only be used to settle outstanding awards that were previously granted under such plans prior to June 2020. Shares awarded under the plans are subject to forfeiture if the participant leaves the company for reasons other than those permitted under the plans such as retirement, death or disability.

RSU awards granted either cliff vest or ratably vest generally over a three-year service period, as defined in the terms of each award. PSU awards vest at the end of a three-year performance period, based on performance criteria determined by the Executive Compensation Committee of the Board of Directors at the time of award. The number of shares earned may equal, exceed or be less than the targeted number of shares depending on whether the performance criteria are met, surpassed or not met. Stock options expire 10 years from the grant date. Our performance-based stock options vest ratably over 55 months based on the performance of our common stock relative to that of a specified peer group. Our service-based stock options vest ratably over three years.

In connection with our acquisition of Cruise Automation, Inc. in May 2016, RSAs and PSUs in common shares of GM were granted to employees of Cruise Holdings. The RSAs vest ratably, generally over a three-year service period. The PSUs are contingent upon achievement of specific technology and commercialization milestones.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

	Shares (in millions)	Weighted-Average Grant Date Fair Value	Weighted-Average Remaining Contractual Term in Years
Units outstanding at January 1, 2022	30.2	\$ 26.14	0.8
Granted	10.3	\$ 39.95	
Settled	(5.6)	\$ 40.34	
Forfeited or expired	(0.7)	\$ 40.28	
Units outstanding at December 31, 2022(a)	<u>34.1</u>	<u>\$ 27.62</u>	0.8

(a) Includes the target amount of PSUs.

Our weighted-average assumptions used to value our stock options are a dividend yield of 1.60%, 1.67% and 4.25%, expected volatility of 41.0%, 47.8% and 26.2%, a risk-free interest rate of 1.88%, 0.76% and 1.44%, and an expected option life of 6.00, 6.00 and 5.97 years for options issued during the years ended December 31, 2022, 2021 and 2020. The expected volatility is based on the average of the implied volatility of publicly traded options for our common stock.

Total compensation expense related to the above awards was \$419 million, \$391 million and \$351 million in the years ended December 31, 2022, 2021 and 2020.

At December 31, 2022, the total unrecognized compensation expense for nonvested equity awards granted was \$288 million. This expense is expected to be recorded over a weighted-average period of 1.4 years. The total fair value of stock incentive awards vested was \$307 million, \$258 million and \$275 million in the years ended December 31, 2022, 2021 and 2020.

Cruise Stock Incentive Awards Cruise granted RSUs that will settle in common shares of Cruise Holdings in the years ended December 31, 2022, 2021 and 2020. Stock options were granted in common shares of Cruise Holdings in the years ended December 31, 2022 and 2021. In March 2022, Cruise modified its RSUs that settle in Cruise Class B Common Shares to remove the liquidity vesting condition such that all granted RSU awards vest solely upon satisfaction of a service condition. The service condition for the majority of these awards is satisfied over four years. Upon modification, 31 million RSUs whose service condition was previously met became immediately vested, thereby resulting in the immediate recognition of compensation expense. In addition, at Cruise's election, GM intends to conduct quarterly tender offers whereby holders of Cruise Class B Common Shares issued to settle vested awards can tender their shares generally at the fair value of Cruise's common stock. The planned tenders result in certain awards to be classified as liabilities and other awards to be presented in temporary equity, which triggers the immediate recognition of incremental compensation expense associated with the stock options. These awards were granted under Cruise's 2018 Employee Incentive Plan approved by Cruise Holdings' Board of Directors in August 2018. Shares awarded under the plan are subject to forfeiture if the participant leaves the company for reasons other than those permitted under the plan. Stock options vest ratably over four to 10 years, as defined in the terms of each award. Stock options expire 10 years from the grant date.

	Cruise Restricted Stock Units			Cruise Stock Options		
	Shares (in millions)	Weighted- Average Grant Date Fair Value	Weighted- Average Remaining Contractual Term in Years	Shares (in millions)	Weighted- Average Fair Value	Weighted- Average Remaining Contractual Term in Years
Units outstanding at January 1, 2022	66.2	\$ 18.82	8.1	23.8	\$ 7.07	2.0
Granted	47.4	\$ 28.09		2.9	\$ 15.77	
Settled or exercised	(45.2)	\$ 29.00		(2.3)	\$ 20.64	
Forfeited or expired	(7.2)	\$ 26.86		—	\$ —	
Units outstanding at December 31, 2022(a)	<u>61.2</u>	<u>\$ 28.62</u>	1.5	<u>24.4</u>	<u>\$ 8.22</u>	1.7

(a) Weighted average fair values include the impact of the remeasurement triggered by the modification. Post modification, certain awards are liability-awards resulting in ongoing remeasurement based on changes to the awards' fair value.

GENERAL MOTORS COMPANY AND SUBSIDIARIES**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)**

Our weighted-average assumptions used to value Cruise stock options are a dividend yield of 0.00% and 0.00%, expected volatility of 57.18% and 57.03%, a risk-free interest rate of 2.37% and 1.31%, and an expected option life of 6.61 and 5.49 years for options issued during the years ended December 31, 2022 and 2021. There were no options issued during the year ended December 31, 2020. The expected volatility is based on the historical volatility of comparable public company data as Cruise Holdings is not publicly traded and therefore, does not have any trading history of its common stock.

Total compensation expense related to Cruise Holdings' share-based awards was \$1.6 billion for the year ended December 31, 2022, which, when excluding the compensation expense for the period April 1, 2022 through December 31, 2022, primarily represents the impact of the modification to outstanding awards, and an insignificant amount for the years ended December 31, 2021 and 2020. GM conducted quarterly tender offers and paid approximately \$0.6 billion in cash to settle tendered Cruise Class B Common Shares during the year ended December 31, 2022. No cash was paid to settle share-based awards for the three months ended March 31, 2022. Total unrecognized compensation expense for Cruise Holdings' nonvested equity awards granted was \$1.7 billion at December 31, 2022. Total units outstanding were 86 million at December 31, 2022. The expense related to RSUs and stock options is expected to be recorded over a weighted-average period of 1.7 years.

Note 23. Segment Reporting

We analyze the results of our business through the following reportable segments: GMNA, GMI, Cruise and GM Financial. The chief operating decision-maker evaluates the operating results and performance of our automotive segments and Cruise through EBIT-adjusted, which is presented net of noncontrolling interests. The chief operating decision-maker evaluates GM Financial through EBT-adjusted because interest income and interest expense are part of operating results when assessing and measuring the operational and financial performance of the segment. Each segment has a manager responsible for executing our strategic initiatives. While not all vehicles within a segment are individually profitable on a fully allocated cost basis, those vehicles attract customers to dealer showrooms and help maintain sales volumes for other, more profitable vehicles and contribute towards meeting required fuel efficiency standards. As a result of these and other factors, we do not manage our business on an individual brand or vehicle basis.

Substantially all of the trucks, crossovers, cars and automobile parts produced are marketed through retail dealers in North America and through distributors and dealers outside of North America, the substantial majority of which are independently owned. In addition to the products sold to dealers for consumer retail sales, trucks, crossovers and cars are also sold to fleet customers, including daily rental car companies, commercial fleet customers, leasing companies and governments. Fleet sales are completed through the dealer network and in some cases directly with fleet customers. Retail and fleet customers can obtain a wide range of after-sale vehicle services and products through the dealer network, such as maintenance, light repairs, collision repairs, vehicle accessories and extended service warranties.

