

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 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, 2021

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 001-14905

BERKSHIRE HATHAWAY INC .

(Exact name of Registrant as specified in its charter)

Delaware
State or other jurisdiction of
incorporation or organization
3555 Farnam Street , Omaha , Nebraska
(Address of principal executive office)

47-0813844
(I.R.S. Employer
Identification No.)
68131
(Zip Code)

Registrant's telephone number, including area code (402) 346-1400

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

Title of each class	Trading Symbols	Name of each exchange on which registered
Class A Common Stock	BRK.A	New York Stock Exchange
Class B Common Stock	BRK.B	New York Stock Exchange
0.750% Senior Notes due 2023	BRK23	New York Stock Exchange
1.125% Senior Notes due 2027	BRK27	New York Stock Exchange
1.625% Senior Notes due 2035	BRK35	New York Stock Exchange
1.300% Senior Notes due 2024	BRK24	New York Stock Exchange
2.150% Senior Notes due 2028	BRK28	New York Stock Exchange
0.625% Senior Notes due 2023	BRK23A	New York Stock Exchange
0.000% Senior Notes due 2025	BRK25	New York Stock Exchange
2.375% Senior Notes due 2039	BRK39	New York Stock Exchange
0.500% Senior Notes due 2041	BRK41	New York Stock Exchange
2.625% Senior Notes due 2059	BRK59	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 Act). Yes ☐ No ☒

State the aggregate market value of the voting stock held by non-affiliates of the Registrant as of June 30, 2021: \$503,600,000,000 *

Indicate the number of shares outstanding of each of the Registrant's classes of common stock:

February 14, 2022—Class A common stock, \$5 par value	615,333 shares
February 14, 2022—Class B common stock, \$0.0033 par value	1,291,212,661 shares

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Proxy Statement for the Registrant's Annual Meeting to be held April 30, 2022 are incorporated in Part III.

* This aggregate value is computed at the last sale price of the common stock as reported on the New York Stock Exchange on June 30, 2021. It does not include the value of Class A common stock and Class B common stock held by Directors and Executive Officers of the Registrant and members of their immediate families, some of whom may not constitute "affiliates" for purpose of the Securities Exchange Act of 1934.

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Item 1. Business Description

Berkshire Hathaway Inc. ("Berkshire," "Company" or "Registrant") is a holding company owning subsidiaries engaged in numerous diverse business activities. The most important of these are insurance businesses conducted on both a primary basis and a reinsurance basis, a freight rail transportation business and a group of utility and energy generation and distribution businesses. Berkshire also owns and operates numerous other businesses engaged in a variety of manufacturing, services, retailing and other activities. Berkshire is domiciled in the state of Delaware, and its corporate headquarters is in Omaha, Nebraska.

Berkshire's operating businesses are managed on an unusually decentralized basis. There are few centralized or integrated business functions. Berkshire's corporate senior management team participates in and is ultimately responsible for significant capital allocation decisions, investment activities and the selection of the Chief Executive to head each of the operating businesses.

Berkshire's senior management is also responsible for establishing and monitoring Berkshire's corporate governance practices, including monitoring governance efforts, including those at the operating businesses, and participating in the resolution of governance-related issues as needed. Berkshire's Board of Directors is responsible for assuring an appropriate successor to the Chief Executive Officer. The Berkshire Code of Business Conduct and Ethics emphasizes, among other things, the commitment to ethics and compliance with the law and provides basic standards for ethical and legal behavior of its employees.

Human capital and resources are an integral and essential component of Berkshire's businesses. Berkshire and its consolidated subsidiaries employed approximately 372,000 people worldwide at the end of 2021, of which approximately 77% were in the United States and 21% were represented by unions. Employees engage in a wide variety of occupations. Consistent with Berkshire's decentralized management philosophy, Berkshire's operating businesses individually establish specific policies and practices concerning the attraction and retention of personnel within the organizations. Given the wide variations in the nature and size of business activities, policies and practices often vary widely among Berkshire's operating subsidiaries. Policies and practices commonly address, among other things: maintaining a safe work environment and minimizing or eliminating workplace injuries; offering competitive compensation to employees, which includes various health insurance and retirement benefits, as well as other benefits such as incentives to recognize and reward performance; wellness programs; training, learning and career advancement opportunities; and hiring practices intended to identify qualified candidates and promote diversity and inclusion in the workforce.

Insurance and Reinsurance Businesses

Berkshire's insurance and reinsurance business activities are conducted through numerous domestic and foreign-based insurance subsidiaries. Berkshire's insurance subsidiaries provide insurance and reinsurance of property and casualty risks and reinsurance of life and health risks worldwide. Berkshire's insurance subsidiaries employed approximately 50,500 people at the end of 2021. For purposes of this discussion, entities that provide insurance or reinsurance are referred to as insurers.

In direct or primary insurance activities, the insurer assumes the risk of loss from persons or organizations that are directly subject to the risks. Such risks may relate to property, casualty (or liability), life, accident, health, financial or other perils that may arise from an insurable event. In reinsurance activities, the insurer assumes defined portions of risks that other direct insurers or reinsurers assumed in their own insuring activities.

Reinsurance contracts are normally classified as treaty or facultative contracts. Treaty reinsurance refers to reinsurance coverage for all or a portion of a specified group or class of risks ceded by a direct insurer or reinsurer, while facultative reinsurance involves coverage of specific individual underlying risks. Reinsurance contracts are further classified as quota-share or excess. Under quota-share (proportional or pro-rata) reinsurance, the reinsurer shares proportionally in the original premiums and losses of the direct insurer or reinsurer. Excess (or non-proportional) reinsurance provides for the indemnification of the direct insurer or reinsurer for all or a portion of the loss in excess of an agreed upon amount or "retention." Both quota-share and excess reinsurance contracts may provide for aggregate limits of indemnification.

Insurance and reinsurance are generally subject to regulatory oversight throughout the world. Except for regulatory considerations, there are virtually no barriers to entry into the insurance and reinsurance industry. Competitors may be domestic or foreign, as well as licensed or unlicensed. The number of competitors within the industry is not known. Insurers compete on the basis of reliability, financial strength and stability, financial ratings, underwriting consistency, service, business ethics, price, performance, capacity, policy terms and coverage conditions.

Insurers based in the United States ("U.S.") are subject to regulation by their states of domicile and by those states in which they are licensed to write policies on an admitted basis. The primary focus of regulation is to assure that insurers are financially solvent and that policyholder interests are otherwise protected. States establish minimum capital levels for insurance companies and establish guidelines for permissible business and investment activities. States have the authority to suspend or revoke a company's authority to do business as conditions warrant. States regulate the payment of dividends by insurance companies to their shareholders and other transactions with affiliates. Dividends, capital distributions and other transactions of extraordinary amounts are subject to prior regulatory approval.

Insurers may market, sell and service insurance policies in the states where they are licensed. These insurers are referred to as admitted insurers. Admitted insurers are generally required to obtain regulatory approval of their policy forms and premium rates. Non-admitted insurance markets have developed to provide insurance that is otherwise unavailable through admitted insurers. Non-admitted insurance, often referred to as "excess and surplus" lines, is procured by either state-licensed surplus lines brokers who place risks with insurers not licensed in that state or by the insured party's direct procurement from non-admitted insurers. Non-admitted insurance is subject to considerably less regulation with respect to policy rates and forms. Reinsurers are normally not required to obtain regulatory approval of premium rates or reinsurance contracts.

The insurance regulators of every state participate in the National Association of Insurance Commissioners ("NAIC"). The NAIC adopts forms, instructions and accounting procedures for use by U.S. insurers in preparing and filing annual statutory financial statements. However, an insurer's state of domicile has ultimate authority over these matters. In addition to its activities relating to the annual statement, the NAIC develops or adopts statutory accounting principles, model laws, regulations and programs for use by its members. Such matters deal with regulatory oversight of solvency, risk management, compliance with financial regulation standards and risk-based capital reporting requirements.

U.S. states, through the NAIC, and international insurance regulators through the International Association of Insurance Supervisors ("IAIS") have been developing standards and best practices focused on establishing a common set of principles ("Insurance Core Principles") and framework ("ComFrame") for the regulation of large multi-national insurance groups. The IAIS is developing capital standards for internationally active insurance groups (the "Insurance Capital Standard") based on a consolidated group approach and is also evaluating a potentially comparable group capital standard based on the aggregation of regulated entities and their underlying local capital requirements (the "Aggregation Method"). The IAIS standards address a variety of topics regarding supervision, coordination of regulators, insurance capital standards, risk management and governance. While the IAIS standards do not have legal effect, the states and the NAIC are implementing various group supervision regulatory tools and mandates that are responsive to certain IAIS standards. U.S. state regulators have formed supervisory colleges intended to promote communication and cooperation amongst the various domestic and international insurance regulators. The Nebraska Department of Insurance acts as the lead supervisor for our group of insurance companies and chairs the Berkshire supervisory college. U.S. state regulators now require insurance groups to file an annual report, the Own Risk Solvency Assessment or ORSA, with the group's lead supervisor. The NAIC recently adopted a group capital calculation based on methodology similar to the Aggregation Method, which leverages the NAIC's existing Risk Based Capital standards. The NAIC's group capital calculation is a tool designed to help the lead supervisor understand the capital adequacy across an insurance group. The NAIC is also developing further tools, including various liquidity assessments, that will likely be imposed on insurance groups in the near future.

Berkshire's insurance companies maintain capital strength at exceptionally high levels, which differentiates them from their competitors. Collectively, the combined statutory surplus of Berkshire's U.S.-based insurers was approximately \$301 billion at December 31, 2021. Berkshire's major insurance subsidiaries are rated AA+ by Standard & Poor's and A++ (superior) by A.M. Best with respect to their financial condition and claims paying ability.

The Terrorism Risk Insurance Act of 2002 established within the Department of the Treasury a Terrorism Insurance Program ("Program") for commercial property and casualty insurers by providing federal reinsurance of insured terrorism losses. The Program currently extends to December 31, 2027 through other Acts, most recently the Terrorism Risk Insurance Program Reauthorization Act of 2019. Hereinafter these Acts are collectively referred to as TRIA. Under TRIA, the Department of the Treasury is charged with certifying "acts of terrorism." Coverage under TRIA occurs if the industry insured loss for certified events occurring during the calendar year exceeds \$200 million in any calendar year.

To be eligible for federal reinsurance, insurers must make available insurance coverage for acts of terrorism, by providing policyholders with clear and conspicuous notice of the amount of premium that will be charged for this coverage and of the federal share of any insured losses resulting from any act of terrorism. Assumed reinsurance is specifically excluded from TRIA participation. TRIA currently also excludes certain forms of direct insurance (such as personal and commercial auto, burglary, theft, surety and certain professional liability lines). Reinsurers are not required to offer terrorism coverage and are not eligible for federal reinsurance of terrorism losses.

In the event of a certified act of terrorism, the federal government will reimburse insurers (conditioned on their satisfaction of policyholder notification requirements) for 80% of their insured losses in excess of an insurance group's deductible. Under the Program, the deductible is 20% of the aggregate direct subject earned premium for relevant commercial lines of business in the immediately preceding calendar year. The aggregate deductible in 2022 for Berkshire's insurance group is expected to approximate \$1.6 billion. There is also an aggregate program limit of \$100 billion on the amount of the federal government coverage for each TRIA year.

The extent of insurance regulation varies significantly among the countries in which our non-U.S. operations conduct business. While each country imposes licensing, solvency, auditing and financial reporting requirements, the type and extent of the requirements differ substantially. For example:

- in some countries, insurers are required to prepare and file monthly and/or quarterly financial reports, and in others, only annual reports;
- some regulators require intermediaries to be involved in the sale of insurance products, whereas other regulators permit direct sales contact between the insurer and the customer;
- the extent of restrictions imposed upon an insurer's use of local and offshore reinsurance vary;
- policy form filing and rate regulation vary by country;
- the frequency of contact and periodic on-site examinations by insurance authorities differ by country;
- the scope and prescriptive requirements of an insurer's risk management and governance framework vary significantly by country; and
- regulatory requirements relating to insurer dividend policies vary by country.

Significant variations can also be found in the size, structure and resources of the local regulatory departments that oversee insurance activities. Certain regulators prefer close relationships with all subject insurers and others operate a risk-based approach.

Berkshire's insurance group operates in some countries through subsidiaries and in some countries through branches of subsidiaries. Berkshire insurance subsidiaries are located in several countries, including Germany, the United Kingdom ("U.K."), Ireland, Australia and South Africa, and also maintain branches in several other countries. Most of these foreign jurisdictions impose local capital requirements. Other legal requirements include discretionary licensing procedures, local retention of funds and records, and data privacy and protection program requirements. Berkshire's international insurance companies are also subject to multinational application of certain U.S. laws.

There are various regulatory bodies and initiatives that impact Berkshire in multiple international jurisdictions and the potential for significant effect on the Berkshire insurance group could be heightened as a result of recent industry and economic developments.

In 2016, the U.K. voted in a national referendum to withdraw from the European Union ("EU") ("Brexit"), which resulted in the U.K.'s withdrawal from the EU on January 31, 2020. In anticipation of the U.K. leaving the EU, Berkshire Hathaway European Insurance DAC in Ireland was established to permit property and casualty insurance and reinsurance businesses to continue to operate in the EU, and Berkshire continues to maintain a substantial presence in London following Brexit.

Berkshire's insurance underwriting operations include the following groups: (1) GEICO, (2) Berkshire Hathaway Primary Group and (3) Berkshire Hathaway Reinsurance Group. Except for retroactive reinsurance and periodic payment annuity products that generate significant amounts of up-front premiums along with estimated claims expected to be paid over long time periods (creating "float," see Investments section), Berkshire expects to achieve an underwriting profit over time and to reject inadequately priced risks. Underwriting profit is defined as earned premiums less associated incurred losses, loss adjustment expenses and underwriting and policy acquisition expenses. Underwriting profit does not include income earned from investments. Additional information related to each of Berkshire's underwriting groups follows.

GEICO—GEICO is headquartered in Chevy Chase, Maryland. GEICO's insurance subsidiaries consist of Government Employees Insurance Company, GEICO General Insurance Company, GEICO Indemnity Company, GEICO Casualty Company, GEICO Advantage Insurance Company, GEICO Choice Insurance Company, GEICO Secure Insurance Company, GEICO County Mutual Insurance Company, GEICO Texas County Mutual Insurance Company and GEICO Marine Insurance Company. The GEICO companies primarily offer private passenger automobile insurance to individuals in all 50 states and the District of Columbia. GEICO also provides insurance for motorcycles, all-terrain vehicles, recreational vehicles, boats and small commercial fleets and acts as an agent for other insurers who offer homeowners, renters, life and identity management insurance to individuals who desire insurance coverages other than those offered by GEICO.

GEICO's marketing is primarily through direct response methods in which applications for insurance are submitted directly to the companies via the Internet or by telephone, and to a lesser extent, through captive agents. GEICO conducts business through regional service centers and claims adjustment and other facilities in 39 states.

The automobile insurance business is highly competitive in the areas of price and service. GEICO competes for private passenger automobile insurance customers in the preferred, standard and non-standard risk markets with other companies that sell directly to the customer and with companies that use agency sales forces, including State Farm, Allstate, Progressive and USAA. GEICO's advertising campaigns and competitive rates contributed to a cumulative increase in voluntary policies-in-force of approximately 26.0% over the past five years. According to the most recently published A.M. Best data for 2020, the five largest automobile insurers had a combined market share in 2020 of approximately 59.7% based on written premiums, with GEICO's market share being the second largest at approximately 13.5%. GEICO's written premiums in 2020 were reduced by the effects of the GEICO Giveback Program implemented in response to significant reductions in claim frequencies attributable to reduced policyholder driving during the initial stages of the COVID-19 pandemic. Pandemic-related premium credit programs of other private passenger insurers may not have been reported as premium reductions, which impacts the industry data reported by A.M. Best. Since the publication of that data, GEICO's management estimates its current market share is approximately 14.2%. Seasonal variations in GEICO's insurance business are not significant. However, extraordinary weather conditions or other factors may have a significant effect upon the frequency or severity of automobile claims.

State insurance departments stringently regulate private passenger auto insurance. As a result, it is difficult for insurance companies to differentiate their products. Competition for private passenger automobile insurance, which is substantial, tends to focus on price and level of customer service provided. GEICO's cost-efficient direct response marketing methods and emphasis on customer satisfaction enable it to offer competitive rates and value to its customers. GEICO primarily uses its own claims staff to manage and settle claims. The name and reputation of GEICO are material assets and management protects those and other service marks through appropriate registrations.

Berkshire Hathaway Primary Group—The Berkshire Hathaway Primary Group ("BH Primary") is a collection of independently managed insurers that provide a wide variety of insurance coverages to policyholders located principally in the United States. These various operations are discussed below.

National Indemnity Company ("NICO"), domiciled in Nebraska, and certain affiliates ("NICO Primary") underwrite commercial motor vehicle and general liability insurance on an admitted basis and on an excess and surplus basis. Insurance coverages are offered nationwide primarily through insurance agents and brokers.

The Berkshire Hathaway Homestate Companies ("BHHC") is a group of insurers offering workers' compensation, commercial auto and commercial property coverages to a diverse client base. BHHC has a national reach, with the ability to provide first-dollar and small to large deductible workers' compensation coverage to employers in all states, except those where coverage is available only through state-operated workers' compensation funds. NICO Primary and BHHC are each based in Omaha, Nebraska.

Berkshire Hathaway Specialty Insurance ("BH Specialty") offers commercial property, casualty, healthcare professional liability, executive and professional, surety, travel, medical stop loss and homeowner's insurance through Berkshire Hathaway Specialty Insurance Company and other Berkshire insurance affiliates. BH Specialty writes primary and excess policies on an admitted and surplus basis in the U.S., and on a local or foreign non-admitted basis outside the U.S. BH Specialty is based in Boston, Massachusetts, with regional offices currently in several U.S. cities. BH Specialty also maintains international offices located in Australia, New Zealand, Canada and several countries in Asia, Europe and the Middle East. BH Specialty writes business through wholesale and retail insurance brokers, as well as managing general agents.

MedPro Group ("MedPro") is a leading provider of healthcare liability ("HCL") insurance in the United States. MedPro provides customized HCL insurance, claims, patient safety and risk solutions to physicians, surgeons, dentists and other healthcare professionals, as well as hospitals, senior care and other healthcare facilities. Additionally, MedPro provides HCL insurance solutions to international markets through other Berkshire insurance affiliates, delivers liability insurance to other professionals, and offers specialized accident and health insurance solutions to colleges and other customers through its subsidiaries and other Berkshire insurance affiliates. MedPro is based in Fort Wayne, Indiana.

U.S. Liability Insurance Company ("USLI") includes a group of five specialty insurers that underwrite commercial, professional and personal lines insurance on an admitted basis, as well as on an excess and surplus basis. USLI markets policies in all 50 states, the District of Columbia and Canada through wholesale and retail insurance agents. USLI companies also underwrite and market a wide variety of specialty insurance products. USLI is based in Wayne, Pennsylvania.

Berkshire Hathaway GUARD Insurance Companies ("GUARD") is a group of five insurance companies that provide a full suite of commercial insurance products, as well as homeowners policies to over 350,000 small to mid-sized businesses and homeowners. These offerings are made through independent agents and retail and wholesale brokers. GUARD is based in Wilkes-Barre, Pennsylvania.

MLMIC Insurance Company ("MLMIC") has been the leading writer of medical professional liability insurance in New York State for over 40 years. MLMIC distributes the majority of its policies on a direct basis to medical and dental professionals, health care providers and hospitals.

Berkshire Hathaway Reinsurance Group—Berkshire's combined global reinsurance business, referred to as the Berkshire Hathaway Reinsurance Group ("BHRG"), offers a wide range of coverages on property, casualty, life and health risks to insurers and reinsurers worldwide. BHRG conducts business activities in 24 countries. Reinsurance business is written through NICO and certain other Berkshire insurance subsidiaries (collectively, the "NICO Group") and General Re Corporation, domiciled in Delaware, and its subsidiaries (collectively the "General Re Group"). BHRG's underwriting operations in the U.S. are based in Stamford, Connecticut.

The type and volume of business written is dependent on market conditions, including prevailing premium rates and coverage terms. The level of underwriting activities often fluctuates significantly from year to year depending on the perceived level of price adequacy in specific insurance and reinsurance markets as well as from the timing of particularly large reinsurance transactions.

Property/casualty

The NICO Group offers traditional property/casualty reinsurance on both an excess-of-loss and a quota-share basis, catastrophe excess-of-loss treaty and facultative reinsurance, and primary insurance on an excess-of-loss basis for large or unusual risks. The type and volume of business written by the NICO Group may vary significantly from period to period resulting from changes in perceived premium rate adequacy and from unique or large transactions. A significant portion of NICO Group's annual reinsurance premium volume currently derives from a 20% quota-share agreement with Insurance Australia Group Limited ("IAG") that expires July 1, 2025. IAG is a multi-line insurer in Australia, New Zealand and other Asia-Pacific countries.

The General Re Group conducts a global property and casualty reinsurance business. Reinsurance contracts are written on both a quota-share and excess basis for multiple lines of business. Contracts are primarily in the form of treaties, and to a lesser degree, on a facultative basis. General Re Group conducts business in North America primarily through General Reinsurance Corporation ("GRC"), which is licensed in the District of Columbia and all states, except Hawaii, where it is an accredited reinsurer. GRC conducts operations in North America from its headquarters in Stamford, Connecticut and through 12 branch offices in the U.S. and Canada.

In North America, the General Re Group includes General Star National Insurance Company, General Star Indemnity Company and Genesis Insurance Company, which offer a broad array of specialty and surplus lines and property, casualty and professional liability coverages. Such business is marketed through a select group of wholesale brokers, managing general underwriters and program administrators, and offer solutions for the unique needs of public entity, commercial and captive customers.

General Re Group's international reinsurance business is conducted on a direct basis through General Reinsurance AG, based in Cologne, Germany, and through several other subsidiaries and branches in numerous other countries. International business is also written through brokers, including Faraday Underwriting Limited ("Faraday"), a wholly-owned subsidiary. Faraday owns the managing agent of Syndicate 435 at Lloyd's of London and provides capacity and participates in 100% of the results of Syndicate 435.

Life/health

The General Re Group also conducts a global life and health reinsurance business. In the U.S. and internationally, the General Re Group writes life, disability, supplemental health, critical illness and long-term care coverages. The life/health business is marketed on a direct basis. Life/health net premiums written by the General Re Group in 2021 were primarily in the Asia Pacific, United States and Western Europe.

Berkshire Hathaway Life Insurance Company of Nebraska ("BHLN"), a subsidiary of NICO, and its affiliates write reinsurance covering various forms of traditional life insurance exposures and, on a limited basis, health insurance exposures. BHLN and affiliates are parties to contracts that reinsure certain guaranteed minimum death, income and similar benefit risks on closed-blocks of variable annuity risks under reinsurance contracts, with the most recent contract incepting in 2014.

Retroactive reinsurance

NICO also periodically writes retroactive reinsurance contracts. Retroactive reinsurance contracts indemnify ceding companies against the adverse development of claims arising from loss events that have already occurred under property and casualty policies issued in prior years. Coverages under such contracts are provided on an excess basis (above a stated retention) or for losses payable after the inception of the contract with no additional ceding company retention. Contracts are normally subject to aggregate limits of indemnification, which can be exceptionally large in amount. Significant amounts of asbestos, environmental and latent injury claims may arise under these contracts.

The concept of time-value-of-money is an important element in establishing retroactive reinsurance contract prices and terms since loss payments may occur over decades. Normally, expected ultimate losses payable under these policies are expected to exceed premiums, thus producing underwriting losses. Nevertheless, this business is written, in part, because of the large amounts of policyholder funds generated for investment, the economic benefit of which will be reflected through investment results in future periods.

Periodic payment annuity

BHLN writes periodic payment annuity insurance policies and reinsures existing annuity-like obligations. Under these policies, BHLN receives upfront premiums and agrees in the future to make periodic payments that often extend for decades. These policies generally relate to the settlement of underlying personal injury or workers' compensation cases of other insurers, known as structured settlements. Consistent with retroactive reinsurance contracts, time-value-of-money concepts are an important factor in establishing annuity premiums, and underwriting losses are expected from the periodic accretion of time-value discounted liabilities.

Investments of insurance businesses—Berkshire's insurance subsidiaries hold significant levels of invested assets. Investment portfolios are primarily managed by Berkshire's Chief Executive Officer. Investments include a very large portfolio of publicly traded equity securities, which are concentrated in relatively few issuers, as well as fixed maturity securities and cash and short-term investments. Generally, there are no targeted allocations by investment type or attempts to match investment asset and insurance liability durations. However, investment portfolios have historically included a much greater proportion of equity securities than is customary in the insurance industry.

Invested assets derive from shareholder capital as well as funds provided from policyholders through insurance and reinsurance business ("float"). Float is the approximate amount of net policyholder funds generated through underwriting activities that is available for investment. The major components of float are unpaid losses and loss adjustment expenses, life, annuity and health benefit liabilities, unearned premiums and other policyholder liabilities less premium and reinsurance receivables, deferred policy acquisition costs and deferred charges on assumed retroactive reinsurance contracts. On a consolidated basis, float has grown from approximately \$91 billion at the end of 2016 to approximately \$147 billion at the end of 2021. The cost of float can be measured as the net pre-tax underwriting loss as a percentage of average float. In each of the three years ending December 31, 2021, Berkshire's consolidated cost of float was negative, as its insurance businesses produced net underwriting gains.

Railroad Business—Burlington Northern Santa Fe

Burlington Northern Santa Fe, LLC ("BNSF") is based in Fort Worth, Texas, and through BNSF Railway Company ("BNSF Railway") operates one of the largest railroad systems in North America. BNSF Railway had approximately 35,000 employees at the end of 2021. BNSF also operates a relatively smaller third-party logistics services business.

In serving the Midwest, Pacific Northwest, Western, Southwestern and Southeastern regions and ports of the United States, BNSF transports a range of products and commodities derived from manufacturing, agricultural and natural resource industries. Freight revenues are covered by contractual agreements of varying durations or common carrier published prices or company quotations. BNSF's financial performance is influenced by, among other things, general and industry economic conditions at the international, national and regional levels.

BNSF's primary routes, including trackage rights, allow it to access major cities and ports in the western and southern United States as well as parts of Canada and Mexico. In addition to major cities and ports, BNSF Railway efficiently serves many smaller markets by working closely with approximately 200 shortline railroads. BNSF Railway has also entered into marketing agreements with other rail carriers, expanding the marketing reach for each railroad and their customers. For the year ending December 31, 2021, approximately 38% of freight revenues were derived from consumer products, 24% from industrial products, 23% from agricultural products and 15% from coal.

Regulatory Matters

BNSF is subject to federal, state and local laws and regulations generally applicable to its businesses. Rail operations are subject to the regulatory jurisdiction of the Surface Transportation Board ("STB"), the Federal Railroad Administration of the United States Department of Transportation ("DOT"), the Occupational Safety and Health Administration ("OSHA"), as well as other federal and state regulatory agencies and Canadian regulatory agencies for operations in Canada. The STB has jurisdiction over disputes and complaints involving certain rates, routes and services, the sale or abandonment of rail lines, applications for line extensions and construction, and the merger with or acquisition of control of rail common carriers. The outcome of STB proceedings can affect the profitability of BNSF Railway's business.

The DOT and OSHA have jurisdiction under several federal statutes over a number of safety and health aspects of rail operations, including the transportation of hazardous materials. BNSF Railway is required to transport these materials to the extent of its common carrier obligation. State agencies regulate some aspects of rail operations with respect to health and safety in areas not otherwise preempted by federal law.

Environmental Matters

BNSF's rail operations, as well as those of its competitors, are also subject to extensive federal, state and local environmental regulation covering discharges to the ground or waters, air emissions, toxic substances and the generation, handling, storage, transportation and disposal of waste and hazardous materials. Such regulations effectively increase the costs and liabilities associated with rail operations. Environmental risks are also inherent in rail operations, which frequently involve transporting chemicals and other hazardous materials.

Many of BNSF's land holdings are or have been used for industrial or transportation-related purposes or leased to commercial or industrial companies whose activities may have resulted in discharges onto the property. Under federal (in particular, the Comprehensive Environmental Response, Compensation and Liability Act) and state statutes, BNSF may be held jointly and severally liable for cleanup and enforcement costs associated with a particular site without regard to fault or the legality of the original conduct. BNSF may also be subject to claims by third parties for investigation, cleanup, restoration or other environmental costs under environmental statutes or common law with respect to properties they own that have been impacted by BNSF operations.

Consumption of diesel fuel by locomotives accounted for approximately 80% of BNSF's greenhouse gas ("GHG") emissions in its baseline year of 2018. BNSF management has committed to a broad sustainability model, applying science-based approaches, that will provide a 30% reduction in BNSF's GHG-emissions by 2030 from its baseline year of 2018. BNSF intends to continue improvements in fuel efficiency and increased utilization of renewable diesel fuel. Long-term solutions, such as battery-electric and hydrogen locomotives, are also being evaluated and field-tested.

Competition

The business environment in which BNSF operates is highly competitive. Depending on the specific market, deregulated motor carriers and other railroads, as well as river barges, ships and pipelines, may exert pressure on price and service levels. The presence of advanced, high service truck lines with expedited delivery, subsidized infrastructure and minimal empty mileage continues to affect the market for non-bulk, time-sensitive freight. The potential expansion of longer combination vehicles could further encroach upon markets traditionally served by railroads. In order to remain competitive, BNSF Railway and other railroads seek to develop and implement operating efficiencies to improve productivity.

As railroads streamline, rationalize and otherwise enhance their franchises, competition among rail carriers intensifies. BNSF Railway's primary rail competitor in the Western region of the United States is the Union Pacific Railroad Company. Other Class I railroads and numerous regional railroads and motor carriers also operate in parts of the same territories served by BNSF Railway.

Utilities and Energy Businesses—Berkshire Hathaway Energy

Berkshire currently has a 91.1% ownership interest in Berkshire Hathaway Energy Company ("BHE"). BHE is a global energy company with subsidiaries and affiliates that generate, transmit, store, distribute and supply energy. BHE's locally managed businesses are organized as separate operating units. BHE's domestic regulated energy interests are comprised of four regulated utility companies serving approximately 5.2 million retail customers, five interstate natural gas pipeline companies with approximately 21,100 miles of operated pipeline having a design capacity of approximately 21 billion cubic feet of natural gas per day and ownership interests in electricity transmission businesses. BHE's Great Britain electricity distribution subsidiaries serve about 3.9 million electricity end-users and its electricity transmission-only business in Alberta, Canada serves approximately 85% of Alberta's population. BHE's interests also include a diversified portfolio of independent power projects, a liquefied natural gas export, import and storage facility, the largest residential real estate brokerage firm in the United States, and one of the largest residential real estate brokerage franchise networks in the United States. BHE employs approximately 24,000 people in connection with its various operations.

General Matters

PacifiCorp is a regulated electric utility company headquartered in Oregon, serving electric customers in portions of Utah, Oregon, Wyoming, Washington, Idaho and California. The combined service territory's diverse regional economy ranges from rural, agricultural and mining areas to urban, manufacturing and government service centers. No single segment of the economy dominates the combined service territory, which helps mitigate PacifiCorp's exposure to economic fluctuations. In addition to retail sales, PacifiCorp sells electricity on a wholesale basis.

MidAmerican Energy Company ("MEC") is a regulated electric and natural gas utility company headquartered in Iowa, serving electric and natural gas customers primarily in Iowa and also in portions of Illinois, South Dakota and Nebraska. MEC has a diverse retail customer base consisting of urban and rural residential customers and a variety of commercial and industrial customers. In addition to retail sales and natural gas transportation, MEC sells electricity and natural gas on a wholesale basis.

NV Energy, Inc. ("NV Energy") is an energy holding company headquartered in Nevada, primarily consisting of two regulated utility subsidiaries, Nevada Power Company ("Nevada Power") and Sierra Pacific Power Company ("Sierra Pacific") (collectively, the "Nevada Utilities"). Nevada Power serves retail electric customers in southern Nevada and Sierra Pacific serves retail electric and natural gas customers in northern Nevada. The Nevada Utilities' combined service territory's economy includes gaming, mining, recreation, warehousing, manufacturing and governmental services. In addition to retail sales and natural gas transportation, the Nevada Utilities sell electricity and natural gas on a wholesale basis.

As vertically integrated utilities, BHE's domestic utilities own approximately 29,400 net megawatts of generation capacity in operation and under construction. The domestic utilities business is subject to seasonal variations principally related to the use of electricity for air conditioning and natural gas for heating. Typically, regulated electric revenues are higher in the summer months, while regulated natural gas revenues are higher in the winter months.

The Great Britain distribution companies consist of Northern Powergrid (Northeast) plc and Northern Powergrid (Yorkshire) plc, which own a substantial electricity distribution network that delivers electricity to end-users in northeast England in an area covering approximately 10,000 square miles. The distribution companies primarily charge supply companies regulated tariffs for the use of their distribution systems.

AltaLink L.P. ("AltaLink") is a regulated electric transmission-only utility company headquartered in Calgary, Alberta. AltaLink's high voltage transmission lines and related facilities transmit electricity from generating facilities to major load centers, cities and large industrial plants throughout its 87,000 square mile service territory.

The natural gas pipelines consist of BHE GT&S, LLC ("BHE GT&S"), Northern Natural Gas Company ("Northern Natural") and Kern River Gas Transmission Company ("Kern River"). BHE GT&S was acquired on November 1, 2020.

BHE GT&S, based in Virginia, operates three interstate natural gas pipeline systems that consist of approximately 5,400 miles of natural gas transmission, gathering and storage pipelines and operates seventeen underground natural gas storage fields in the eastern region of the United States. BHE GT&S's large underground natural gas storage assets and pipeline systems are part of an interconnected gas transmission network that provides transportation services to utilities and numerous other customers. BHE GT&S is also an industry leader in liquefied natural gas solutions through its investments in and ownership of several liquefied natural gas facilities located throughout the eastern region of the United States.

Northern Natural, based in Nebraska, operates the largest interstate natural gas pipeline system in the United States, as measured by pipeline miles, reaching from west Texas to Michigan's Upper Peninsula. Northern Natural's pipeline system consists of approximately 14,300 miles of natural gas pipelines. Northern Natural's extensive pipeline system, which is interconnected with many interstate and intrastate pipelines in the national grid system, has access to supplies from multiple major supply basins and provides transportation services to utilities and numerous other customers. Northern Natural also operates three underground natural gas storage facilities and two liquefied natural gas storage peaking units. Northern Natural's pipeline system experiences significant seasonal swings in demand and revenue, with the highest demand typically occurring during the months of November through March.

Kern River, based in Utah, operates an interstate natural gas pipeline system that consists of approximately 1,400 miles and extends from supply areas in the Rocky Mountains to consuming markets in Utah, Nevada and California. Kern River transports natural gas for electric and natural gas distribution utilities, major oil and natural gas companies or affiliates of such companies, electric generating companies, energy marketing and trading companies, and financial institutions.

BHE Renewables, based in Iowa, owns interests in independent power projects having approximately 4,900 net megawatts of generation capacity that are in service in California, Texas, Illinois, Nebraska, New York, Arizona, Minnesota, Kansas, Iowa and Hawaii. These independent power projects sell power generated primarily from wind, solar, geothermal and hydro sources under long-term contracts. Additionally, \$6.9 billion has been invested in wind projects sponsored by third parties, commonly referred to as tax equity investments.

Regulatory Matters

PacifiCorp, MEC and the Nevada Utilities are subject to comprehensive regulation by various federal, state and local agencies. The Federal Energy Regulatory Commission ("FERC") is an independent agency with broad authority to implement provisions of the Federal Power Act, the Energy Policy Act of 2005 and other federal statutes. The FERC regulates rates for wholesale sales of electricity; transmission of electricity, including pricing and regional planning for the expansion of transmission systems; electric system reliability; utility holding companies; accounting and records retention; securities issuances; construction and operation of hydroelectric facilities; and other matters. The FERC also has the enforcement authority to assess civil penalties of up to \$1.4 million per day per violation of rules, regulations and orders issued under the Federal Power Act. MEC is also subject to regulation by the Nuclear Regulatory Commission pursuant to the Atomic Energy Act of 1954, as amended, with respect to its 25% ownership of the Quad Cities Nuclear Station.

With certain limited exceptions, BHE's domestic utilities have an exclusive right to serve retail customers within their service territories and, in turn, have an obligation to provide service to those customers. In some jurisdictions, certain classes of customers may choose to purchase all or a portion of their energy from alternative energy suppliers, and in some jurisdictions retail customers can generate all or a portion of their own energy. Historically, state regulatory commissions have established retail electric and natural gas rates on a cost-of-service basis, designed to allow a utility the opportunity to recover what each state regulatory commission deems to be the utility's reasonable costs of providing services, including a fair opportunity to earn a reasonable return on its investments based on its cost of debt and equity. The retail electric rates of PacifiCorp, MEC and the Nevada Utilities are generally based on the cost of providing traditional bundled services, including generation, transmission and distribution services; however, rates are available for transmission-only and distribution-only services.

Northern Powergrid (Northeast) and Northern Powergrid (Yorkshire) each charge fees for the use of their distribution systems that are controlled by a formula prescribed by the British electricity regulatory body, the Gas and Electricity Markets Authority. The current eight-year price control period runs from April 1, 2015 through March 31, 2023.

AltaLink is regulated by the Alberta Utilities Commission ("AUC"), pursuant to the Electric Utilities Act (Alberta), the Public Utilities Act (Alberta), the Alberta Utilities Commission Act (Alberta) and the Hydro and Electric Energy Act (Alberta). The AUC is an independent quasi-judicial agency, which regulates and oversees Alberta's electricity transmission sector with broad authority that may impact many of AltaLink's activities, including its tariffs, rates, construction, operations and financing. Under the Electric Utilities Act, AltaLink prepares and files applications with the AUC for approval of tariffs to be paid by the Alberta Electric System Operator ("AESO") for the use of its transmission facilities, and the terms and conditions governing the use of those facilities. The AESO is an independent system operator in Alberta, Canada that oversees Alberta's integrated electrical system ("AIES") and wholesale electricity market. The AESO is responsible for directing the safe, reliable and economic operation of the AIES, including long-term transmission system planning.

The natural gas pipelines are subject to regulation by various federal and state agencies. The natural gas pipeline and storage operations of BHE GT&S, Northern Natural and Kern River are regulated by the FERC pursuant to the Natural Gas Act and the Natural Gas Policy Act of 1978. Under this authority, the FERC regulates, among other items, (a) rates, charges, terms and conditions of service; (b) the construction and operation of interstate pipelines, storage and related facilities, including the extension, expansion or abandonment of such facilities; and (c) the construction and operation of liquefied natural gas import/export facilities. Interstate natural gas pipeline companies are also subject to regulations administered by the Office of Pipeline Safety within the Pipeline and Hazardous Materials Safety Administration, an agency of the DOT. Federal pipeline safety regulations are issued pursuant to the Natural Gas Pipeline Safety Act of 1968, as amended, which establishes safety requirements in the design, construction, operation and maintenance of interstate natural gas pipeline facilities.

Environmental Matters

BHE and its energy businesses are subject to federal, state, local and foreign laws and regulations regarding climate change, renewable portfolio standards, air and water quality, emissions performance standards, coal combustion byproduct disposal, hazardous and solid waste disposal, protected species and other environmental matters that have the potential to impact current and future operations. In addition to imposing continuing compliance obligations, these laws and regulations, such as the Federal Clean Air Act, provide regulators with the authority to levy substantial penalties for noncompliance, including fines, injunctive relief and other sanctions.

The Federal Clean Air Act, as well as state laws and regulations impacting air emissions, provides a framework for protecting and improving the nation's air quality and controlling sources of air emissions. These laws and regulations continue to be promulgated and implemented and will impact the operation of BHE's generating facilities and require them to reduce emissions at those facilities to comply with the requirements.

Renewable portfolio standards have been established by certain state governments and generally require electricity providers to obtain a minimum percentage of their power from renewable energy resources by a certain date. Utah, Oregon, Washington, California, Iowa and Nevada have adopted renewable portfolio standards. In addition, the potential adoption of state or federal clean energy standards, which include low-carbon, non-carbon and renewable electricity generating resources, may also impact electricity generators and natural gas providers.

In December 2015, an international agreement was negotiated by 195 nations to create a universal framework for coordinated action on climate change in what is referred to as the Paris Agreement. The Paris Agreement reaffirms the goal of limiting global temperature increase well below 2 degrees Celsius, while urging efforts to limit the increase to 1.5 degrees Celsius; establishes commitments by all parties to make nationally determined contributions and pursue domestic measures aimed at achieving the commitments; commits all countries to submit emissions inventories and report regularly on their emissions and progress made in implementing and achieving their nationally determined commitments; and commits all countries to submit new commitments every five years, with the expectation that the commitments will get more aggressive. In the context of the Paris Agreement, the United States agreed to reduce greenhouse gas emissions 26% to 28% by 2025 from 2005 levels. The Paris Agreement formally entered into force on November 4, 2016. The United States completed its withdrawal from the Paris Agreement on November 4, 2020. President Biden accepted the terms of the climate agreement on January 21, 2021, and the United States completed its reentry on February 19, 2021. New commitments to the Paris Agreement were announced in April 2021, with the United States pledging to cut its overall greenhouse gas emissions by 50-52% below 2005 levels by 2030 and to reach 100% carbon pollution-free electricity by 2035.

On October 10, 2017, the Environmental Protection Agency ("EPA") issued a proposal to repeal the Clean Power Plan, which was intended to achieve an overall reduction in carbon dioxide emissions from existing fossil-fueled electric generating units of 32% below 2005 levels. On June 19, 2019, the EPA repealed the Clean Power Plan and issued the Affordable Clean Energy rule, which fully replaced the Clean Power Plan. In the Affordable Clean Energy rule, the EPA determined that the best system of emissions reduction for existing coal fueled power plants is heat rate improvements and identified a set of candidate technologies and measures that could improve heat rates. Measures taken to meet the standards of performance must be achieved at the source itself. On January 19, 2021, the D.C. Circuit Court of Appeals vacated the Affordable Clean Energy Rule in its entirety. In October 2021, the U.S. Supreme Court agreed to hear an appeal of that decision. Arguments in the case will be held in February 2022 and a decision regarding the scope of the EPA's authority to regulate greenhouse gas emissions under the Clean Air Act is expected by June 2022. Increasingly, states are adopting legislation and regulations to reduce greenhouse gas emissions, and local governments and consumers are seeking increasing amounts of clean and renewable energy.

BHE and its energy subsidiaries continue to focus on delivering reliable, affordable, safe and clean energy to its customers and on actions to mitigate its greenhouse gas ("GHG") emissions. BHE's primary source of GHG emissions is the generation of electricity from its power plants that are fueled by coal or natural gas. In managing its electricity generation, BHE works with its regulators to protect the energy and economic needs of customers by considering costs, reliability and sources of electric generation. Over the years, BHE has invested heavily in owned wind, solar and geothermal generation, with cumulative investments of \$30.1 billion through 2021 and has retired 16 coal generation units. As a result, BHE has reduced its annual GHG emissions by about 20% from 2005 levels. BHE plans to continue investing in wind, solar and other low-carbon generation in the future and to retire an additional 16 coal generation units between 2022 and 2030 in a reliable and cost-effective manner, thereby achieving a 50% reduction in GHG emissions from 2005 levels in 2030.

Non-Energy Businesses

HomeServices of America, Inc. ("HomeServices") is the largest residential real estate brokerage firm in the United States. In addition to providing traditional residential real estate brokerage services, HomeServices offers other integrated real estate services, including mortgage originations and mortgage banking, title and closing services, property and casualty insurance, home warranties, relocation services and other home-related services. It operates under 55 brand names with approximately 46,000 real estate agents in over 900 brokerage offices in 33 states and the District of Columbia.

HomeServices' franchise network currently includes approximately 360 franchisees primarily in the United States, and internationally in over 1,600 brokerage offices with over 53,000 real estate agents under two brand names. In exchange for certain fees, HomeServices provides the right to use the Berkshire Hathaway HomeServices or Real Living brand names and other related service marks, as well as providing orientation programs, training and consultation services, advertising programs and other services.

HomeServices' principal sources of revenue are dependent on residential real estate sales, which are generally higher in the second and third quarters of each year. This business is highly competitive and subject to general real estate market conditions.

Manufacturing Businesses

Berkshire's numerous and diverse manufacturing subsidiaries are grouped into three categories: (1) industrial products, (2) building products and (3) consumer products. Berkshire's industrial products businesses manufacture components for aerospace and power generation applications, specialty chemicals, metal cutting tools, and a variety of other products primarily for industrial use. The building products group produces prefabricated and site-built residential homes, flooring products, insulation, roofing and engineered products, building and engineered components, paint and coatings and bricks and masonry products. The consumer products group manufactures recreational vehicles, alkaline batteries, various apparel products, jewelry and custom picture framing products. Information concerning the major activities of these three groups follows. Berkshire's manufacturing businesses employed approximately 187,000 people at the end of 2021.

Industrial products

Precision Castparts

Precision Castparts Corp. ("PCC") manufactures complex metal components and products, provides high-quality investment castings, forgings, fasteners/fastener systems and aerostructures for critical aerospace and power and energy applications. PCC also manufactures seamless pipe for coal-fired, industrial gas turbine ("IGT") and nuclear power plants; downhole casing and tubing, fittings and various mill forms in a variety of nickel and steel alloys for severe-service oil and gas environments; investment castings and forgings for general industrial, armament, medical and other applications; nickel and titanium alloys in all standard mill forms from large ingots and billets to plate, foil, sheet, strip, tubing, bar, rod, extruded shapes, rod-in-coil, wire and welding consumables, as well as cobalt alloys, for the aerospace, chemical processing, oil and gas, pollution control and other industries; revert management solutions; fasteners for automotive and general industrial markets; specialty alloys for the investment casting and forging industries; heat treating and destructive testing services for the investment cast products and forging industries; grinder pumps and affiliated components for low-pressure sewer systems; critical auxiliary equipment and gas monitoring systems for the power generation industry; and metalworking tools for the fastener market and other applications.

Investment casting technology involves a multi-step process that uses ceramic molds in the manufacture of metal components with more complex shapes, closer tolerances and finer surface finishes than parts manufactured using other methods. PCC uses this process to manufacture products for aircraft engines, IGT and other aeroderivative engines, airframes, medical implants, armament, unmanned aerial vehicles and other industrial applications. PCC also manufactures high temperature carbon and ceramic composite components, including ceramic matrix composites, for use in next-generation aerospace engines.

PCC uses forging processes to manufacture components for the aerospace and power generation markets, including seamless pipe for coal-fired, IGT and nuclear power plants, and downhole casings and tubing pipe for severe service oil and gas markets. PCC manufactures high-performance, nickel-based alloys used to produce forged components for aerospace and non-aerospace applications in such markets as oil and gas, chemical processing and pollution control. These titanium products are used to manufacture components for the commercial and military aerospace, power generation, energy and other industrial end markets.

PCC is also a leading developer and manufacturer of highly engineered fasteners, fastener systems, aerostructures and precision components, primarily for critical aerospace applications. These products are produced for the aerospace and power and energy markets, as well as for construction, automotive, heavy truck, farm machinery, mining and construction equipment, shipbuilding, machine tools, medical equipment, appliance and recreation markets.

PCC has several significant customers, including aerospace original equipment manufacturers (Boeing and Airbus) and aircraft engine manufacturer suppliers (General Electric, Rolls Royce and Pratt &Whitney). The majority of PCC's sales are from customer orders or demand schedules pursuant to long-term agreements. Contractual terms may provide for termination by the customer, subject to payment for work performed. PCC typically does not experience significant order cancellations, although periodically it receives requests for delays in delivery schedules. Since the onset of the COVID-19 pandemic in 2020, delay requests increased, with delivery dates extending in some cases beyond 2021.

The effects of the COVID-19 pandemic produced significant adverse effects on the PCC aerospace business in 2020 and 2021. The sudden and material reductions in air travel led to aircraft build rate reductions and customer destocking at extraordinary rates. The grounding of the Boeing 737 MAX also adversely impacted 2020 and 2021 and quality issues with the Boeing 787 negatively impacted 2021. Aircraft build rates have not recovered in any meaningful way. During 2020, PCC significantly reduced its worldwide workforce by about 40% to help align operations to reduced aircraft build rates. The restructuring actions taken began to improve margins in late 2020 and further margin improvements were achieved in 2021.

PCC is subject to substantial competition in all of its markets. Components and similar products may be produced by competitors, who use either the same types of manufacturing processes as PCC or other processes. Although PCC believes its manufacturing processes, technology and experience provide advantages to its customers, such as high quality, competitive prices and physical properties that often meet more stringent demands, alternative forms of manufacturing can be used to produce many of the same components and products. Despite intense competition, PCC is a leading supplier in most of its principal markets. Several factors, including long-standing customer relationships, technical expertise, state-of-the-art facilities and dedicated employees, aid PCC in maintaining competitive advantages.

Several raw materials used in PCC products, including certain metals such as nickel, titanium, cobalt, tantalum and molybdenum, are found in only a few parts of the world. These metals are required for the alloys used in manufactured products. The availability and costs of these metals may be influenced by private or governmental cartels, changes in world politics, labor relations between the metal producers and their workforces and inflation.

PCC is currently subject to various federal, state and foreign environmental laws concerning, among other things, water discharges, air emissions, waste management, toxic materials use reduction and environmental cleanup. Laws and regulations continue to evolve, and it is reasonably possible that environmental standards will become more stringent in the future, particularly under air quality and water quality laws and standards related to climate change, including reporting of greenhouse gas emissions. As a result, it is also reasonably likely that PCC will be regularly required to make additional expenditures, including capital expenditures, which could be significant, relating to environmental matters.

Lubrizol

The Lubrizol Corporation ("Lubrizol") is a specialty chemical and performance materials company that manufactures products and supplies technologies for the global transportation, industrial and consumer markets. Lubrizol currently operates two business segments: Lubrizol Additives, which produces engine lubricant additives, driveline lubricant additives and industrial specialties products; and Lubrizol Advanced Materials, which includes engineered materials (engineered polymers and performance coatings) and life sciences (beauty and personal care, and health and home care solutions).

Lubrizol Additives' products are used in a broad range of applications including engine oils, transmission fluids, gear oils, specialty driveline lubricants, fuels, metalworking fluids and compressor lubricants for transportation and industrial applications. Lubrizol Advanced Materials' products are used in many different types of applications including beauty, personal care, home care, over-the-counter pharmaceuticals, medical devices, performance coatings, sporting goods, plumbing and fire sprinkler systems. Lubrizol is an industry leader in many of the markets in which it competes, and its principal lubricant additives competitors are Infineum International Ltd., Chevron Oronite Company and Afton Chemical Corporation. Lubrizol Advanced Materials' businesses compete in many markets with a variety of competitors in each product line.

With its considerable patent portfolio, Lubrizol uses its technological leadership position and applies its science capabilities, formulation know-how and market expertise in product development to improve the demand, quality and value of its solutions. Lubrizol also leverages its scientific and applications knowledge to meet and exceed customer performance and sustainability requirements. While Lubrizol typically has patents that expire each year, it invests resources to protect its intellectual property and to develop or acquire innovative products for the markets it serves. Lubrizol uses many specialty and commodity chemical raw materials in its manufacturing processes. Raw materials are primarily feedstocks derived from petroleum and petrochemicals and, generally, are obtainable from several sources. The materials that Lubrizol chooses to purchase from a single source typically are subject to long-term supply contracts to ensure supply reliability.

Lubrizol operates its business on a global basis through more than 100 offices, laboratories, production facilities and warehouses on six continents, the most significant of which are North America, Europe, Asia and South America. Lubrizol markets its products worldwide through direct sales, sales agents and distributors. Lubrizol's customers principally consist of major global and regional oil companies and industrial and consumer products companies. Some of Lubrizol's largest customers also may be suppliers. During 2021, no single customer accounted for more than 10% of Lubrizol's consolidated revenues. In 2021, the COVID-19 pandemic continued to have an adverse effect on many of the markets that Lubrizol serves, as did worldwide supply chain disruptions, affecting both the availability of raw materials and fulfillment of customer orders. In addition, the occurrence and duration of the February 2021 winter storms and freezing temperatures in Texas significantly interrupted operations at Lubrizol's manufacturing facilities.

Lubrizol expends significant capital to ensure the safety of its employees and the communities where it operates, as well as delivering on its commitments to operational excellence and cybersecurity. Lubrizol also makes significant capital investments to ensure reliable supply and compliance with regulations governing its operations, while reducing their environmental footprint.

Lubrizol is subject to foreign, federal, state and local laws to protect the environment, limit manufacturing waste and emissions, ensure product and employee safety and regulate trade. While the company believes that its policies, practices and procedures are designed to limit the risks of non-compliance with laws and consequent financial liability, it experienced a fire at one of its chemical manufacturing facilities in 2019, which resulted in significant cleanup and remediation costs. Lubrizol also suffered a fire in 2021 that resulted in a total loss of its grease manufacturing facility. The operation of chemical manufacturing plants entails ongoing environmental and other risks, and significant capital expenditures, costs or liabilities could be incurred in the future.

IMC

IMC International Metalworking Companies ("IMC") is one of the world's three largest multinational manufacturers of consumable precision carbide metal cutting tools for applications in a broad range of industrial end markets. IMC's principal brand names include ISCAR®, TaeguTec®, Ingersoll®, Tungaloy®, Unitac®, UOP®, It.te.di®, Quiltec®, Tool—Flo®, PCT® and IMCO®. IMC's primary manufacturing facilities are in Israel, the United States, South Korea, Japan, Germany, Italy, Switzerland, India and China.

IMC has five primary product lines: milling tools, gripping tools, turning/thread tools, drilling tools and tooling. The main products are split within each product line between consumable cemented tungsten carbide inserts and steel tool holders. Inserts comprise the vast majority of sales and earnings. Metal cutting inserts are used by industrial manufacturers to cut metals and are consumed during their use in cutting applications. IMC manufactures hundreds of types of highly engineered inserts within each product line that are tailored to maximize productivity and meet the technical requirements of customers. IMC's staff of scientists and engineers continuously develop and innovate products that address end user needs and requirements.

IMC's global sales and marketing network operates in virtually every major manufacturing center around the world, staffed with highly skilled engineers and technical personnel. IMC's customer base is very diverse, with its primary customers being large, multinational businesses in the automotive, aerospace, engineering and machinery industries. IMC operates a regional central warehouse system with locations in Israel, the United States, Belgium, Korea, Japan and China. Additional small quantities of products are maintained at local IMC offices to provide on-time customer support and inventory management.

IMC competes in the metal cutting tools segment of the global metalworking tools market. The segment includes hundreds of participants who range from small, private manufacturers of specialized products for niche applications and markets to larger, global multinational businesses (such as Sandvik and Kennametal, Inc.) with a wide assortment of products and extensive distribution networks. Other manufacturing companies such as Kyocera, Mitsubishi, Sumitomo, Ceratizit and Korloy also play a significant role in the cutting tool market.

Cemented tungsten carbide powder is the main raw material used in manufacturing cutting tools. Most of IMC's metalworking insert products are made from tungsten. While supplies are currently adequate, a significant disruption or constraints in production processing facilities could cause a price increase.

IMC is committed to follow, comply and obey all government and environmental regulations and requirements of all applicable laws. IMC considers environmental preservation and pollution prevention as important factors in all operations and activities. IMC production facilities are built with the highest standards and follow all applicable regulations.

Marmon

Marmon Holdings, Inc. ("Marmon") is a global industrial organization comprising 11 diverse business groups and more than 100 autonomous manufacturing and service businesses. Marmon's manufacturing and service operations are conducted at approximately 400 manufacturing, distribution and service facilities located primarily in the United States, as well as 22 other countries worldwide. Marmon's business groups are as follows.

Foodservice Technologies manufactures beverage dispensing and cooling equipment, hot and cold food preparation and holding equipment and related products for restaurants, global brand owners and other foodservice providers. Operations are based in the U.S. with manufacturing in the U.S., Mexico, China, the U.K., Germany and Italy. Products are sold primarily throughout the U.S., Europe and Asia.

Water Technologies manufactures water treatment equipment for residential, commercial and industrial applications worldwide. Operations are based primarily in the U.S., Canada, China, Singapore, India and Mexico with business centers located in Belgium, France, Poland, Germany, the U.K., Italy, Switzerland and U.A.E.

Transportation Products serves the automotive, heavy-duty highway transportation and aerospace industries with precision-molded plastic components; fastener thread solutions; metal tubing; auto aftermarket transmission and chassis products; platform and lowbed trailers; and truck and trailer components. Operations and business are conducted primarily in the U.S., Mexico, Canada, Europe and Asia.

Retail Solutions provides retail environment design services; in-store digital merchandising, dispensing and display fixtures; shopping, material handling and security carts. Operations and business are conducted in the U.S., U.K. and Czech Republic.

Metal Services provides specialty metal pipe, tubing and related value-added services to customers across a broad range of industries. Operations are based in the U.S., Canada and Mexico and business is conducted primarily in those countries.

Electrical produces electrical wire for use in residential and commercial buildings, and specialty wire and cable for use in energy, transit, aerospace, defense, communication and other industrial applications. Operations are based in the U.S., Canada, India and England. Business is conducted globally and primarily in the U.S., Canada, India, the U.K., U.A.E. and China.

Plumbing & Refrigeration supplies copper tubing and copper, brass, aluminum and stainless-steel fittings and components for the plumbing, HVAC and refrigeration markets; custom coils ducting, air handling units and heatpipe for the HVAC market; HVAC systems and structures for military, nuclear and medical markets and aluminum and brass forgings for many commercial and industrial applications. Business and operations are conducted primarily in the U.S.

Industrial Products supplies construction fasteners; masonry and stone anchoring systems used in commercial construction; two component polymer products for anchoring, bonding and repair applications, gloves and other protective wear; gear drives, gearboxes, fan drives and pump drives for various markets; wind machines for agricultural use; and wheels, axles and gears for rail, mining and other applications and equipment for the manufacture and assembly of lead acid batteries. Operations are primarily based in the U.S., U.K., Canada and China and business is conducted in those countries.

Rail & Leasing manufactures, leases and maintains railcars; leases intermodal tank containers; manufactures mobile railcar movers; provides in-plant rail switching and loading services; performs track construction and maintenance; and manufactures steel tank heads and cylinders.

Union Tank Car Company ("UTLX") is the largest component of Rail & Leasing and is a leading designer, builder and full-service lessor of railroad tank cars and other specialized railcars. Together with its Canadian affiliate Procor, UTLX owns a fleet of approximately 122,000 railcars for lease to customers in chemical, petrochemical, energy and agricultural/food industries. UTLX manufactures tank cars in the U.S. and performs railcar maintenance services at more than 100 locations across North America.

UTLX has a diversified customer base, both geographically and across industries. UTLX, while subject to cyclicity and significant competition in most of its markets, competes by offering a broad range of high-quality products and services targeted at its niche markets. Railcars are typically leased for multiple-year terms and most of the leases are renewed upon expiration. Due to selective ongoing capital investment, utilization rates (the number of railcars on lease as a percentage of the total fleet) of the railcar fleet are generally high.

Intermodal tank containers are leased through EXSIF Worldwide. EXSIF is a leading international lessor of intermodal tank containers with a fleet of approximately 75,000 units, primarily serving chemical producers and logistics operators.

Crane Services is a provider of mobile cranes and operators in North America and Australia with a combined fleet of approximately 1,100 cranes, primarily serving the energy, mining, petrochemical and infrastructure markets.

Medical (formed in 2019 through the acquisition of the Colson Medical Companies) develops, manufactures and distributes a wide range of innovative medical devices in the extremities fixation, craniomaxillofacial surgery, neurosurgery, biologics, aesthetics and powered instruments markets. The group's leading-edge medical technology and products are used globally to help improve patient care and outcomes. Operations are based in the U.S., Europe and China. Business is conducted primarily in North and South America, Europe, Asia and Australia.

Certain Marmon business, including the Rail and Medical groups, are subject to government regulation and oversight. Marmon has numerous known environmental matters which are subject to on-going monitoring and/or remediation efforts. Marmon follows all federal, state and local environmental regulations.

Other industrial products

CTB International Corp. ("CTB"), headquartered in Milford, Indiana, is a leading global designer, manufacturer and marketer of a wide range of agricultural systems and solutions for preserving grain, producing poultry, pigs and eggs, and for processing poultry, fish, vegetables and other foods. CTB operates from facilities located around the globe and supports customers through a worldwide network of independent distributors and dealers.

CTB competes with a variety of manufacturers and suppliers, many of which offer only a limited number of the products offered by CTB and four of which offer products across several of CTB's product lines. Competition is based on the price, value, reputation, quality and design of the products offered and the customer service provided by distributors, dealers and manufacturers of the products. CTB's leading brand names, distribution network, diversified product line, product support and high-quality products enable it to compete effectively. CTB manufactures its products primarily from galvanized steel, steel wire, stainless steel and polymer materials and supplies of these materials have been sufficient in recent years.

LiquidPower Specialty Products Inc. ("LSP"), headquartered in Houston, Texas, is a global leader in the science of drag reduction application ("DRA") technology by maximizing the flow potential of pipelines, increasing operational flexibility and throughput capacity, and efficiencies for customers. LSP develops innovative flow improver solutions with customers in over 20 countries on five continents, treating over 50 million barrels of hydrocarbon liquids per day. LSP's DRA offering is part of a comprehensive, full-service solution that encompasses industry-leading technology, quality manufacturing, technical support and consulting, a reliable supply chain, injection equipment and field service. LSP is subject to foreign, federal, state and local laws to protect the environment and limit manufacturing waste and emissions.

The Scott Fetzer companies are a group of businesses that manufacture, distribute, service and finance a wide variety of products for residential, industrial and institutional use.

Building Products

Clayton

Clayton Homes, Inc. ("Clayton"), headquartered near Knoxville, Tennessee, is a vertically integrated housing company offering traditional site-built homes and off-site built housing, including modular, manufactured, CrossMod™ and tiny homes. In 2021, Clayton delivered approximately 50,000 off-site built and 11,000 site-built homes. Clayton also offers home financing and insurance products and competes on price, service, location and delivery capabilities.

All Clayton Built® off-site homes are designed, engineered and assembled in the United States. As of December 2021, off-site backlog was \$1.4 billion, up 10% from the prior year. Clayton sells its homes through independent and company-owned home centers, realtors and subdivision channels. Clayton considers its ability to make financing available to retail purchasers a factor affecting the market acceptance of its off-site built homes. Clayton's financing programs utilize proprietary loan underwriting guidelines to evaluate loan applicants, which include ability to repay calculations, including debt to income limits, and incorporate residual income and credit score requirements.

Since 2015, Clayton's site-built division, Clayton Properties Group, has expanded through the acquisition of nine builders across 14 states with over 300 subdivisions, supplementing the portfolio of housing products offered to customers. Clayton's site-builders currently own and control approximately 83,000 homesites, with a home order backlog of approximately \$2.5 billion.

Historically, access to key inputs such as lumber, steel and resin products has been adequate. During 2021, the availability and pricing of these and other inputs has been volatile. Input shortages coupled with labor and subcontractor availability have increased the time to construct a home, constraining our ability to meet current demand.

Clayton's home building business regularly makes capital and non-capital expenditures with respect to compliance with federal, state and local environmental regulations, primarily related to erosion control, permitting and stormwater protection for site-built home subdivisions. The financing business originates and services loans which are federally regulated by the Consumer Financial Protection Bureau, various state regulatory agencies and reviewed by the U.S. Department of Housing and Urban Development, the Government National Mortgage Association and government-sponsored enterprises.

Shaw

Shaw Industries Group, Inc. ("Shaw"), headquartered in Dalton, Georgia, is a leading manufacturer and distributor of carpet and flooring products. Shaw designs and manufactures over 4,100 styles of tufted carpet, wood and resilient flooring for residential and commercial use under about 30 brand and trade names and under certain private labels. Shaw also provides project management and installation services. Shaw's manufacturing operations are fully integrated from the processing of raw materials used to make fiber through the finishing of carpet. Shaw manufactures and distributes carpet tile throughout Europe. Shaw also manufactures or distributes a variety of hardwood, wood plastic composite (WPC), stone plastic composite (SPC) and vinyl and laminate floor products ("hard surfaces"). Shaw's soft and hard surface products are sold in a broad range of patterns, colors and textures. Shaw operates Shaw Sports Turf and Southwest Greens International, LLC, which provide synthetic sports turf, golf greens and landscape turf products. In 2021, Shaw's businesses include Watershed Geosynthetics, LLC, which sells innovative and patented environmental solutions for utility, waste management, erosion control and mining industries.

Shaw products are sold wholesale to over 47,000 retailers, distributors and commercial users throughout the United States, Canada and Mexico and are also exported to various overseas markets. Shaw's wholesale products are marketed domestically by over 2,100 salaried and commissioned sales personnel directly to retailers and distributors and to large national accounts. Shaw's seven carpet, nine hard surface, one sample full-service distribution facility, three sample satellite locations and 30 redistribution centers, along with centralized management information systems, enable it to provide prompt and efficient delivery of its products to both its retail customers and wholesale distributors.

Substantially all carpet manufactured by Shaw is tufted carpet made from nylon, polypropylene and polyester. In the tufting process, yarn is inserted by multiple needles into a synthetic backing, forming loops, which may be cut or left uncut, depending on the desired texture or construction. During 2021, Shaw processed approximately 97% of its requirements for carpet yarn in its own yarn processing facilities. The availability of raw materials is adequate, but costs are impacted by petro-chemical and natural gas price changes. Raw material cost changes are periodically factored into selling prices to customers.

The soft floor covering industry is highly competitive with only a handful of key players domestically where the majority of Shaw's business occurs. There are numerous manufacturers, domestically and internationally, that are engaged in hard surface floor covering production, distribution and sales. According to industry estimates, carpet accounts for approximately 44% of the total United States consumption of all flooring types. The principal competitive measures within the floor covering industry are quality, style, price and service.

Johns Manville

Johns Manville Corporation ("JM"), headquartered in Denver, Colorado, is a leading manufacturer and marketer of premium-quality products for building insulation, mechanical and industrial insulation, commercial roofing and roof insulation, as well as fibers and nonwovens for commercial, industrial and residential applications. JM serves markets that include aerospace, automotive and transportation, air handling, appliance, HVAC, pipe and equipment, filtration, waterproofing, building, flooring, interiors and wind energy. Fiberglass is the basic material in a majority of JM's products, although JM also manufactures a significant portion of its products with other materials to satisfy the broader needs of its customers. Raw materials are generally available in sufficient quantities from various sources for JM to maintain and expand its current production levels. JM regards its patents and licenses as valuable, however it does not consider any of its businesses to be materially dependent on any single patent or license. JM operates over 40 manufacturing facilities in North America and Europe and conducts research and development at its technical center in Littleton, Colorado and at other facilities in the U.S. and Europe.

Fiberglass is made from earthen raw materials and recycled glass, together with agents to bind many of its glass fibers. JM's products also contain materials other than fiberglass, including various chemical and petrochemical-based materials used in roofing and other specialized products. JM uses recycled material when available and suitable to satisfy the broader needs of its customers. The raw materials used in these various products are generally readily available in sufficient quantities from various sources to maintain and expand its current production levels.

JM identifies and strives to mitigate risk with respect to material applicable laws and regulations, including environmental laws and regulations. JM's operations are subject to a variety of federal, state and local environmental laws and regulations, which regulate or impose liability for the discharge of materials into the air, land and water and govern the use and disposal of hazardous substances and use of chemical substances. The most relevant of the federal laws are the Federal Clean Air Act, the Clean Water Act, the Toxic Substances Control Act, the Resource Conservation and Recovery Act and the Comprehensive Environmental Response, Compensation and Liability Act, which are administered by the EPA. Canadian and European regulatory authorities have also adopted their own environmental laws and regulations. JM continually monitors new and pending regulations and assesses their potential impact on the business. JM's capital projects regularly address environmental compliance and are generally incidental to other capital projects.

JM sells its products through a wide variety of channels including contractors, distributors, retailers, manufacturers and fabricators. JM operates in highly competitive markets, with competitors comprising primarily several large global and national manufacturers and smaller regional manufacturers. JM holds leadership positions in the key markets that it serves. JM's products compete primarily on value, differentiation and customization, and breadth of product line. Sales of JM's products are moderately seasonal due to increases in construction activity that typically occur in the second and third quarters of the calendar year. JM sees a marketplace trend in customer purchasing decisions being influenced by the sustainable and energy efficient attributes of its products, services and operations.

MiTek

MiTek Industries, Inc. ("MiTek"), based in Chesterfield, Missouri, operates in two separate markets: residential and commercial. MiTek operates worldwide with sales in over 100 countries and with manufacturing facilities and/or sales/engineering offices located in 21 countries.

In the residential building market, MiTek is a leading supplier of engineered connector products, construction hardware, engineering software and services and computer-driven manufacturing machinery to the truss component market of the building components industry. MiTek's primary customers are component manufacturers who manufacture prefabricated roof and floor trusses and wall panels for the residential building market. MiTek also sells construction hardware to commercial distributors and do-it-yourself retail stores.

A significant raw material used by MiTek is hot dipped galvanized sheet steel. While supplies are presently adequate, variations in supply have historically occurred, producing significant variations in cost and availability.

Benjamin Moore

Benjamin Moore & Co. ("Benjamin Moore"), headquartered in Montvale, New Jersey, is one of North America's leading manufacturers of premium quality residential, commercial and industrial maintenance coatings. Benjamin Moore is committed to innovation and sustainable manufacturing practices. The Benjamin Moore premium portfolio spans the brand's flagship paint lines including Aura®, Regal® Select, Ultra Spec®, ben®, ADVANCE®, ARBORCOAT® and more. The Benjamin Moore diversified brands include specialty and architectural paints from Coronado®, Insl-x® and Lenmar®. Benjamin Moore coatings are available from its more than 7,500 independently owned and operated paint, decorating and hardware retailers throughout the United States and Canada as well as 75 countries globally. In July 2019, Benjamin Moore announced the expansion of its relationship with Ace Hardware ("Ace"), through which Benjamin Moore has become the preferred paint supplier for approximately 3,800 Ace stores, which are included in the count above. Through this agreement, these Ace stores are afforded the opportunity to carry a full line premium assortment of Benjamin Moore products or a streamlined offering of Regal® Select and ben®, or ben® only branded products. As part of the expansion, Benjamin Moore assumed responsibility for manufacturing Clark+Kensington® and Royal®, as well as the balance of Ace's private label paint brands.

In addition, Benjamin Moore operates an online "pick up in store" program, which allows consumers to place orders via an e-commerce site or, for national accounts and government agencies, via its customer information center. These orders may be picked up at the customer's nearest retailer or delivered. For national accounts, drop-ship orders can be fulfilled by Benjamin Moore if a minimum gallon threshold is met.

Benjamin Moore competes with numerous manufacturers, distributors and paint, coatings and related products retailers. Product quality, product innovation, breadth of product line, technical expertise, service and price determine the competitive advantage. Competitors include other paint and decorating stores, mass merchandisers, home centers, independent hardware stores, hardware chains and manufacturer-operated direct outlets, such as Sherwin-Williams Company, PPG Industries, Inc., The Valspar Corporation, The Home Depot, Inc. and Lowe's Companies, Inc.

The most significant raw materials in Benjamin Moore products are titanium dioxide, monomers, polymers and pigments. Historically, these materials have been generally available, with pricing and availability subject to fluctuation. In 2021, raw material supply constraints and increased customer demand for products prevailed and disrupted Benjamin Moore's ability to build inventory. A major winter storm that impacted the Gulf Coast region of the United States in February of 2021 caused substantial supply chain disruptions for Benjamin Moore, which contributed to significant inflation in manufacturing costs.

Benjamin Moore undertakes to comply with applicable regulations relating to protection of the environment and workers' safety and products meet or exceed environmental standards. Benjamin Moore has certain known past environmental matters, which are subject to on-going monitoring and/or remediation efforts.