GMNA meets the demands of customers in North America and GMI primarily meets the demands of customers outside North America, with vehicles developed, manufactured and/or marketed under the Buick, Cadillac, Chevrolet and GMC brands. We also have equity ownership stakes in entities that meet the demands of customers in other countries, primarily China, with vehicles developed, manufactured and/or marketed under the Baojun, Buick, Cadillac, Chevrolet and Wuling brands. Cruise is our global segment responsible for the development and commercialization of AV technology, and includes AV-related engineering and other costs. We provide automotive financing services through our GM Financial segment.

Our automotive interest income and interest expense, legacy costs from the Opel/Vauxhall Business (primarily pension costs), corporate expenditures and certain nonsegment-specific revenues and expenses are recorded centrally in Corporate. Corporate assets primarily consist of cash and cash equivalents, marketable debt securities and intersegment balances. All intersegment balances and transactions have been eliminated in consolidation.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

The following tables summarize key financial information by segment:

At and For the Year Ended December 31, 2022									
	GMNA	GMI	Corporate	Eliminations	Total Automotive	Cruise	GM Financial	Eliminations/Reclassifications	Total
Net sales and revenue	\$ 128,378	\$ 15,420	\$ 177		\$ 143,974	\$ 102	\$ 12,766	\$ (107)	\$ 156,735
Earnings (loss) before interest and taxes-adjusted	\$ 12,988	\$ 1,143	\$ (1,846)		\$ 12,286	\$ (1,890)	\$ 4,076	\$ 2	\$ 14,474
Adjustments(a)	\$ (411)	\$ (657)	\$ —		\$ (1,068)	\$ (1,057)	\$ —	\$ —	\$ (2,125)
Automotive interest income									460
Automotive interest expense									(987)
Net income (loss) attributable to noncontrolling interests									(226)
Income (loss) before income taxes									11,597
Income tax benefit (expense)									(1,888)
Net income (loss)									9,708
Net loss (income) attributable to noncontrolling interests									226
Net income (loss) attributable to stockholders									\$ 9,934
Equity in net assets of nonconsolidated affiliates	\$ 1,820	\$ 6,691	\$ —	\$ —	\$ 8,511	\$ —	\$ 1,665	\$ —	\$ 10,176
Goodwill and intangibles	\$ 2,134	\$ 740	\$ 4	\$ —	\$ 2,877	\$ 727	\$ 1,341	\$ —	\$ 4,945
Total assets	\$ 157,250	\$ 24,808	\$ 60,518	\$ (104,157)	\$ 138,419	\$ 5,510	\$ 121,544	\$ (1,436)	\$ 264,037
Expenditures for property	\$ 8,280	\$ 706	\$ 20	\$ —	\$ 9,007	\$ 197	\$ 44	\$ (10)	\$ 9,238
Depreciation and amortization	\$ 5,800	\$ 513	\$ 21	\$ —	\$ 6,335	\$ 53	\$ 4,888	\$ —	\$ 11,276
Impairment charges	\$ 11	\$ 1	\$ —	\$ —	\$ 12	\$ —	\$ —	\$ —	\$ 12
Equity income (loss)	\$ (9)	\$ 672	\$ —	\$ —	\$ 663	\$ —	\$ 173	\$ —	\$ 837

(a) Consists of charges for strategic activities related to Buick dealerships and the resolution of substantially all royalty matters accrued with respect to past-year vehicle sales in GMNA; charges related to the shutdown of our Russia business in GMI; and charges related to the one-time modification of Cruise stock incentive awards.

At and For the Year Ended December 31, 2021									
	GMNA	GMI	Corporate	Eliminations	Total Automotive	Cruise	GM Financial	Eliminations/Reclassifications	Total
Net sales and revenue	\$ 101,308	\$ 12,172	\$ 104		\$ 113,584	\$ 106	\$ 13,419	\$ (105)	\$ 127,004
Earnings (loss) before interest and taxes-adjusted	\$ 10,318	\$ 827	\$ (680)		\$ 10,465	\$ (1,196)	\$ 5,036	\$ (10)	\$ 14,295
Adjustments(a)	\$ (425)	\$ (276)	\$ —		\$ (701)	\$ —	\$ —	\$ —	\$ (701)
Automotive interest income									146
Automotive interest expense									(950)
Net income (loss) attributable to noncontrolling interests									(74)
Income (loss) before income taxes									12,716
Income tax benefit (expense)									(2,771)
Net income (loss)									9,945
Net loss (income) attributable to noncontrolling interests									74
Net income (loss) attributable to stockholders									\$ 10,019
Equity in net assets of nonconsolidated affiliates	\$ 827	\$ 7,133	\$ —	\$ —	\$ 7,960	\$ —	\$ 1,717	\$ —	\$ 9,677
Goodwill and intangibles	\$ 2,240	\$ 772	\$ —	\$ —	\$ 3,012	\$ 736	\$ 1,339	\$ —	\$ 5,087
Total assets	\$ 121,735	\$ 22,876	\$ 40,492	\$ (56,936)	\$ 128,167	\$ 4,489	\$ 113,207	\$ (1,145)	\$ 244,718
Expenditures for property	\$ 6,576	\$ 783	\$ 30	\$ —	\$ 7,389	\$ 89	\$ 26	\$ 5	\$ 7,509
Depreciation and amortization	\$ 5,298	\$ 542	\$ 21	\$ —	\$ 5,861	\$ 52	\$ 6,134	\$ —	\$ 12,047
Impairment charges	\$ —	\$ —	\$ —	\$ —	\$ —	\$ 4	\$ —	\$ —	\$ 4
Equity income (loss)	\$ 8	\$ 1,092	\$ —	\$ —	\$ 1,100	\$ —	\$ 201	\$ —	\$ 1,301

(a) Consists of royalties accrued with respect to past-year vehicle sales and charges for strategic activities related to Cadillac dealerships in GMNA; and a settlement with certain third parties relating to retrospective recoveries of indirect taxes and an adjustment related to the unique events associated with Korea Supreme Court decisions related to our salaried workers in GMI.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