Acme

Acme Brick Company ("Acme"), headquartered in Fort Worth, Texas, manufactures and distributes clay bricks (Acme Brick ®) and concrete block (Featherlite). In addition, Acme distributes numerous other building products of other manufacturers, including floor and wall tile, wood flooring and other masonry products. Products are sold primarily in the South Central and Southeastern United States through company-operated sales offices. Acme distributes products primarily to homebuilders and masonry and general contractors.

Over the past three years, Acme closed multiple manufacturing and sales facilities. Acme operates 12 clay brick manufacturing sites located in four states, three concrete block facilities and a quarrying operation all located in Texas. The demand for Acme's products is seasonal, with higher sales in the warmer weather months, and is subject to the level of construction activity, which is cyclical. Acme also owns and leases properties and mineral rights that supply raw materials used in many of its manufactured products. Acme's raw materials supply is believed to be adequate.

The brick industry is subject to the EPA Maximum Achievable Control Technology Standards ("MACT"). As required under the 1990 Clean Air Act, the EPA developed a list of source categories that require the development of National Emission Standards for Hazardous Air Pollutants, which are also referred to as MACT Standards ("Rule"). Key elements of the MACT Rule include emission limits established for certain hazardous air pollutants and acidic gases. Acme's brick plants are in compliance with the current Rule.

Consumer Products

Apparel

Fruit of the Loom Inc. ("FOL"), headquartered in Bowling Green, Kentucky, is primarily a manufacturer and distributor of basic apparel, underwear, casualwear, athletic apparel and sports equipment. Products under the Fruit of the Loom® and JERZEES® labels are primarily sold in the mass merchandise, mid-tier chains and wholesale markets. In the Vanity Fair Brands product line, Vassarette®, Curvation® and Radiant® by Vanity Fair are sold in the mass merchandise market, while Vanity Fair® and Lily of France® products are sold to mid-tier chains and department stores. FOL also markets and sells apparel, sports equipment and balls to team dealers and athletic apparel, sports equipment and balls to sporting goods retailers under the Russell Athletic® and Spalding® brands. Additionally, Spalding® markets and sells balls and sports equipment in the mass merchandise market and dollar store channels. In 2021, a significant portion of FOL's sales were to Walmart Inc. ("Walmart").

FOL generally performs its own knitting, cloth finishing, cutting, sewing and packaging for apparel. For the North American market, which is FOL's predominant sales region, cloth manufacturing is primarily performed in Honduras. Labor-intensive cutting, sewing and packaging operations are in Central America, the Caribbean and Vietnam. For the European market, products are either sourced from third-party contractors in Europe or Asia or sewn in Morocco from textiles internally produced in Morocco. Bras, athletic equipment, sporting goods and other athletic apparel lines are generally sourced from third-party contractors located primarily in Asia.

U.S.-grown cotton fiber and U.S.-manufactured polyester fiber are the main raw materials used in manufacturing FOL's products. Historically, fibers have been purchased from a limited number of third parties. In 2015, FOL entered into an agreement with one key supplier to provide the majority of its yarn spinning/raw material conversion services. As a result, yarn production was primarily with one supplier. Supply chain issues related to the COVID pandemic including labor shortage at suppliers, yarn shortages, and price inflation in raw materials and freight resulted in FOL utilizing alternative sources of raw materials and yarn in 2021. Further, FOL has contracted with an additional supplier for a significant portion of FOL's yarn spinning/raw material conversion services that is scheduled to begin in July 2022. If relationships with suppliers cannot be maintained or delays occur in obtaining alternative sources of supply, production and operating results can be adversely affected. FOL's markets are highly competitive, consisting of many domestic and foreign manufacturers and distributors. Competition is generally based upon product features, quality, customer service and price.

Garan Incorporated ("Garan"), headquartered in New York, New York designs, manufactures, imports and sells apparel primarily for children, including boys, girls, toddlers and infants. Products are sold under its own trademarks Garanimals® and 365 Kids from Garanimals®, as well as customer private label brands. Garan conducts its business through operating subsidiaries located in the United States, Central America and Asia. Garan's products are sold through its distribution centers in the United States. Fechheimer Brothers Company ("Fechheimers") manufactures and distributes uniforms, principally for the public service and safety markets, including police, fire, postal and military markets. Fechheimers is based in Cincinnati, Ohio.

The BH Shoe Holdings Group, headquartered in Greenwich, Connecticut, manufactures and distributes work, rugged outdoor and casual shoes and western-style footwear under a number of brand names, including Justin, Tony Lama®, Chippewa®, BØRN®, B•Ø•C®, Carolina®, EuroSofft, Söfft, Double-H Boots®, Nursemates® and Comfortiva®. Brooks Sports, Inc., headquartered in Seattle, Washington, markets and sells performance running footwear and apparel to specialty and national retailers and directly to consumers under the Brooks® brand. A significant volume of the shoes sold by Berkshire's shoe businesses are manufactured or purchased from sources located outside the United States. Products are sold worldwide through a variety of channels including department stores, footwear chains, specialty stores, catalogs and the Internet, as well as through company-owned retail stores.

Other consumer products

Forest River, Inc. ("Forest River") is a manufacturer of recreational vehicles ("RV"), utility cargo trailers, buses and pontoon boats, headquartered in Elkhart, Indiana with products sold in the United States and Canada through an independent dealer network. Forest River has numerous manufacturing facilities located in six states and is a leading manufacturer of RVs with numerous brand names, including Forest River, Coachmen RV and Prime Time. Utility cargo trailers are sold under a variety of brand names. Buses are sold under several brand names, including Starcraft Bus. Pontoon boats are sold under the Berkshire, South Bay and Trifecta brand names. The RV industry is very competitive. Competition is based primarily on price, design, quality and service. The industry has consolidated over the past several years and is currently concentrated in a few companies, the largest of which had a market share of approximately 41% based on industry data as of December 2021. Forest River held a market share of approximately 36% at that time.

Forest River is subject to regulations of the National Traffic and Motor Vehicle Safety Act, the safety standards for recreational vehicles established by the U.S. Department of Transportation and similar laws and regulations issued by the Canadian government. Forest River is a member of the Recreational Vehicle Industry Association, a voluntary association of recreational vehicle manufacturers which promotes safety standards for recreational vehicles. Forest River believes its products comply in all material respects to the standards that govern its products.

The Duracell Company ("Duracell"), headquartered in Chicago, Illinois, is a leading manufacturer of high-performance alkaline batteries. Duracell manufactures batteries in the U.S., Europe and China and provides a network of worldwide sales and distribution centers. Costco and Walmart are significant customers, representing approximately 30% of Duracell's annual revenue. There are several competitors in the battery manufacturing market with Duracell holding an approximately 29% market share of the global alkaline battery market. Management believes there are currently sufficient sources of raw materials available, which are primarily steel, zinc, manganese and nickel-based chemistries.

Albecca Inc. ("Albecca"), headquartered in Suwanee, Georgia, operates in the U.S., Canada and 12 other countries, with products primarily under the Larson-Juhl® name. Albecca designs, manufactures and distributes a complete line of high quality, branded custom framing products, including wood and metal moulding, matboard, foamboard, glass and framing supplies. Complementary to its framing products, Albecca offers art printing and fulfillment services.

Richline Group, Inc., headquartered in New York, New York, operates five strategic business units: Richline Jewelry, Richline Digital, LeachGarner, Rio Grande and Inverness. Each business unit is a manufacturer and/or distributor of precious metal, non-precious metal, diamond and gem products to specific target markets including large jewelry chains, department stores, shopping networks, mass merchandisers, e-commerce retailers and artisans plus worldwide manufacturers and wholesalers and the medical, electronics and aerospace industries.

Service and Retailing Businesses

Service Businesses

Berkshire's service businesses provide grocery and foodservice distribution, professional aviation training programs, shared aircraft ownership programs and distribution of electronic components. Other service businesses include franchising and servicing of quick service restaurants, media businesses (television and information distribution), as well as logistics businesses. Berkshire's service businesses employed approximately 48,500 people at the end of 2021. Information concerning these activities follows.

McLane

McLane Company, Inc. ("McLane") provides wholesale distribution services in all 50 states to customers that include convenience stores, discount retailers, wholesale clubs, drug stores, military bases, quick service restaurants and casual dining restaurants. McLane provides wholesale distribution services to Walmart, which accounted for approximately 16.5% of McLane's revenues in 2021. McLane's other significant customers include 7-Eleven (approximately 13.9% of revenues) and Yum! Brands, (approximately 11.5% of revenues). McLane's business model is based on a high volume of sales, rapid inventory turnover and stringent expense controls. Operations are currently divided into three business units: grocery distribution, foodservice distribution and beverage distribution.

McLane's grocery distribution unit, based in Temple, Texas, maintains a dominant market share within the convenience store industry and serves most of the national convenience store chains and major oil company retail outlets. Grocery operations provide products to approximately 48,600 retail locations nationwide, including Walmart. McLane's grocery distribution unit operates 25 distribution facilities in 20 states.

McLane's foodservice distribution unit, based in Carrollton, Texas, focuses on serving the quick service and casual dining restaurant industry with high quality, timely-delivered products. Operations are conducted through 47 facilities in 22 states. The foodservice distribution unit services approximately 34,000 restaurants nationwide.

Through its subsidiaries, McLane also operates wholesale distributors of distilled spirits, wine and beer. The beverage unit operates as Empire Distributors and operations are conducted through 14 distribution centers in Georgia, North Carolina, Tennessee and Colorado. Empire Distributors services approximately 26,500 retail locations in the southeastern United States and Colorado.

FlightSafety

FlightSafety International Inc. ("FlightSafety") is an industry leading provider of professional aviation training services and flight simulation products. FlightSafety and FlightSafety Textron Aviation Training, a joint venture with Textron which began operations in 2019, provide high technology training to pilots, aircraft maintenance technicians, flight attendants and dispatchers who operate and support a wide variety of business, commercial and military aircraft. The training is provided using a large fleet of advanced full flight simulators at learning centers and training locations in the United States, Australia, Brazil, Canada, France, Japan, Norway, South Africa and the United Kingdom. Compliance with applicable environmental regulations is an inherent requirement to operate the facilities. The vast majority of the instructors, training programs and flight simulators are qualified by the United States Federal Aviation Administration ("FAA") and other aviation regulatory agencies around the world.

FlightSafety is also a leader in the design and manufacture of full flight simulators, visual systems, displays and other advanced technology training devices. This equipment is used to support FlightSafety training programs and is offered for sale to airlines and government and military organizations around the world. Manufacturing facilities are located in Oklahoma, Missouri and Texas. FlightSafety strives to maintain and manufacture simulators and develop courseware using state-of-the-art technology and invests in research and development as it builds new equipment and training programs.

NetJets

NetJets Inc. ("NetJets") is the world's leading provider of shared ownership programs for general aviation aircraft. NetJets' global headquarters is located in Columbus, Ohio, with most of its logistical and flight operations based at John Glenn Columbus International Airport. NetJets' European operations are based in Lisbon, Portugal. The shared ownership concept is designed to meet the travel needs of customers who require the scale, flexibility and access of a large fleet that whole aircraft ownership cannot deliver. In addition, shared ownership programs are available for corporate flight departments seeking to outsource their general aviation needs or add capacity for peak periods and for others that previously chartered aircraft.

With a focus on safety and service, NetJets' programs are designed to offer customers guaranteed availability of aircraft, predictable operating costs and increased liquidity. NetJets' shared aircraft ownership programs permit customers to acquire a specific percentage of a certain aircraft type and allows customers to utilize the aircraft for a specified number of flight hours annually. In addition, NetJets offers prepaid flight cards and other aviation solutions and services for aircraft management, customized aircraft sales and acquisition, ground support and flight operation services under a number of programs including NetJets Shares™, NetJets Leases™ and the NetJets Card Program™.

NetJets is subject to the rules and regulations of the FAA, the Portuguese Civil Aviation Authority and the European Union Aviation Safety Agency. Regulations address aircraft registration, maintenance requirements, pilot qualifications and airport operations, including flight planning and scheduling as well as security issues and other matters. NetJets maintains a comprehensive training and development program in compliance with regulatory requirements for pilots, flight attendants, maintenance mechanics, and other flight operations specialists.

TTI

TTI, Inc. ("TTI"), headquartered in Fort Worth, Texas, is a global specialty distributor of passive, interconnect, electromechanical, discrete, and semiconductor components used by customers in the manufacturing and assembling of electronic products. TTI's customer base includes original equipment manufacturers, electronic manufacturing services, original design manufacturers and military and commercial customers, as well as design and system engineers. TTI's distribution agreements with the industry's leading suppliers allow it to uniquely leverage its product cost and to expand its business by providing new lines and products to its customers. TTI operates sales offices and distribution centers from more than 100 locations throughout North America, South America, Europe, Asia and Israel.

TTI services a variety of industries including telecommunications, medical devices, computers and office equipment, military/aerospace, automotive and industrial electronics. TTI's core customers include businesses in the design through production stages in the electronic component supply chain, which supports its high-volume business, and its Mouser subsidiary, which supports a broader base of customers with lower volume purchases through internet-based marketing.

Other services

XTRA Corporation ("XTRA"), headquartered in St. Louis, Missouri, is a leading transportation equipment lessor operating under the XTRA Lease[®] brand name. XTRA manages a diverse fleet of approximately 87,000 units located at 47 facilities throughout the United States. The fleet includes over-the-road and storage trailers, chassis, temperature-controlled vans and flatbed trailers. XTRA is one of the largest lessors (in terms of units available) of over-the-road trailers in North America. Transportation equipment customers lease equipment to cover cyclical, seasonal and geographic needs and as a substitute for purchasing equipment. Therefore, as a provider of marginal capacity to its customers, XTRA's utilization rates and operating results tend to be cyclical. In addition, transportation providers often use leasing to maximize their asset utilization and reduce capital expenditures. By maintaining a large fleet, XTRA is able to provide customers with a broad selection of equipment and quick response times.

International Dairy Queen Inc. develops and services a worldwide system of over 7,000 franchised restaurants operating primarily under the names DQ Grill and Chill[®], Dairy Queen[®] and Orange Julius[®] that offer various dairy desserts, beverages, prepared foods and blended fruit drinks. Business Wire Inc. ("Business Wire") transmits full-text news releases, regulatory filings, photos and other multimedia content to journalists, financial professionals, investor services, regulatory authorities and the general public. Releases are distributed globally via Business Wire's patented NX network. CORT Business Services Corporation ("CORT") is a leading national provider of rental furniture and related services in the "rent-to-rent" segment of the furniture rental industry. CORT's primary revenue streams include furniture rental to individuals, businesses, government agencies, the trade show and events industry and retail sales of new and used furniture. WPLG, Inc. is an ABC affiliate broadcast station in Miami, Florida and Charter Brokerage Holdings Corp. is a leading non-asset based third party logistics provider to the petroleum and chemical industries. Until March 2020, other services included the newspaper publishing businesses conducted through The Buffalo News and BH Media Group, Inc. These operations were sold in 2020.

Retailing Businesses

Berkshire's retailing businesses include automotive, home furnishings and several other operations that sell various consumer products. Berkshire's retailing businesses employed approximately 26,000 people at the end of 2021. Information regarding each of these operations follows.

Berkshire Hathaway Automotive

Berkshire Hathaway Automotive, Inc. ("BHA") and its affiliates is one of the largest automotive retailers in the United States, currently operating 105 new vehicle franchises through 82 dealerships located primarily in major metropolitan markets in the United States. The dealerships sell new and used vehicles, vehicle maintenance and repair services, extended service contracts, vehicle protection products and other aftermarket products. BHA also arranges financing for its customers through third-party lenders. BHA operates 28 collision centers directly connected to the dealerships' operations and owns and operates two auto auctions and a fluid maintenance products distribution company.

Dealership operations are highly concentrated in the Arizona and Texas markets, with approximately 75% of dealership-related revenues derived from sales in these markets. BHA currently maintains franchise agreements with 27 different vehicle manufacturers, although it derives a significant portion of its revenue from the Toyota/Lexus, General Motors, Ford/Lincoln, Nissan/Infiniti and Honda/Acura brands. Approximately 90% of BHA's annual revenues are from dealerships representing these manufacturers.

The retail automotive industry is highly competitive. BHA faces competition from other large public and private dealership groups, as well as individual franchised dealerships and competition via the Internet. Given the pricing transparency available via the Internet, and the fact that franchised dealers acquire vehicles from the manufacturers on the same terms irrespective of volume, the location and quality of the dealership facility, customer service and transaction speed are key differentiators in attracting customers.

BHA's overall relationships with the automobile manufacturers are governed by framework agreements. The framework agreements contain provisions relating to the management, operation, acquisition and ownership structure of BHA's dealerships. Failure to meet the terms of these agreements could adversely impact BHA's ability to acquire additional dealerships representing those manufacturers. Additionally, these agreements contain limitations on the number of dealerships from a specific manufacturer that may be owned by BHA.

Individual dealerships operate under franchise agreements with the manufacturer, which grants the dealership entity a non-exclusive right to sell the manufacturer's brand of vehicles and offer related parts and service within a specified market area, as well as the right to use the manufacturer's trademarks. The agreements contain various requirements and restrictions related to the management and operation of the franchised dealership and provide for termination of the agreement by the manufacturer or non-renewal for a variety of causes. States generally have automotive dealership franchise laws that provide substantial protection to the franchisee, and it is difficult for a manufacturer to terminate or not renew a franchise agreement outside of bankruptcy or with "good cause" under the applicable state franchise law.

BHA also develops, underwrites and administers various vehicle protection plans as well as life and accident and health insurance plans sold to consumers through BHA's dealerships and third-party dealerships. BHA also develops proprietary training programs and materials and provides ongoing monitoring and training of the dealership's finance and insurance personnel.

Home furnishings retailing

The home furnishings businesses consist of Nebraska Furniture Mart Inc. ("NFM"), R.C. Willey Home Furnishings ("R.C. Willey"), Star Furniture Company ("Star") and Jordan's Furniture, Inc. ("Jordan's"). These businesses offer a wide selection of furniture, bedding and accessories. In addition, NFM and R.C. Willey sell a full line of major household appliances, electronics, computers and other home furnishings and offer customer financing to complement their retail operations. An important feature of each of these businesses is their ability to control costs and to produce high business volume by offering significant value to their customers.

NFM operates its business from four retail complexes with almost 4.5 million square feet of retail, warehouse and administrative facilities located in Omaha, Nebraska, Clive, Iowa, Kansas City, Kansas and The Colony, Texas. NFM also owns Homemakers Furniture located in Urbandale, Iowa, which has approximately 600,000 square feet of retail, warehouse and administrative space. NFM is the largest furniture retailer in each of these markets. R.C. Willey, based in Salt Lake City, Utah, currently operates eleven full-line retail home furnishings stores and three distribution centers. These facilities include approximately 1.5 million square feet of retail space with five stores located in Utah, one store in Meridian, Idaho, three stores in Nevada (Las Vegas and Reno) and two stores in the Sacramento, California area.

Jordan's operates a retail furniture business from seven locations with approximately 890,000 square feet of retail space in stores located in Massachusetts, New Hampshire, Rhode Island, Maine and Connecticut. The retail stores are supported by an 800,000 square foot distribution center in Taunton, Massachusetts. Jordan's is the largest furniture retailer, as measured by sales, in Massachusetts, Maine and New Hampshire. Jordan's is well known in its markets for its unique store arrangements and advertising campaigns. Star has operated home furnishings retail stores in Texas for many years. Star's retail facilities currently include about 700,000 square feet of retail space in 10 locations in Texas, including seven in Houston.

Other retailing

Borsheim Jewelry Company, Inc. ("Borsheims") operates from a single store in Omaha, Nebraska. Borsheims is a high-volume retailer of fine jewelry, watches, crystal, china, stemware, flatware, gifts and collectibles. Helzberg's Diamond Shops, LLC. ("Helzberg") is based in North Kansas City, Missouri, and operates a chain of 173 retail jewelry stores in 34 states, which includes approximately 400,000 square feet of retail space. Helzberg's stores are located in malls, lifestyle centers, power strip centers and outlet malls, and all stores operate under the name Helzberg Diamonds® or Helzberg Diamonds Outlet®. The Ben Bridge Corporation ("Ben Bridge Jeweler"), based in Seattle, Washington, operates 74 retail jewelry stores under three different brand names, located primarily in major shopping malls in nine western states and in British Columbia, Canada. Thirty-five of its retail locations are upscale jewelry stores selling loose diamonds, finished jewelry and high-end timepieces. Thirty-eight of its retail locations are concept stores operating under a franchise agreement that sell only Pandora jewelry. One store is a Breitling concept store, selling only Breitling timepieces.

See's Candy Shops, Incorporated ("See's") produces boxed chocolates and other confectionery products with an emphasis on quality and distinctiveness in two large kitchens in Los Angeles and South San Francisco and a facility in Burlingame, California. See's operates approximately 250 retail and volume saving stores located mainly in California and other Western states, as well as over 125 seasonal locations. See's revenues are highly seasonal with approximately half of its annual revenues earned in the fourth quarter.

The Pampered Chef, Ltd. ("Pampered Chef") is a premier direct seller of distinctive high-quality kitchenware products with sales and operations in the United States, Canada, Germany, Austria and France and operations in China. Pampered Chef's product portfolio consists of approximately 420 Pampered Chef® branded kitchenware items in categories ranging from stoneware and cutlery to grilling and entertaining. Pampered Chef's products are available through its sales force of independent cooking consultants and online.

Oriental Trading Company ("OTC") is a leading multi-channel retailer and online destination for fun-value-priced party supplies, seasonal products, arts and crafts, toys and novelties, school supplies, educational games and patient giveaways. OTC, headquartered in Omaha, Nebraska, serves a broad base of nearly four million customers annually, including consumers, schools, churches, non-profit organizations, medical and dental offices, online marketplaces and other businesses. OTC offers a unique assortment of over 80,000 fun products emphasizing proprietary designs. OTC operates both direct-to-consumer and business-to-business brands including Oriental Trading®, Fun Express®, MindWare®, SmileMakers®, Morris Costumes® and HalloweenExpress.com® and utilizes digital and print marketing along with dedicated sales teams to drive traffic and industry-leading customer satisfaction.

Detlev Louis Motorrad ("Louis"), headquartered in Hamburg, Germany, is a leading retailer of motorcycle apparel and equipment in Europe. Louis carries over 32,000 different products from more than 600 manufacturers, primarily covering the clothing, technical equipment and leisure markets. Louis has over 80 stores in Germany, Austria, Switzerland and the Netherlands and also sells via the Internet throughout most of Europe.

Additional information with respect to Berkshire's businesses

Revenue, earnings before taxes and identifiable assets attributable to Berkshire's reportable business segments are included in Note 25 to Berkshire's Consolidated Financial Statements contained in Item 8, Financial Statements and Supplementary Data. Additional information regarding Berkshire's investments in fixed maturity and equity securities is included in Notes 3 and 4, respectively, to Berkshire's Consolidated Financial Statements.

Berkshire owns 26.6% of the outstanding common stock of The Kraft Heinz Company ("Kraft Heinz"). Kraft Heinz is one of the largest food and beverage companies in the world, with sales in numerous countries within developed and emerging markets and territories. Kraft Heinz manufactures and markets food and beverage products, including condiments and sauces, cheese and dairy meals, meats, refreshment beverages, coffee and other grocery products, throughout the world, under a diverse mix of iconic and emerging brands. Berkshire subsidiaries also own a 50% joint venture interest in Berkadia Commercial Mortgage LLC, a 38.6% interest in Pilot Travel Centers LLC, a 50% joint venture interest in Electric Transmission Texas, LLC and a 50% noncontrolling interest in Iroquois Gas Transmission System L.P. Information concerning these investments is included in Note 5 to Berkshire's Consolidated Financial Statements.

Berkshire maintains a website (<http://www.berkshirehathaway.com>) where its annual reports, certain corporate governance documents, press releases, interim shareholder reports and links to its subsidiaries' websites can be found. Berkshire's periodic reports filed with the SEC, which include Form 10-K, Form 10-Q, Form 8-K and amendments thereto, may be accessed by the public free of charge from the SEC and through Berkshire. Electronic copies of these reports can be accessed at the SEC's website (<http://www.sec.gov>) and indirectly through Berkshire's website (<http://www.berkshirehathaway.com>). Copies of these reports may also be obtained, free of charge, upon written request to: Berkshire Hathaway Inc., 3555 Farnam Street, Omaha, NE 68131, Attn: Corporate Secretary.

Item 1A. Risk Factors

Berkshire and its subsidiaries (referred to herein as “we,” “us,” “our” or similar expressions) are subject to certain risks and uncertainties in its business operations which are described below. The risks and uncertainties described below are not the only risks we face. Additional risks and uncertainties that are presently unknown or are currently deemed immaterial may also impair our business operations.

General Business Risks

Terrorist acts could hurt our operating businesses.

A cyber, biological, nuclear or chemical attack could produce significant losses to our worldwide operations. Our business operations could be adversely affected from such acts through the loss of human resources or destruction of production facilities and information systems. We share the risk with all businesses.

Cyber security risks

We rely on technology in virtually all aspects of our business. Like those of many large businesses, certain of our information systems have been subject to computer viruses, malicious codes, unauthorized access, phishing efforts, denial-of-service attacks and other cyber-attacks and we expect to be subject to similar attacks in the future as such attacks become more sophisticated and frequent. A significant disruption or failure of our technology systems could result in service interruptions, safety failures, security events, regulatory compliance failures, an inability to protect information and assets against unauthorized users and other operational difficulties. Attacks perpetrated against our systems could result in loss of assets and critical information and expose us to remediation costs and reputational damage.

Although we have taken steps intended to mitigate these risks, including business continuity planning, disaster recovery planning and business impact analysis, a significant disruption or cyber intrusion at one or more of our significant operations could adversely affect our results of operations, financial condition and liquidity. Additionally, if we are unable to acquire, develop, implement, adopt or protect rights around new technology, we may suffer a competitive disadvantage, which could also have an adverse effect on our results of operations, financial condition and/or liquidity.

Cyber-attacks could further adversely affect our ability to operate facilities, information technology and business systems or compromise confidential customer and employee information. Political, economic, social or financial market instability or damage to or interference with our operating assets, customers or suppliers from cyber-attacks may result in business interruptions, lost revenues, higher commodity prices, disruption in fuel supplies, lower energy consumption, unstable markets, increased security, repair or other costs, or may materially adversely affect us in ways that cannot be predicted at this time. Any of these risks could materially affect our consolidated financial results. Furthermore, instability in the financial markets resulting from terrorism, sustained or significant cyber-attacks or war could also have a material adverse effect on our ability to raise capital. We share these risks with all businesses.

We are dependent on a few key people for our major investment and capital allocation decisions.

Major investment decisions and all major capital allocation decisions are made by Warren E. Buffett, Chairman of the Board of Directors and Chief Executive Officer, age 91, in consultation with Charles T. Munger, Vice Chairman of the Board of Directors, age 98. In 2018, Berkshire's Board of Directors appointed Mr. Gregory Abel as Vice Chairman of Berkshire's non-insurance operations and Mr. Ajit Jain as Vice Chairman of Berkshire's insurance operations. Mr. Abel and Mr. Jain each report directly to Mr. Buffett. Mr. Buffett continues to be responsible for major capital allocation and investment decisions.

If for any reason the services of our key personnel, particularly Mr. Buffett, were to become unavailable, there could be a material adverse effect on our operations. Should a replacement for Mr. Buffett be needed currently, Berkshire's Board of Directors has agreed that Mr. Abel should replace Mr. Buffett. The Board continually monitors this risk and could alter its current view regarding a replacement for Mr. Buffett in the future. We believe that the Board's succession plan, together with the outstanding managers running our numerous and highly diversified operating units helps to mitigate this risk.

We need qualified personnel to manage and operate our various businesses.

In our decentralized business model, we need qualified and competent management to direct day-to-day business activities of our operating subsidiaries and to manage changes in future business operations due to changing business or regulatory environments. Our operating subsidiaries also need qualified and competent personnel in executing their business plans and serving their customers, suppliers and other stakeholders. Our inability to recruit and retain qualified and competent managers and personnel could negatively affect the operating results, financial condition and liquidity of our subsidiaries and Berkshire as a whole.

Investments are unusually concentrated in equity securities and fair values are subject to loss in value.

We concentrate a high percentage of the equity security investments of our insurance subsidiaries in a relatively small number of equity securities. A significant decline in the fair values of our larger investments in equity securities may produce a material decline in our consolidated shareholders' equity and our consolidated earnings.

Since a large percentage of our equity securities are held by our insurance subsidiaries, significant decreases in the fair values of these investments will produce significant declines in the statutory surplus of our insurance business. Our large statutory surplus is a competitive advantage, and a long-term material decline could have an adverse effect on our claims-paying ability ratings and our ability to write new insurance business thus potentially reducing our future underwriting profits.

Competition and technology may erode our business franchises and result in lower earnings.

Each of our operating businesses face intense competition within markets in which they operate. While we manage our businesses with the objective of achieving long-term sustainable growth by developing and strengthening competitive advantages, many factors, including technological changes, may erode or prevent the strengthening of competitive advantages. Accordingly, our future operating results will depend to some degree on our operating units successfully protecting and enhancing their competitive advantages. If our operating businesses are unsuccessful in these efforts, our periodic operating results in the future may decline.

Unfavorable general economic conditions may significantly reduce our operating earnings and impair our ability to access capital markets at a reasonable cost.

Our operating businesses are subject to normal economic cycles affecting the general economy or the specific industries in which they operate. Significant deteriorations of economic conditions over a prolonged period could produce a material adverse effect on one or more of our significant operations. In addition, our utilities and energy businesses and our railroad business regularly utilize debt as a component of their capital structures and depend on having access to borrowed funds through the capital markets at reasonable rates. To the extent that access to the capital markets is restricted or the cost of funding increases, these operations could be adversely affected.

Epidemics, pandemics or other outbreaks, including COVID-19, could hurt our operating businesses.

The outbreak of COVID-19 has adversely affected, and in the future it or other epidemics, pandemics or outbreaks may adversely affect, our operations, including our equity securities portfolio. This is or may be due to closures or restrictions requested or mandated by governmental authorities, disruption to supply chains and workforce, reduction of demand for our products and services, credit losses when customers and other counterparties fail to satisfy their obligations to us, and volatility in global equity securities markets, among other factors. We share most of these risks with all businesses.

Regulatory changes may adversely impact our future operating results.

Over time, in response to financial markets crises, global economic recessions, and social and environmental issues, regulatory initiatives were adopted in the United States and elsewhere. Such initiatives addressed for example, the regulation of banks and other major financial institutions, products and environmental and global-warming matters. These initiatives impact all of our businesses, albeit in varying ways. Increased regulatory compliance costs could have a significant negative impact on our operating businesses, as well as on the businesses in which we have a significant, but not controlling economic interests. We cannot predict whether such initiatives will have a material adverse impact on our consolidated financial position, results of operations and/or cash flows.

Data privacy regulations have recently been enacted in various jurisdictions in the U.S. and throughout the world. These regulations address numerous aspects related to the security of personal information that is stored in our information systems, networks and facilities. Failure to comply with these regulations could result in reputational damage and significant penalties.

Risks unique to our regulated businesses

Our tolerance for risk in our insurance businesses may result in significant underwriting losses.

When properly paid for the risk assumed, we have been and will continue to be willing to assume more risk from a single event than any other insurer has knowingly assumed. Accordingly, we could incur a significant loss from a single catastrophe event resulting from a natural disaster or man-made catastrophes such as terrorism or cyber-attacks. We employ various disciplined underwriting practices intended to mitigate potential losses and attempt to take into account all possible correlations and avoid writing groups of policies from which pre-tax losses from a single catastrophe event might aggregate above \$10 billion. However, despite our efforts, it is possible that losses could manifest in ways that we do not anticipate and that our risk mitigation strategies are not designed to address. Additionally, various provisions of our policies, such as limitations or exclusions from coverage, negotiated to limit our risks, may not be enforceable in the manner we intend. Our tolerance for significant insurance losses may result in lower reported earnings in a future period.

The degree of estimation error inherent in the process of estimating property and casualty insurance loss reserves may result in significant underwriting losses.

The principal cost associated with the property and casualty insurance business is claims. In writing property and casualty insurance policies, we receive premiums today and promise to pay covered losses in the future. However, it will take decades before all claims that have occurred as of any given balance sheet date will be reported and settled. Although we believe that liabilities for unpaid losses are adequate, we will not know whether these liabilities or the premiums charged for the coverages provided were sufficient until well after the balance sheet date. Estimating insurance claim costs is inherently imprecise. Our estimated unpaid losses arising under contracts covering property and casualty insurance risks are large (\$125 billion at December 31, 2021), and a small percentage increase to those liabilities can result in materially lower reported earnings.

Climate change may impact our businesses.

Climate change could cause increases in hurricanes, floods, wildfires, and other risks that could produce losses affecting our businesses. Also, failure to comply with new or existing regulations or reinterpretations of existing regulations relating to climate change could have a significant adverse effect on our financial results.

Changes in regulations and regulatory actions can adversely affect our operating results and our ability to allocate capital.

Our insurance businesses are subject to regulation in the jurisdictions in which we operate. Such regulations may relate to among other things, the types of business that can be written, the rates that can be charged for coverage, the level of capital that must be maintained, and restrictions on the types and size of investments that can be made. Regulations may also restrict the timing and amount of dividend payments to Berkshire by these businesses. U.S. state insurance regulators and international insurance regulators are also actively developing various regulatory mechanisms to address the regulation of large internationally active insurance groups, including regulations concerning group capital, liquidity, governance and risk management. Accordingly, changes in regulations related to these or other matters or regulatory actions imposing restrictions on our insurance businesses may adversely impact our results of operations and restrict our ability to allocate capital.

Our railroad business conducted through BNSF is also subject to a significant number of laws and regulations with respect to rates and practices, taxes, railroad operations and a variety of health, safety, labor, environmental and other matters. Failure to comply with applicable laws and regulations could have a material adverse effect on BNSF's business. Governments may change the legislative and/or regulatory framework within which BNSF operates, without providing any recourse for any adverse effects that the change may have on the business. Complying with legislative and regulatory changes may pose significant operating and implementation risks and require significant capital expenditures.

BNSF derives significant amounts of revenue from the transportation of energy-related commodities, particularly coal. To the extent that changes in government policies limit or restrict the usage of coal as a source of fuel in generating electricity or alternate fuels, such as natural gas, or displace coal on a competitive basis, revenues and earnings could be adversely affected. As a common carrier, BNSF is also required to transport toxic inhalation hazard chemicals and other hazardous materials. A release of hazardous materials could expose BNSF to significant claims, losses, penalties and environmental remediation obligations. Changes in the regulation of the rail industry could negatively impact BNSF's ability to determine prices for rail services and to make capital improvements to its rail network, resulting in an adverse effect on our results of operations, financial condition and/or liquidity.

Our utilities and energy businesses operated under BHE are highly regulated by numerous federal, state, local and foreign governmental authorities in the jurisdictions in which they operate. These laws and regulations are complex, dynamic and subject to new interpretations or change. Regulations affect almost every aspect of our utilities and energy businesses. Regulations broadly apply and may limit management's ability to independently make and implement decisions regarding numerous matters including: acquiring businesses; constructing, acquiring, disposing or retiring of operating assets; operating and maintaining generating facilities and transmission and distribution system assets; complying with pipeline safety and integrity and environmental requirements; setting rates charged to customers; establishing capital structures and issuing debt; managing and reporting transactions between our domestic utilities and our other subsidiaries and affiliates; and paying dividends or similar distributions. Failure to comply with or reinterpretations of existing regulations and new legislation or regulations, such as those relating to air and water quality, renewable portfolio standards, emissions performance standards, climate change, coal combustion byproduct disposal, hazardous and solid waste disposal, protected species and other environmental matters, or changes in the nature of the regulatory process may have a significant adverse impact on our financial results.

Our railroad business requires significant ongoing capital investment to improve and maintain its railroad network so that transportation services can be safely and reliably provided to customers on a timely basis. Our utilities and energy businesses also require significant amounts of capital to construct, operate and maintain generation, transmission and distribution systems to meet their customers' needs and reliability criteria. Additionally, system assets may need to be operational for long periods of time in order to justify the financial investment. The operational or financial failure of capital projects may not be recoverable through rates that are charged to customers. Further, a significant portion of costs of capital improvements may be funded through debt issued by BNSF and BHE and their subsidiaries. Disruptions in debt capital markets that restrict access to funding when needed could adversely affect the results of operations, liquidity and/or capital resources of these businesses.

Item 1B. Unresolved Staff Comments

None.

Item 2. Description of Properties

The properties used by Berkshire's business segments are summarized in this section. Berkshire's railroad and utilities and energy businesses, in particular, utilize considerable physical assets in their businesses.

Railroad Business—Burlington Northern Santa Fe

Through BNSF Railway, BNSF operates over 32,500 route miles of track (excluding multiple main tracks, yard tracks and sidings) in 28 states, and also operates in three Canadian provinces. BNSF owns over 23,000 route miles, including easements, and operates over 9,000 route miles of trackage rights that permit BNSF to operate its trains with its crews over other railroads' tracks. As of December 31, 2021, the total BNSF Railway system, including single and multiple main tracks, yard tracks and sidings, consisted of over 50,000 operated miles of track.

BNSF operates various facilities and equipment to support its transportation system, including its infrastructure, locomotives and freight cars. It also owns or leases other equipment to support rail operations, such as vehicles. Support facilities for rail operations include yards and terminals throughout its rail network, system locomotive shops to perform locomotive servicing and maintenance, a centralized network operations center for train dispatching and network operations monitoring and management, computers, telecommunications equipment, signal systems and other support systems. Transfer facilities are maintained for rail-to-rail as well as intermodal transfer of containers, trailers and other freight traffic and include approximately 25 intermodal hubs located across the system. BNSF owns or holds under non-cancelable leases exceeding one year approximately 7,500 locomotives and 63,600 freight cars, in addition to maintenance of way and other equipment.

In the ordinary course of business, BNSF incurs significant costs in repairing and maintaining its properties. In 2021, BNSF recorded approximately \$2 billion in repairs and maintenance expense.

Utilities and Energy Businesses—Berkshire Hathaway Energy

BHE's energy properties consist of the physical assets necessary to support its electricity and natural gas businesses. Properties of BHE's electricity businesses include electric generation, transmission and distribution facilities, as well as coal mining assets that support certain of BHE's electric generating facilities. Properties of BHE's natural gas businesses include natural gas distribution facilities, interstate pipelines, storage facilities, liquefied natural gas facilities, compressor stations and meter stations. The transmission and distribution assets are primarily within each of BHE's utility service territories. In addition to these physical assets, BHE has rights-of-way, mineral rights and water rights that enable BHE to utilize its facilities. Pursuant to separate financing agreements, the majority of these properties are pledged or encumbered to support or otherwise provide the security for the related subsidiary debt. BHE or its affiliates own or have interests in the following types of operating electric generating facilities at December 31, 2021:

Energy Source	Entity	Location by Significance	Facility Net Capacity (MW) ⁽¹⁾	Net Owned Capacity (MW) ⁽¹⁾
Wind	PacifiCorp, MEC and BHE Renewables	Iowa, Wyoming, Texas, Nebraska, Washington, California, Illinois, Montana, Oregon and Kansas	11,517	11,517
Natural gas	PacifiCorp, MEC, NV Energy, BHE Renewables and BHE Canada	Nevada, Utah, Iowa, Illinois, Washington, Wyoming, Oregon, Texas, New York, Arizona and Canada	11,112	10,833
Coal	PacifiCorp, MEC and NV Energy	Wyoming, Iowa, Utah, Nevada, Colorado and Montana	13,235	8,193
Solar	BHE Renewables and NV Energy	California, Texas, Arizona, Minnesota and Nevada	1,719	1,571
Hydroelectric	PacifiCorp, MEC and BHE Renewables	Washington, Oregon, Idaho, California, Utah, Hawaii, Montana, Illinois and Wyoming	1,149	1,149
Nuclear	MEC	Illinois	1,823	456
Geothermal	PacifiCorp and BHE Renewables	California and Utah	377	377
Total			40,932	34,096

(1) Facility Net Capacity in megawatts (MW) represents the lesser of nominal ratings or any limitations under applicable interconnection, power purchase, or other agreements for intermittent resources and the total net dependable capability available during summer conditions for all other units. An intermittent resource's nominal rating is the manufacturer's contractually specified capability (in MW) under specified conditions. Net Owned Capacity indicates BHE's ownership of Facility Net Capacity.

As of December 31, 2021, BHE's subsidiaries also have electric generating facilities that are under construction in Nevada, Iowa and Canada having total Facility Net Capacity and Net Owned Capacity of 421 MW.

PacifiCorp, MEC and NV Energy own electric transmission and distribution systems, including approximately 27,700 miles of transmission lines and approximately 1,660 substations and gas distribution facilities, including approximately 27,700 miles of gas mains and service lines.

Northern Powergrid (Northeast) and Northern Powergrid (Yorkshire) operate an electricity distribution network that includes approximately 17,400 miles of overhead lines, approximately 43,300 miles of underground cables and approximately 780 major substations. AltaLink's electricity transmission system includes approximately 8,200 miles of transmission lines and approximately 310 substations.

The BHE GT&S pipeline system consists of approximately 5,400 miles of natural gas transmission, gathering and storage pipelines located in portions of Maryland, New York, Ohio, Pennsylvania, Virginia, West Virginia, South Carolina and Georgia. Storage services are provided through the operation of 17 underground natural gas storage fields located in Pennsylvania, West Virginia and New York. BHE GT&S also operates, as the general partner, and owns a 25% limited partnership interest in one liquefied natural gas export, import and storage facility in Maryland and operates and has ownership interests in three modular liquefied natural gas facilities in Alabama, Florida and Pennsylvania.

Northern Natural's pipeline system consists of approximately 14,300 miles of natural gas pipelines, including approximately 5,800 miles of mainline transmission pipelines and approximately 8,500 miles of branch and lateral pipelines. Northern Natural's end-use and distribution market area includes points in Iowa, Nebraska, Minnesota, Wisconsin, South Dakota, Michigan and Illinois and its natural gas supply and delivery service area includes points in Kansas, Texas, Oklahoma and New Mexico. Storage services are provided through the operation of one underground natural gas storage field in Iowa, two underground natural gas storage facilities in Kansas and two liquefied natural gas storage peaking units, one in Iowa and one in Minnesota.

Kern River's system consists of approximately 1,400 miles of natural gas pipelines, which extends from the system's point of origination in Wyoming through the Central Rocky Mountains into California.

Other Segments

Significant physical properties used by Berkshire's other business segments are summarized below:

Business	Country	Locations	Property/Facility type	Number of Properties	
				Owned	Leased
Insurance:					
GEICO	U.S.		Offices and claims centers	10	113
BHRG	U.S.		Offices	1	27
	Non-U.S.	Locations in 23 countries	Offices	1	37
BH Primary	U.S.		Offices	5	48
	Non-U.S.	Locations in 7 countries	Offices	—	15
Manufacturing	U.S.		Manufacturing facility	484	113
			Offices/Warehouses	214	476
			Retail/Showroom	231	195
			Housing subdivisions	319	—
	Non-U.S.	Locations in 63 countries	Manufacturing facility	179	111
			Offices/Warehouses	106	437
			Retail/Showroom	—	4
Service	U.S.		Training facilities/Hangars	12	93
			Offices/Distribution	15	135
			Production facilities	4	3
			Leasing/Showroom/Retail	31	49
	Non-U.S.	Locations in 19 countries	Training facilities/Hangars	1	12
			Offices/Distribution	—	47
McLane	U.S.		Distribution centers	59	27
			Offices	4	1
Retailing	U.S.		Offices/Warehouses	23	27
			Retail/Showroom	139	498
	Non-U.S.	Locations in 6 countries	Offices/Warehouses	1	7
			Retail/Offices	—	91

Item 3. Legal Proceedings

Berkshire and its subsidiaries are parties in a variety of legal actions that routinely arise out of the normal course of business, including legal actions seeking to establish liability directly through insurance contracts or indirectly through reinsurance contracts issued by Berkshire subsidiaries. Plaintiffs occasionally seek punitive or exemplary damages. We do not believe that such normal and routine litigation will have a material effect on our financial condition or results of operations. Berkshire and certain of its subsidiaries are also involved in other kinds of legal actions, some of which assert or may assert claims or seek to impose fines and penalties. We believe that any liability that may arise as a result of other pending legal actions will not have a material effect on our consolidated financial condition or results of operations.

Item 4. Mine Safety Disclosures

Information regarding the Company's mine safety violations and other legal matters disclosed in accordance with Section 1503 (a) of the Dodd-Frank Reform Act is included in Exhibit 95 to this Form 10-K.

Executive Officers of the Registrant

Following is a list of the Registrant's named executive officers:

Name	Age	Position with Registrant	Since
Warren E. Buffett	91	Chairman and Chief Executive Officer	1970
Charles T. Munger	98	Vice Chairman	1978
Gregory E. Abel	59	Vice Chairman – Non-Insurance Operations	2018
Ajit Jain	70	Vice Chairman – Insurance Operations	2018
Marc D. Hamburg	72	Senior Vice-President – Chief Financial Officer	1992

Each executive officer serves, in accordance with the by-laws of the Registrant, until the first meeting of the Board of Directors following the next annual meeting of shareholders and until a successor is chosen and qualified or until such executive officer sooner dies, resigns, is removed or becomes disqualified.

FORWARD-LOOKING STATEMENTS

Investors are cautioned that certain statements contained in this document as well as some statements in periodic press releases and some oral statements of Berkshire officials during presentations about Berkshire or its subsidiaries are "forward-looking" statements within the meaning of the Private Securities Litigation Reform Act of 1995 (the "Act"). Forward-looking statements include statements which are predictive in nature, which depend upon or refer to future events or conditions, or which include words such as "expects," "anticipates," "intends," "plans," "believes," "estimates" or similar expressions. In addition, any statements concerning future financial performance (including future revenues, earnings or growth rates), ongoing business strategies or prospects and possible future Berkshire actions, which may be provided by management, are also forward-looking statements as defined by the Act. Forward-looking statements are based on current expectations and projections about future events and are subject to risks, uncertainties and assumptions about Berkshire and its subsidiaries, economic and market factors and the industries in which we do business, among other things. These statements are not guarantees of future performance and we have no specific intention to update these statements.

Actual events and results may differ materially from those expressed or forecasted in forward-looking statements due to a number of factors. The principal risk factors that could cause our actual performance and future events and actions to differ materially from such forward-looking statements include, but are not limited to, changes in market prices of our investments in fixed maturity and equity securities; losses realized from derivative contracts; the occurrence of one or more catastrophic events, such as an earthquake, hurricane, act of terrorism or cyber-attack that causes losses insured by our insurance subsidiaries and/or losses to our business operations; the frequency and severity of epidemics, pandemics or other outbreaks, including COVID-19, that negatively affect our operating results and restrict our access to borrowed funds through the capital markets at reasonable rates; changes in laws or regulations affecting our insurance, railroad, utilities and energy and finance subsidiaries; changes in federal income tax laws; and changes in general economic and market factors that affect the prices of securities or the industries in which we do business.

Part II

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

Market Information

Berkshire's Class A and Class B common stock are listed for trading on the New York Stock Exchange, trading symbols: BRK.A and BRK.B, respectively.

Shareholders

Berkshire had approximately 1,400 record holders of its Class A common stock and 18,400 record holders of its Class B common stock at February 15, 2022. Record owners included nominees holding at least 346,000 shares of Class A common stock and 1,287,000,000 shares of Class B common stock on behalf of beneficial-but-not-of-record owners.

Dividends

Berkshire has not declared a cash dividend since 1967.

Common Stock Repurchase Program

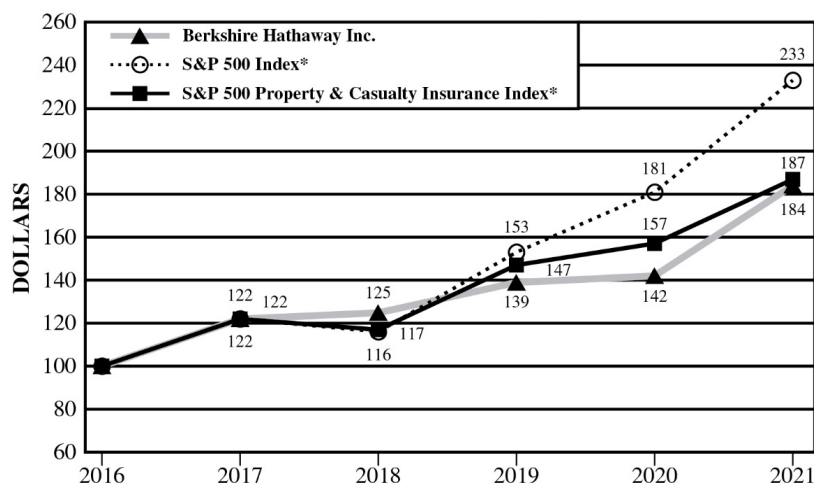
Berkshire's common stock repurchase program permits Berkshire to repurchase its Class A and Class B shares at any time that Warren Buffett, Berkshire's Chairman of the Board and Chief Executive Officer, and Charles Munger, Vice Chairman of the Board, believe that the repurchase price is below Berkshire's intrinsic value, conservatively determined. Repurchases may be in the open market or through privately negotiated transactions. Information with respect to Berkshire's Class A and Class B common stock repurchased during the fourth quarter of 2021 follows.

Period	Total number of shares purchased	Average price paid per share	Total number of shares purchased as part of publicly announced program	Maximum number or value of shares that yet may be repurchased under the program
October				
Class A common stock	680	\$ 431,525.72	680	*
Class B common stock	5,862,551	\$ 282.86	5,862,551	*
November				
Class A common stock	403	\$ 430,172.46	403	*
Class B common stock	7,013,482	\$ 284.39	7,013,482	*
December				
Class A common stock	1,828	\$ 439,625.92	1,828	*
Class B common stock	6,259,164	\$ 287.62	6,259,164	*

* The program does not specify a maximum number of shares to be repurchased or obligate Berkshire to repurchase any specific dollar amount or number of Class A or Class B shares and there is no expiration date to the repurchase program. Berkshire will not repurchase its common stock if the repurchases reduce the total value of Berkshire's consolidated cash, cash equivalents and U.S. Treasury Bills holdings to less than \$30 billion.

Stock Performance Graph

The following chart compares the subsequent value of \$100 invested in Berkshire common stock on December 31, 2016 with a similar investment in the Standard & Poor's 500 Stock Index and in the Standard & Poor's Property – Casualty Insurance Index**.



* Cumulative return for the Standard & Poor's indices based on reinvestment of dividends.

** It would be difficult to develop a peer group of companies similar to Berkshire. The Corporation owns subsidiaries engaged in a number of diverse business activities of which the most important is the property and casualty insurance business and, accordingly, management has used the Standard & Poor's Property—Casualty Insurance Index for comparative purposes.

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

Results of Operations

Net earnings attributable to Berkshire Hathaway shareholders for each of the past three years are disaggregated in the table that follows. Amounts are after deducting income taxes and exclude earnings attributable to noncontrolling interests (in millions).

	2021	2020	2019
Insurance – underwriting	\$ 728	\$ 657	\$ 325
Insurance – investment income	4,807	5,039	5,530
Railroad	5,990	5,161	5,481
Utilities and energy	3,495	3,091	2,840
Manufacturing, service and retailing	11,120	8,300	9,372
Investment and derivative gains/losses	62,340	31,591	57,445
Other*	1,315	(11,318)	424
Net earnings attributable to Berkshire Hathaway shareholders	<u>\$ 89,795</u>	<u>\$ 42,521</u>	<u>\$ 81,417</u>

* Includes goodwill and indefinite-lived intangible asset impairment charges of \$259 million in 2021, \$11.0 billion in 2020 and \$435 million in 2019, which includes our share of charges recorded by Kraft Heinz.

Through our subsidiaries, we engage in numerous diverse business activities. We manage our operating businesses on an unusually decentralized basis. There are few centralized or integrated business functions. Our senior corporate management team participates in and is ultimately responsible for significant capital allocation decisions, investment activities and the selection of the Chief Executive to head each of the operating businesses. The business segment data (Note 25 to the accompanying Consolidated Financial Statements) should be read in conjunction with this discussion.

The COVID-19 pandemic negatively affected most of our businesses beginning in March of 2020, with the effects to date ranging from relatively minor to severe. Earnings of most of our manufacturing, service and retailing businesses declined considerably, and in certain instances severely, in the second quarter of 2020. Over the second half of 2020 and continuing in 2021, many of these businesses experienced significant recoveries in revenues and earnings, in some instances exceeding pre-pandemic levels. However, many of our businesses were negatively affected by ongoing global supply chain disruptions, including those attributable to major winter storms and a hurricane in North America, which contributed to higher input costs. We cannot reliably predict future economic effects of the pandemic or when business activities at our operations will completely normalize. Nor can we predict how these events will alter the future consumption patterns of consumers and businesses we serve.

Our insurance businesses generated after-tax earnings from underwriting of \$728 million in 2021, \$657 million in 2020 and \$325 million in 2019. In each year, we generated underwriting earnings from primary insurance and underwriting losses from reinsurance. Insurance underwriting results included after-tax losses from significant catastrophe events of approximately \$2.3 billion in 2021, \$750 million in 2020 and \$800 million in 2019. Underwriting results in 2021 were favorably impacted by reductions in incurred losses for prior accident years under property and casualty contracts. Underwriting results in 2021 were negatively impacted by reductions in earned premium from the GEICO Giveback program, higher private passenger auto claims frequencies and severities estimates and higher losses in the life reinsurance business. Underwriting results in 2020 included the effects of the pandemic, arising from premium reductions from the GEICO Giveback program, reduced claims frequencies for private passenger automobile insurance and increased loss estimates for certain commercial insurance and property and casualty reinsurance business.

After-tax earnings from insurance investment income in 2021 decreased 4.6% compared to 2020 and declined 8.9% in 2020 versus 2019. Earnings in 2021 and 2020 were negatively affected by declines in interest rates on our substantial holdings of cash and U.S. Treasury Bills.

Management's Discussion and Analysis (Continued)

Results of Operations (Continued)

After-tax earnings of our railroad business in 2021 rose 16.1% compared to 2020 and decreased 5.8% in 2020 compared to 2019. The earnings increase in 2021 reflected overall higher freight volumes, higher average revenue per car/unit and improved productivity, partly offset by higher average fuel prices and volume related costs. Earnings in 2020 reflected lower railroad operating revenues from lower shipping volumes, attributable to the negative effects of the COVID-19 pandemic, partly offset by lower operating costs and the effects of productivity improvements. After-tax earnings of our utilities and energy business in 2021 increased 13.1% versus 2020 and increased 8.8% in 2020 compared to 2019. The increase in 2021 included higher earnings from the utilities and natural gas pipelines businesses, including the effects of a business acquisition, and from the real estate brokerage business, while the earnings increase in 2020 reflected increased tax benefits from renewable energy and increased earnings from the real estate brokerage business.

Earnings in 2021 from our manufacturing, service and retailing businesses increased 34.0% versus 2020 and declined 11.4% in 2020 versus 2019. Many of our businesses generated significantly higher earnings in 2021 compared to 2020. While customer demand for products was relatively high during the year, several of our businesses experienced higher materials, freight and other input costs attributable to ongoing disruptions in global supply chains. The effects of the COVID-19 pandemic have varied among our businesses relative to significance and duration.

Other earnings included after-tax goodwill and indefinite-lived intangible asset impairment charges of \$259 million in 2021, \$11.0 billion in 2020 and \$435 million in 2019. Such amounts included our share of impairment charges recorded by Kraft Heinz. Approximately \$9.8 billion of the charges in 2020 were attributable to impairments of goodwill and indefinite-lived intangible assets recorded in connection with Berkshire's acquisition of Precision Castparts in 2016. Other earnings in 2021 also included after-tax foreign exchange rate gains of \$955 million and after-tax losses of \$764 million in 2020 related to non-U.S. Dollar denominated debt issued by Berkshire and its U.S.-based finance subsidiary, Berkshire Hathaway Finance Corporation ("BHFC").

Investment and derivative gains/losses in each of the three years presented predominantly derived from our investments in equity securities and included significant net unrealized gains from market price changes. We believe that investment and derivative gains/losses, whether realized from dispositions or unrealized from changes in market prices of equity securities, are generally meaningless in understanding our reported quarterly or annual results or evaluating the economic performance of our operating businesses. These gains and losses have caused and will continue to cause significant volatility in our periodic earnings.

Insurance—Underwriting

Our management views our insurance businesses as possessing two distinct activities – underwriting and investing. Underwriting decisions are the responsibility of the unit managers, while investing decisions are the responsibility of Berkshire's Chairman and CEO, Warren E. Buffett and Berkshire's corporate investment managers. Accordingly, we evaluate performance of underwriting operations without any allocation of investment income or investment gains and losses. We consider investment income as an integral component of our aggregate insurance operating results. However, we consider investment gains and losses, whether realized or unrealized, as non-operating. We believe that such gains and losses are not meaningful in understanding the periodic operating results of our insurance businesses.

The timing and magnitude of catastrophe losses can produce significant volatility in our periodic underwriting results, particularly with respect to our reinsurance businesses. Generally, we consider incurred losses exceeding \$100 million from a current year catastrophic event to be significant. The significant catastrophe events in 2021 included Hurricane Ida and floods in Europe in the third quarter, as well as Winter Storm Uri in the first quarter.

Changes in estimates for unpaid losses and loss adjustment expenses, including amounts established for occurrences in prior years, can also significantly affect our periodic underwriting results. Unpaid loss estimates, including estimates under retroactive reinsurance contracts, were approximately \$125 billion as of December 31, 2021. Our periodic underwriting results may also include significant foreign currency transaction gains and losses arising from the changes in the valuation of non-U.S. Dollar denominated liabilities of our U.S. based insurance subsidiaries due to foreign currency exchange rate fluctuations.

Management's Discussion and Analysis (Continued)

Insurance—Underwriting (Continued)

Underwriting results of certain of our commercial insurance and reinsurance businesses were negatively affected in 2021 and 2020 by estimated losses and costs associated with the COVID-19 pandemic, including incremental provisions for claims and uncollectible premiums and incremental operating costs to maintain customer service levels. The effects of the pandemic on future periods may be affected by judicial rulings and regulatory and legislative actions pertaining to insurance coverage and claims and by its effects on general economic activity, which we cannot reasonably estimate at this time.

We provide primary insurance and reinsurance products covering property and casualty risks, as well as life and health risks. Our insurance and reinsurance businesses are GEICO, Berkshire Hathaway Primary Group and Berkshire Hathaway Reinsurance Group.

Underwriting results of our insurance businesses are summarized below (dollars in millions).

	2021	2020	2019
Pre-tax underwriting earnings (loss):			
GEICO	\$ 1,259	\$ 3,428	\$ 1,506
Berkshire Hathaway Primary Group	607	110	383
Berkshire Hathaway Reinsurance Group	(930)	(2,700)	(1,472)
Pre-tax underwriting earnings	936	838	417
Income taxes and noncontrolling interests	208	181	92
Net underwriting earnings	\$ 728	\$ 657	\$ 325
Effective income tax rate	22.2%	21.5%	24.2%

GEICO

GEICO writes private passenger automobile insurance, offering coverages to insureds in all 50 states and the District of Columbia. GEICO markets its policies mainly by direct response methods where most customers apply for coverage directly to the company via the Internet or over the telephone. A summary of GEICO's underwriting results follows (dollars in millions).

	2021		2020		2019	
	Amount	%	Amount	%	Amount	%
Premiums written	\$ 38,395		\$ 34,928		\$ 36,016	
Premiums earned	\$ 37,706	100.0	\$ 35,093	100.0	\$ 35,572	100.0
Losses and loss adjustment expenses	30,999	82.2	26,018	74.1	28,937	81.3
Underwriting expenses	5,448	14.5	5,647	16.1	5,129	14.5
Total losses and expenses	36,447	96.7	31,665	90.2	34,066	95.8
Pre-tax underwriting earnings	\$ 1,259		\$ 3,428		\$ 1,506	

GEICO's pre-tax underwriting earnings in 2021 and 2020 were significantly affected by changes in average claims frequencies. Beginning in the first quarter of 2020 and continuing through the first quarter of 2021, average claims frequencies were significantly below historical levels from the effects of less driving by policyholders during the COVID-19 pandemic. These effects were partially offset by higher average claims severities and lower premiums earned from the GEICO Giveback program, which provided for a 15% premium credit to all voluntary auto and motorcycle new policies or policies renewing between April 8, 2020 and October 7, 2020. Starting in the second quarter of 2021, average claims frequencies began to increase as driving by policyholders increased. In addition, average property claims severities increased due to increases in used vehicle valuations.

Management's Discussion and Analysis (Continued)

Insurance—Underwriting (Continued)

GEICO (Continued)

2021 versus 2020

Premiums written in 2021 increased \$3.5 billion (9.9%) compared to 2020, which included a reduction of approximately \$2.9 billion attributable to the GEICO Giveback program. Premiums earned in 2021 increased \$2.6 billion (7.4%) compared to 2020. The GEICO Giveback Program reduced earned premiums by approximately \$2.5 billion in 2020 with the remainder of the impact included in 2021. Voluntary auto policies-in-force in 2021 were slightly higher compared to 2020.

Losses and loss adjustment expenses increased \$5.0 billion (19.1%) compared to 2020. GEICO's ratio of losses and loss adjustment expenses to premiums earned (the "loss ratio") increased 8.1 percentage points compared to 2020. The increase in the loss ratio reflected an increase in average claims frequencies and severities and higher losses from significant catastrophe events, partially offset by increased reductions of ultimate estimated losses for claims occurring in prior years.

Claims frequencies in 2021 were higher for all coverages, including property damage and bodily injury (thirteen to fourteen percent range), personal injury (sixteen to seventeen percent range) and collision (twenty-one to twenty-two percent range). Average claims severities in 2021 were also higher for property damage coverage (two to three percent range), collision coverage (fifteen to sixteen percent range) and bodily injury coverage (eight to ten percent range). Ultimate claim loss estimates for claims occurring in prior years were reduced approximately \$1.8 billion in 2021 and \$253 million in 2020, which produced corresponding reductions in losses and loss adjustment expenses. Losses incurred attributable to Hurricane Ida in 2021 were \$375 million, while losses in 2020 included \$81 million attributable to Hurricanes Laura and Sally and U.S. wildfires.

Underwriting expenses decreased \$199 million (3.5%) compared to 2020, reflecting lower advertising expenses. GEICO's expense ratio (underwriting expenses to premiums earned) decreased 1.6 percentage points in 2021, reflecting lower nominal expenses and higher premiums earned.

2020 versus 2019

Premiums written and earned in 2020 decreased \$1.1 billion (3.0%) and \$479 million (1.3%), respectively, compared to 2019. The GEICO Giveback program reduced premiums written \$2.9 billion and premiums earned \$2.5 billion in 2020. Voluntary auto policies-in-force increased approximately 820,000 during 2020.

Losses and loss adjustment expenses in 2020 decreased \$2.9 billion (10.1%) compared to 2019. GEICO's loss ratio was 74.1%, a decrease of 7.2 percentage points compared to 2019. The decrease in the loss ratio reflected declines in claims frequencies, partly offset by increases in claims severities and the impact of lower premiums earned attributable to the GEICO Giveback program.

Claims frequencies in 2020 were lower for property damage, bodily injury and personal injury protection coverages (twenty-eight to thirty percent range) and collision coverage (twenty-three to twenty-four percent range) compared to 2019. Average claims severities in 2020 were higher for property damage and collision coverages (eight to ten percent range) and bodily injury coverage (twelve to thirteen percent range). Losses and loss adjustment expenses included net reductions of \$253 million in 2020 for decreases in the ultimate loss estimates for claims occurring in prior years compared to net increases of \$42 million in 2019. Losses incurred included \$81 million in 2020 from Hurricanes Laura and Sally and U.S. wildfires. There were no losses from significant catastrophe events in 2019.

Underwriting expenses in 2020 increased \$518 million (10.1%) compared to 2019, reflecting higher employee-related, advertising and technology costs, partly offset by lower premium taxes. GEICO's expense ratio in 2020 was 16.1%, an increase of 1.6 percentage points compared to 2019. The expense ratio increase was primarily attributable to the decline in earned premiums from the GEICO Giveback program.

Management's Discussion and Analysis (Continued)

Insurance—Underwriting (Continued)

Berkshire Hathaway Primary Group

The Berkshire Hathaway Primary Group ("BH Primary") provides a variety of commercial insurance solutions, including healthcare professional liability, workers' compensation, automobile, general liability, property and specialty coverages for small, medium and large clients. BH Primary's larger insurers include Berkshire Hathaway Specialty Insurance ("BH Specialty"), Berkshire Hathaway Homestate Companies ("BHHC"), MedPro Group, Berkshire Hathaway GUARD Insurance Companies ("GUARD"), National Indemnity Company ("NICO Primary") and U.S. Liability Insurance Company ("USLI"). A summary of BH Primary underwriting results follows (dollars in millions).

	2021		2020		2019	
	Amount	%	Amount	%	Amount	%
Premiums written	\$ 12,595		\$ 10,212		\$ 9,843	
Premiums earned	\$ 11,575	100.0	\$ 9,615	100.0	\$ 9,165	100.0
Losses and loss adjustment expenses	8,107	70.0	7,129	74.1	6,336	69.1
Underwriting expenses	2,861	24.8	2,376	24.7	2,446	26.7
Total losses and expenses	10,968	94.8	9,505	98.8	8,782	95.8
Pre-tax underwriting earnings	\$ 607		\$ 110		\$ 383	

Premiums written increased \$2.4 billion (23.3%) in 2021 compared to 2020, reflecting increases from BH Specialty (36%), MedPro Group (16%), NICO Primary (25%), GUARD (7%), BHHC (5%) and USLI (20%). The increases were across multiple coverages and occurred in several markets.

Premiums written increased \$369 million (3.7%) in 2020 compared to 2019, reflecting increased premiums written from BH Specialty (34%) and MedPro Group (9%), partially offset by a 13% decrease in premiums written by our other primary insurers. The decline in volume by our other primary insurers was primarily due to lower workers' compensation and commercial automobile volumes and the effect of the divestiture of Applied Underwriters in October 2019.

BH Primary's loss ratios were 70.0% in 2021, 74.1% in 2020 and 69.1% in 2019. Losses and loss adjustment expenses attributable to significant catastrophe events were \$402 million in 2021 from Hurricane Ida and Winter Storm Uri and \$207 million in 2020 from Hurricanes Laura and Sally and U.S. wildfires. Losses and loss adjustment expenses were reduced \$631 million in 2021, \$265 million in 2020 and \$499 million in 2019 for net reductions in estimated ultimate liabilities for prior years' loss events. Losses in 2020 also included increased liabilities of \$167 million attributable to the pandemic.

BH Primary insurers write significant levels of commercial and professional liability and workers' compensation insurance and the related claim costs may be subject to high severity and long claim-tails. Accordingly, we could experience significant increases in claims liabilities in the future attributable to higher-than-expected claim settlements, adverse litigation outcomes or judicial rulings and other factors not currently anticipated.

Underwriting expenses increased \$485 million (20.4%) in 2021 compared to 2020, reflecting the increase in business, changes in business mix and the costs associated with new product development. The expense ratio in 2021 was relatively unchanged versus 2020. The expense ratio in 2020 declined 2.0 percentage points compared to 2019 and reflected changes in business mix and the impact of the Applied Underwriters divestiture.

Berkshire Hathaway Reinsurance Group

The Berkshire Hathaway Reinsurance Group ("BHRG") offers excess-of-loss and quota-share reinsurance coverages on property and casualty risks to insurers and reinsurers worldwide through several subsidiaries, led by National Indemnity Company ("NICO"), General Reinsurance Corporation and General Reinsurance AG. We also write life and health reinsurance coverages through General Re Life Corporation, General Reinsurance AG and Berkshire Hathaway Life Insurance Company of Nebraska ("BHLN"). We periodically assume property and casualty risks under retroactive reinsurance contracts written through NICO. In addition, we write periodic payment annuity contracts through BHLN.

Management's Discussion and Analysis (Continued)

Insurance—Underwriting (Continued)

Berkshire Hathaway Reinsurance Group (Continued)

Generally, we strive to generate underwriting profits. However, time-value-of-money concepts are important elements in establishing prices for retroactive reinsurance and periodic payment annuity businesses due to the expected long durations of the claim liabilities. We expect to incur pre-tax underwriting losses from such businesses, primarily through deferred charge amortization and discount accretion charges. We receive premiums at the inception of these contracts, which are then available for investment. A summary of BHRG's premiums and pre-tax underwriting results follows (dollars in millions).

	Premiums written			Premiums earned			Pre-tax underwriting earnings (loss)		
	2021	2020	2019	2021	2020	2019	2021	2020	2019
Property/casualty	\$ 14,149	\$ 13,295	\$ 10,428	\$ 13,740	\$ 12,214	\$ 9,911	\$ 667	\$ (799)	\$ 16
Life/health	5,621	5,848	4,963	5,648	5,861	4,869	(421)	(18)	159
Retroactive reinsurance	136	38	684	136	38	684	(782)	(1,248)	(1,265)
Periodic payment annuity	658	566	863	658	566	863	(508)	(617)	(549)
Variable annuity	15	14	14	15	14	14	114	(18)	167
	<u>\$ 20,579</u>	<u>\$ 19,761</u>	<u>\$ 16,952</u>	<u>\$ 20,197</u>	<u>\$ 18,693</u>	<u>\$ 16,341</u>	<u>\$ (930)</u>	<u>\$ (2,700)</u>	<u>\$ (1,472)</u>

Property/casualty

A summary of property/casualty reinsurance underwriting results follows (dollars in millions).

	2021		2020		2019	
	Amount	%	Amount	%	Amount	%
Premiums written	\$ 14,149		\$ 13,295		\$ 10,428	
Premiums earned	\$ 13,740	100.0	\$ 12,214	100.0	\$ 9,911	100.0
Losses and loss adjustment expenses	9,878	71.9	9,898	81.0	7,313	73.8
Underwriting expenses	3,195	23.2	3,115	25.5	2,582	26.0
Total losses and expenses	<u>13,073</u>	<u>95.1</u>	<u>13,013</u>	<u>106.5</u>	<u>9,895</u>	<u>99.8</u>
Pre-tax underwriting earnings (loss)	<u>\$ 667</u>		<u>\$ (799)</u>		<u>\$ 16</u>	

Premiums written increased \$854 million (6.4%) in 2021 compared to 2020, primarily attributable to net new business, increased participations and improved prices on renewals and favorable currency translation effects. The increase was primarily attributable to property coverages. Premiums written increased \$2.9 billion (27.5%) in 2020 compared to 2019. The increase was primarily attributable to net new business and increased participations on renewals.

Losses and loss adjustment expenses were relatively unchanged in 2021 compared to 2020, while the loss ratio decreased 9.1 percentage points. The loss ratio was 71.9% in 2021, 81.0% in 2020 and 73.8% in 2019. Losses incurred arising from significant catastrophe events in 2021 (Hurricane Ida, flooding in Europe and Winter Storm Uri) were \$2.1 billion, which were partially offset by reductions in estimated ultimate liabilities for losses occurring in prior years of \$718 million. Losses incurred in 2020 included \$667 million from significant catastrophe events (Hurricanes Laura and Sally and U.S. wildfires), losses attributable to the COVID-19 pandemic of \$964 million and increases in estimated ultimate liabilities for losses occurring in prior years of \$162 million. Incurred losses from significant catastrophe events during 2019 were \$1.0 billion and derived from Typhoons Faxai and Hagibis and various U.S. and non-U.S. wildfires, which were partially offset by reductions in estimated ultimate liabilities for losses occurring in prior years of \$295 million.