At and For the Year Ended December 31, 2020

	GMNA	GMI	Corporate	Eliminations	Total Automotive	Cruise	GM Financial	Eliminations	Total
Net sales and revenue	\$ 96,733	\$ 11,586	\$ 350		\$ 108,669	\$ 103	\$ 13,831	\$ (118)	\$ 122,485
Earnings (loss) before interest and taxes-adjusted	\$ 9,071	\$ (528)	\$ (634)		\$ 7,909	\$ (887)	\$ 2,702	\$ (14)	\$ 9,710
Adjustments(a)	\$ (99)	\$ (683)	\$ 130		\$ (652)	\$ —	\$ —	\$ —	\$ (652)
Automotive interest income									241
Automotive interest expense									(1,098)
Net income (loss) attributable to noncontrolling interests									(106)
Income (loss) before income taxes									8,095
Income tax benefit (expense)									(1,774)
Net income (loss)									6,321
Net loss (income) attributable to noncontrolling interests									106
Net income (loss) attributable to stockholders									\$ 6,427
Equity in net assets of nonconsolidated affiliates	\$ 242	\$ 6,583	\$ —	\$ —	\$ 6,825	\$ —	\$ 1,581	\$ —	\$ 8,406
Goodwill and intangibles	\$ 2,346	\$ 806	\$ —	\$ —	\$ 3,152	\$ 735	\$ 1,343	\$ —	\$ 5,230
Total assets	\$ 114,137	\$ 23,019	\$ 39,933	\$ (57,464)	\$ 119,625	\$ 3,625	\$ 113,410	\$ (1,466)	\$ 235,194
Expenditures for property	\$ 4,501	\$ 729	\$ 21	\$ —	\$ 5,251	\$ 15	\$ 34	\$ —	\$ 5,300
Depreciation and amortization	\$ 4,739	\$ 624	\$ 25	\$ —	\$ 5,388	\$ 43	\$ 7,245	\$ —	\$ 12,676
Impairment charges	\$ 20	\$ 99	\$ —	\$ —	\$ 119	\$ 20	\$ —	\$ —	\$ 139
Equity income (loss)	\$ 17	\$ 510	\$ —	\$ —	\$ 527	\$ —	\$ 147	\$ —	\$ 674

(a) Consists of charges for strategic activities related to Cadillac dealerships in GMNA; restructuring and other charges primarily in Australia, New Zealand, Thailand and India in GMI; and ignition switch-related legal matters in Corporate.

Automotive revenue is attributed to geographic areas based on the country of sale. GM Financial revenue is attributed to the geographic area where the financing is originated. The following table summarizes information concerning principal geographic areas:

	At and For the Years Ended December 31,					
	2022		2021		2020	
	Net Sales and Revenue	Long-Lived Assets	Net Sales and Revenue	Long-Lived Assets	Net Sales and Revenue	Long-Lived Assets
Automotive						
U.S.	\$ 116,798	\$ 30,201	\$ 92,771	\$ 27,192	\$ 89,204	\$ 24,932
Non-U.S.	27,177	14,907	20,819	13,771	19,469	12,516
GM Financial						
U.S.	11,035	29,411	11,712	34,452	12,227	36,773
Non-U.S.	1,725	3,431	1,702	3,629	1,585	3,230
Total consolidated	\$ 156,735	\$ 77,950	\$ 127,004	\$ 79,044	\$ 122,485	\$ 77,451

No individual country other than the U.S. represented more than 10% of our total net sales and revenue or long-lived assets, other than Mexico, whose long-lived assets were approximately 11% and 10% of our total long-lived assets at December 31, 2022 and 2021.

GENERAL MOTORS COMPANY AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS – (Continued)

Note 24. Supplemental Information for the Consolidated Statements of Cash Flows

The following table summarizes the sources (uses) of cash provided by Change in other operating assets and liabilities and Cash paid for income taxes and interest:

Change in other operating assets and liabilities	Years Ended December 31,		
	2022	2021	2020
Accounts receivable	\$ (4,483)	\$ 493	\$ (1,341)
Wholesale receivables funded by GM Financial, net	(5,000)	2,854	2,744
Inventories	(2,581)	(3,155)	(104)
Automotive equipment on operating leases	—	—	53
Change in other assets	(248)	(1,418)	68
Accounts payable	6,144	(1,166)	42
Income taxes payable	273	(95)	130
Accrued and other liabilities	2,918	(879)	(1,991)
Total	\$ (2,977)	\$ (3,366)	\$ (399)
Cash paid for income taxes and interest			
Cash paid for income taxes, net	\$ 1,191	\$ 652	\$ 719
Cash paid for interest (net of amounts capitalized) – Automotive	\$ 933	\$ 884	\$ 1,011
Cash paid for interest (net of amounts capitalized) – GM Financial	2,673	2,519	2,947
Total cash paid for interest (net of amounts capitalized)	\$ 3,606	\$ 3,403	\$ 3,958

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

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Item 9A. Controls and Procedures

Disclosure Controls and Procedures We maintain disclosure controls and procedures designed to provide reasonable assurance that information required to be disclosed in reports filed under the Exchange Act is recorded, processed, summarized and reported within the specified time periods and accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosures.

Our management, with the participation of our CEO and CFO, evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) or 15d-15(e) promulgated under the Exchange Act) as of December 31, 2022 as required by paragraph (b) of Rules 13a-15 or 15d-15. Based on this evaluation, our CEO and CFO concluded that our disclosure controls and procedures were effective as of December 31, 2022.

Management's Report on Internal Control over Financial Reporting Our management is responsible for establishing and maintaining effective internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. This system is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of consolidated financial statements for external purposes in accordance with U.S. GAAP. Because of the inherent limitations of internal control over financial reporting, including the possibility of collusion or improper management override of controls, misstatements due to error or fraud may not be prevented or detected on a timely basis.

Our management performed an assessment of the effectiveness of our internal control over financial reporting at December 31, 2022, utilizing the criteria discussed in the "Internal Control – Integrated Framework (2013)" issued by the Committee of Sponsoring Organizations of the Treadway Commission. The objective of this assessment was to determine whether our internal control over financial reporting was effective as of December 31, 2022. Based on management's assessment, we have concluded that our internal control over financial reporting was effective as of December 31, 2022.

The effectiveness of our internal control over financial reporting has been audited by Ernst & Young LLP (PCAOB ID: 42), an independent registered public accounting firm, as stated in its report included herein.

Changes in Internal Control over Financial Reporting There have not been any changes in our internal control over financial reporting during the three months ended December 31, 2022 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

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GENERAL MOTORS COMPANY AND SUBSIDIARIES

Item 9B. Other Information

None.

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Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

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PART III

Items 10, 11, 12, 13 and 14

Information required by Items 10, 11, 12, 13 and 14 of this Form 10-K is incorporated by reference from our definitive Proxy Statement for our 2023 Annual Meeting of Stockholders, which will be filed with the SEC, pursuant to Regulation 14A, not later than 120 days after the end of the 2022 fiscal year, all of which information is hereby incorporated by reference in, and made part of, this Form 10-K, except disclosure of our executive officers, which is included in Part I, Item 1 of this report.

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GENERAL MOTORS COMPANY AND SUBSIDIARIES

PART IV

ITEM 15. Exhibit and Financial Statement Schedules

(a) 1. All Financial Statements and Supplemental Information

2. Financial Statement Schedules

All financial statement schedules are omitted as the required information is inapplicable or the information is presented in the consolidated financial statements and notes thereto in Item 8.