Underwriting expenses are primarily commissions and brokerage costs. The expense ratio in 2021 decreased 2.3 percentage points compared to 2020, primarily attributable to changes in business mix and foreign currency effects. Underwriting expenses increased \$533 million (20.6%) in 2020 compared to 2019, reflecting the increase in premiums earned.

Management's Discussion and Analysis (Continued)

Insurance—Underwriting (Continued)

Berkshire Hathaway Reinsurance Group (Continued)

Life/health

A summary of our life/health reinsurance underwriting results follows (dollars in millions).

	2021		2020		2019	
	Amount	%	Amount	%	Amount	%
Premiums written	\$ 5,621		\$ 5,848		\$ 4,963	
Premiums earned	\$ 5,648	100.0	\$ 5,861	100.0	\$ 4,869	100.0
Life and health insurance benefits	4,933	87.3	4,883	83.3	3,800	78.0
Underwriting expenses	1,136	20.2	996	17.0	910	18.7
Total benefits and expenses	6,069	107.5	5,879	100.3	4,710	96.7
Pre-tax underwriting earnings (loss)	\$ (421)		\$ (18)		\$ 159	

Life/health premiums written decreased \$227 million (3.9%) in 2021 compared to 2020. Premiums written in 2020 included \$710 million from a contract that covered U.S. health risks that incepted in the fourth quarter of 2019 and did not renew in 2021. Otherwise, premiums written in 2021 increased 9.4% versus 2020, primarily due to volume growth in the Asia Pacific region and favorable foreign currency translation effects. Underwriting results in 2021 were negatively affected by significant increases in mortality in the U.S., South Africa, India and Latin America, attributable to the pandemic.

Life/health premiums written increased \$885 million (17.8%) in 2020 compared to 2019. Approximately \$480 million of the increase was attributable to the contract covering U.S. health insurance risks, and the remainder of the increase was primarily from volume growth in Asia and Europe. Underwriting earnings in 2020 were negatively affected by increased life benefits from COVID-19-related claims and from increased liabilities from changes in underlying assumptions in estimating disability benefit liabilities in Australia, which were mostly offset by lower other life claims and reduced losses from U.S. long-term care business that is in run-off. Results in 2019 included a one-time pre-tax underwriting gain of \$163 million attributable to an amendment of a yearly renewable term life contract.

Retroactive reinsurance

Pre-tax underwriting losses in each year derived from the amortization of deferred charges and changes in the estimated timing and amounts of future claim payments. Underwriting results also include foreign currency exchange gains and losses from the effects of changes in foreign currency exchange rates on non-U.S. Dollar denominated liabilities of our U.S. subsidiaries. Underwriting results included pre-tax foreign currency gains of \$56 million in 2021 and losses of \$139 million in 2020 and \$76 million in 2019.

Pre-tax underwriting losses before foreign currency gains/losses were \$838 million in 2021, \$1.1 billion in 2020 and \$1.2 billion in 2019. Estimated ultimate claim liabilities for contracts written in prior years were reduced \$974 million in 2021 and \$399 million in 2020. After adjustments to the related unamortized deferred charges from changes in the estimated timing and amount of the future claim payments, such reductions produced pre-tax underwriting earnings of \$142 million in 2021 and \$230 million in 2020.

Gross unpaid losses assumed under retroactive reinsurance contracts were \$38.3 billion at December 31, 2021, a decline of \$2.7 billion since December 31, 2020. The decline was primarily attributable to paid claims of approximately \$1.9 billion and the reduction in estimated ultimate claim liabilities. Unamortized deferred charges related to retroactive reinsurance contracts were \$10.6 billion at December 31, 2021, a decline of \$1.8 billion since December 31, 2020, attributable to the effects of the changes in the estimated timing and amount of the future claim payments and periodic amortization. Deferred charge amortization will be included in underwriting earnings over the expected remaining claims settlement periods.

Management's Discussion and Analysis (Continued)

Insurance—Underwriting (Continued)

Berkshire Hathaway Reinsurance Group (Continued)

Periodic payment annuity

Periodic payment annuity premiums earned increased \$92 million (16.3%) in 2021 compared to 2020, which decreased \$297 million (34.4%) versus 2019. Periodic payment annuity business is both price and demand sensitive. Our premium volumes in 2021 and 2020 were affected by pandemic-related delays in underlying claim settlements, which reduced the supply of available business. Our volumes written may also change rapidly due to changes in prices, which are affected by prevailing interest rates, the perceived risks and durations associated with the expected annuity payments, as well as the level of competition.

Periodic payment annuity contracts normally produce pre-tax underwriting losses deriving from the recurring discount accretion of annuity liabilities. Underwriting results also include gains or losses from the effects of changes in mortality and interest rates and from foreign currency exchange rate changes on non-U.S. Dollar denominated liabilities of our U.S. subsidiaries. Pre-tax underwriting results included foreign currency gains of \$18 million in 2021 and losses of \$67 million in 2020 and \$40 million in 2019.

Excluding foreign currency gains/losses, pre-tax underwriting losses from periodic payment annuity contracts were \$526 million in 2021, \$550 million in 2020 and \$509 million in 2019. Pre-tax losses in 2021 were partially offset by the effects of higher mortality and by higher interest rates applicable to settlements under certain contracts. Discounted annuity liabilities were \$15.1 billion at December 31, 2021 and had a weighted average discount rate of approximately 3.9%.

Variable annuity

Variable annuity guarantee reinsurance contracts produced pre-tax earnings of \$114 million in 2021, losses of \$18 million in 2020 and earnings of \$167 million in 2019. The results from these contracts are affected by changes in securities markets, interest rates and foreign currency exchange rates, which can be volatile, and from the periodic amortization of expected profit margins. The comparative increase in underwriting earnings in 2021 was primarily attributable to the net effects of interest rate changes and, to a lesser extent, changes in securities markets.

Insurance—Investment Income

A summary of net investment income attributable to our insurance operations follows (dollars in millions).

	2021	2020	2019	Percentage change	
				2021 vs 2020	2020 vs 2019
Interest and other investment income	\$ 589	\$ 1,059	\$ 2,075	(44.4)%	(49.0)%
Dividend income	5,060	4,890	4,525	3.5	8.1
Pre-tax net investment income	5,649	5,949	6,600	(5.0)	(9.9)
Income taxes and noncontrolling interests	842	910	1,070		
Net investment income	\$ 4,807	\$ 5,039	\$ 5,530		
Effective income tax rate	14.9%	15.3%	16.1%		

Interest and other investment income declined \$470 million (44.4%) in 2021 compared to 2020, which in turn, declined \$1.0 billion (49.0%) compared to 2019. These declines were primarily due to lower income from short-term investments and fixed maturity securities. We continue to hold substantial balances of cash, cash equivalents and short-term U.S. Treasury Bills. Short-term interest rates declined over the second half of 2019 and throughout 2020. Low rates prevailed through 2021, which resulted in significantly lower interest income. Nevertheless, we believe that maintaining ample liquidity is paramount and we insist on safety over yield with respect to short-term investments.

Management's Discussion and Analysis (Continued)

Insurance—Investment Income (Continued)

Dividend income included \$121 million in 2021 and \$26 million in 2020 from investments in preferred stock of Berkshire Hathaway Energy. Such amounts are deducted from earnings of the utilities and energy segment. Dividend income may vary from period to period due to changes in the investment portfolio and the frequency and timing of dividends from certain investees. Dividend income increased \$365 million (8.1%) in 2020 compared to 2019. The increase was primarily attributable to dividends from the investment in \$10 billion liquidation value of 8% cumulative preferred stock of Occidental Petroleum Corporation ("Occidental") on August 8, 2019, partly offset by lower dividends from common stock investments.

Invested assets of our insurance businesses derive from shareholder capital and from net liabilities under insurance and reinsurance contracts or "float." The major components of float are unpaid losses and loss adjustment expenses, including liabilities under retroactive reinsurance contracts, life, annuity and health insurance benefit liabilities, unearned premiums and other liabilities due to policyholders, reduced by insurance premiums and reinsurance receivables, deferred charges assumed under retroactive reinsurance contracts and deferred policy acquisition costs. Float approximated \$147 billion at December 31, 2021, \$138 billion at December 31, 2020 and \$129 billion at December 31, 2019. Our combined insurance operations generated pre-tax underwriting earnings in each of the past three years, and consequently, the average cost of float for each year was negative.

A summary of cash and investments held in our insurance businesses as of December 31, 2021 and 2020 follows (in millions).

	December 31,	
	2021	2020
Cash, cash equivalents and U.S. Treasury Bills	\$ 90,688	\$ 67,082
Equity securities	334,907	269,498
Fixed maturity securities	16,386	20,317
Other	4,296	6,220
	<u>\$ 446,277</u>	<u>\$ 363,117</u>

Fixed maturity investments as of December 31, 2021 were as follows (in millions).

	Amortized cost	Unrealized gains/losses	Carrying value
U.S. Treasury, U.S. government corporations and agencies	\$ 3,278	\$ 17	\$ 3,295
Foreign governments	10,997	(4)	10,993
Corporate bonds	1,350	411	1,761
Other	292	45	337
	<u>\$ 15,917</u>	<u>\$ 469</u>	<u>\$ 16,386</u>

U.S. government obligations are rated AA+ or Aaa by the major rating agencies. Approximately 93% of all foreign government obligations were rated AA or higher by at least one of the major rating agencies. Foreign government securities include obligations issued or unconditionally guaranteed by national or provincial government entities.

Management's Discussion and Analysis (Continued)

Railroad

Burlington Northern Santa Fe, LLC ("BNSF") operates one of the largest railroad systems in North America, with over 32,500 route miles of track in 28 states. BNSF also operates in three Canadian provinces. BNSF classifies its major business groups by type of product shipped including consumer products, industrial products, agricultural products and coal. A summary of BNSF's earnings follows (dollars in millions).

	2021	2020	2019	Percentage change	
				2021 vs 2020	2020 vs 2019
Railroad operating revenues	\$ 22,513	\$ 20,181	\$ 22,745	11.6%	(11.3)%
Railroad operating expenses:					
Compensation and benefits	4,696	4,542	5,270	3.4	(13.8)
Fuel	2,766	1,789	2,944	54.6	(39.2)
Purchased services	2,033	1,954	2,049	4.0	(4.6)
Depreciation and amortization	2,444	2,460	2,389	(0.7)	3.0
Equipment rents, materials and other	1,763	1,684	2,028	4.7	(17.0)
Total	13,702	12,429	14,680	10.2	(15.3)
Railroad operating earnings	8,811	7,752	8,065	13.7	(3.9)
Other revenues (expenses):					
Other revenues	769	688	770	11.8	(10.6)
Other expenses, net	(687)	(611)	(515)	12.4	18.6
Interest expense	(1,032)	(1,037)	(1,070)	(0.5)	(3.1)
Pre-tax earnings	7,861	6,792	7,250	15.7	(6.3)
Income taxes	1,871	1,631	1,769	14.7	(7.8)
Net earnings	\$ 5,990	\$ 5,161	\$ 5,481	16.1	(5.8)
Effective income tax rate	23.8%	24.0%	24.4%		

The following table summarizes BNSF's railroad freight volumes by business group (cars/units in thousands).

	Cars/Units			Percentage change	
	2021	2020	2019	2021 vs 2020	2020 vs 2019
Consumer products	5,673	5,266	5,342	7.7%	(1.4)%
Industrial products	1,709	1,622	1,931	5.4	(16.0)
Agricultural products	1,224	1,189	1,146	2.9	3.8
Coal	1,529	1,404	1,802	8.9	(22.1)
Total cars/units	10,135	9,481	10,221	6.9	(7.2)

2021 versus 2020

Railroad operating revenues increased 11.6% in 2021 compared to 2020, reflecting higher volumes of 6.9%, as well as a 3.5% increase in average revenue per car/unit resulting from business mix changes and higher fuel surcharge revenue attributable to higher fuel prices. Pre-tax earnings were \$7.9 billion in 2021, an increase of 15.7% from 2020. The COVID-19 pandemic caused a significant economic slowdown that adversely affected our volumes in 2020. Revenue changes in 2021 were driven by continued improvements from the 2020 effects of the COVID-19 pandemic, partially offset by the ongoing disruptions in the global supply chain.

Management's Discussion and Analysis (Continued)

Railroad (Continued)

Operating revenues from consumer products increased 13.7% in 2021 to \$8.3 billion compared to 2020, reflecting increased volumes of 7.7% and higher average revenue per car/unit. The volume increase was primarily due to growth in intermodal in both international and domestic shipments driven by increased retail sales, inventory replenishments by retailers and increased e-commerce activity.

Operating revenues from industrial products were \$5.3 billion in 2021, an increase of 5.0% from 2020. Volumes increased 5.4% while average revenue per car/unit was nearly unchanged from 2020. The volume increase was primarily due to improvement in the U.S. industrial economy, driving higher volumes in the construction and building sectors, partially offset by lower petroleum volumes due to unfavorable market conditions in the energy sector.

Operating revenues from agricultural products increased 5.8% to \$5.1 billion in 2021 compared to 2020. The revenue change reflected a volume increase of 2.9% due to higher domestic grain shipments and higher volumes of ethanol and related commodities, as well as higher revenue per car/unit.

Operating revenues from coal increased 21.5% to \$3.2 billion in 2021 compared to 2020 attributable to higher volumes of 8.9% in 2021, as well as higher average revenue per car/unit. The volume increase in 2021 was attributable to increased electricity generation, higher natural gas prices and improved export demand.

Railroad operating expenses were \$13.7 billion in 2021, an increase of \$1.3 billion (10.2%) compared to 2020. The ratio of railroad operating expenses to railroad operating revenues decreased 0.7 percentage points to 60.9% in 2021 versus 2020. The increase in railroad operating expenses reflected higher volumes and higher average fuel prices, partially offset by the favorable impact of productivity improvements.

Compensation and benefits expenses increased \$154 million (3.4%) in 2021 compared to 2020, primarily due to increased volumes, wage inflation and health and welfare costs, partially offset by productivity improvements. Fuel expenses increased \$977 million (54.6%) compared to 2020, primarily due to higher average fuel prices. Purchased service expenses increased \$79 million (4.0%) compared to 2020, primarily due to higher volumes and the effects of insurance recoveries in 2020 related to 2019 flooding, partially offset by improved productivity. Equipment rents, materials and other expenses increased \$79 million (4.7%) compared to 2020, due to higher volume-related costs.

2020 versus 2019

Railroad operating revenues declined 11.3% in 2020 versus 2019, reflecting a 7.2% decrease in volume and a 4.5% decrease in average revenue per car/unit. The decrease in revenue per car/unit was attributable to lower fuel surcharge revenue driven by lower fuel prices and business mix changes. The overall volume decrease was primarily due to the COVID-19 pandemic, which severely impacted volumes through the first half of 2020 and caused significant economic disruptions that adversely affected the demand for transportation services. Volumes sequentially improved during the second half of 2020 from earlier periods and recovered overall to pre-pandemic levels by the end of the year.

Pre-tax earnings were \$6.8 billion in 2020, a decrease of 6.3% from 2019, principally due to the negative impacts of the pandemic on volumes. In addition, pre-tax earnings in 2019 included an operating revenue increase related to the favorable outcome of an arbitration hearing and a retirement plan curtailment gain that is included in other expenses, net in the preceding table. These effects were partially offset by significant improvements in 2020 in service, system velocity and cost performance compared to 2019, along with lower costs related to severe winter weather and flooding on parts of the network, which negatively affected expenses and service levels in 2019.

Operating revenues from consumer products of \$7.3 billion in 2020 declined 7.6% compared to 2019, primarily due to a 6.3% decrease in average revenue per car/unit along with lower volumes. The volume decrease was primarily due to the impact of the pandemic. Lower international and automotive volumes were offset by higher domestic intermodal volumes. Increased retail sales, inventory replenishments by retailers and e-commerce activity produced recovery of intermodal volumes in the second half of 2020.

Management's Discussion and Analysis (Continued)

Railroad (Continued)

Operating revenues from industrial products were \$5.0 billion in 2020, a decrease of 17.0% from 2019. The decrease was primarily attributable to the decline in volume and to a lesser extent lower average revenue per car/unit. Volumes decreased primarily due to lower U.S. industrial production driven by the pandemic, including reduced production and demand in the energy sector, which lowered sand and petroleum products volume, and reduced steel demand, which lowered taconite volume.

Operating revenues from agricultural products increased 2.9% to \$4.8 billion in 2020 compared to 2019. The increase was due to higher volumes, partially offset by slightly lower average revenue per car/unit. The volume increase was primarily due to higher grain and meal exports, partially offset by lower ethanol and sweeteners shipments.

Operating revenues from coal decreased 28.5% to \$2.7 billion in 2020 compared to 2019. This decrease was primarily due to lower volumes, as well as lower revenues per car/unit. Volumes decreased primarily due to lower natural gas prices, lower electricity demand driven by the pandemic, utility coal plant retirements and mild temperatures.

Railroad operating expenses declined 15.3% to \$12.4 billion in 2020 as compared to 2019. The ratio of railroad operating expenses to railroad operating revenues declined 2.9 percentage points to 61.6% in 2020 versus 2019. Railroad operating expenses in 2020 reflected lower volume-related costs, productivity improvements, the effects of cost control initiatives and improved weather conditions compared to 2019.

Compensation and benefits expenses decreased \$728 million (13.8%) in 2020 compared to 2019, primarily due to lower employee counts associated with lower volume and improved workforce productivity. Fuel expenses decreased \$1.2 billion (39.2%) compared to 2019, primarily due to lower average fuel prices, lower volumes and improved fuel efficiency. Purchased services expense declined \$95 million (4.6%) compared to 2019. The decrease was primarily due to lower volume, improved productivity and higher insurance recoveries in 2020 related to network flooding in 2019. Equipment rents, materials and other expense decreased \$344 million (17.0%) compared to 2019, primarily due to lower volume-related costs, the effects of cost controls and lower personal injury and derailment expenses.

Utilities and Energy

We currently own a 91.1% ownership interest in Berkshire Hathaway Energy Company ("BHE"), which operates a global energy business. BHE's domestic regulated utility interests include PacifiCorp, MidAmerican Energy Company ("MEC") and NV Energy. BHE subsidiaries also operate two regulated electricity distribution businesses referred to as Northern Powergrid in Great Britain. BHE's natural gas pipelines consist of five domestic regulated interstate natural gas pipeline systems and a 25% interest in a liquefied natural gas export, import and storage facility ("LNG interest"), which BHE operates and consolidates for financial reporting purposes. Three of the natural gas pipeline systems and the LNG interest were acquired on November 1, 2020 from Dominion Energy, Inc. ("BHE GT&S"). Other energy businesses include a regulated electricity transmission-only business in Alberta, Canada ("AltaLink, L.P.") and a diversified portfolio of mostly renewable independent power projects and investments. BHE also operates the largest residential real estate brokerage firm and one of the largest residential real estate brokerage franchise networks in the United States.

Management's Discussion and Analysis (Continued)

Utilities and Energy (Continued)

The rates our regulated businesses charge customers for energy and services are based in large part on the costs of business operations, including income taxes and a return on capital, and are subject to regulatory approval. To the extent such costs are not allowed in the approved rates, operating results will be adversely affected. A summary of BHE's net earnings follows (dollars in millions).

	2021	2020	2019
Revenues:			
Energy operating revenue	\$ 18,935	\$ 15,556	\$ 15,371
Real estate operating revenue	6,215	5,396	4,473
Other income (loss)	(163)	79	270
Total revenue	24,987	21,031	20,114
Costs and expense:			
Energy cost of sales	5,504	4,187	4,586
Energy operating expense	8,535	7,539	6,824
Real estate operating costs and expense	5,710	4,885	4,251
Interest expense	2,054	1,941	1,835
Total costs and expense	21,803	18,552	17,496
Pre-tax earnings	3,184	2,479	2,618
Income tax expense (benefit)*	(1,177)	(1,010)	(526)
Net earnings after income taxes	4,361	3,489	3,144
Noncontrolling interests of BHE subsidiaries	399	71	18
Net earnings attributable to BHE	3,962	3,418	3,126
Noncontrolling interests and preferred stock dividends	467	327	286
Net earnings attributable to Berkshire Hathaway shareholders	\$ 3,495	\$ 3,091	\$ 2,840
Effective income tax rate	(37.0)%	(40.7)%	(20.1)%

* Includes significant production tax credits from wind-powered electricity generation.

The discussion of BHE's operating results that follows is based on after-tax earnings, reflecting how the energy businesses are managed and evaluated. A summary of net earnings attributable to BHE follows (dollars in millions).

	2021	2020	2019	Percentage change	
				2021 vs 2020	2020 vs 2019
PacifiCorp	\$ 889	\$ 741	\$ 773	20.0%	(4.1)%
MidAmerican Energy Company	883	818	781	7.9	4.7
NV Energy	439	410	365	7.1	12.3
Northern Powergrid	247	201	256	22.9	(21.5)
Natural gas pipelines	774	528	422	46.6	25.1
Other energy businesses	680	697	608	(2.4)	14.6
Real estate brokerage	387	375	160	3.2	134.4
Corporate interest and other	(337)	(352)	(239)	(4.3)	47.3
	<u>\$ 3,962</u>	<u>\$ 3,418</u>	<u>\$ 3,126</u>	15.9	9.3

2021 versus 2020

PacifiCorp operates a regulated electric utility in portions of several Western states, including Utah, Oregon and Wyoming. After-tax earnings increased \$148 million in 2021 compared to 2020. The increase reflected higher utility margin (operating revenue less cost of sales) and increased income tax benefits from the impacts of ratemaking as well as higher production tax credits recognized on new wind-powered generating facilities placed in-service. The earnings increase was partially offset by lower allowances for equity and borrowed funds used during construction and higher operating expenses. Operating expenses in 2021 reflected increased depreciation expense from the impacts of a depreciation study effective January 1, 2021, and incremental costs associated with wind-powered generating facilities placed in-service, offset by lower costs associated with wildfires and a settlement agreement.

Management's Discussion and Analysis (Continued)

Utilities and Energy (Continued)

PacifiCorp utility margin was \$3.5 billion in 2021, an increase of \$145 million compared to 2020. The increase reflected higher retail revenue from increases in customer volumes and higher wholesale and other revenue, partially offset by higher thermal generation and purchased power costs. Retail customer volumes increased 3.1% in 2021 as compared to 2020, primarily due to higher customer usage, an increase in the average number of customers and the favorable impacts of weather.

MEC operates a regulated electric and natural gas utility primarily in Iowa and Illinois. After-tax earnings increased \$65 million in 2021 compared to 2020. The increase reflected higher electric utility margin and increased income tax benefits, partly offset by higher operating expenses. The increase in operating expenses included incremental costs associated with wind-powered generating facilities placed in-service and higher natural gas distribution costs, partially offset by lower storm restoration costs. The income tax benefit increases were mainly due to higher production tax credits recognized on new wind-powered generating facilities placed in-service, partially offset by the impacts of ratemaking.

MEC electric utility margin increased \$190 million to \$2.0 billion in 2021 compared to 2020. The electric utility margin increase was attributable to higher operating revenue from increases in retail and wholesale customer volumes, as well as favorable wholesale prices, partially offset by higher thermal generation and purchased power costs. Electric retail customer volumes increased 5.8% in 2021 as compared to 2020, primarily due to increased usage by certain industrial customers and the favorable impacts of weather.

NV Energy operates regulated electric and natural gas utilities in Nevada. After-tax earnings increased \$29 million in 2021 compared to 2020. The increase reflected lower operating expenses, lower net interest and finance expense and lower income tax expense from the impacts of ratemaking, partially offset by lower electric utility margin. The decreases in operating expenses were mainly due to lower earnings sharing, partially offset by higher depreciation expense from additional assets placed in-service.

NV Energy's electric utility margin decreased \$97 million to \$1.6 billion in 2021 compared to 2020. The decrease was primarily due to revenue reductions from lower base tariff general rates in 2021 and a favorable regulatory decision in 2020, partially offset by a 3.3% increase in electric retail customer volumes. The increase in electric retail customer volumes was primarily due to an increase in the average number of customers, higher customer usage and the favorable impacts of weather.

Northern Powergrid's after-tax earnings increased \$46 million in 2021 compared to 2020. The increase reflected higher tariff rates and units distributed, lower write-offs of gas exploration costs, lower pension expense and favorable foreign currency exchange rate movements in 2021, partially offset by the impact of increases in the United Kingdom corporate income tax rate. Earnings in 2021 included deferred income tax expense of \$109 million related to the enactment in June 2021 of an increase in the income tax rate from 19% to 25%, effective April 1, 2023. Earnings in 2020 included deferred income tax expense of \$35 million related to the enactment in July 2020 of an increase in the income tax rate from 17% to 19%, effective April 1, 2020.

Natural gas pipelines' after-tax earnings increased \$246 million in 2021 compared to 2020. Earnings in 2021 included BHE GT&S for the full year compared to two months in 2020. The incremental earnings in 2021 from BHE GT&S were \$211 million. In addition, earnings in 2021 reflected the effects of higher margins on natural gas sales and higher transportation revenue at Northern Natural Gas due to increased demand from the February 2021 winter storms, partially offset by lower transportation revenue primarily due to lower volumes for the remainder of the year.

Other energy businesses' after-tax earnings in 2021 decreased \$17 million compared to 2020. The decrease was mainly due to a decline in wind tax equity investment earnings of \$56 million, which included increased losses from pre-existing tax equity investments of \$165 million, largely attributable to the February 2021 winter storms, partially offset by increased income tax benefits from projects reaching commercial operation over the past twelve months. Earnings in 2021 from other energy projects increased due to higher operating revenue from owned renewable energy projects and a transmission investment, as well as favorable foreign currency exchange rate movements in 2021.

Real estate brokerage after-tax earnings increased \$12 million in 2021 compared to 2020. The increase was due to a comparative increase in closed brokerage transaction volumes in 2021, partially offset by lower funded mortgage volume due to a decrease in refinance activity.

Corporate interest and other after-tax earnings increased \$15 million in 2021 compared to 2020. The increase was primarily due to favorable comparative state income tax benefits and higher earnings from non-regulated energy services, offset by higher operating expenses and higher interest expense from corporate debt issued in 2020.

Management's Discussion and Analysis (Continued)

Utilities and Energy (Continued)

2020 versus 2019

PacifiCorp after-tax earnings decreased \$32 million in 2020 compared to 2019. The decrease reflected higher operating expenses and net interest expense, partially offset by increased production tax credit benefits driven by repowered wind projects placed in-service, higher utility margin and higher other income. The increase in operating expenses was largely due to costs associated with wildfires, a settlement agreement and pension benefits.

PacifiCorp utility margin was \$3.3 billion in 2020, an increase of \$47 million compared to 2019. The increase reflected higher operating revenue from an increase in average retail prices and lower generation and purchased power costs, partially offset by lower operating revenue from a decline in retail customer volumes. The decline in retail customer volumes was due to the impacts of the pandemic, partly offset by an increase in the average number of customers and the favorable impacts of weather.

MEC after-tax earnings increased \$37 million in 2020 compared to 2019. The increase reflected increased income tax benefits, primarily from production tax credits, driven by repowered and new wind projects placed in-service, and the effects of ratemaking. These effects were partially offset by higher depreciation expense from additional assets placed in-service, higher net interest expense, lower other income and lower electric and natural gas utility margins.

MEC electric utility margin decreased \$10 million to \$1.8 billion in 2020 compared to 2019. The electric utility margin decrease was attributable to lower operating revenue from unfavorable wholesale prices and price impacts from changes in retail sales mix. These effects were mostly offset by lower generation and purchased power costs and higher operating revenue from a 1.2% increase in retail customer volumes. The increase in electric retail customer volumes was primarily due to increased usage by certain industrial customers, partially offset by the impacts of the pandemic. Natural gas utility margin decreased \$9 million in 2020 compared to 2019, due to the unfavorable impacts of weather.

NV Energy after-tax earnings increased \$45 million in 2020 compared to 2019. The increase reflected higher electric utility margin and lower income tax expense from the favorable impacts of ratemaking, partially offset by higher operating expenses. The increase in operating expenses was mainly due to higher earnings sharing accruals for customers at Nevada Power Company and higher depreciation expense from additional assets placed in-service.

NV Energy electric utility margin increased \$100 million to \$1.7 billion in 2020 compared to 2019. The increase was primarily due to higher operating revenue from a 1.5% increase in electric retail customer volumes, including distribution-only service customers and price impacts from changes in retail sales mix. The increase in electric retail customer volumes was primarily due to the favorable impacts of weather, partially offset by the impacts of the pandemic.

Northern Powergrid after-tax earnings decreased \$55 million in 2020 compared to 2019. The earnings decrease reflected write-offs of gas exploration costs and higher income tax expense, in large part from a change in the United Kingdom corporate income tax rate, partially offset by lower pension costs and interest expense.

Natural gas pipelines after-tax earnings increased \$106 million in 2020 compared to 2019. The increase was primarily due to \$73 million of earnings from BHE GT&S, the favorable impact of a rate case settlement at Northern Natural Gas and higher transportation volume and rates, partially offset by higher depreciation, operating expenses and interest expenses.

Other energy business after-tax earnings in 2020 increased \$89 million compared to 2019. The increase was primarily due to increased income tax benefits from renewable wind tax equity investments, largely from projects reaching commercial operation, partially offset by lower operating revenue and higher operating expenses from geothermal and natural gas units.

Real estate brokerage after-tax earnings increased \$215 million in 2020 compared to 2019. The increase reflected higher earnings from mortgage and brokerage services. The increase in earnings from mortgage services was attributable to higher refinance activity from the favorable interest rate environment and the earnings increase from brokerage services was due to an increase of 13.1% in closed transaction dollar volume.

Corporate interest and other after-tax earnings decreased \$113 million in 2020 compared to 2019. The decline was primarily due to higher interest expense and lower state income tax benefits.

Management's Discussion and Analysis (Continued)

Manufacturing, Service and Retailing

A summary of revenues and earnings of our manufacturing, service and retailing businesses follows (dollars in millions).

	2021	2020	2019	Percentage change	
				2021 vs 2020	2020 vs 2019
Revenues					
Manufacturing	\$ 68,730	\$ 59,079	\$ 62,730	16.3%	(5.8)%
Service and retailing	84,282	75,018	79,945	12.3	(6.2)
	<u>\$ 153,012</u>	<u>\$ 134,097</u>	<u>\$ 142,675</u>	14.1	(6.0)
Pre-tax earnings					
Manufacturing	\$ 9,841	\$ 8,010	\$ 9,522	22.9%	(15.9)%
Service and retailing	4,711	2,879	2,843	63.6	1.3
	14,552	10,889	12,365	33.6	(11.9)
Income taxes and noncontrolling interests	3,432	2,589	2,993		
Net earnings*	<u>\$ 11,120</u>	<u>\$ 8,300</u>	<u>\$ 9,372</u>		
Effective income tax rate	<u>23.0%</u>	<u>23.3%</u>	<u>23.7%</u>		
Pre-tax earnings as a percentage of revenues	<u>9.5%</u>	<u>8.1%</u>	<u>8.7%</u>		

* Excludes certain acquisition accounting expenses, which primarily related to the amortization of identified intangible assets recorded in connection with our business acquisitions. The after-tax acquisition accounting expenses excluded from earnings above were \$690 million in 2021, \$783 million in 2020 and \$788 million in 2019. In 2020, net earnings also excluded after-tax goodwill and indefinite-lived intangible asset impairment charges of \$10.4 billion. These expenses are included in "Other" in the summary of earnings on page K-32 and in the "Other Berkshire corporate" earnings section on page K-56.

Manufacturing

Our manufacturing group includes a variety of industrial, building and consumer products businesses. A summary of revenues and pre-tax earnings of our manufacturing operations follows (dollars in millions).

	2021	2020	2019	Percentage change	
				2021 vs 2020	2020 vs 2019
Revenues					
Industrial products	\$ 28,176	\$ 25,667	\$ 30,594	9.8%	(16.1)%
Building products	24,974	21,244	20,327	17.6	4.5
Consumer products	15,580	12,168	11,809	28.0	3.0
	<u>\$ 68,730</u>	<u>\$ 59,079</u>	<u>\$ 62,730</u>		
Pretax earnings					
Industrial products	\$ 4,469	\$ 3,755	\$ 5,635	19.0%	(33.4)%
Building products	3,390	2,858	2,636	18.6	8.4
Consumer products	1,982	1,397	1,251	41.9	11.7
	<u>\$ 9,841</u>	<u>\$ 8,010</u>	<u>\$ 9,522</u>		
Pre-tax earnings as a percentage of revenues					
Industrial products	15.9%	14.6%	18.4%		
Building products	13.6%	13.5%	13.0%		
Consumer products	12.7%	11.5%	10.6%		

Management's Discussion and Analysis (Continued)

Manufacturing, Service and Retailing (Continued)

Industrial products

The industrial products group includes metal products for aerospace, power and general industrial markets (Precision Castparts Corp. ("PCC")), specialty chemicals (The Lubrizol Corporation ("Lubrizol")), metal cutting tools/systems (IMC International Metalworking Companies ("IMC")), and Marmon, which consists of more than 100 autonomous manufacturing and service businesses, internally aggregated into eleven groups, and includes equipment leasing for the rail, intermodal tank container and mobile crane industries. The industrial products group also includes equipment and systems for the livestock and agricultural industries (CTB International) and a variety of industrial products for diverse markets (Scott Fetzer and LiquidPower Specialty Products).

2021 versus 2020

Revenues of the industrial products group in 2021 increased \$2.5 billion (9.8%) from 2020. Pre-tax earnings increased \$714 million (19.0%) compared to 2020 and pre-tax earnings as a percentage of revenues in 2021 was 15.9%, an increase of 1.3 percentage points compared 2020.

PCC's revenues were \$6.5 billion in 2021, a decrease of \$853 million (11.6%) compared to 2020. Historically, PCC has derived significant revenues and earnings from aerospace products. The COVID-19 pandemic contributed to material declines in commercial air travel and original equipment manufacturing ("OEM") aircraft production in 2021 and 2020. While commercial air travel increased in both the U.S. and international markets in 2021 versus 2020, demand remains well below pre-pandemic levels, especially for international routes. Long-term industry forecasts continue to show growth and strong demand for travel, however, the recovery has been uneven between domestic and international markets. Air traffic recovery will continue to be impacted by the pandemic, though likely more on a seasonal or localized basis as the pandemic shifts to an endemic phase. Near term recovery in build rates will lag recovery in air travel due to the significant finished goods inventory following quality issues with the Boeing 737 and Boeing 787 planes and industry supply chain issues.

PCC's pre-tax earnings in 2021 were \$1.2 billion, an increase of 78.8% compared to 2020. The increase reflects the actions taken by management to resize, restructure and improve operations and to prepare for more normalized demand for PCC's products, as well as from a decline in restructuring costs. We do not expect significant increases in PCC's aerospace revenues or earnings to occur in the near term, primarily due to the relatively low aircraft build rates related to Boeing's significant inventory levels and the ongoing impact of the COVID-19 pandemic on commercial air travel.

Lubrizol's revenues were \$6.5 billion in 2021, an increase of 8.6% compared to 2020. The increase reflects higher average selling prices, driven by significant increases in materials and other manufacturing costs, as well as slightly higher volumes. Sales volumes in the Additives product lines were negatively affected by severe winter storms in February 2021, which caused the temporary shut-down of several U.S. facilities, as well as other temporary production shut-downs in the second half of 2021.

Lubrizol's pre-tax earnings in 2021 decreased 50.8% compared to 2020. Earnings in 2021 included significant losses related to a fire in June 2021 at a facility of Chemtool Incorporated, a Lubrizol subsidiary, located in Rockton, Illinois and impairment charges in the second half of 2021 related to an underperforming business in the Advanced Materials product lines. These losses and charges aggregated \$257 million in 2021. Earnings in 2021 were also negatively impacted by the effects of accelerating raw material costs and the previously mentioned temporary shut-down of Additives production facilities, which resulted in lost sales and incremental manufacturing costs.