3. Exhibits

(b) Exhibits

Exhibit Number	Exhibit Name	
2.1	Master Agreement, dated as of March 5, 2017, between General Motors Holdings LLC and Peugeot S.A., incorporated by reference to Exhibit 2.1 to the Quarterly Report on Form 10-Q of General Motors Company filed April 28, 2017	Incorporated by Reference
2.2	Purchase Agreement dated as of May 31, 2018, by and among General Motors Holdings LLC, GM Cruise Holdings LLC, and Softbank Vision Fund (AIV M1), L.P. incorporated by reference to Exhibit 2.1 to the Quarterly Report on Form 10-Q of General Motors Company filed July 25, 2018	Incorporated by Reference
2.3	Purchase Agreement by and between GM Cruise Holdings LLC and Honda Motor Co., LTD., dated October 3, 2018, incorporated by reference to Exhibit 2.3 to the Annual Report on Form 10-K of General Motors Company filed February 6, 2019	Incorporated by Reference
3.1	Restated Certificate of Incorporation of General Motors Company dated December 7, 2010, incorporated by reference to Exhibit 3.2 to the Current Report on Form 8-K of General Motors Company filed December 13, 2010	Incorporated by Reference
3.2	General Motors Company Amended and Restated Bylaws, as amended December 9, 2022, incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of General Motors Company filed December 14, 2022	Incorporated by Reference
4.1	Description of Securities, incorporated by reference to Exhibit 4.1 to the Annual Report on Form 10-K of General Motors Company filed February 5, 2020	Incorporated by Reference
4.2	Indenture, dated as of September 27, 2013, between General Motors Company and the Bank of New York Mellon, as Trustee, incorporated by reference to Exhibit 4.2 to the Registration Statement on Form S-3 of General Motors Company filed April 30, 2014	Incorporated by Reference
4.3	First Supplemental Indenture, dated as of September 27, 2013 to the Indenture dated as of September 27, 2013 between General Motors Company and the Bank of New York Mellon, as Trustee, incorporated by reference to Exhibit 4.3 to the Registration Statement on Form S-4 of General Motors Company filed May 22, 2014	Incorporated by Reference
4.4	Second Supplemental Indenture, dated as of November 12, 2014 to the Indenture dated as of September 27, 2013 between General Motors Company and the Bank of New York Mellon, as Trustee, incorporated by reference to Exhibit 4.4 to the Current Report on Form 8-K of General Motors Company filed November 12, 2014	Incorporated by Reference
4.5	Third Supplemental Indenture, dated as of February 23, 2016, to the Indenture, dated as of September 27, 2013, between General Motors Company, as issuer, and The Bank of New York Mellon, as Trustee, incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K of General Motors Company filed February 23, 2016	Incorporated by Reference
4.6	Fourth Supplemental Indenture, dated as of August 7, 2017, to the Indenture, dated as of September 27, 2013, between General Motors Company, as issuer, and The Bank of New York Mellon, as Trustee, incorporated by reference to Exhibit 4.1 to the Current Report on Form 8-K of General Motors Company filed August 8, 2017	Incorporated by Reference
4.7	Fifth Supplemental Indenture, dated as of September 10, 2018, to the Indenture, dated as of September 27, 2013, between General Motors Company, as issuer, and The Bank of New York Mellon, as Trustee, incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K of General Motors Company filed September 10, 2018	Incorporated by Reference
4.8	Sixth Supplemental Indenture, dated as of May 12, 2020, to the Indenture, dated as of September 27, 2013, between General Motors Company, as issuer, and The Bank of New York Mellon, as Trustee, incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K of General Motors Company filed May 12, 2020	Incorporated by Reference
4.9	Seventh Supplemental Indenture, dated as of August 2, 2022, to the Indenture, dated as of September 27, 2013, between General Motors Company, as issuer, and The Bank of New York Mellon, as Trustee, incorporated by reference to Exhibit 4.2 to the Current Report on Form 8-K of General Motors Company filed August 2, 2022	Incorporated by Reference
4.10	Calculation Agency Agreement, dated as of September 10, 2018 between General Motors Company and the Bank of New York Mellon, as calculation agent, incorporated by reference to Exhibit 4.3 to the Current Report on Form 8-K of General Motors Company filed September 10, 2018	Incorporated by Reference

GENERAL MOTORS COMPANY AND SUBSIDIARIES

Exhibit Number	Exhibit Name	
10.1*	Form of Compensation Statement, incorporated by reference to Exhibit 10.14 to the Annual Report on Form 10-K of General Motors Company filed April 7, 2010	Incorporated by Reference
10.2*	General Motors Company Executive Retirement Plan, with modifications through October 10, 2012, incorporated by reference to Exhibit 10.12 to the Annual Report on Form 10-K of General Motors Company filed February 15, 2013	Incorporated by Reference
10.3*	Amendment No. 1 to General Motors Company Executive Retirement Plan, with modifications through October 10, 2012, incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K of General Motors Company filed February 3, 2016	Incorporated by Reference
10.4*	General Motors Company 2014 Long-Term Incentive Plan, incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K of General Motors Company filed June 12, 2014	Incorporated by Reference
10.5*	Form of Non-Qualified Stock Option Agreement under the 2014 Long-Term Incentive Plan, incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K of General Motors Company filed July 30, 2015	Incorporated by Reference
10.6*	General Motors Company 2016 Equity Incentive Plan, incorporated by reference to Exhibit 99.1 to the Registration Statement on Form S-8 of General Motors Company filed May 13, 2016	Incorporated by Reference
10.7*	General Motors Company Vehicle Operations - Senior Management Vehicle Program (SMVP) Supplement, revised December 15, 2005, incorporated by reference to Exhibit 10(g) to the Annual Report on Form 10-K of Motors Liquidation Company filed March 28, 2006	Incorporated by Reference
10.8*	Form of Director and Officer Indemnification Agreement, incorporated by reference to Exhibit 10.6 to the Quarterly Report on Form 10-Q of General Motors Company filed April 21, 2016	Incorporated by Reference
10.9*	General Motors Company 2017 Short-Term Incentive Plan, incorporated by reference to Exhibit 10.25 to the Annual Report on Form 10-K of General Motors Company filed February 6, 2018	Incorporated by Reference
10.10*	General Motors Company 2017 Long-Term Incentive Plan, incorporated by reference to Exhibit 4.1 to the Registration Statement on Form S-8 of General Motors Company filed June 16, 2017	Incorporated by Reference
10.11*	Form of Performance Share Unit Award Agreement under the General Motors Company 2017 Long-Term Incentive Plan, incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of General Motors Company filed April 26, 2018	Incorporated by Reference
10.12*	Form of Non-Qualified Stock Option Award Agreement under the General Motors Company 2017 Long-Term Incentive Plan, incorporated by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q of General Motors Company filed April 26, 2018	Incorporated by Reference
10.13*	Form of Performance Share Unit Award Agreement under the General Motors Company 2017 Long-Term Incentive Plan, incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of General Motors Company filed May 6, 2020	Incorporated by Reference
10.14*	Form of Non-Qualified Stock Option Award Agreement under the General Motors Company 2017 Long-Term Incentive Plan, incorporated by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q of General Motors Company filed May 6, 2020	Incorporated by Reference
10.15*	Amended and Restated General Motors LLC U.S. Executive Severance Program, incorporated by reference to Exhibit 10.23 to the Annual Report on Form 10-K of General Motors Company filed February 6, 2019	Incorporated by Reference
10.16*	Form of Time Sharing Agreement, incorporated by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q of General Motors Company filed October 29, 2019	Incorporated by Reference
10.17*	The General Motors Company Deferred Compensation Plan for Non-Employee Directors, incorporated by reference to Exhibit 10.19 to the Annual Report on Form 10-K of General Motors Company filed February 5, 2020	Incorporated by Reference
10.18*	General Motors Company 2020 Long-Term Incentive Plan, incorporated by reference to Exhibit 4.1 to the Registration Statement on Form S-8 of General Motors Company filed June 25, 2020	Incorporated by Reference
10.19*	Form of Performance Share Unit Award Agreement No.1 under the General Motors Company 2020 Long-Term Incentive Plan, incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of General Motors Company filed May 5, 2021	Incorporated by Reference
10.20*	Form of Performance Share Unit Award Agreement No.2 under the General Motors Company 2020 Long-Term Incentive Plan, incorporated by reference to Exhibit 10.22 to the Annual Report on Form 10-K of General Motors Company, filed February 10, 2021	Incorporated by Reference
10.21*	Form of Non-Qualified Stock Option Award Agreement under the General Motors Company 2020 Long-Term Incentive Plan, incorporated by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q of General Motors Company filed May 5, 2021	Incorporated by Reference
10.22*	Form of Restricted Stock Unit Award Agreement under the General Motors Company 2020 Long-Term Incentive Plan incorporated by reference to Exhibit 10.24 to the Annual Report on Form 10-K of General Motors Company, filed February 10, 2021	Incorporated by Reference
10.23*	Form of Performance Share Unit Award Agreement No.3 under the General Motors Company 2020 Long-Term Incentive Plan, incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of General Motors Company, filed April 27, 2022	Incorporated by Reference