Marmon's revenues were \$9.8 billion in 2021, an increase of \$2.1 billion (27.9%) compared to 2020. Revenues in 2021 from the Electrical, Metal Services and Plumbing & Refrigeration groups increased 54% over 2020, accounting for over half of the aggregate increase in Marmon's revenues. These increases were attributable to higher volumes and prices, including the impact of significantly higher average copper and metal prices. Revenues of most of Marmon's other groups, particularly those serving the construction, automotive, heavy-duty truck and restaurant markets, also increased in 2021, reflecting higher volumes and favorable foreign currency translation effects. These increases were partially offset by the impact of divestitures and business closures in the Water Technologies and Retail Solutions groups and lower lease revenues in the Rail & Leasing group, reflecting fewer railcars on lease and changes in lease mix.

Marmon's pre-tax earnings in 2021 increased 40.3% compared to 2020. The increase was primarily due to earnings increases in the Electrical, Metal Services and Plumbing & Refrigeration groups due to higher volumes and average margins. Earnings of several other business groups also increased attributable to higher sales volumes, sales mix changes and lower restructuring charges, which were partially offset by lower earnings from the Rail & Leasing and Water Technologies groups.

Management's Discussion and Analysis (Continued)

Manufacturing, Service and Retailing (Continued)

Industrial products (Continued)

IMC's revenues increased 19.5% in 2021 compared to 2020, reflecting improving business conditions in most geographic regions and favorable foreign currency translation effects. IMC's pre-tax earnings increased 47.7% in 2021 versus 2020, primarily attributable to higher customer demand, improved manufacturing efficiencies, operating cost management saving initiatives and favorable foreign currency translation effects.

2020 versus 2019

Revenues of the industrial products group in 2020 declined \$4.9 billion (16.1%) from 2019, while pre-tax earnings declined \$1.9 billion (33.4%). Pre-tax earnings as a percentage of revenues for the group was 14.6% in 2020 compared to 18.4% in 2019.

PCC's revenues were \$7.3 billion in 2020, a decrease of \$3.0 billion (28.9%) compared to 2019. The COVID-19 pandemic contributed to material declines in commercial air travel and aircraft production. Airlines responded to the pandemic by delaying delivery of aircraft orders or, in some cases, cancelling aircraft orders, resulting in significant reductions in build rates by aircraft manufacturers and significant inventory reduction initiatives by PCC's customers. Further, Boeing's 737 MAX aircraft production issues contributed to the declines in aerospace product sales across the industry in 2020. These factors resulted in significant declines in demand for PCC's aerospace products in 2020. PCC's sales of products for power markets increased 2.2% in 2020, primarily driven by increases in industrial gas turbine products, offset by reductions in oil and gas products.

PCC's pre-tax earnings were \$650 million in 2020, a decrease of 64.5% compared to 2019, which reflected the decline in aerospace product sales as well as increased manufacturing inefficiencies attributable to lower volumes. In response to the effects of the pandemic, PCC took aggressive restructuring actions to resize operations in response to reduced expected volumes in aerospace markets. PCC's worldwide workforce was reduced by about 40% from the end of 2019. PCC recorded restructuring, inventory and fixed asset charges of approximately \$295 million in 2020. Earnings as a percentage of revenues were negatively impacted in 2020 due to inefficiencies associated with aligning operations to reduced aircraft build rates.

Lubrizol's revenues were \$5.95 billion in 2020, a decrease of 8.0% compared to 2019. The decline was primarily attributable to lower volumes from economic effects of the pandemic and a fire at an Additives manufacturing, blending and storage facility in Rouen, France at the end of the third quarter of 2019, which resulted in the temporary suspension of operations. Revenues in 2020 also reflected lower selling prices, partly offset by favorable changes in sales mix. Lubrizol's consolidated volume for the year declined 9% in 2020 compared to 2019 due to declines in the Additives and Engineered Materials product lines, partly offset by higher volumes in Life Science products.

Lubrizol's pre-tax earnings in 2020 were approximately \$1.0 billion, essentially unchanged compared to 2019. The effects of lower sales volumes, including the effects from the Rouen fire, and lower average selling prices were offset by lower average raw material costs, lower operating expenses and insurance recoveries in 2020 associated with the Rouen fire.

Marmon's revenues were \$7.6 billion in 2020, a decrease of \$681 million (8.2%) compared to 2019. Excluding the effects of business acquisitions, revenues decreased in essentially all groups, primarily attributable to lower demand from the effects of the pandemic. The largest effects were experienced in the Transportation Products and Foodservice Technologies groups. Additionally, revenues decreased due to lower metal prices in the Metal Services group and the effect of business divestitures in 2019. Declines in oil prices in 2020 also adversely affected demand and revenues in the Rail & Leasing and Crane Services groups. Marmon acquired the Colson Medical companies on October 31, 2019, which represents Marmon's Medical group.

Marmon's pre-tax earnings in 2020 decreased \$312 million (24.3%) compared to 2019. The decrease reflected the declines in revenues and increased restructuring charges. Restructuring initiatives were initiated in response to the lower product demand, particularly in the sectors most impacted by the pandemic.

Management's Discussion and Analysis (Continued)

Manufacturing, Service and Retailing (Continued)

Industrial products (Continued)

IMC's revenues declined 13.2% in 2020 compared to 2019, reflecting negative economic effects from the pandemic on demand for cutting tools in most geographic regions, partly offset by the effects of business acquisitions. IMC's pre-tax earnings declined 26.6% in 2020 versus 2019, attributable to declines in sales and margins due to lower volumes and to changes in sales mix.

Building products

The building products group includes manufactured and site-built home construction and related lending and financial services (Clayton Homes), flooring (Shaw), insulation, roofing and engineered products (Johns Manville), bricks and masonry products (Acme Building Brands), paint and coatings (Benjamin Moore) and residential and commercial construction and engineering products and systems (MiTek).

2021 versus 2020

Revenues of the building products group increased \$3.7 billion (17.6%) in 2021 and pre-tax earnings increased \$532 million (18.6%) compared to 2020. Pre-tax earnings as percentages of revenues were 13.6% in 2021 and 13.5% in 2020. During 2021, our businesses experienced strong customer demand and higher sales volumes. We also experienced various forms of supply chain disruptions, which affected the general economy, and contributed to considerable raw material and logistics cost inflation and supply constraints.

Clayton Homes' revenues were approximately \$10.5 billion in 2021, an increase of \$1.9 billion (22.2%) over 2020. Revenues from home sales increased \$1.8 billion (26.5%) in 2021 to approximately \$8.3 billion, reflecting increased revenue per home sold, changes in sales mix and a net increase in new units sold. Unit sales of site-built homes increased 15.8% in 2021, while factory-built manufactured home unit sales increased 1.5%. Site-built home unit sales were constrained by longer construction periods arising from supply chain constraints and labor shortages. Financial services revenues, which include mortgage origination and services, insurance and interest income from lending activities, increased 7.8% in 2021 compared to 2020. Loan balances, net of allowances for credit losses, were approximately \$18.8 billion as of December 31, 2021, an increase of approximately \$1.7 billion compared to December 31, 2020.

Pre-tax earnings of Clayton Homes were approximately \$1.7 billion in 2021, an increase of \$440 million (35.3%) compared to 2020. Earnings in 2021 reflected higher earnings from home sales, mortgage originations, net interest income and lower provisions for expected credit losses, partially offset by the impact of rising manufacturing and supply chain costs. The provision for expected credit losses in 2020 was unusually high and included provisions for the expected impact of the COVID-19 pandemic. The comparative decline in the provision for expected credit losses was due to fewer actual and anticipated loan foreclosures.

Aggregate revenues of our other building products businesses were approximately \$14.5 billion in 2021, an increase of 14.4% versus 2020. The increase was primarily due to higher average selling prices driven by significantly higher input and supply chain costs, as well as higher unit volumes for paint and coatings, flooring, insulation, roofing and other engineered products.

Pre-tax earnings of the other building products businesses were approximately \$1.7 billion in 2021, an increase of 5.7% over 2020. Pre-tax earnings as a percentage of revenues was 11.8% in 2021, a 1.0 percentage point decrease compared to 2020. While customer demand in 2021 was generally strong, reduced availability of materials and other product inputs from supply chain disruptions negatively affected sales and operating results. In addition, higher costs for raw materials and freight and higher restructuring and impairment charges contributed to the reduction in our pre-tax margin rates.

2020 versus 2019

Revenues of the building products group increased \$917 million (4.5%) in 2020 compared to 2019 and pre-tax earnings increased \$222 million (8.4%) over 2019. Pre-tax earnings as percentages of revenues were 13.5% in 2020 and 13.0% in 2019.

Management's Discussion and Analysis (Continued)

Manufacturing, Service and Retailing (Continued)

Building products (Continued)

Clayton Homes' revenues were approximately \$8.6 billion in 2020, an increase of \$1.3 billion (17.1%) over 2019. The increase was primarily due to increases in home sales of \$1.0 billion (18.4%), driven by increases in units sold and revenue per home sold and by changes in sales mix. Unit sales of site-built homes increased 28.6% in 2020 over 2019, while revenue per home increased slightly. Manufactured home unit sales increased 2.8% in 2020. Financial services revenues increased 13.7% in 2020 compared to 2019, attributable to increased loan originations and average outstanding loan balances. Loan balances, net of allowances for credit losses, were approximately \$17.1 billion at December 31, 2020 compared to \$15.9 billion as of December 31, 2019.

Pre-tax earnings of Clayton Homes were approximately \$1.25 billion in 2020, an increase of \$152 million (13.9%) compared to 2019. The earnings increase reflected higher earnings from home sales, partly offset by higher materials costs, which lowered manufactured housing gross margin rates. Earnings in 2020 also benefitted from increased interest income, lower interest expense and higher earnings from mortgage services, partly offset by increased provisions for credit and insurance losses.

Aggregate revenues of our other building products businesses were approximately \$12.6 billion in 2020, a decrease of 2.6% versus 2019. The revenue decrease reflected lower flooring volumes, in part attributable to the negative effects of the COVID-19 pandemic, partially offset by increased paint and coatings volumes, including volumes from a new agreement with Ace Hardware Stores, and increased volumes in residential markets.

Pre-tax earnings of the other building products businesses were approximately \$1.6 billion in 2020, an increase of 4.6% over 2019. The earnings increase reflected the effects of lower average input costs, operating cost containment efforts and lower facilities closure costs.

Consumer products

The consumer products group includes leisure vehicles (Forest River), several apparel and footwear operations (including Fruit of the Loom, Garan, H.H. Brown Shoe Group and Brooks Sports) and a manufacturer of high-performance alkaline batteries (Duracell). This group also includes custom picture framing products (Larson-Juhl) and jewelry products (Richline).

2021 versus 2020

Consumer products revenues increased \$3.4 billion (28.0%) in 2021 versus 2020. Revenues from Forest River increased 40.2% in 2021 compared to 2020, driven by a 27.6% increase in recreational vehicle unit sales and higher average selling prices, primarily due to significant increases in manufacturing costs.

Revenues of several of our other consumer products businesses were significantly higher in 2021 as compared to 2020. The initial impacts of the pandemic in the first half of 2020 from temporary retail store closures and reduced demand had a severe impact on most of these businesses. Apparel and footwear revenues increased 25.3% in 2021 compared to 2020, reflecting significant increases in unit sales, partly attributable to inventory restocking by certain customers, and from increased consumer demand. Revenues from Richline increased 39.9%, while revenues from Duracell increased 2.4%.

Consumer products pre-tax earnings increased \$585 million (41.9%) in 2021 compared to 2020 and as a percentage of revenues in 2021 increased 1.2 percentage points to 12.7%. The increase reflected significant earnings increases at many of our businesses, driven by Forest River, the apparel and footwear businesses, Richline and Larson-Juhl. However, our consumer products businesses, particularly the apparel and footwear businesses, also experienced significant cost increases and supply chain disruptions, causing pre-tax margins in the second half of 2021 to be 1.1 percentage points lower than in the first half of the year.

2020 versus 2019

Consumer products revenues increased \$359 million (3.0%) in 2020 versus 2019, while pre-tax earnings increased \$146 million (11.7%). Pre-tax earnings as a percentage of revenues in 2020 increased 0.9 percentage points to 11.5%.

Management's Discussion and Analysis (Continued)**Manufacturing, Service and Retailing (Continued)***Consumer products (Continued)*

The comparative increase in revenues reflected increases from Forest River and Duracell, partially offset by lower apparel and footwear revenues. Forest River revenues increased 11.7% in 2020 compared to 2019, primarily attributable to a significant increase in recreational vehicle unit sales over the last half of the year and changes in sales mix. Unit sales in the second half of 2020 increased 31% over the second half of 2019. Revenues from Duracell increased 10.0% in 2020 compared to 2019, reflecting the effects of changes in sales mix and increased volume. Apparel and footwear revenues declined 6.1% in 2020 compared to 2019.

Apparel and footwear sales volumes in the first half of 2020, particularly in the second quarter, reflected the negative effects of the pandemic, which included retail store closures, reduced or cancelled orders and pandemic-related disruptions at certain manufacturing facilities. Sales recovered somewhat in the second half of 2020, attributable to higher consumer demand and inventory restocking by retailers. Brooks Sports revenues were higher, partly attributable to the effect of the reduced sales in 2019 that were caused by shipping delays at a new distribution facility.

Pre-tax earnings were \$1.4 billion in 2020, an increase of \$146 million (11.7%) compared to 2019. The increase was primarily attributable to Forest River and Duracell, partially offset by lower earnings from apparel and footwear. The overall increase reflected the effects of sales volumes changes and ongoing expense management efforts.

Service and retailing

A summary of revenues and pre-tax earnings of our service and retailing businesses follows (dollars in millions).

	2021	2020	2019	Percentage change	
				2021 vs 2020	2020 vs 2019
Revenues					
Service	\$ 15,872	\$ 12,346	\$ 13,496	28.6%	(8.5)%
Retailing	18,960	15,832	15,991	19.8	(1.0)
McLane	49,450	46,840	50,458	5.6	(7.2)
	<u>\$ 84,282</u>	<u>\$ 75,018</u>	<u>\$ 79,945</u>		
Pre-tax earnings					
Service	\$ 2,672	\$ 1,600	\$ 1,681	67.0%	(4.8)%
Retailing	1,809	1,028	874	76.0	17.6
McLane	230	251	288	(8.4)	(12.8)
	<u>\$ 4,711</u>	<u>\$ 2,879</u>	<u>\$ 2,843</u>		
Pre-tax earnings as a percentage of revenues					
Service	16.8%	13.0%	12.5%		
Retailing	9.5%	6.5%	5.5%		
McLane	0.5%	0.5%	0.6%		

Service

Our service group consists of several businesses. The largest of these businesses are NetJets and FlightSafety (aviation services), which offer shared ownership programs for general aviation aircraft and high technology training products and services to operators of aircraft, and TTI, a distributor of electronics components. Our other service businesses franchise and service a network of quick service restaurants (Dairy Queen), lease transportation equipment (XTRA) and furniture (CORT), provide third party logistics services that primarily serve the petroleum and chemical industries (Charter Brokerage), distribute electronic news, multimedia and regulatory filings (Business Wire) and operate a television station in Miami, Florida (WPLG).

Management's Discussion and Analysis (Continued)

Manufacturing, Service and Retailing (Continued)

Service (Continued)

2021 versus 2020

Service group revenues increased \$3.5 billion (28.6%) in 2021 compared to 2020, primarily attributable to higher revenues from TTI and the aviation services businesses. Revenues from TTI increased 37.4% in 2021 versus 2020, primarily attributable to significantly higher volumes across all significant markets and product categories, and to a lesser extent, higher average prices and changes in sales mix. Customer demand accelerated throughout 2021, as customers attempted to maintain adequate inventories in response to high demand for components in end products and effects of supply chain disruptions. Revenues from aviation services increased 27.5% in 2021 over low 2020 levels, primarily due to higher training hours (24%) and customer flight hours (70%).

Pre-tax earnings of our service business group increased \$1.1 billion (67.0%) to \$2.7 billion. Pre-tax earnings of the group as a percentage of revenues were 16.8% in 2021, an increase of 3.8 percentage points compared to 2020. Earnings at nearly all service businesses increased in 2021 compared to 2020, with the largest increases from TTI, the aviation services businesses and the XTRA leasing business. TTI's earnings increase was primarily attributable to the increases in sales volumes, as well as from improved operating cost leverage and changes in sales mix. The increase in earnings from aviation services was attributable to the favorable effects of higher volume, changes in business mix, increased operating efficiencies, lower impairment charges and the effects of past restructuring efforts, partly offset by higher subcontractor costs attributable to the significant increase in flight demand.

2020 versus 2019

Service group revenues declined \$1.15 billion (8.5%) in 2020 compared to 2019 and pre-tax earnings decreased \$81 million (4.8%). Pre-tax earnings of the group as a percentage of revenues were 13.0% in 2020, an increase of 0.5 percentage points compared to 2019.

The aggregate revenues of NetJets and FlightSafety in 2020 declined \$816 million (13.5%) compared to 2019, reflecting lower demand for air travel and aviation services attributable to the COVID-19 pandemic. NetJets experienced a decline in customer flight hours of 27% and FlightSafety's commercial and corporate simulator training hours declined 30% from 2019. The comparative service group revenue decline also reflected the disposition of the newspaper operations in March of 2020 and lower revenues from CORT, which was driven by lower demand attributable to the pandemic. These declines were partially offset by revenue increases from TTI and WPLG.

The decline in earnings reflected lower earnings from NetJets, TTI and CORT and the divestiture of the newspaper operations, partly offset by higher earnings from XTRA, Business Wire, WPLG and FlightSafety. TTI's earnings decline reflected lower average gross margin rates, attributable to product mix changes and sales price pressures deriving from ample inventory availability. The decline at NetJets was primarily attributable to increased asset impairment charges and restructuring costs, partly offset by lower general and administrative expenses and a slight net increase in margins. The decline at CORT was driven by lower revenues, partly offset by the effects of cost control initiatives. The increase at FlightSafety was attributable to the effects of contract losses of approximately \$165 million recorded in 2019 with respect to an existing government contract and cost control efforts in 2020, which more than offset significantly lower earnings from commercial and corporate training services.

Retailing

Our largest retailing business is Berkshire Hathaway Automotive, Inc. ("BHA"), representing 62% of our combined retailing revenue in 2021. BHA consists of over 80 auto dealerships that sell new and pre-owned automobiles and offer repair services and related products. BHA also operates two insurance businesses, two auto auctions and an automotive fluid maintenance products distributor. Our retailing businesses also include four home furnishings retailing businesses (Nebraska Furniture Mart, R.C. Willey, Star Furniture and Jordan's), which sell furniture, appliances, flooring and electronics. The home furnishings group represented 21% of the combined retailing revenues in 2021.

Other retailing businesses include three jewelry retailing businesses (Borsheims, Helzberg and Ben Bridge), See's Candies (confectionary products), Pampered Chef (high quality kitchen tools), Oriental Trading Company (party supplies, school supplies and toys and novelties) and Detlev Louis Motorrad ("Louis"), a retailer of motorcycle accessories based in Germany.

Management's Discussion and Analysis (Continued)

Manufacturing, Service and Retailing (Continued)

Retailing (Continued)

2021 versus 2020

Retailing group revenues in 2021 increased \$3.1 billion (19.8%) compared to 2020. BHA's revenues increased 19.0% in 2021 compared to 2020, with vehicle sales, service and repair, and finance and service contract revenues each increasing versus 2020. Revenues from vehicle sales in 2021 increased \$1.7 billion (20.7%) versus 2020, primarily due to higher average selling prices, as well as a 2.7% increase in units sold. However, new vehicle unit sales in the second half of 2021 declined 18% compared to the second half of 2020, reflecting significant new vehicle supply shortages at OEMs attributable to the global computer chip shortages and other supply chain disruptions. Home furnishings group revenues increased 22.0% in 2021 as compared to 2020, attributable to higher consumer demand and higher average selling prices, driven by higher inventory and freight costs.

Pre-tax earnings in 2021 of the retailing group increased \$781 million (76.0%) from 2020 and the pre-tax margin rate increased 3.0 percentage points to 9.5%. BHA's pre-tax earnings increased 47.5% in 2021 compared to 2020, primarily due to increased vehicle sales margins and higher earnings from finance and service contract activities. In addition, earnings in 2021 benefitted from lower floorplan interest expense, attributable to significant declines in inventory levels, and from ongoing operating cost control efforts.

Home furnishings group pre-tax earnings increased 67.6% in 2021 versus 2020, reflecting generally higher average gross margin rates and sales mix changes and cost control efforts, partly offset by higher personnel costs. Aggregate pre-tax earnings for the remainder of our retailing group increased \$321 million in 2021 compared to 2020. The initial effects of the pandemic in 2020 were severe for most of our other retailers due to the restricted operations at many of those businesses. Results in 2021 also benefitted from relatively strong consumer demand and the effects of restructuring efforts in 2020.

2020 versus 2019

Retailing group revenues in 2020 declined \$159 million (1.0%) compared to 2019. The spread of COVID-19 resulted in the temporary closures or restricted operations at several of our retailing businesses and effected consumer spending patterns during 2020. The severity and duration of the effects from the pandemic varied widely at our retail operations.

BHA's revenues decreased 2.9% in 2020 compared to 2019. BHA's revenues in 2020 reflected decreases in new and pre-owned vehicle sales of 2.6%, as well as lower vehicle service and repair revenues. Home furnishings revenues were essentially unchanged in 2020 compared to 2019. The retailing group experienced lower revenues in the first half of 2020, attributable to restricted store hours, which were substantially offset by increased revenues over the second half of the year. However, supply chain disruptions had a negative effect on obtaining product at certain times, which negatively affected sales levels.

The effects of the pandemic contributed to significantly lower sales in 2020 for our jewelry stores, See's Candies and Oriental Trading Company, which were more than offset by significant revenue increases from Pampered Chef and Louis. Sales volumes generally increased and operating results improved beginning in the latter part of the second quarter as our operations slowly reopened.

Retail group pre-tax earnings increased \$154 million (17.6%) in 2020 from 2019. BHA's pre-tax earnings increased 37.7%, primarily due to lower selling, general and administrative expenses, lower floorplan interest expense and higher average gross sales margin rates. Aggregate pre-tax earnings for the remainder of our retailing group increased 1.1% in 2020 compared to 2019, reflecting higher earnings from the home furnishings businesses and from Pampered Chef, which were substantially offset by lower earnings from our other retailing operations.

Home furnishings group pre-tax earnings increased \$79 million (36%) in 2020 versus 2019, reflecting generally higher average gross margin rates, sales mix changes and fewer sales promotions and lower advertising and other operating expenses. Certain of our other operations, including Pampered Chef and Louis experienced significant earnings increases in 2020, while others, including See's Candies and Oriental Trading Company, experienced significant declines driven by the negative effects of the pandemic.

Management's Discussion and Analysis (Continued)

Manufacturing, Service and Retailing (Continued)

Retailing (Continued)

McLane

McLane Company, Inc. ("McLane") operates a wholesale distribution business that provides grocery and non-food consumer products to retailers and convenience stores ("grocery") and to restaurants ("foodservice"). McLane also operates businesses that are wholesale distributors of distilled spirits, wine and beer ("beverage"). The grocery and foodservice businesses generate high sales and very low profit margins. These businesses have several significant customers, including Walmart, 7-Eleven, Yum! Brands and others. Grocery sales comprised about 63% of McLane's consolidated sales in 2021 with food service comprising most of the remainder. A curtailment of purchasing by any of its significant customers could have an adverse impact on periodic revenues and earnings.

2021 versus 2020

Revenues increased \$2.6 billion (5.6%) in 2021 compared to 2020. Revenues from the grocery business increased 1.5% compared to 2020, while revenues from the foodservice and beverage businesses increased 13.1% and 17.8%, respectively. The foodservice business was significantly impacted by pandemic-related restaurant closures in 2020.

Pre-tax earnings decreased \$21 million (8.4%) in 2021 as compared to 2020. The decrease reflected significant increases in personnel, contract transportation and fuel costs, which more than offset the favorable impact of higher sales and slightly higher gross sales margins. McLane's grocery and food service operations were significantly affected in 2021 by upstream supply chain constraints, including the effects of labor and truck driver shortages, which contributed to higher inventory costs reflected in a LIFO inventory reserve increase of \$130 million, and disruptions in inventory availability. These upstream supply chain effects, together with the truck driver and warehouse personnel shortages that we are experiencing, adversely affected our customer service levels and reduced our operating efficiencies. In response, our hiring and wage and benefits costs increased significantly in 2021. The increase in fuel expense was primarily attributable to significant increases in petroleum prices. We expect the current difficult operating environment to continue through 2022.

2020 versus 2019

Revenues declined \$3.6 billion (7.2%) in 2020 compared to 2019. The decline was attributable to COVID-19-related restaurant closures (particularly in the casual dining category) in the foodservice business and lower sales in certain product categories within the grocery business. McLane operates on a 52/53-week fiscal year and 2020 included 52 weeks compared to 53 weeks in 2019. Otherwise, revenues declined 5.2% in the grocery business and 7.7% in the foodservice business in 2020 as compared to 2019.

Pre-tax earnings decreased \$37 million (12.8%) in 2020 as compared to 2019. The earnings decrease included the effects of increased LIFO inventory reserves of \$22 million, credit and inventory losses of \$12 million in the foodservice operations and the impact of lower sales.

Investment and Derivative Contract Gains/Losses

A summary of investment and derivative contract gains/losses follows (dollars in millions).

	2021	2020	2019
Investment gains/losses	\$ 77,576	\$ 40,905	\$ 71,123
Derivative contract gains/losses	966	(159)	1,484
Gains/losses before income taxes and noncontrolling interests	78,542	40,746	72,607
Income taxes and noncontrolling interests	16,202	9,155	15,162
Net earnings	\$ 62,340	\$ 31,591	\$ 57,445
Effective income tax rate	20.4%	21.7%	20.9%

Management's Discussion and Analysis (Continued)**Investment and Derivative Contract Gains/Losses (Continued)***Investment gains/losses*

Unrealized gains and losses arising from changes in market prices of our investments in equity securities are included in our reported earnings, which significantly increases the volatility of our periodic net earnings due to the magnitude of our equity securities portfolio and the inherent volatility of equity securities prices. Pre-tax investment gains/losses included net unrealized gains of approximately \$76.4 billion in 2021, \$55.0 billion in 2020 and \$69.6 billion in 2019 attributable to changes in market prices of equity securities we held at the end of each year. In each year, we also recorded pre-tax gains and losses from market value changes during each year on equity securities sold during such year, including gains of \$1.0 billion in 2021, losses of \$14.0 billion in 2020 and gains of \$1.6 billion in 2019. Taxable investment gains on equity securities sold, which is generally the difference between sales proceeds and the original cost basis of the securities sold, were \$3.6 billion in 2021, \$6.2 billion in 2020 and \$3.2 billion in 2019.

We believe that investment gains/losses, whether realized from sales or unrealized from changes in market prices, are often meaningless in terms of understanding our periodic consolidated earnings or evaluating our periodic economic performance. We continue to believe the investment gains/losses recorded in earnings, including the changes in market prices for equity securities, in any given period has little analytical or predictive value.

Derivative contract gains/losses

Derivative contract gains/losses include the changes in fair value of our equity index put option contract liabilities, which relate to contracts that were originated prior to March 2008. A vast majority of these contracts have since expired. Contracts comprising 63% of the remaining notional value as of December 31, 2021 will expire in the first quarter of 2022. The periodic changes in the fair values of these liabilities are recorded in earnings and, historically, were significant, primarily due to the volatility of underlying equity markets. As of December 31, 2021, the intrinsic value of our equity index put option contracts was near zero and our recorded liability at fair value was approximately \$99 million. Our ultimate payment obligations, if any, under our contracts will be determined as of the contract expiration dates based on the intrinsic value as defined under the contracts. The pre-tax gains and losses in each of the past three years reflected changes in the equity index values and shorter remaining contract durations. Settlement payments to counterparties over the past three years were insignificant.

Other

A summary of after-tax other earnings/losses follows (in millions).

	2021	2020	2019
Equity method earnings	\$ 881	\$ 665	\$ 1,023
Acquisition accounting expenses	(690)	(783)	(788)
Goodwill and intangible asset impairments	—	(10,381)	(96)
Corporate interest expense, before foreign currency effects	(305)	(334)	(280)
Foreign currency exchange rate gains (losses) on Berkshire and BHFC non-U.S. Dollar senior notes	955	(764)	58
Other Berkshire corporate	474	279	507
	<u>\$ 1,315</u>	<u>\$ (11,318)</u>	<u>\$ 424</u>

After-tax equity method earnings include our proportionate share of earnings attributable to our investments in Kraft Heinz, Pilot, Berkadia, Electric Transmission of Texas and Iroquois Gas Transmission Systems. Our after-tax earnings from Kraft Heinz were \$317 million in 2021, \$170 million in 2020 and \$488 million in 2019. Our earnings from Kraft Heinz included our after-tax share of goodwill and other intangible asset impairment charges recorded by Kraft Heinz in each year. Our after-tax share of such charges was \$259 million in 2021, \$611 million in 2020 and \$339 million in 2019.

Management's Discussion and Analysis (Continued)

Other (Continued)

After-tax acquisition accounting expenses include charges arising from the application of the acquisition method in connection with certain of Berkshire's past business acquisitions. Such charges arise primarily from the amortization or impairment of intangible assets recorded in connection with those business acquisitions. Goodwill and intangible asset impairments in 2020 included after-tax charges of \$9.8 billion attributable to impairments of goodwill and certain identifiable intangible assets that were recorded in connection with our acquisition of PCC in 2016. See Other Critical Accounting Policies on page K-62 for additional details.

Foreign currency exchange rate gains and losses pertain to Berkshire's Euro and Japanese Yen denominated debt and BHFC's Great Britain Pound denominated debt. Changes in foreign currency exchange rates produce unrealized gains and losses from the periodic revaluation of these liabilities into U.S. Dollars. The gains and losses recorded in any given period can be significant due to the magnitude of the borrowings and the inherent volatility in foreign currency exchange rates. Berkshire corporate items consist primarily of Berkshire parent company investment income and corporate expenses, other intercompany interest income where the interest expense is included in earnings of the operating businesses and unallocated income taxes.

Financial Condition

Our consolidated balance sheet continues to reflect very significant liquidity and a very strong capital base. Consolidated shareholders' equity at December 31, 2021 was \$506.2 billion, an increase of \$63.0 billion since December 31, 2020. Net earnings attributable to Berkshire shareholders was \$89.8 billion and included after-tax gains on our investments of approximately \$61.6 billion. Over each of the last three years, investment gains and losses from changes in the market prices of our investments in equity securities produced exceptional volatility in our periodic earnings.

Berkshire's common stock repurchase program, as amended, permits Berkshire to repurchase its Class A and Class B shares at prices below Berkshire's intrinsic value, as conservatively determined by Warren Buffett, Berkshire's Chairman of the Board and Chief Executive Officer, and Charlie Munger, Vice Chairman of the Board. The program does not specify a maximum number of shares to be repurchased and does not require any specified repurchase amount. The program is expected to continue indefinitely. We will not repurchase our stock if it reduces the total amount of Berkshire's consolidated cash, cash equivalents and U.S. Treasury Bill holdings below \$30 billion. Financial strength and redundant liquidity will always be of paramount importance at Berkshire. Berkshire paid \$27.1 billion in 2021 to repurchase shares of its Class A and B common stock.

At December 31, 2021, our insurance and other businesses held cash, cash equivalents and U.S. Treasury Bills of \$143.9 billion, which included \$119.6 billion in U.S. Treasury Bills. Investments in equity and fixed maturity securities (excluding our investment in Kraft Heinz) were \$367.2 billion. Our fixed maturity securities at December 31, 2021 included approximately \$14.4 billion of investments that mature in 2022 and 2023.

Our consolidated borrowings at December 31, 2021 were \$114.3 billion, of which over 95% were by the Berkshire parent company, BHFC, BNSF and BHE and its subsidiaries. Expected principal and interest payments related to our consolidated borrowings in each of the next five years are (in billions): \$10.2 in 2022; \$14.6 in 2023; \$9.7 in 2024; \$9.9 in 2025; and \$8.7 in 2026.

Berkshire parent company debt outstanding at December 31, 2021 was \$21.4 billion, a decrease of \$1.3 billion since December 31, 2020, which was primarily due to the effects of foreign currency exchange rate changes on Euro and Japanese Yen denominated debt. In 2021, Berkshire repaid Euro and U.S. Dollar denominated debt aggregating approximately \$2.2 billion of maturing senior notes and issued Euro and Yen denominated senior notes aggregating approximately \$2.2 billion with maturity dates ranging from 2026 to 2041 and a weighted average interest rate of 0.5%. In January 2022, Berkshire repaid \$600 million of maturing senior notes and issued ¥128.5 billion (approximately \$1.1 billion) of senior notes with maturity dates ranging from 2027 to 2052 and a weighted average interest rate of 0.5%.

Berkshire's insurance and other subsidiary outstanding borrowings were approximately \$17.9 billion at December 31, 2021, which included senior note borrowings of BHFC, a wholly-owned financing subsidiary, of approximately \$13.1 billion. BHFC's borrowings are used to fund a portion of loans originated and acquired by Clayton Homes and equipment held for lease by our railcar leasing business. In 2021, BHFC repaid \$750 million of maturing senior notes and issued \$750 million of 2.5% senior notes due in 2051. Berkshire guarantees BHFC's senior notes for the full and timely payment of principal and interest.

Management's Discussion and Analysis (Continued)

Financial Condition (Continued)

BNSF's outstanding debt was \$23.2 billion as of December 31, 2021, relatively unchanged from December 31, 2020. During 2021, BNSF repaid \$1.54 billion of debt and issued \$1.55 billion of debentures with a weighted average interest rate of 3.1% with maturity dates in 2051 and 2052. Outstanding borrowings of BHE and its subsidiaries were \$51.8 billion at December 31, 2021, a decrease of \$382 million since December 31, 2020. In 2021, BHE and its subsidiaries issued new term debt of approximately \$2.2 billion with maturity dates ranging from 2028 to 2052 and repaid term debt of approximately \$2.5 billion. Berkshire does not guarantee the repayment of debt issued by BNSF, BHE or any of their subsidiaries.

In each of the past three years, our diverse group of businesses generated net operating cash flows of approximately \$39 billion. Our consolidated capital expenditures for property, plant and equipment and equipment held for lease were \$13.3 billion in 2021, which included capital expenditures by our railroad, utilities and energy businesses (BNSF and BHE) of \$9.5 billion. BNSF and BHE maintain very large investments in capital assets (property, plant and equipment) and will regularly make significant capital expenditures in the normal course of business. We forecast capital expenditures of these two operations will approximate \$11.1 billion in 2022.

Contractual Obligations

We are party to other contracts associated with ongoing business activities, which will result in cash payments to counterparties in future periods. Certain obligations are included in our Consolidated Balance Sheets, such as operating lease liabilities and shared aircraft repurchase liabilities of NetJets. Estimated payments of these liabilities in each of the next five years are (in billions): \$1.6 in 2022; \$1.5 in 2023; \$1.4 in 2024; \$1.2 in 2025; and \$1.2 in 2026.

We are also obligated to pay claims arising from property and casualty insurance companies. Such liabilities, including amounts from retroactive reinsurance, were approximately \$125 billion at December 31, 2021. We currently forecast claim payments in 2022 of approximately \$29 billion with respect to claims occurring prior to 2022. Additionally, we estimate net payments of approximately \$3 billion in 2022 for life, health and annuity benefits under contracts. However, the timing and amount of the payments under insurance and reinsurance contracts are contingent upon the outcome of future events. Actual payments will likely vary, perhaps materially, from the forecasted payments, as well as from the liabilities currently recorded in our Consolidated Balance Sheet. We anticipate that these payments will be funded by operating cash flows.

Other obligations pertaining to the acquisition of goods or services in the future, such as certain purchase obligations, are not currently reflected in the Consolidated Financial Statements and will be recognized in future periods as the goods are delivered or services are provided. As of December 31, 2021, the largest categories of our long-term contractual obligations primarily related to fuel, capacity, transmission and maintenance contracts and capital expenditure commitments of BHE and BNSF and aircraft purchase commitments of NetJets. We estimate future payments associated with these contracts over the next five years of approximately \$19 billion, including \$8 billion in 2022. We also have an agreement to acquire an additional 41.4% of Pilot in 2023 and agreements to acquire certain non-controlling interests of consolidated subsidiaries. Reference is made to Note 26 to the Consolidated Financial Statements for additional information regarding these commitments.

Critical Accounting Policies

Certain accounting policies require us to make estimates and judgments in determining the amounts reflected in our Consolidated Financial Statements. Such estimates and judgments necessarily involve varying and possibly significant degrees of uncertainty. Accordingly, certain amounts currently recorded in our Consolidated Financial Statements will likely be adjusted in the future based on new available information and changes in other facts and circumstances. A discussion of our principal accounting policies that required the application of significant judgments as of December 31, 2021 follows.

Property and casualty insurance unpaid losses

We record liabilities for unpaid losses and loss adjustment expenses (also referred to as "gross unpaid losses" or "claim liabilities") based upon estimates of the ultimate amounts payable for loss events occurring on or before the balance sheet date. The timing and amount of ultimate loss payments are contingent upon, among other things, the timing of claim reporting from insureds and ceding companies and the final determination of the loss amount through the loss adjustment and settlement process. We use a variety of techniques in establishing claim liabilities, which may require significant judgments and assumptions.

As of the balance sheet date, recorded claim liabilities include estimates for reported claims and for claims not yet reported. The period between the loss occurrence date and loss settlement date is the "claim-tail." Property claims usually have relatively short claim-tails, absent litigation. Casualty claims usually have longer claim-tails, occasionally extending for decades. Casualty claims may be more susceptible to litigation and the impact of changing contract interpretations. The legal environment and judicial process further contribute to extending claim-tails.

Management's Discussion and Analysis (Continued)

Property and casualty losses (Continued)

Our consolidated claim liabilities, including liabilities from retroactive reinsurance contracts, as of December 31, 2021 were approximately \$125 billion, of which 80% related to GEICO and the Berkshire Hathaway Reinsurance Group. Additional information regarding significant uncertainties inherent in the processes and techniques for estimating unpaid losses of these businesses follows.

GEICO

GEICO predominantly writes private passenger auto insurance. As of December 31, 2021, GEICO's gross unpaid losses were \$23.9 billion and claim liabilities, net of reinsurance recoverable, were \$22.7 billion. GEICO's claim reserving methodologies produce liability estimates based upon the individual claims. The key assumptions affecting our liability estimates include projections of ultimate claim counts ("frequency") and average loss per claim ("severity"). We utilize a combination of several actuarial estimation methods, including Bornhuetter-Ferguson and chain-ladder methodologies.

Claim liability estimates for automobile liability coverages (such as bodily injury ("BI"), uninsured motorists, and personal injury protection) are more uncertain due to the longer claim-tails, so we establish additional case development estimates. As of December 31, 2021, case development liabilities averaged approximately 34% of the case reserves. We select case development factors through analysis of the overall adequacy of historical case liabilities.

Incurred-but-not-reported ("IBNR") claim liabilities are based on projections of the ultimate number of claims expected (reported and unreported) for each significant coverage. We use historical claim count data to develop age-to-age projections of the ultimate counts by quarterly accident period, from which we deduct reported claims to produce the number of unreported claims. We estimate the average costs per unreported claim and apply such estimates to the unreported claim counts, producing an IBNR liability estimate. We may record additional IBNR estimates when actuarial techniques are difficult to apply.

We test the adequacy of the aggregate claim liabilities using one or more actuarial projections based on claim closure models and paid and incurred loss triangles. Each type of projection analyzes loss occurrence data for claims occurring in a given period and projects the ultimate cost.

Our claim liability estimates recorded at the end of 2020 were reduced by \$1.8 billion during 2021, which produced a corresponding increase to pre-tax earnings. The assumptions used to estimate liabilities at December 31, 2021 reflect the most recent frequency and severity estimates. Future development of recorded liabilities will depend on whether actual frequency and severity of claims are more or less than anticipated.

With respect to liabilities for BI claims, we believe it is reasonably possible that average claims severities will change by at least one percentage point from the projected severities used in establishing the recorded liabilities at December 31, 2021. We estimate that a one percentage point increase or decrease in BI severities would produce a \$290 million increase or decrease in recorded liabilities, with a corresponding decrease or increase in pre-tax earnings. Many of the economic forces that would likely cause BI severity to differ from expectations would likely also cause severities for other injury coverages to differ in the same direction.

Berkshire Hathaway Reinsurance Group

BHRG's liabilities for unpaid losses and loss adjustment expenses derive primarily from reinsurance contracts issued through NICO and General Re. A summary of BHRG's property and casualty unpaid losses and loss adjustment expenses, other than retroactive reinsurance losses and loss adjustment expenses, as of December 31, 2021 follows (in millions).

	Property	Casualty	Total
Reported case liabilities	\$ 6,602	\$ 9,630	\$ 16,232
IBNR liabilities	6,780	15,227	22,007
Gross unpaid losses and loss adjustment expenses	13,382	24,857	38,239
Reinsurance recoverable	181	892	1,073
Net unpaid losses and loss adjustment expenses	\$ 13,201	\$ 23,965	\$ 37,166

Management's Discussion and Analysis (Continued)

Property and casualty losses (Continued)

Berkshire Hathaway Reinsurance Group (Continued)

Gross unpaid losses and loss adjustment expenses consist primarily of traditional property and casualty coverages written primarily under excess-of-loss and quota-share treaties. Under certain contracts, coverage can apply to multiple lines of business written and the ceding company may not report loss data by such lines consistently, if at all. In those instances, we allocate losses to property and casualty coverages based on internal estimates.

In connection with reinsurance contracts, the nature, extent, timing and perceived reliability of loss information received from ceding companies varies widely depending on the type of coverage and the contractual reporting terms. Reinsurance contract terms, conditions and coverages also tend to lack standardization and may evolve more rapidly than primary insurance policies.

The nature and extent of loss information provided under many facultative (individual risk) or per occurrence excess contracts may be comparable to the information received under a primary insurance contract. However, loss information with respect to aggregate excess-of-loss and quota-share contracts is often in a summary format rather than on an individual claim basis. Loss data includes recoverable paid losses, as well as case loss estimates. Ceding companies infrequently provide reliable IBNR loss estimates.

Loss reporting to reinsurers is typically slower in comparison to primary insurers. In the U.S., such reporting is generally required at quarterly intervals ranging from 30 to 90 days after the end of the quarterly period, while outside of the U.S., reinsurance reporting practices may vary further. In certain countries, clients report annually from 90 to 180 days after the end of the annual period. To the extent that reinsurers assume and cede underlying risks from other reinsurers, further delays in claims reporting may occur. The relative impact of reporting delays on the reinsurer may vary depending on the type of coverage, contractual reporting terms, the magnitude of the claim relative to the attachment point of the reinsurance coverage, and for other reasons.

As reinsurers, the premium and loss data we receive is at least one level removed from the underlying claimant, so there is a risk that the loss data reported is incomplete, inaccurate or the claim is outside the coverage terms. We maintain certain internal procedures to determine that the information is complete and in compliance with the contract terms. Generally, our reinsurance contracts permit us to access the ceding company's records with respect to the subject business, thus providing the ability to audit the reported information. In the normal course of business, disputes occasionally arise concerning whether claims are covered by our reinsurance policies. We resolve most coverage disputes through negotiation with the client. If disputes cannot be resolved, our contracts generally provide arbitration or alternative dispute resolution processes. There are no coverage disputes at this time for which an adverse resolution would likely have a material impact on our consolidated results of operations or financial condition.

Establishing claim liability estimates for reinsurance assumed requires evaluation of loss information received from our clients. We generally rely on the ceding companies' reported case loss estimates. We independently evaluate certain reported case losses and if appropriate, we use our own case liability estimate. For instance, as of December 31, 2021, our case loss estimates exceeded ceding company estimates by approximately \$700 million for certain legacy workers' compensation claims occurring over 10 years ago. We also periodically conduct detailed reviews of individual client claims, which may cause us to adjust our case estimates.

Although liabilities for losses are initially determined based on pricing and underwriting analysis, we use a variety of actuarial methodologies that place reliance on the extrapolation of actual historical data, loss development patterns, industry data and other benchmarks, as appropriate. The estimate of the IBNR liabilities also requires judgment by actuaries and management to reflect the impact of additional factors like change in business mix, volume, claim reporting and handling practices, inflation, social and legal environment and the terms and conditions of the contracts. The methodologies generally fall into one of the following categories or are hybrids of one or more of the following categories:

Management's Discussion and Analysis (Continued)

Property and casualty losses (Continued)

Berkshire Hathaway Reinsurance Group (Continued)

Paid and incurred loss development methods – these methods consider expected case loss emergence and development patterns, together with expected loss ratios by year. Factors affecting our loss development analysis include, but are not limited to, changes in the following: client claims reporting and settlement practices; the frequency of client company claim reviews; policy terms and coverage (such as loss retention levels and occurrence and aggregate policy limits); loss trends; and legal trends that result in unanticipated losses. Collectively, these factors influence our selections of expected case loss emergence patterns.

Incurred and paid loss Bornhuetter-Ferguson methods – these methods consider actual paid and incurred losses and expected patterns of paid and incurred losses, taking the initial expected ultimate losses into account to determine an estimate of the expected unpaid or unreported losses.

Frequency and severity methods – these methods commonly focus on a review of the number of anticipated claims and the anticipated claims severity and may also rely on development patterns to derive such estimates. However, our processes and techniques for estimating liabilities in such analyses generally rely more on a per-policy assessment of the ultimate cost associated with the individual loss rather than with an analysis of historical development patterns of past losses.

Additional analysis – in some cases we have established reinsurance claim liabilities on a contract-by-contract basis, determined from case loss estimates reported by the ceding company and IBNR liabilities that are primarily a function of an anticipated loss ratio for the contract and the reported case loss estimate. Liabilities are adjusted upward or downward over time to reflect case losses reported versus expected case losses, which we use to form revised judgement on the adequacy of the expected loss ratio and the level of IBNR liabilities required for unreported claims. Anticipated loss ratios are also revised to include estimates of known major catastrophe events.

Our claim liability estimation process for short-tail lines, primarily property exposures, utilizes a combination of the paid and incurred loss development methods and the incurred and paid loss Bornhuetter-Ferguson methods. Certain catastrophe, individual risk and aviation excess-of-loss contracts tend to generate low frequency/high severity losses. Our processes and techniques for estimating liabilities under such contracts generally rely more on a per contract assessment of the ultimate cost associated with the individual loss event rather than with an analysis of the historical development patterns of past losses.

For our long-tail lines, primarily casualty exposures, we may rely on different methods depending on the maturity of the business, with estimates for the most recent years being based on priced loss expectations and more mature years reflecting the paid or incurred development pattern indications.

In 2021, certain workers' compensation claims reported losses were less than expected. As a result, we reduced estimated ultimate losses for prior years' loss events by \$136 million. We estimate that increases of ten percent in the tail of the expected loss emergence pattern and in the expected loss ratios would produce a net increase of approximately \$1.0 billion in IBNR liabilities, producing a corresponding decrease in pre-tax earnings. We believe it is reasonably possible for these assumptions to increase at these rates.

For other casualty losses, excluding asbestos, environmental, and other latent injury claims, we reduced estimated ultimate liabilities for prior years' events by approximately \$375 million in 2021. For certain significant casualty and general liability portfolios, we estimate that increases of five percent in the claim-tails of the expected loss emergence patterns and in the expected loss ratios would produce a net increase in our nominal IBNR liabilities and a corresponding reduction in pre-tax earnings of approximately \$950 million, although outcomes of greater than or less than \$950 million are possible given the diversification in worldwide business.

The change in estimated ultimate liabilities for asbestos, environmental and other latent injury claims, excluding amounts assumed under retroactive reinsurance contracts was not significant in 2021. Net liabilities for such claims were approximately \$2.1 billion at December 31, 2021. Loss estimations for these exposures are difficult to determine due to the changing legal environment and increases may be required in the future if new exposures or claimants are identified, new claims are reported or new theories of liability emerge.

Management's Discussion and Analysis (Continued)

Property and casualty losses (Continued)

Retroactive reinsurance

Our retroactive reinsurance contracts cover loss events occurring before the contract inception dates. Claim liabilities associated with our retroactive reinsurance contracts predominately pertain to casualty or liability exposures. We expect the claim-tails to be very long. As of December 31, 2021, gross unpaid losses were \$38.3 billion and deferred charges were \$10.6 billion.

Our contracts are generally subject to maximum limits of indemnifications and, as such, we currently expect that maximum remaining gross losses payable under our retroactive policies will not exceed \$54 billion. Absent significant judicial or legislative changes affecting asbestos, environmental or latent injury exposures, we also currently believe it unlikely that losses will develop upward to the maximum losses payable or downward by more than 15% of our estimated gross liability.

We establish liability estimates by individual contract, considering exposure and development trends. In establishing our liability estimates, we often analyze historical aggregate loss payment patterns and project expected ultimate losses under various scenarios. We assign judgmental probability factors to these scenarios and an expected outcome is determined. We then monitor subsequent loss payment activity and review ceding company reports and other available information concerning the underlying losses. We re-estimate the expected ultimate losses when significant events or significant deviations from expected results are revealed.

Certain of our retroactive reinsurance contracts include asbestos, environmental and other latent injury claims. Our estimated liabilities for such claims were approximately \$12.3 billion at December 31, 2021. We do not consistently receive reliable detailed data regarding asbestos, environmental and latent injury claims from all ceding companies, particularly with respect to multi-line or aggregate excess-of-loss policies. When possible, we conduct a detailed analysis of the underlying loss data to make an estimate of ultimate reinsured losses. When detailed loss information is unavailable, we develop estimates by applying recent industry trends and projections to aggregate client data. Judgments in these areas necessarily consider the stability of the legal and regulatory environment under which we expect claims will be adjudicated. Legal reform and legislation could also have a significant impact on our ultimate liabilities.

We reduced estimated ultimate liabilities for prior years' retroactive reinsurance contracts by \$974 million in 2021, which after the changes in related deferred charges, resulted in pre-tax earnings of \$142 million. In 2021, we paid losses and loss adjustment expenses of \$1.9 billion with respect to our retroactive reinsurance contracts.

In connection with our retroactive reinsurance contracts, we also record deferred charges, which at contract inception represents the excess, if any, of the estimated ultimate liability for unpaid losses over premiums received. We amortize deferred charges, which produces charges to pre-tax earnings in future periods based on the expected timing and amount of loss payments. We also adjust deferred charge balances due to changes in the expected timing and ultimate amount of claim payments and the effects of the adjustments are included in pre-tax earnings. Significant changes in such estimates may have a significant effect on unamortized deferred charge balances. Based on the contracts in effect as of December 31, 2021, we estimate that amortization expense in 2022 will approximate \$950 million.

Other Critical Accounting Policies

Our Consolidated Balance Sheet at December 31, 2021 includes goodwill of acquired businesses of \$73.9 billion and other indefinite-lived intangible assets of \$18.5 billion. We evaluate these assets for impairment annually in the fourth quarter and on an interim basis if the facts and circumstances lead us to believe that more-likely-not there has been an impairment.

Goodwill and indefinite-lived intangible asset impairment reviews include determining the estimated fair values of our reporting units and indefinite-lived intangible assets. The key assumptions and inputs used in such determinations may include forecasting revenues and expenses, cash flows and capital expenditures, as well as an appropriate discount rate and other inputs. Significant judgment by management is required in estimating the fair value of a reporting unit and in performing impairment reviews. Due to the inherent subjectivity and uncertainty in forecasting future cash flows and earnings over long periods of time, actual results may differ materially from the forecasts. If the carrying value of the indefinite-lived intangible asset exceeds fair value, the excess is charged to earnings as an impairment loss. If the carrying value of a reporting unit exceeds the estimated fair value of the reporting unit, then the excess, limited to the carrying amount of goodwill, will be charged to earnings as an impairment loss.

Management's Discussion and Analysis (Continued)

Other Critical Accounting Policies (Continued)

As of December 31, 2021, we concluded it is more likely than not that goodwill recorded in our Consolidated Balance Sheet was not impaired. The fair value estimates of reporting units are and will likely be significantly affected by assumptions on the severity, duration or long-term effects of the pandemic on the reporting unit's business, as well as other assumptions concerning the long-term economic performance of the reporting unit, which we cannot reliably predict. Consequently, any fair value estimates in such instances can be subject to wide variations.

We primarily use discounted projected future earnings or cash flow methods in determining fair values. The key assumptions and inputs used in such methods may include forecasting revenues and expenses, cash flows and capital expenditures, as well as an appropriate discount rate and other inputs. A significant amount of judgment is required in estimating the fair value of a reporting unit and in performing goodwill impairment tests.

In connection with the annual goodwill impairment review conducted in the fourth quarter of 2021, the estimated fair values of five reporting units did not exceed our carrying values by at least 20%. The most significant of these reporting units was Precision Castparts Corp. ("PCC"). The estimated fair value of PCC was approximately \$34.5 billion, exceeding our carrying value of approximately \$31.1 billion by 10.7%. Our carrying value of PCC included goodwill of approximately \$7.5 billion. For the four other reporting units, our aggregate estimated fair value was approximately \$2.5 billion, which exceeded our aggregate carrying value of approximately \$2.3 billion by 9.2%. Our carrying value of these units included goodwill of approximately \$1.2 billion.

In the second quarter of 2020, we quantitatively reevaluated goodwill for impairment for certain reporting units, and most significantly for PCC. As a result of our reviews, we recorded pre-tax goodwill impairment charges of \$10.0 billion and indefinite-lived intangible asset impairment charges of \$638 million, of which approximately \$10 billion related to PCC. Prior to the reevaluation, the carrying value of PCC-related goodwill was approximately \$17 billion. Additionally, the carrying value of PCC-related indefinite-lived intangible assets was approximately \$14 billion. Substantially all of these amounts were recorded in connection with Berkshire's acquisition of PCC in 2016. The initial effects of the COVID-19 pandemic on commercial airlines and aircraft manufacturers were particularly severe. At that time, we considered several factors in our reevaluation, including but not limited to the announcements by airlines concerning potential future demand, employment levels and aircraft orders, announcements by manufacturers of reduced aircraft production, and the actions we were taking or may be taking in the future to restructure operations. Consequently, we deemed it prudent under the prevailing circumstances to increase discount rates and reduce prior long-term forecasts of future cash flows for purposes of reviewing for impairments.

Market Risk Disclosures

Our Consolidated Balance Sheets include substantial amounts of assets and liabilities whose fair values are subject to market risks. Our significant market risks are primarily associated with equity prices, interest rates, foreign currency exchange rates and commodity prices. The fair values of our investment portfolios remain subject to considerable volatility. The following sections address the significant market risks associated with our business activities.

Equity Price Risk

Equity securities represent a significant portion of our consolidated investment portfolio. Strategically, we strive to invest in businesses that possess excellent economics and able and honest management, and we prefer to invest a meaningful amount in each company. Historically, equity investments have been concentrated in relatively few issuers. At December 31, 2021, approximately 73% of the total fair value of equity securities was concentrated in four companies.

We often hold our equity securities for long periods and short-term price volatility has occurred in the past and will occur in the future. We also strive to maintain significant levels of shareholder capital and ample liquidity to provide a margin of safety against short-term price volatility.

Management's Discussion and Analysis (Continued)

Equity Price Risk (Continued)

We are also subject to equity price risk with respect to our equity index put option contracts, although our equity price exposure has declined significantly as a vast majority of the contracts written to date have expired. Our ultimate liability with respect to these contracts is determined from the movement of the underlying stock index between the contract inception date and expiration date. The fair values of our liabilities arising from these contracts are also affected by changes in other factors.

The following table summarizes our equity securities and equity index put option contract liabilities as of December 31, 2021 and 2020 and the estimated effects of a hypothetical 30% increase and a 30% decrease in market prices as of those dates. The selected 30% hypothetical increase and decrease does not reflect the best or worst case scenario. Indeed, results from declines could be far worse due both to the nature of equity markets and the aforementioned concentrations existing in our equity investment portfolio. Dollar amounts are in millions.

	Fair Value	Hypothetical Price Change	Estimated Fair Value after Hypothetical Change in Prices	Estimated Increase (Decrease) in Net Earnings ⁽¹⁾
December 31, 2021				
Investments in equity securities	\$ 350,719	30% increase	\$ 452,936	\$ 81,136
		30% decrease	248,606	(81,053)
Equity index put option contract liabilities	99	30% increase	5	74
		30% decrease	1,088	(781)
December 31, 2020				
Investments in equity securities	\$ 281,170	30% increase	\$ 362,830	\$ 63,321
		30% decrease	199,547	(63,293)
Equity index put option contract liabilities	1,065	30% increase	257	638
		30% decrease	2,702	(1,293)

(1) The estimated increase (decrease) is after income taxes at the statutory rate in effect as of the balance sheet date.

Interest Rate Risk

We may also invest in bonds, loans or other interest rate sensitive instruments. Our strategy is to acquire or originate such instruments at prices considered appropriate relative to the perceived credit risk. We also issue debt in the ordinary course of business to fund business operations, business acquisitions and for other general purposes. We attempt to maintain high credit ratings, in order to minimize the cost of our debt. We infrequently utilize derivative products, such as interest rate swaps, to manage interest rate risks and we do not attempt to match maturities of assets and liabilities.

The fair values of our fixed maturity investments, loans and finance receivables, and notes payable and other borrowings will fluctuate in response to changes in market interest rates. Interest rate risks associated with the valuations of our equity index put option contract liabilities are no longer considered significant due to the short duration of remaining exposures as of December 31, 2021. Increases and decreases in interest rates generally translate into decreases and increases in fair values of these instruments. Additionally, fair values of interest rate sensitive instruments may be affected by the creditworthiness of the issuer, prepayment options, relative values of alternative investments, the liquidity of the instrument and other general market conditions.

Management's Discussion and Analysis (Continued)

Interest Rate Risk (Continued)

The following table summarizes the estimated effects of hypothetical changes in interest rates on our significant assets and liabilities that are subject to significant interest rate risk at December 31, 2021 and 2020. We assumed that the interest rate changes occur immediately and uniformly to each category of instrument and that there were no significant changes to other factors used to determine the value of the instrument. The hypothetical changes in interest rates do not reflect the best or worst case scenarios. Actual results may differ from those reflected in the table. Dollars are in millions.

	Fair Value	Estimated Fair Value after Hypothetical Change in Interest Rates			
		(bp=basis points)			
		100 bp decrease	100 bp increase	200 bp increase	300 bp increase
December 31, 2021					
Assets:					
Investments in fixed maturity securities	\$ 16,434	\$ 16,624	\$ 16,231	\$ 16,036	\$ 15,847
Investments in equity securities*	10,864	11,457	10,313	9,798	9,319
Loans and finance receivables	22,174	22,982	21,417	20,714	20,054
Liabilities:					
Notes payable and other borrowings:					
Insurance and other	42,339	46,559	38,724	35,683	33,104
Railroad, utilities and energy	87,065	97,474	78,472	71,289	65,246
Equity index put option contracts	99	105	94	89	84
December 31, 2020					
Assets:					
Investments in fixed maturity securities	\$ 20,410	\$ 20,622	\$ 20,139	\$ 19,879	\$ 19,628
Investments in equity securities*	8,891	9,408	8,413	7,970	7,559
Loans and finance receivables	20,554	21,472	19,916	19,219	18,570
Liabilities:					
Notes payable and other borrowings:					
Insurance and other	46,676	50,754	42,785	39,514	36,739
Railroad, utilities and energy	92,593	102,926	83,070	75,484	69,093
Equity index put option contracts	1,065	1,125	1,008	953	900

* Includes Cumulative Perpetual Preferred Stocks

Foreign Currency Risk

Certain of our subsidiaries operate in foreign jurisdictions and we transact business in foreign currencies. In addition, we hold investments in common stocks of major multinational companies, who have significant foreign business and foreign currency risk of their own. We generally do not attempt to match assets and liabilities by currency and do not use derivative contracts to manage foreign currency risks in a meaningful way.

Management's Discussion and Analysis (Continued)

Foreign Currency Risk (Continued)

Our net assets subject to financial statement translation into U.S. Dollars are primarily in our insurance, utilities and energy and certain manufacturing and service subsidiaries. A portion of our financial statement translation-related impact from changes in foreign currency rates is recorded in other comprehensive income. In addition, we include gains or losses from changes in foreign currency exchange rates in net earnings related to non-U.S. Dollar denominated assets and liabilities of Berkshire and U.S.-based subsidiaries. A summary of these gains (losses), after-tax, for each of the years ending December 31, 2021 and 2020 follows (in millions).

	2021	2020
Non-U.S. denominated debt included in net earnings	\$ 955	\$ (764)
Net liabilities under certain reinsurance contracts included in net earnings	58	(163)
Foreign currency translation included in other comprehensive income	(1,021)	1,264

Commodity Price Risk

Our subsidiaries use commodities in various ways in manufacturing and providing services. As such, we are subject to price risks related to various commodities. In most instances, we attempt to manage these risks through the pricing of our products and services to customers. To the extent that we are unable to sustain price increases in response to commodity price increases, our operating results will likely be adversely affected. We do not utilize derivative contracts to manage commodity price risks to any significant degree.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

See "Market Risk Disclosures" contained in Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations."

Management's Report on Internal Control Over Financial Reporting

Management of Berkshire Hathaway Inc. is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in the Securities Exchange Act of 1934 Rule 13a-15(f). Under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness of the Company's internal control over financial reporting as of December 31, 2021, as required by the Securities Exchange Act of 1934 Rule 13a-15(c). In making this assessment, we used the criteria set forth in the framework in *Internal Control—Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on our evaluation under the framework in *Internal Control—Integrated Framework* (2013), our management concluded that our internal control over financial reporting was effective as of December 31, 2021.

The effectiveness of our internal control over financial reporting as of December 31, 2021 has been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report which appears on page K-67.

Berkshire Hathaway Inc.
February 26, 2022

Item 8. Financial Statements and Supplementary Data

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and the Board of Directors of
Berkshire Hathaway Inc.
Omaha, Nebraska

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Berkshire Hathaway Inc. and subsidiaries (the "Company") as of December 31, 2021 and 2020, the related consolidated statements of earnings, comprehensive income, changes in shareholders' equity, and cash flows, for each of the three years in the period ended December 31, 2021, and the related notes (collectively referred to as the "financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2021, in conformity with accounting principles generally accepted in the United States of America. Also, in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.

Basis for Opinions

The Company's management is responsible for these financial statements, 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 these financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the US 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 audits to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the financial statements included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures to 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. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

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.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM (Continued)

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.

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.

Unpaid Losses and Loss Adjustment Expenses— Refer to Notes 1 and 16 to the financial statements

Critical Audit Matter Description

The Company's unpaid losses and loss adjustment expenses ("claim liabilities") under short duration property and casualty insurance and reinsurance contracts are \$86,664 million as of December 31, 2021. The key assumptions affecting certain claim liabilities include expected loss and expense ("loss") ratios, expected claim count emergence patterns, expected loss payment emergence patterns and expected loss reporting emergence patterns.

Given the subjectivity of estimating these key assumptions, performing audit procedures to evaluate whether claim liabilities were appropriately recorded as of December 31, 2021, required a high degree of auditor judgment and an increased extent of effort, including the need to involve our actuarial specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the key assumptions affecting certain claim liabilities included the following, among others:

- We tested the operating effectiveness of controls over claim liabilities, including those over the key assumptions.
- We evaluated the methods and assumptions used by management to estimate the claim liabilities by:
 - Testing the underlying data that served as the basis for the actuarial analysis, such as historical claims and earned premium, to test that the inputs to the actuarial estimate were reasonable.
 - Comparing management's prior-year claim liabilities to actual development during the current year to identify potential bias in the determination of the claim liabilities.
- With the assistance of our actuarial specialists:
 - We developed independent estimates of the claim liabilities, including loss data and industry claim development factors as needed, and compared our estimates to management's estimates.
 - We compared management's change in ultimate loss and loss adjustment expense to prior year estimates to test the reasonableness of the prior year estimates and assessed unexpected development.

Unpaid Losses and Loss Adjustment Expenses Under Retroactive Reinsurance Contracts — Refer to Notes 1 and 17 to the financial statements

Critical Audit Matter Description

The Company's unpaid losses and loss adjustment expenses ("claim liabilities") for property and casualty retroactive reinsurance contracts are \$38,256 million as of December 31, 2021. The key assumptions affecting certain claim liabilities and related deferred charge reinsurance assumed assets ("related assets") include expected loss and expense ("loss") ratios, expected loss payment emergence patterns and expected loss reporting emergence.

Given the subjectivity of estimating these key assumptions, performing audit procedures to evaluate whether claim liabilities were appropriately recorded as of December 31, 2021, required a high degree of auditor judgment and an increased extent of effort, including the need to involve our actuarial specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the key assumptions affecting claim liabilities and related assets included the following, among others:

- We tested the operating effectiveness of controls over claim liabilities and related assets, including those over the key assumptions.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM (Continued)

- We evaluated the methods and assumptions used by management to estimate the claim liabilities and related assets by:
 - Testing the underlying data that served as the basis for the actuarial analysis, including historical claims, to test that the inputs to the actuarial estimate were reasonable.
 - Comparing management's prior-year claim liabilities to actual development during the current year to identify potential bias in the determination of the claim liabilities and related assets.
- With the assistance of our actuarial specialists:
 - We developed independent claim liability estimates for certain retroactive reinsurance contracts and compared our estimates to management's estimates. For other retroactive reinsurance contracts and related assets, we evaluated the process used by management to develop the estimated claim liabilities and related assets.
 - We compared management's change in ultimate loss and loss adjustment expense to prior year estimates, assessed unexpected development and assessed internal rates of return.

Goodwill and Indefinite-Lived Intangible Assets — Refer to Notes 1 and 13 to the financial statements

Critical Audit Matter Description

The Company's evaluation of goodwill and indefinite-lived intangible assets for impairment involves the comparison of the fair value of each reporting unit or asset to its carrying value. The Company evaluates goodwill and indefinite-lived intangible assets for impairment at least annually. When evaluating goodwill and indefinite-lived intangible assets for impairment, the fair value of each reporting unit or asset is estimated. Significant judgment is required in estimating fair values and performing impairment tests. The Company primarily uses discounted projected future net earnings or net cash flows and multiples of earnings to estimate fair value, which requires management to make significant estimates and assumptions related to forecasts of future revenue, earnings before interest and taxes ("EBIT"), and discount rates. Changes in these assumptions could have a significant impact on the fair value of reporting units and indefinite-lived intangible assets.

The Precision Castparts Corp. ("PCC") reporting unit reported approximately \$21 billion of goodwill and indefinite-lived intangible assets as of December 31, 2021. Given the significant judgments made by management to estimate the fair value of the PCC reporting unit and certain customer relationships with indefinite lives along with the difference between their fair values and carrying values, performing audit procedures to evaluate the reasonableness of management's estimates and assumptions related to forecasts of future revenue and EBIT and the selection of the discount rate required a high degree of auditor judgment and an increased extent of effort, including the need to involve our fair value specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to forecasts of future revenue and EBIT and the selection of the discount rate for the PCC reporting unit and certain customer relationships included the following, among others:

- We tested the effectiveness of controls over goodwill and indefinite-lived intangible assets, including those over the forecasts of future revenue and EBIT and the selection of the discount rate.
- We evaluated management's ability to accurately forecast future revenue and EBIT by comparing prior year forecasts to actual results in the respective years.
- We evaluated the reasonableness of management's current revenue and EBIT forecasts by comparing the forecasts to historical results and forecasted information included in analyst and industry reports and certain peer companies' disclosures.
- With the assistance of our fair value specialists, we evaluated the valuation methodologies, the long-term growth rates and discount rate, including testing the underlying source information and the mathematical accuracy of the calculations, and developed a range of independent estimates and compared those to the long-term growth rates and discount rate selected by management.

/s/ Deloitte & Touche LLP
Omaha, Nebraska
February 26, 2022

We have served as the Company's auditor since 1985.

**BERKSHIRE HATHAWAY INC.
and Subsidiaries**
CONSOLIDATED BALANCE SHEETS
(dollars in millions)

	December 31,	
	2021	2020
ASSETS		
Insurance and Other:		
Cash and cash equivalents*	\$ 85,319	\$ 44,714
Short-term investments in U.S. Treasury Bills	58,535	90,300
Investments in fixed maturity securities	16,434	20,410
Investments in equity securities	350,719	281,170
Equity method investments	17,375	17,303
Loans and finance receivables	20,751	19,201
Other receivables	35,388	32,310
Inventories	20,954	19,208
Property, plant and equipment	20,834	21,200
Equipment held for lease	14,918	14,601
Goodwill	47,117	47,121
Other intangible assets	28,486	29,462
Deferred charges - retroactive reinsurance	10,639	12,441
Other	15,854	14,580
	<u>743,323</u>	<u>664,021</u>
Railroad, Utilities and Energy:		
Cash and cash equivalents*	2,865	3,276
Receivables	4,177	3,542
Property, plant and equipment	155,530	151,216
Goodwill	26,758	26,613
Regulatory assets	3,963	3,440
Other	22,168	21,621
	<u>215,461</u>	<u>209,708</u>
	<u>\$ 958,784</u>	<u>\$ 873,729</u>

* Includes U.S. Treasury Bills with maturities of three months or less when purchased of \$ 61.7 billion at December 31, 2021 and \$ 23.2 billion at December 31, 2020.