GENERAL MOTORS COMPANY AND SUBSIDIARIES

Exhibit Number	Exhibit Name	
10.24*	Form of Non-Qualified Stock Option Award Agreement No.2 under the General Motors Company 2020 Long-Term Incentive Plan incorporated by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q of General Motors Company, filed April 27, 2022	Incorporated by Reference
10.25†	Third Amended and Restated 5-Year Revolving Credit Agreement, dated as of April 18, 2018, among General Motors Company, General Motors Financial Company, Inc., GM Global Treasury Centre Limited, General Motors do Brasil Ltda., the subsidiary borrowers from time to time parties thereto, the several lenders from time to time parties thereto, JPMorgan Chase Bank, N.A., as administrative agent, and Citibank, N.A., as syndication agent, incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K of General Motors Company filed April 20, 2018	Incorporated by Reference
10.26†	Amendment No. 1 to Third Amended and Restated 5-Year Revolving Credit Agreement, dated as of April 18, 2018, among General Motors Company, General Motors Financial Company, Inc., GM Global Treasury Centre Limited, General Motors do Brasil Ltda., the subsidiary borrowers from time to time parties thereto, the several lenders from time to time parties thereto, JPMorgan Chase Bank, N.A., as administrative agent, and Citibank, N.A., as syndication agent, incorporated by reference to Exhibit 10.3 to the Current Report on Form 8-K of General Motors Company filed April 7, 2021	Incorporated by Reference
10.27†	Fourth Amended and Restated 3-Year Revolving Credit Agreement among General Motors Company, General Motors Financial Company, Inc., General Motors do Brasil Ltda., the subsidiary borrowers from time to time parties thereto, the several lenders from time to time parties thereto, JPMorgan Chase Bank, N.A., as administrative agent, and Citibank, N.A., as syndication agent, incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K of General Motors Company filed April 7, 2021	Incorporated by Reference
10.28†	Fourth Amended and Restated 364-Day Revolving Credit Agreement among General Motors Company, General Motors Financial Company, Inc., the subsidiary borrowers from time to time parties thereto, the several lenders from time to time parties thereto, JPMorgan Chase Bank, N.A., as administrative agent, Citibank, N.A., as syndication agent, and Bank of America, N.A., as co-syndication agent, incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K of General Motors Company filed April 5, 2022	Incorporated by Reference
10.29	Eighth Amended and Restated Limited Liability Company Agreement of GM Cruise Holdings LLC, dated March 18, 2022, incorporated by reference to Exhibit 10.2 to the Quarterly Report on Form 10-Q of General Motors Company filed July 26, 2022	Incorporated by Reference
21	Subsidiaries and Joint Ventures of the Registrant as of December 31, 2022	Filed Herewith
23	Consent of Ernst & Young LLP	Filed Herewith
24	Power of Attorney for Directors of General Motors Company	Filed Herewith
31.1	Section 302 Certification of the Chief Executive Officer	Filed Herewith
31.2	Section 302 Certification of the Chief Financial Officer	Filed Herewith
32	Certification Pursuant to 18 U.S.C. Section 1350, As Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	Furnished with this Report
101	The following financial information from the Company's Annual Report on Form 10-K for the year ended December 31, 2022 formatted in Inline Extensible Business Reporting Language (iXBRL) includes: (i) the Consolidated Income Statements, (ii) the Consolidated Statements of Comprehensive Income, (iii) the Consolidated Balance Sheets, (iv) the Consolidated Statements of Cash Flows, (v) the Consolidated Statements of Equity and (vi) Notes to the Consolidated Financial Statements	Filed Herewith
104	The cover page from the Company's Annual Report on Form 10-K for the year ended December 31, 2022, formatted as Inline XBRL and contained in Exhibit 101	Filed Herewith

† Certain confidential portions have been omitted pursuant to a granted request for confidential treatment, which has been separately filed with the SEC.
 * Management contracts and compensatory plans and arrangements required to be filed as exhibits pursuant to Item 15(b) of this Report.

* * * * *

Item 16. Form 10-K Summary

None.

* * * * *

GENERAL MOTORS COMPANY AND SUBSIDIARIES

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

GENERAL MOTORS COMPANY (Registrant)

By: /s/ MARY T. BARRA

Mary T. Barra
Chair and Chief Executive Officer

Date: January 31, 2023

GENERAL MOTORS COMPANY AND SUBSIDIARIES

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below on this 31st day of January 2023 by the following persons on behalf of the registrant and in the capacities indicated, including a majority of the directors.

<u>Signature</u>	<u>Title</u>
<u>/s/ MARY T. BARRA</u> Mary T. Barra	Chair and Chief Executive Officer
<u>/s/ PAUL A. JACOBSON</u> Paul A. Jacobson	Executive Vice President and Chief Financial Officer
<u>/s/ CHRISTOPHER T. HATTO</u> Christopher T. Hatto	Vice President, Global Business Solutions and Chief Accounting Officer
<u>/s/ PATRICIA F. RUSSO*</u> Patricia F. Russo	Lead Director
<u>/s/ ANEEL BHUSRI*</u> Aneel Bhusri	Director
<u>/s/ WESLEY G. BUSH*</u> Wesley G. Bush	Director
<u>/s/ JOANNE C. CREVOISERAT*</u> Joanne C. Crevoiserat	Director
<u>/s/ LINDA R. GOODEN*</u> Linda R. Gooden	Director
<u>/s/ JOSEPH JIMENEZ*</u> Joseph Jimenez	Director
<u>/s/ JONATHAN MCNEILL*</u> Jonathan McNeill	Director
<u>/s/ JUDITH A. MISCIK*</u> Judith A. Miscik	Director
<u>/s/ THOMAS M. SCHOEWE*</u> Thomas M. Schoewe	Director
<u>/s/ CAROL M. STEPHENSON*</u> Carol M. Stephenson	Director
<u>/s/ MARK A. TATUM*</u> Mark A. Tatum	Director
<u>/s/ DEVIN N. WENIG*</u> Devin N. Wenig	Director

*By: /s/ CRAIG B. GLIDDEN

Craig B. Glidden
Attorney-in-Fact

**GENERAL MOTORS COMPANY
SUBSIDIARIES AND JOINT VENTURES OF THE REGISTRANT
AS OF DECEMBER 31, 2022**

<u>Company Name</u>	<u>State or Sovereign Power of Incorporation</u>
2140879 Ontario Inc.	Canada
ACAR Leasing Ltd.	Delaware
Adam Opel GmbH	Germany
AFS SenSub Corp.	Nevada
AmeriCredit Financial Services, Inc.	Delaware
Annunciata Corporation	Delaware
APGO Trust	Delaware
Argonaut Holdings LLC	Delaware
Astyx, Inc.	Delaware
Banco GM S.A.	Brazil
BOCO (Proprietary) Limited	South Africa
Boco Trust	South Africa
Bowling Green Fast LLC	Delaware
BrightDrop LLC	Delaware
BrightDrop of Canada Company	Canada
BrightDrop Solutions LLC	Delaware
BrightDrop Vehicle Distribution LLC	Delaware
Cadillac Europe GmbH	Switzerland
Carve-Out Ownership Cooperative LLC	Delaware
Chevrolet Deutschland GmbH	Germany
Chevrolet Otomotiv Ticaret Limited Sirketi	Turkey
Chevrolet Sales (Thailand) Limited	Thailand
Chevrolet Sales India Private Ltd.	India
Chevrolet Sociedad Anonima de Ahorro para Fines Determinados	Argentina
CHEVYPLAN S.A. Sociedad Administradora de Planes de Autofinanciamiento Comercial	Colombia
Controladora General Motors, S. de R.L. de C.V.	Mexico
Corporacion Proauto S.A.	Ecuador
Cruise Holdings International LLC	Delaware
Cruise LLC	Delaware
Cruise Middle East Trading LLC	Dubai
Cruise Munich GmbH	Germany
DCJ1 LLC	Delaware
Dealership Liquidations, Inc.	Delaware
Delphi Energy and Engine Management Systems UK Overseas Corporation	Delaware
DMAX, Ltd.	Ohio
Equip Insurance Holdings LLC	Delaware
GCAR Titling Ltd.	Delaware
General Motors - Colmotores S.A.	Colombia
General Motors (China) Investment Company Limited	China
General Motors Advisory Services LLC	Uzbekistan
General Motors Africa and Middle East FZE	United Arab Emirates
General Motors Arabia LLC	Saudi Arabia
General Motors Asia Pacific Holdings, LLC	Delaware

**GENERAL MOTORS COMPANY
SUBSIDIARIES AND JOINT VENTURES OF THE REGISTRANT
AS OF DECEMBER 31, 2022**

<u>Company Name</u>	<u>State or Sovereign Power of Incorporation</u>
General Motors Asia, LLC	Delaware
General Motors Asset Management Corporation	Delaware
General Motors Australia and New Zealand Pty Ltd.	Australia
General Motors Australia Pty Ltd.	Australia
General Motors Auto LLC	Russian Federation
General Motors Automobiles Philippines, Inc.	Philippines
General Motors Automotive Holdings, S.L.	Spain
General Motors Battery Raw Materials Corporation	Canada
General Motors Belgique Automobile NV	Belgium
General Motors Chile Industria Automotriz Limitada	Chile
General Motors China LLC	Delaware
General Motors Daewoo Auto and Technology CIS LLC	Russian Federation
General Motors de Argentina S.R.L.	Argentina
General Motors de Mexico, S. de R.L. de C.V.	Mexico
General Motors del Ecuador S.A.	Ecuador
General Motors do Brasil Ltda.	Brazil
General Motors Egypt, S.A.E.	Egypt
General Motors Entergy LLC	Delaware
General Motors Europe Limited	England and Wales
General Motors Financial Chile Limitada	Chile
General Motors Financial Chile S.A.	Chile
General Motors Financial Company, Inc.	Texas
General Motors Financial of Canada, Ltd.	Canada
General Motors Germany GmbH	Germany
General Motors Global Service Operations, Inc.	Delaware
General Motors Holden Australia NSC Pty Ltd.	Australia
General Motors Holdings LLC	Delaware
General Motors India Private Limited	India
General Motors International Holdings LLC	Delaware
General Motors International Operations Pte. Ltd.	Singapore
General Motors International Services Company SAS	Colombia
General Motors International Services LLC	Delaware
General Motors Investment Limited	Hong Kong
General Motors Investment Management Corporation	Delaware
General Motors Investimentos Participações Ltda.	Brazil
General Motors Investments Pty. Ltd.	Australia
General Motors Israel Ltd.	Israel
General Motors IT Services (Ireland) Limited	Ireland
General Motors Japan Limited	Japan
General Motors Limited	England and Wales
General Motors LLC	Delaware
General Motors New Zealand Limited	New Zealand
General Motors New Zealand Pensions Limited	New Zealand

**GENERAL MOTORS COMPANY
SUBSIDIARIES AND JOINT VENTURES OF THE REGISTRANT
AS OF DECEMBER 31, 2022**

<u>Company Name</u>	<u>State or Sovereign Power of Incorporation</u>
General Motors Norway AS	Norway
General Motors of Canada Company	Canada
General Motors Overseas Commercial Vehicle Corporation	Delaware
General Motors Overseas Corporation	Delaware
General Motors Overseas Distribution LLC	Delaware
General Motors Peru S.A.	Peru
General Motors Research Corporation	Delaware
General Motors South Africa (Pty) Limited	South Africa
General Motors Sweden AB	Sweden
General Motors Taiwan Ltd.	Taiwan
General Motors Technical Centre India Private Limited	India
General Motors Treasury Center, LLC	Delaware
General Motors Uruguay S.A.	Uruguay
General Motors Ventures LLC	Delaware
General Motors Warehousing and Trading (Shanghai) Co. Ltd.	China
General Motors-Holden's Sales Pty. Limited	Australia
Global Services Detroit LLC	Delaware
GM (UK) Pension Trustees Limited	England and Wales
GM Administradora de Bens Ltda.	Brazil
GM Asia Pacific Regional Headquarters Ltd.	Korea, Republic of
GM AV LLC	Delaware
GM Components Holdings, LLC	Delaware
GM Corretora de Seguros Ltda.	Brazil
GM Corretora de Seguros para Consórcios Ltda.	Brazil
GM Cruise Holdings LLC	Delaware
GM Cruise Recurring Liquidity Opportunity LLC	Delaware
GM Defense International LLC	Delaware
GM Defense LLC	Delaware
GM Eurometals, Inc.	Delaware
GM Finance Co. Holdings LLC	Delaware
GM Financial Bank	Utah
GM Financial Canada Leasing Ltd.	Canada
GM Financial Colombia Holdings LLC	Delaware
GM Financial Colombia S.A. Compañía de Financiamiento	Colombia
GM Financial de Mexico, S.A. de C.V. SOFOM E.R.	Mexico
GM Financial del Peru S.A.C	Peru
GM Financial Holdings LLC	Delaware
GM Financial Insurance Company	Arizona
GM Financial Mexico Holdings LLC	Delaware
GM Global Technology Operations LLC	Delaware
GM Global Tooling Company LLC	Delaware
GM Global Treasury Centre Limited	England and Wales
GM Holdings Australia Pty Ltd	Australia

**GENERAL MOTORS COMPANY
SUBSIDIARIES AND JOINT VENTURES OF THE REGISTRANT
AS OF DECEMBER 31, 2022**

<u>Company Name</u>	<u>State or Sovereign Power of Incorporation</u>
GM Holdings U.K. No.1 Limited	England and Wales
GM Inversiones Santiago Limitada	Chile
GM Investment Trustees Limited	England and Wales
GM Korea Company	Korea, Republic of
GM LAAM Holdings, LLC	Delaware
GM Mobility Europe GmbH	Germany
GM Personnel Services, Inc.	Delaware
GM Philippines, Inc.	Philippines
GM Protections, LLC	Arizona
GM Regional Holdings LLC	Delaware
GM Retirees Pension Trustees Limited	England and Wales
GM Speciality Vehicles UK Limited	England and Wales
GM Subsystems Manufacturing, LLC	Delaware
GM Technical Center Korea, Ltd.	Korea, Republic of
GMAC Administradora de Consórcios Ltda.	Brazil
GMCH&SP Private Equity II L.P.	Canada
GM-DI Leasing LLC	Delaware
GMF Funding Corp.	Delaware
GMF Global Assignment LLC	Delaware
GMF International LLC	Delaware
GMF Leasing LLC	Delaware
GMF Serviços de Mobilidade Ltda.	Brazil
GMF Wholesale Receivables LLC	Delaware
Grand Pointe Holdings, Inc.	Michigan
Grand Pointe Park Condominium Association	Michigan
Kinohi Insurance Company LLC	Hawaii
Lease Ownership Cooperative LLC	Delaware
Lidlington Engineering Company, Ltd.	Delaware
Limited Liability Company "General Motors CIS"	Russian Federation
Maven Drive LLC	Delaware
Millbrook Pension Management Limited	England and Wales
Monetization of Carve-Out, LLC	Delaware
Motors Holding LLC	Delaware
Multi-Use Lease Entity Trust	Delaware
North American New Cars LLC	Delaware
Omnibus BB Transportes, S. A.	Ecuador
OnStar de Mexico S. de R.L. de C.V.	Mexico
OnStar Egypt Limited	Egypt
OnStar Europe Ltd.	England and Wales
OnStar Global Services Corporation	Delaware
OnStar Indemnity Company	Arizona
OnStar Insurance Services, Inc.	Arizona
OnStar Property and Casualty Insurance Company	Arizona

**GENERAL MOTORS COMPANY
SUBSIDIARIES AND JOINT VENTURES OF THE REGISTRANT
AS OF DECEMBER 31, 2022**

<u>Company Name</u>	<u>State or Sovereign Power of Incorporation</u>
OnStar, LLC	Delaware
P.T. G M AutoWorld Indonesia	Indonesia
P.T. General Motors Indonesia	Indonesia
Pan Asia Technical Automotive Center Company, Ltd.	China
PIMS Co.	Delaware
Prestadora de Servicios GMF Colombia S.A.S.	Colombia
PT. General Motors Indonesia Manufacturing	Indonesia
Riverfront Holdings III, Inc.	Delaware
Riverfront Holdings Phase II, Inc.	Delaware
Riverfront Holdings, Inc.	Delaware
SAIC General Motors Corporation Limited	China
SAIC General Motors Sales Company Limited	China
SAIC GM (Shenyang) Norsom Motors Co., Ltd.	China
SAIC GM Dong Yue Motors Company Limited	China
SAIC GM Dong Yue Powertrain Company Limited	China
SAIC GM Wuling Automobile Company Limited	China
SAIC-GMAC Automotive Finance Company Limited	China
SAIC-GMF Leasing Co. Ltd.	China
Servicios GMAC S.A. de C.V.	Mexico
Shanghai OnStar Telematics Co. Ltd.	China
Stellar Connected Claims Services, LLC	Arizona
Ultium Cells Holding LLC	Delaware
Ultium Cells LLC	Delaware
Vehicle Asset Universal Leasing Trust	Delaware
Voyage Auto, Inc.	Delaware
WRE, Inc.	Michigan
Zona Franca Industrial Colmotores SAS	Colombia

Total - 199

Pursuant to Item 601(b)(21) of Regulation S-K, we have omitted certain subsidiaries, which considered in the aggregate as a single subsidiary, would not constitute a significant subsidiary at December 31, 2022. Additionally, 101 subsidiaries of General Motors Financial Company, Inc. have been omitted that operate in the U.S. in the same line of business as General Motors Financial Company, Inc. at December 31, 2022.

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the following Registration Statements:

- (1) Registration Statement (Form S-3 No. 333-268000) of General Motors Company,
- (2) Registration Statement (Form S-8 No. 333-239425) pertaining to the General Motors Company 2020 Long-Term Incentive Plan,
- (3) Registration Statement (Form S-8 No. 333-218793) pertaining to the General Motors Company 2017 Long-Term Incentive Plan,
- (4) Registration Statement (Form S-8 No. 333-211344) pertaining to the General Motors Company 2016 Equity Incentive Plan, and
- (5) Registration Statement (Form S-8 No. 333-196812) pertaining to the General Motors Company 2014 Long-Term Incentive Plan;

of our reports dated January 31, 2023, with respect to the consolidated financial statements of General Motors Company and subsidiaries and the effectiveness of internal control over financial reporting of General Motors Company and subsidiaries included in this Annual Report (Form 10-K) of General Motors Company for the year ended December 31, 2022.

/s/ ERNST & YOUNG LLP

Detroit, Michigan
January 31, 2023

POWER OF ATTORNEY

The undersigned, a director of General Motors Company (GM), hereby constitutes and appoints Christopher T. Hatto, Vince Greene, Craig B. Glidden and John S. Kim, and each of them, my true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for me and in my name, place and stead, in any and all capacities (including my capacity as a director of GM), to sign:

SEC Report(s)

Annual Report on Form 10-K

Covering

Year Ended December 31, 2022

and any or all amendments to such Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the U.S. Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as I might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or my substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the U.S. Securities Exchange Act of 1934, as amended, this power of attorney has been executed by the undersigned.

/s/ PATRICIA F. RUSSO

Signature

Patricia F. Russo

Print

January 30, 2023

Date

POWER OF ATTORNEY

The undersigned, a director of General Motors Company (GM), hereby constitutes and appoints Christopher T. Hatto, Vince Greene, Craig B. Glidden and John S. Kim, and each of them, my true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for me and in my name, place and stead, in any and all capacities (including my capacity as a director of GM), to sign:

SEC Report(s)

Annual Report on Form 10-K

Covering

Year Ended December 31, 2022

and any or all amendments to such Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the U.S. Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as I might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or my substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the U.S. Securities Exchange Act of 1934, as amended, this power of attorney has been executed by the undersigned.

/s/ ANEEL BHUSRI

Signature

Aneel Bhusri

Print

January 30, 2023

Date

POWER OF ATTORNEY

The undersigned, a director of General Motors Company (GM), hereby constitutes and appoints Christopher T. Hatto, Vince Greene, Craig B. Glidden and John S. Kim, and each of them, my true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for me and in my name, place and stead, in any and all capacities (including my capacity as a director of GM), to sign:

SEC Report(s)

Annual Report on Form 10-K

Covering

Year Ended December 31, 2022

and any or all amendments to such Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the U.S. Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as I might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or my substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the U.S. Securities Exchange Act of 1934, as amended, this power of attorney has been executed by the undersigned.

/s/ WESLEY G. BUSH

Signature

Wesley G. Bush

Print

January 30, 2023

Date

POWER OF ATTORNEY

The undersigned, a director of General Motors Company (GM), hereby constitutes and appoints Christopher T. Hatto, Vince Greene, Craig B. Glidden and John S. Kim, and each of them, my true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for me and in my name, place and stead, in any and all capacities (including my capacity as a director of GM), to sign:

SEC Report(s)

Annual Report on Form 10-K

Covering

Year Ended December 31, 2022

and any or all amendments to such Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the U.S. Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as I might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or my substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the U.S. Securities Exchange Act of 1934, as amended, this power of attorney has been executed by the undersigned.

/s/ JOANNE C. CREVOISERAT

Signature

Joanne C. Crevoiserat

Print

January 30, 2023

Date

POWER OF ATTORNEY

The undersigned, a director of General Motors Company (GM), hereby constitutes and appoints Christopher T. Hatto, Vince Greene, Craig B. Glidden and John S. Kim, and each of them, my true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for me and in my name, place and stead, in any and all capacities (including my capacity as a director of GM), to sign:

SEC Report(s)

Annual Report on Form 10-K

Covering

Year Ended December 31, 2022

and any or all amendments to such Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the U.S. Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as I might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or my substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the U.S. Securities Exchange Act of 1934, as amended, this power of attorney has been executed by the undersigned.

/s/ LINDA R. GOODEN

Signature

Linda R. Gooden

Print

January 30, 2023

Date

POWER OF ATTORNEY

The undersigned, a director of General Motors Company (GM), hereby constitutes and appoints Christopher T. Hatto, Vince Greene, Craig B. Glidden and John S. Kim, and each of them, my true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for me and in my name, place and stead, in any and all capacities (including my capacity as a director of GM), to sign:

SEC Report(s)

Annual Report on Form 10-K

Covering

Year Ended December 31, 2022

and any or all amendments to such Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the U.S. Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as I might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or my substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the U.S. Securities Exchange Act of 1934, as amended, this power of attorney has been executed by the undersigned.

/s/ JOSEPH JIMENEZ

Signature

Joseph Jimenez

Print

January 30, 2023

Date

POWER OF ATTORNEY

The undersigned, a director of General Motors Company (GM), hereby constitutes and appoints Christopher T. Hatto, Vince Greene, Craig B. Glidden and John S. Kim, and each of them, my true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for me and in my name, place and stead, in any and all capacities (including my capacity as a director of GM), to sign:

SEC Report(s)

Annual Report on Form 10-K

Covering

Year Ended December 31, 2022

and any or all amendments to such Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the U.S. Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as I might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or my substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the U.S. Securities Exchange Act of 1934, as amended, this power of attorney has been executed by the undersigned.

/s/ JONATHAN MCNEILL

Signature

Jonathan McNeill

Print

January 30, 2023

Date

POWER OF ATTORNEY

The undersigned, a director of General Motors Company (GM), hereby constitutes and appoints Christopher T. Hatto, Vince Greene, Craig B. Glidden and John S. Kim, and each of them, my true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for me and in my name, place and stead, in any and all capacities (including my capacity as a director of GM), to sign:

SEC Report(s)

Annual Report on Form 10-K

Covering

Year Ended December 31, 2022

and any or all amendments to such Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the U.S. Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as I might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or my substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the U.S. Securities Exchange Act of 1934, as amended, this power of attorney has been executed by the undersigned.

/s/ JUDITH A. MISCIK

Signature

Judith A. Miscik

Print

January 30, 2023

Date

POWER OF ATTORNEY

The undersigned, a director of General Motors Company (GM), hereby constitutes and appoints Christopher T. Hatto, Vince Greene, Craig B. Glidden and John S. Kim, and each of them, my true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for me and in my name, place and stead, in any and all capacities (including my capacity as a director of GM), to sign:

SEC Report(s)

Annual Report on Form 10-K

Covering

Year Ended December 31, 2022

and any or all amendments to such Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the U.S. Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as I might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or my substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the U.S. Securities Exchange Act of 1934, as amended, this power of attorney has been executed by the undersigned.

/s/ THOMAS M. SCHOEWE

Name

Thomas M. Schoewe

Print

January 30, 2023

Date

POWER OF ATTORNEY

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SEC Report(s)

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Pursuant to the requirements of the U.S. Securities Exchange Act of 1934, as amended, this power of attorney has been executed by the undersigned.

/s/ CAROL M. STEPHENSON

Signature

Carol M. Stephenson

Print

January 30, 2023

Date

POWER OF ATTORNEY

The undersigned, a director of General Motors Company (GM), hereby constitutes and appoints Christopher T. Hatto, Vince Greene, Craig B. Glidden and John S. Kim, and each of them, my true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for me and in my name, place and stead, in any and all capacities (including my capacity as a director of GM), to sign:

SEC Report(s)

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Covering

Year Ended December 31, 2022

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Pursuant to the requirements of the U.S. Securities Exchange Act of 1934, as amended, this power of attorney has been executed by the undersigned.

/s/ MARK A. TATUM

Signature

Mark A. Tatum

Print

January 30, 2023

Date

POWER OF ATTORNEY

The undersigned, a director of General Motors Company (GM), hereby constitutes and appoints Christopher T. Hatto, Vince Greene, Craig B. Glidden and John S. Kim, and each of them, my true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for me and in my name, place and stead, in any and all capacities (including my capacity as a director of GM), to sign:

SEC Report(s)

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Covering

Year Ended December 31, 2022

and any or all amendments to such Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the U.S. Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as I might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or any of them, or their or my substitute or substitutes, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the U.S. Securities Exchange Act of 1934, as amended, this power of attorney has been executed by the undersigned.

/s/ DEVIN N. WENIG

Signature

Devin N. Wenig

Print

January 30, 2023

Date

CERTIFICATION

I, Mary T. Barra, certify that:

1. I have reviewed this Annual Report on Form 10-K of General Motors Company;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the Audit Committee of the registrant's Board of Directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ MARY T. BARRA

Mary T. Barra
Chair and Chief Executive Officer

Date: January 31, 2023

CERTIFICATION

I, Paul A. Jacobson, certify that:

1. I have reviewed this Annual Report on Form 10-K of General Motors Company;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the Audit Committee of the registrant's Board of Directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ PAUL A. JACOBSON

Paul A. Jacobson
Executive Vice President and Chief Financial Officer

Date: January 31, 2023

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Annual Report of General Motors Company (the "Company") on Form 10-K for the period ended December 31, 2022 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), each of the undersigned officers of the Company, certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 906 of the Sarbanes-Oxley Act of 2002, that to the best of such officer's knowledge:

1. The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ MARY T. BARRA

Mary T. Barra
Chair and Chief Executive Officer

/s/ PAUL A. JACOBSON

Paul A. Jacobson
Executive Vice President and Chief Financial Officer

Date: January 31, 2023