See accompanying Notes to Consolidated Financial Statements

**BERKSHIRE HATHAWAY INC.
and Subsidiaries**
CONSOLIDATED BALANCE SHEETS
(dollars in millions)

	December 31,	
	2021	2020
LIABILITIES AND SHAREHOLDERS' EQUITY		
Insurance and Other:		
Unpaid losses and loss adjustment expenses	\$ 86,664	\$ 79,854
Unpaid losses and loss adjustment expenses under retroactive reinsurance contracts	38,256	40,966
Unearned premiums	23,512	21,395
Life, annuity and health insurance benefits	22,452	21,616
Other policyholder liabilities	9,330	8,670
Accounts payable, accruals and other liabilities	30,376	30,344
Aircraft repurchase liabilities and unearned lease revenues	5,849	5,856
Notes payable and other borrowings	39,272	41,522
	<u>255,711</u>	<u>250,223</u>
Railroad, Utilities and Energy:		
Accounts payable, accruals and other liabilities	15,696	15,224
Regulatory liabilities	7,214	7,475
Notes payable and other borrowings	74,990	75,373
	<u>97,900</u>	<u>98,072</u>
Income taxes, principally deferred	90,243	74,098
Total liabilities	<u>443,854</u>	<u>422,393</u>
Shareholders' equity:		
Common stock	8	8
Capital in excess of par value	35,592	35,626
Accumulated other comprehensive income	(4,027)	(4,243)
Retained earnings	534,421	444,626
Treasury stock, at cost	(59,795)	(32,853)
Berkshire Hathaway shareholders' equity	<u>506,199</u>	<u>443,164</u>
Noncontrolling interests	8,731	8,172
Total shareholders' equity	<u>514,930</u>	<u>451,336</u>
	<u>\$ 958,784</u>	<u>\$ 873,729</u>

See accompanying Notes to Consolidated Financial Statements

BERKSHIRE HATHAWAY INC.
and Subsidiaries
CONSOLIDATED STATEMENTS OF EARNINGS
(dollars in millions except per share amounts)

	Year Ended December 31,		
	2021	2020	2019
Revenues:			
Insurance and Other:			
Insurance premiums earned	\$ 69,478	\$ 63,401	\$ 61,078
Sales and service revenues	145,043	127,044	134,989
Leasing revenues	5,988	5,209	5,856
Interest, dividend and other investment income	7,465	8,092	9,240
	<u>227,974</u>	<u>203,746</u>	<u>211,163</u>
Railroad, Utilities and Energy:			
Freight rail transportation revenues	23,177	20,750	23,357
Energy operating revenues	18,891	15,540	15,353
Service revenues and other income	6,052	5,474	4,743
	<u>48,120</u>	<u>41,764</u>	<u>43,453</u>
Total revenues	<u>276,094</u>	<u>245,510</u>	<u>254,616</u>
Investment and derivative contract gains	<u>78,542</u>	<u>40,746</u>	<u>72,607</u>
Costs and expenses:			
Insurance and Other:			
Insurance losses and loss adjustment expenses	49,964	43,951	44,456
Life, annuity and health insurance benefits	6,007	5,812	4,986
Insurance underwriting expenses	12,569	12,798	11,200
Cost of sales and services	114,138	101,091	107,041
Cost of leasing	4,201	3,520	4,003
Selling, general and administrative expenses	18,843	19,809	19,226
Goodwill and intangible asset impairments	—	10,671	96
Interest expense	1,086	1,105	1,056
	<u>206,808</u>	<u>198,757</u>	<u>192,064</u>
Railroad, Utilities and Energy:			
Freight rail transportation expenses	14,477	13,120	15,436
Utilities and energy cost of sales and other expenses	13,959	11,638	11,296
Other expenses	5,615	4,796	4,002
Interest expense	3,086	2,978	2,905
	<u>37,137</u>	<u>32,532</u>	<u>33,639</u>
Total costs and expenses	<u>243,945</u>	<u>231,289</u>	<u>225,703</u>
Earnings before income taxes and equity method earnings	<u>110,691</u>	<u>54,967</u>	<u>101,520</u>
Equity method earnings	995	726	1,176
Earnings before income taxes	<u>111,686</u>	<u>55,693</u>	<u>102,696</u>
Income tax expense	20,879	12,440	20,904
Net earnings	<u>90,807</u>	<u>43,253</u>	<u>81,792</u>
Earnings attributable to noncontrolling interests	1,012	732	375
Net earnings attributable to Berkshire Hathaway shareholders	<u>\$ 89,795</u>	<u>\$ 42,521</u>	<u>\$ 81,417</u>
Net earnings per average equivalent Class A share	<u>\$ 59,460</u>	<u>\$ 26,668</u>	<u>\$ 49,828</u>
Net earnings per average equivalent Class B share*	<u>\$ 39.64</u>	<u>\$ 17.78</u>	<u>\$ 33.22</u>
Average equivalent Class A shares outstanding	1,510,180	1,594,469	1,633,946
Average equivalent Class B shares outstanding	2,265,269,867	2,391,703,454	2,450,919,020

* Class B shares are economically equivalent to one-fifteen-hundredth of a Class A share. Accordingly, net earnings per average equivalent Class B share outstanding is equal to one-fifteen-hundredth of the equivalent Class A amount. See Note 21.
See accompanying Notes to Consolidated Financial Statements

BERKSHIRE HATHAWAY INC.
and Subsidiaries
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(dollars in millions)

	Year Ended December 31,		
	2021	2020	2019
Net earnings	\$ 90,807	\$ 43,253	\$ 81,792
Other comprehensive income:			
Unrealized appreciation of fixed maturity securities	(217)	74	142
Applicable income taxes	50	(19)	(31)
Foreign currency translation	(1,011)	1,284	323
Applicable income taxes	(6)	3	(28)
Defined benefit pension plans	1,775	(355)	(711)
Applicable income taxes	(457)	74	155
Other, net	100	(42)	(48)
Other comprehensive income, net	234	1,019	(198)
Comprehensive income	91,041	44,272	81,594
Comprehensive income attributable to noncontrolling interests	1,030	751	405
Comprehensive income attributable to Berkshire Hathaway shareholders	\$ 90,011	\$ 43,521	\$ 81,189

BERKSHIRE HATHAWAY INC.
and Subsidiaries
CONSOLIDATED STATEMENTS OF CHANGES IN SHAREHOLDERS' EQUITY
(dollars in millions)

	Berkshire Hathaway shareholders' equity					
	Common stock and capital in excess of par value	Accumulated other comprehensive income	Retained earnings	Treasury stock	Non-controlling interests	Total
Balance December 31, 2018	\$ 35,715	\$ (5,015)	\$ 321,112	\$ (3,109)	\$ 3,797	\$ 352,500
Net earnings	—	—	81,417	—	375	81,792
Other comprehensive income, net	—	(228)	—	—	30	(198)
Issuance (acquisition) of common stock	21	—	—	(5,016)	—	(4,995)
Transactions with noncontrolling interests	(70)	—	(36)	—	(430)	(536)
Balance December 31, 2019	35,666	(5,243)	402,493	(8,125)	3,772	428,563
Net earnings	—	—	42,521	—	732	43,253
Adoption of new accounting pronouncement	—	—	(388)	—	—	(388)
Other comprehensive income, net	—	1,000	—	—	19	1,019
Acquisition of common stock	—	—	—	(24,728)	—	(24,728)
Transactions with noncontrolling interests	(32)	—	—	—	3,649	3,617
Balance December 31, 2020	35,634	(4,243)	444,626	(32,853)	8,172	451,336
Net earnings	—	—	89,795	—	1,012	90,807
Other comprehensive income, net	—	216	—	—	18	234
Acquisition of common stock	—	—	—	(26,942)	—	(26,942)
Transactions with noncontrolling interests	(34)	—	—	—	(471)	(505)
Balance December 31, 2021	\$ 35,600	\$ (4,027)	\$ 534,421	\$ (59,795)	\$ 8,731	\$ 514,930

See accompanying Notes to Consolidated Financial Statements

**BERKSHIRE HATHAWAY INC.
and Subsidiaries**
CONSOLIDATED STATEMENTS OF CASH FLOWS
(dollars in millions)

	Year Ended December 31,		
	2021	2020	2019
Cash flows from operating activities:			
Net earnings	\$ 90,807	\$ 43,253	\$ 81,792
Adjustments to reconcile net earnings to operating cash flows:			
Investment (gains) losses	(77,576)	(40,905)	(71,123)
Depreciation and amortization	10,718	10,596	10,064
Other, including asset impairment charges	(3,397)	11,263	(1,254)
Changes in operating assets and liabilities:			
Unpaid losses and loss adjustment expenses	4,595	4,819	6,087
Deferred charges - retroactive reinsurance	1,802	1,307	357
Unearned premiums	2,306	1,587	1,707
Receivables and originated loans	(5,834)	(1,609)	(2,303)
Other assets	(1,686)	(1,109)	(2,011)
Other liabilities	2,389	3,376	190
Income taxes	15,297	7,195	15,181
Net cash flows from operating activities	<u>39,421</u>	<u>39,773</u>	<u>38,687</u>
Cash flows from investing activities:			
Purchases of equity securities	(8,448)	(30,161)	(18,642)
Sales of equity securities	15,849	38,756	14,336
Purchases of U.S. Treasury Bills and fixed maturity securities	(152,637)	(208,429)	(136,123)
Sales of U.S. Treasury Bills and fixed maturity securities	27,188	31,873	15,929
Redemptions and maturities of U.S. Treasury Bills and fixed maturity securities	160,402	149,709	137,767
Purchases of loans and finance receivables	(88)	(772)	(75)
Collections of loans and finance receivables	561	393	345
Acquisitions of businesses, net of cash acquired	(456)	(2,532)	(1,683)
Purchases of property, plant and equipment and equipment held for lease	(13,276)	(13,012)	(15,979)
Other	297	(3,582)	(1,496)
Net cash flows from investing activities	<u>29,392</u>	<u>(37,757)</u>	<u>(5,621)</u>
Cash flows from financing activities:			
Proceeds from borrowings of insurance and other businesses	2,961	5,925	8,144
Repayments of borrowings of insurance and other businesses	(3,032)	(2,700)	(5,095)
Proceeds from borrowings of railroad, utilities and energy businesses	3,959	8,445	5,400
Repayments of borrowings of railroad, utilities and energy businesses	(4,016)	(3,761)	(2,638)
Changes in short term borrowings, net	(624)	(1,118)	266
Acquisition of treasury stock	(27,061)	(24,706)	(4,850)
Other	(695)	(429)	(497)
Net cash flows from financing activities	<u>(28,508)</u>	<u>(18,344)</u>	<u>730</u>
Effects of foreign currency exchange rate changes	5	92	25
Increase (decrease) in cash and cash equivalents and restricted cash	40,310	(16,236)	33,821
Cash and cash equivalents and restricted cash at beginning of year	48,396	64,632	30,811
Cash and cash equivalents and restricted cash at end of year *	<u>\$ 88,706</u>	<u>\$ 48,396</u>	<u>\$ 64,632</u>
<i>* Cash and cash equivalents and restricted cash at end of year are comprised of:</i>			
Insurance and Other	\$ 85,319	\$ 44,714	\$ 61,151
Railroad, Utilities and Energy	2,865	3,276	3,024
Restricted cash included in other assets	522	406	457
	<u>\$ 88,706</u>	<u>\$ 48,396</u>	<u>\$ 64,632</u>

See accompanying Notes to Consolidated Financial Statements

**BERKSHIRE HATHAWAY INC.
and Subsidiaries
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
December 31, 2021**

(1) Significant accounting policies and practices

(a) Nature of operations and basis of consolidation

Berkshire Hathaway Inc. ("Berkshire") is a holding company owning subsidiaries engaged in a number of diverse business activities, including insurance and reinsurance, freight rail transportation, utilities and energy, manufacturing, service and retailing. In these notes the terms "us," "we," or "our" refer to Berkshire and its consolidated subsidiaries. Further information regarding our reportable business segments is contained in Note 25. Information concerning business acquisitions completed over the past three years appears in Note 2. We believe that reporting the Railroad, Utilities and Energy subsidiaries separately is appropriate given the relative significance of their long-lived assets, capital expenditures and debt, which is not guaranteed by Berkshire.

The accompanying Consolidated Financial Statements include the accounts of Berkshire consolidated with the accounts of all subsidiaries and affiliates in which we hold a controlling financial interest as of the financial statement date. Normally a controlling financial interest reflects ownership of a majority of the voting interests. We consolidate variable interest entities ("VIE") when we possess both the power to direct the activities of the VIE that most significantly affect its economic performance, and we (a) are obligated to absorb the losses that could be significant to the VIE or (b) hold the right to receive benefits from the VIE that could be significant to the VIE. Intercompany accounts and transactions have been eliminated.

(b) Use of estimates in preparation of financial statements

We prepare our Consolidated Financial Statements in conformity with accounting principles generally accepted in the United States ("GAAP") which requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities at the balance sheet date and the reported amounts of revenues and expenses during the period. Our estimates of unpaid losses and loss adjustment expenses are subject to considerable estimation error due to the inherent uncertainty in projecting ultimate claim costs. In addition, estimates and assumptions associated with the amortization of deferred charges on retroactive reinsurance contracts, determinations of fair values of certain financial instruments and evaluations of goodwill and indefinite-lived intangible assets for impairment require considerable judgment. Actual results may differ from the estimates used in preparing our Consolidated Financial Statements.

The novel coronavirus ("COVID-19") spread rapidly across the world in 2020 and was declared a pandemic by the World Health Organization. The government and private sector responses to contain its spread began to significantly affect our operating businesses in March of 2020. The COVID-19 pandemic adversely affected nearly all of our operations during 2020, although the effects varied significantly. The extent of the effects over longer terms on the demand for certain of our products and services cannot be reasonably estimated at this time. Accordingly, significant estimates used in the preparation of our financial statements including those associated with evaluations of certain long-lived assets, goodwill and other intangible assets for impairment, expected credit losses on amounts owed to us and the estimations of certain losses assumed under insurance and reinsurance contracts may be subject to significant adjustments in future periods.

(c) Cash and cash equivalents and short-term investments in U.S. Treasury Bills

Cash equivalents consist of demand deposit and money market accounts and investments with maturities of three months or less when purchased. Short-term investments in U.S. Treasury Bills consist of U.S. Treasury Bills with maturities exceeding three months at the time of purchase and are stated at amortized cost, which approximates fair value.

(d) Investments in fixed maturity securities

We classify investments in fixed maturity securities on the acquisition date and at each balance sheet date. Securities classified as held-to-maturity are carried at amortized cost, reflecting the ability and intent to hold the securities to maturity. Securities classified as trading are acquired with the intent to sell in the near term and are carried at fair value with changes in fair value reported in earnings. All other securities are classified as available-for-sale and are carried at fair value. Substantially all of investments in fixed maturity securities are classified as available-for-sale. We amortize the difference between the original cost and maturity value of a fixed maturity security to earnings using the interest method.

Notes to Consolidated Financial Statements (Continued)

(1) Significant accounting policies and practices (Continued)

(d) Investments in fixed maturity securities (Continued)

We record investment gains and losses on available-for-sale fixed maturity securities when the securities are sold, determined on a specific identification basis. For securities in an unrealized loss position, we recognize a loss in earnings for the excess of amortized cost over fair value if we intend to sell before the price recovers. As of the balance sheet date, we evaluate whether the other unrealized losses are attributable to credit losses or other factors. We consider the severity of the decline in value, creditworthiness of the issuer and other relevant factors. We record an allowance for credit losses, limited to the excess of amortized cost over fair value, with a corresponding charge to earnings if the present value of estimated cash flows is less than the present value of contractual cash flows. The allowance may be subsequently increased or decreased based on the prevailing facts and circumstances. The portion of the unrealized loss that we believe is not related to a credit loss is recognized in other comprehensive income.

(e) Investments in equity securities

We carry substantially all investments in equity securities at fair value and record the subsequent changes in fair values in the Consolidated Statements of Earnings as a component of investment gains or losses.

(f) Investments under the equity method

We utilize the equity method to account for investments when we possess the ability to exercise significant influence, but not control, over the operating and financial policies of the investee. The ability to exercise significant influence is presumed when the investor possesses more than 20 % of the voting interests of the investee. This presumption may be overcome based on specific facts and circumstances that demonstrate that the ability to exercise significant influence is restricted. We apply the equity method to investments in common stock and other investments when such investments possess substantially identical subordinated interests to common stock.

In applying the equity method, we record the investment at cost and subsequently increase or decrease the carrying amount of the investment by our proportionate share of the net earnings or losses and other comprehensive income of the investee. We record dividends or other equity distributions as reductions in the carrying value of the investment. If net losses reduce our carrying amount to zero, additional net losses may be recorded if other investments in the investee are at-risk, even if we have not committed to provide financial support to the investee. Such additional equity method losses, if any, are based upon the change in our claim on the investee's book value.

(g) Loans and finance receivables

Loans and finance receivables are primarily manufactured home loans, and to a lesser extent, commercial loans and site-built home loans. We carry substantially all loans and finance receivables at amortized cost, net of allowances for expected credit losses, based on our ability and intent to hold such loans to maturity. Acquisition costs and loan origination and commitment costs paid and fees received, as well as acquisition premiums or discounts, are amortized as yield adjustments over the lives of the loans.

Prior to 2020, credit losses were measured when non-collection was considered probable based on the prevailing facts and circumstances. Beginning in 2020, measurements of expected credit losses include provisions for non-collection, whether the risk is probable or remote. Expected credit losses on manufactured home loans are based on the net present value of future principal payments less estimated expenses related to the charge-off and foreclosure of expected uncollectible loans and include provisions for loans that are not in foreclosure. Our principal credit quality indicator is whether the loans are performing. Expected credit loss estimates consider historical default rates, collateral recovery rates, historical runoff rates, interest rates, reductions of future cash flows for modified loans and the historical time elapsed from last payment until foreclosure, among other factors. In addition, our estimates consider current conditions and reasonable and supportable forecasts.

Loans are considered delinquent when payments are more than 30 days past due. We place loans over 90 days past due on nonaccrual status and accrued but uncollected interest is reversed. Subsequent collections on the loans are first applied to the principal and interest owed for the most delinquent amount. We resume interest income accrual once a loan is less than 90 days delinquent.

Loans are considered non-performing when the foreclosure process has started. Once a loan is in the process of foreclosure, interest income is not recognized until the foreclosure is cured or the loan is modified. Once a modification is complete, interest income is recognized based on the terms of the new loan. Foreclosed loans are charged off when the collateral is sold. Loans not in foreclosure are evaluated for charge-off based on individual circumstances concerning the future collectability of the loan and the condition of the collateral securing the loan.

Notes to Consolidated Financial Statements (Continued)

(1) Significant accounting policies and practices (Continued)

(h) Other receivables

Other receivables include balances due from customers, insurance premiums receivable and reinsurance losses recoverable, as well as other receivables. Trade receivables, insurance premium receivables and other receivables are primarily short-term in nature with stated collection terms of less than one year from the date of origination. Reinsurance recoverables are comprised of amounts ceded under reinsurance contracts or pursuant to mandatory government-sponsored insurance programs. Reinsurance recoverables relate to unpaid losses and loss adjustment expenses arising from property and casualty contracts and benefits under life and health contracts. Receivables are stated net of estimated allowances for uncollectible balances. Prior to 2020, we recorded provisions for uncollectible balances when it was probable counterparties or customers would be unable to pay all amounts due based on the contractual terms and historical loss history.

Beginning in 2020, we adopted a new accounting pronouncement that affects the measurement of allowances for credit losses. In measuring credit loss allowances, we primarily utilize credit loss history, with adjustments to reflect current or expected future economic conditions when reasonable and supportable forecasts of losses deviate from historical experience. In evaluating expected credit losses of reinsurance recoverables on unpaid losses, we review the credit quality of the counterparty and consider right-of-offset provisions within reinsurance contracts and other forms of credit enhancement including collateral, guarantees and other available information. We charge-off receivables against the allowances after all reasonable collection efforts are exhausted.

(i) Derivatives

We carry derivative contracts in accounts payable, accruals and other liabilities in our Consolidated Balance Sheets at fair value, net of reductions permitted under master netting agreements with counterparties. We record the changes in fair value of derivative contracts that do not qualify as hedging instruments for financial reporting purposes in earnings or, if such contracts involve our regulated utilities subsidiaries, as regulatory assets or liabilities when inclusion in regulated rates is probable.

(j) Fair value measurements

As defined under GAAP, fair value is the price that would be received to sell an asset or paid to transfer a liability between market participants in the principal market or in the most advantageous market when no principal market exists. Adjustments to transaction prices or quoted market prices may be required in illiquid or disorderly markets in estimating fair value. Alternative valuation techniques may be appropriate under the circumstances to determine the value that would be received to sell an asset or paid to transfer a liability in an orderly transaction. Market participants are assumed to be independent, knowledgeable, and able and willing to transact an exchange and not acting under duress. Our nonperformance or credit risk is considered in determining the fair value of liabilities. Considerable judgment may be required in interpreting market data used to develop the estimates of fair value. Accordingly, estimates of fair value presented herein are not necessarily indicative of the amounts that could be realized in a current or future market exchange.

(k) Inventories

Inventories consist of manufactured goods, goods or products acquired for resale and homes constructed for sale. Manufactured inventory costs include materials, direct and indirect labor and factory overhead. At December 31, 2021, we used the last-in-first-out ("LIFO") method to value approximately 31 % of consolidated inventories with the remainder primarily determined under first-in-first-out and average cost methods. Non-LIFO inventories are stated at the lower of cost or net realizable value. The excess of current or replacement costs over costs determined under LIFO was approximately \$ 1.9 billion as of December 31, 2021 and \$ 1.1 billion as of December 31, 2020.

(l) Property, plant and equipment

We record additions to property, plant and equipment used in operations at cost, which includes asset additions, improvements and betterments. With respect to constructed assets, all materials, direct labor and contract services as well as certain indirect costs are capitalized. Indirect costs include interest over the construction period. With respect to constructed assets of our utility and energy subsidiaries that are subject to authoritative guidance for regulated operations, capitalized costs also include an allowance for funds used during construction, which represents the cost of equity funds used to finance the construction of the regulated facilities. Normal repairs and maintenance and other costs that do not improve the property, extend its useful life or otherwise do not meet capitalization criteria are charged to expense as incurred.

Notes to Consolidated Financial Statements (Continued)

(1) Significant accounting policies and practices (Continued)

(l) Property, plant and equipment (Continued)

Depreciation of assets of our regulated utilities and railroad is generally determined using group depreciation methods where rates are based on periodic depreciation studies approved by the applicable regulator. Under group depreciation, a composite rate is applied to the gross investment in a particular class of property, despite differences in the service life or salvage value of individual property units within the same class. When such assets are retired or sold, no gain or loss is recognized. Gains or losses on disposals of all other assets are recorded through earnings.

We depreciate property, plant and equipment used by our other businesses to the estimated salvage value primarily using the straight-line method over estimated useful lives. Ranges of estimated useful lives of depreciable assets used in our other businesses are as follows: buildings and improvements – 5 to 50 years, machinery and equipment – 3 to 25 years and furniture, fixtures and other – 3 to 15 years. Ranges of estimated useful lives of depreciable assets unique to our railroad business are as follows: track structure and other roadway – 10 to 100 years and locomotives, freight cars and other equipment – 6 to 43 years. Ranges of estimated useful lives of assets unique to our regulated utilities and energy businesses are as follows: utility generation, transmission and distribution systems – 5 to 80 years, interstate natural gas pipeline assets – 3 to 80 years and independent power plants and other assets – 2 to 50 years.

We evaluate property, plant and equipment for impairment when events or changes in circumstances indicate that the carrying value of such assets may not be recoverable or when the assets are held for sale. Upon the occurrence of a triggering event, we assess whether the estimated undiscounted cash flows expected from the use of the asset and the residual value from the ultimate disposal of the asset exceeds the carrying value. If the carrying value exceeds the estimated recoverable amounts, we reduce the carrying value to fair value and record an impairment loss in earnings, except with respect to impairment of assets of our regulated utility and energy subsidiaries where the impacts of regulation are considered in evaluating the carrying value.

(m) Leases

We are party to contracts where we lease property to others ("lessor" contracts) and where we lease property from others ("lessee" contracts). We record acquisitions of and additions to equipment that we lease to others at cost. We depreciate equipment held for lease to estimated salvage value primarily using the straight-line method over estimated useful lives ranging from 3 to 35 years. We use declining balance depreciation methods for assets when the revenue-earning power of the asset is greater during the earlier years of its life. We also evaluate equipment held for lease for impairment consistent with policies for property, plant and equipment.

When we lease assets from others, we record right-of-use assets and lease liabilities. Right-of-use assets represent our right to use an underlying asset for the lease term and lease liabilities represent our obligation to make lease payments arising from the lease. In this regard, lease payments include fixed payments and variable payments that depend on an index or rate. The lease term is generally considered the non-cancellable lease period. Certain lease contracts contain renewal options or other terms that provide for variable payments based on performance or usage. Options are not included in determining right-of-use assets or lease liabilities unless it is reasonably certain that options will be exercised. Generally, incremental borrowing rates are used in measuring lease liabilities. Right-of-use assets are subject to review for impairment. As permitted under GAAP, we do not separate lease components from non-lease components by class of asset and do not record assets or liabilities for leases with terms of one year or less.

(n) Goodwill and other intangible assets

Goodwill represents the excess of the acquisition price of a business over the fair value of identified net assets of that business. We evaluate goodwill for impairment at least annually. When evaluating goodwill for impairment, we estimate the fair value of the reporting unit. Several methods may be used to estimate a reporting unit's fair value, including market quotations, asset and liability fair values and other valuation techniques, including, but not limited to, discounted projected future net earnings or net cash flows and multiples of earnings. When the carrying amount of a reporting unit, including goodwill, exceeds the estimated fair value, the excess is charged to earnings as an impairment loss.

Intangible assets with indefinite lives are also tested for impairment at least annually and when events or changes in circumstances indicate that, more-likely-than-not, the asset is impaired. Significant judgment is required in estimating fair values and performing goodwill and indefinite-lived intangible asset impairment tests. We amortize intangible assets with finite lives in a pattern that reflects the expected consumption of related economic benefits or on a straight-line basis over the estimated economic useful lives. Intangible assets with finite lives are reviewed for impairment when events or changes in circumstances indicate that the carrying amount may not be recoverable.

Notes to Consolidated Financial Statements (Continued)

(1) Significant accounting policies and practices (Continued)

(o) Revenue recognition

We earn insurance premiums on prospective property/casualty insurance and reinsurance contracts over the loss exposure or coverage period in proportion to the level of protection provided. Premiums are generally earned in proportion to the coverage provided, which is generally ratable over the term of the contract with unearned premiums computed on a monthly or daily pro-rata basis. Premiums on retroactive property/casualty reinsurance contracts are generally received in full and are earned at the inception of the contracts, as all underlying loss events covered by the policies occurred prior to contract inception. Premiums for life reinsurance and periodic payment annuity contracts are earned when due. Premiums for periodic payment annuity contracts are usually received in full at the inception of the contracts. Premiums earned are stated net of amounts ceded to reinsurers. Premiums earned on contracts with experience-rating provisions reflect estimated loss experience under such contracts.

Sales and service revenues are recognized when goods or services are transferred to a customer. A good or service is transferred when (or as) the customer obtains control of that good or service. Revenues are based on the consideration we expect to receive in connection with our promises to deliver goods and services to our customers.

We manufacture and/or distribute a wide variety of industrial, building and consumer products. Our sales contracts provide customers with these products through wholesale and retail channels in exchange for consideration specified under the contracts. Contracts generally represent customer orders for individual products at stated prices. Sales contracts may contain either single or multiple performance obligations. In instances where contracts contain multiple performance obligations, we allocate the revenue to each obligation based on the relative stand-alone selling prices of each product or service.

Sales revenue reflects reductions for returns, allowances, volume discounts and other incentives, some of which may be contingent on future events. In certain customer contracts, sales revenue includes certain state and local excise taxes billed to customers on specified products when those taxes are levied directly upon us by the taxing authorities. Sales revenue excludes sales taxes and value-added taxes collected on behalf of taxing authorities. Sales revenue includes consideration for shipping and other fulfillment activities performed prior to the customer obtaining control of the goods. We also elect to treat consideration for such services performed after control has passed to the customer as sales revenue.

Our product sales revenues are generally recognized at a point in time when control of the product transfers to the customer, which coincides with customer pickup or product delivery or acceptance, depending on terms of the arrangement. We recognize sales revenues and related costs with respect to certain contracts over time, primarily from certain castings, forgings and aerostructures contracts. Control of the product units under these contracts transfers continuously to the customer as the product is manufactured. These products generally have no alternative use and the contract requires the customer to provide reasonable compensation if terminated for reasons other than breach of contract.

The primary performance obligation under our freight rail transportation service contracts is to move freight from a point of origin to a point of destination. The performance obligations are represented by bills of lading which create a series of distinct services that have a similar pattern of transfer to the customer. The revenues for each performance obligation are based on various factors including the product being shipped, the origin and destination pair and contract incentives, which are outlined in various private rate agreements, common carrier public tariffs, interline foreign road agreements and pricing quotes. The transaction price is generally a per car/unit amount to transport railcars from a specified origin to a specified destination. Freight revenues are recognized over time as the service is performed because the customer simultaneously receives and consumes the benefits of the service. Revenues recognized represent the proportion of the service completed as of the balance sheet date. Invoices for freight transportation services are generally issued to customers and paid within 30 days or less. Customer incentives, which are primarily provided for shipping a specified cumulative volume or shipping to/from specific locations, are recorded as a reduction to revenue on a pro-rata basis based on actual or projected future customer shipments.

Notes to Consolidated Financial Statements (Continued)

(1) Significant accounting policies and practices (Continued)

(o) Revenue recognition (Continued)

Our energy revenue derives primarily from tariff-based sales arrangements approved by various regulatory commissions. These tariff-based revenues are mainly comprised of energy, transmission, distribution and natural gas and have performance obligations to deliver energy products and services to customers which are satisfied over time as energy is delivered or services are provided. Our nonregulated energy revenue primarily relates to our renewable energy business. Energy revenues are equivalent to the amounts we have the right to invoice and correspond directly with the value to the customer of the performance to date and include billed and unbilled amounts. Payments from customers are generally due within 30 days of billing. Rates charged for energy products and services are established by regulators or contractual arrangements that establish the transaction price, as well as the allocation of price among the separate performance obligations. When preliminary regulated rates are permitted to be billed prior to final approval by the applicable regulator, certain revenue collected may be subject to refund and a liability for estimated refunds is accrued. Other service revenues derive from contracts with customers in which performance obligations are satisfied over time, where customers receive and consume benefits as we perform the services or at a point in time when the services are provided. Other service revenues primarily derive from real estate brokerage, automotive repair, aircraft management, aviation training, franchising and news distribution.

Leasing revenue is generally recognized ratably over the term of the lease or based on usage, if applicable under the terms of the contract. A substantial portion of our lessor contracts are classified as operating leases.

(p) Losses and loss adjustment expenses

We record liabilities for unpaid losses and loss adjustment expenses under property/casualty insurance and reinsurance contracts for loss events that have occurred on or before the balance sheet date. Such liabilities represent the estimated ultimate payment amounts without discounting for time value.

We base liability estimates on (1) loss reports from policyholders and cedents, (2) individual case estimates and (3) estimates of incurred but not reported losses. Losses and loss adjustment expenses in the Consolidated Statements of Earnings include paid claims, claim settlement costs and changes in estimated claim liabilities. Losses and loss adjustment expenses charged to earnings are net of amounts recovered and estimates of amounts recoverable under ceded reinsurance contracts. Reinsurance contracts do not relieve the ceding company of its obligations to indemnify policyholders with respect to the underlying insurance and reinsurance contracts.

(q) Retroactive reinsurance contracts

We record liabilities for unpaid losses and loss adjustment expenses under short duration retroactive reinsurance contracts consistent with property/casualty insurance and reinsurance contracts described in Note 1(p). With respect to retroactive reinsurance contracts, we also record deferred charge assets at the inception of the contracts, representing the excess, if any, of the estimated ultimate claim liabilities over the premiums earned. We subsequently amortize the deferred charge assets over the expected claim settlement periods using the interest method. Changes to the estimated timing or amount of future loss payments also produce changes in deferred charge balances. We apply changes in such estimates retrospectively and the resulting changes in deferred charge balances, together with periodic amortization, are included in insurance losses and loss adjustment expenses in the Consolidated Statements of Earnings.

(r) Insurance policy acquisition costs

We capitalize the incremental costs that directly relate to the successful sale of insurance contracts, subject to ultimate recoverability. For short duration contracts, we subsequently amortize such costs to underwriting expenses as the related premiums are earned. Acquisition costs related to long duration life insurance contracts are amortized over the expected premium-paying period in proportion to the anticipated premiums over the life of the policy. Such anticipated premiums are estimated using the same assumptions used for computing liabilities for future policy benefits. Direct incremental acquisition costs include commissions, premium taxes and certain other costs associated with successful efforts. We expense all other underwriting costs as incurred. The recoverability of capitalized insurance policy acquisition costs generally reflects anticipation of investment income. The unamortized balances are included in other assets and were approximately \$ 3.4 billion and \$ 3.25 billion at December 31, 2021 and 2020, respectively.

Notes to Consolidated Financial Statements (Continued)

(1) Significant accounting policies and practices (Continued)

(s) Life and annuity insurance benefits

We compute liabilities for benefits under life insurance contracts based upon estimated future investment yields, expected mortality, morbidity and lapse or withdrawal rates, as well as estimates of premiums we expect to receive and expenses we expect to incur in the future. These assumptions, as applicable, also include a margin for adverse deviation and may vary with the characteristics of the contract's date of issuance, policy duration and country of risk. The interest rate assumptions used may vary by contract or jurisdiction. We discount periodic payment annuity liabilities based on the implicit rate as of the inception of the contracts such that the present value of the liabilities equals the premiums. Discount rates for most contracts range from 3 % to 7 %.

(t) Regulated utilities and energy businesses

Certain energy subsidiaries prepare their financial statements in accordance with authoritative guidance for regulated operations, reflecting the economic effects of regulation from the ability to recover certain costs from customers and the requirement to return revenues to customers in the future through the regulated rate-setting process. Accordingly, certain costs are deferred as regulatory assets and certain income is accrued as regulatory liabilities. Regulatory assets and liabilities will be amortized into operating expenses and revenues over various future periods.

Regulatory assets and liabilities are continually assessed for probable future inclusion in regulatory rates by considering factors such as applicable regulatory or legislative changes and recent rate orders received by other regulated entities. If future inclusion in regulatory rates ceases to be probable, the amount no longer probable of inclusion in regulatory rates is charged or credited to earnings (or other comprehensive income, if applicable) or returned to customers.

(u) Foreign currency

The accounts of our non-U.S. based subsidiaries are measured, in most instances, using functional currencies other than the U.S. Dollar. Revenues and expenses in the financial statements of these subsidiaries are translated into U.S. Dollars at the average exchange rate for the period and assets and liabilities are translated at the exchange rate as of the end of the reporting period. The net effects of translating the financial statements of these subsidiaries are included in shareholders' equity as a component of accumulated other comprehensive income. Gains and losses arising from transactions denominated in a currency other than the functional currency of the reporting entity, including gains and losses from the remeasurement of assets and liabilities due to changes in currency exchange rates, are included in earnings.

(v) Income taxes

Berkshire files a consolidated federal income tax return in the United States, which includes eligible subsidiaries. In addition, we file income tax returns in state, local and foreign jurisdictions as applicable. Provisions for current income tax liabilities are calculated and accrued on income and expense amounts expected to be included in the income tax returns for the current year. Income taxes reported in earnings also include deferred income tax provisions.

Deferred income tax assets and liabilities are computed on differences between the financial statement bases and tax bases of assets and liabilities at the enacted tax rates. Changes in deferred income tax assets and liabilities associated with components of other comprehensive income are charged or credited directly to other comprehensive income. Otherwise, changes in deferred income tax assets and liabilities are included as a component of income tax expense. The effect on deferred income tax assets and liabilities attributable to changes in enacted tax rates are charged or credited to income tax expense in the period of enactment. Valuation allowances are established for certain deferred tax assets when realization is not likely.

Assets and liabilities are established for uncertain tax positions taken or positions expected to be taken in income tax returns when such positions, in our judgment, do not meet a more-likely-than-not threshold based on the technical merits of the positions. Estimated interest and penalties related to uncertain tax positions are included as a component of income tax expense.

Notes to Consolidated Financial Statements (Continued)

(1) Significant accounting policies and practices (Continued)

(w) New accounting pronouncements adopted in 2020

We adopted Accounting Standards Codification ("ASC") 326 "Financial Instruments-Credit Losses" on January 1, 2020. ASC 326 provides for the measurement of expected credit losses on financial assets that are carried at amortized cost based on the net amounts expected to be collected. Measurements of expected credit losses therefore include provisions for non-collection, whether the risk is probable or remote. Prior to the adoption of ASC 326, credit losses were measured when non-collection was considered probable. Upon adoption of ASC 326, we recorded a charge to retained earnings of \$ 388 million representing the cumulative after-tax increase in our allowances for credit losses.

(x) New accounting pronouncements adopted in 2019

Berkshire adopted ASC 842 "Leases" on January 1, 2019 with respect to contracts in effect as of the adoption and elected to not restate prior period financial statements. Most significantly, ASC 842 requires a lessee to recognize a liability to make operating lease payments and an asset with respect to its right to use the underlying asset for the lease term. Upon adoption, we recorded operating lease right-of-use assets of approximately \$ 6.2 billion, lease liabilities of \$ 5.9 billion and reduced other assets by approximately \$ 300 million.

(y) New accounting pronouncements to be adopted subsequent to December 31, 2021

In August 2018, the Financial Accounting Standards Board issued Accounting Standards Update 2018-12 "Targeted Improvements to the Accounting for Long-Duration Contracts" ("ASU 2018-12"). ASU 2018-12 requires reassessment of cash flow assumptions at least annually and revision of discount rate assumptions each reporting period in valuing policyholder liabilities and related deferred acquisition costs of long-duration insurance and reinsurance contracts. The effects from changes in cash flow assumptions are reflected in earnings and the effects from changes in discount rate assumptions are reflected in other comprehensive income. Currently, the cash flow and discount rate assumptions are set at the contract inception date and not subsequently changed, except under limited circumstances. ASU 2018-12 is to be applied retrospectively to the earliest period presented in the financial statements, requires new disclosures and is effective for fiscal years beginning after December 15, 2022, with early adoption permitted.

We currently intend to adopt ASU 2018-12 as of January 1, 2023 using the modified retrospective method, which provides that the revised cash flow and discount rate assumptions as of January 1, 2021 (the transition date) be applied to contracts then in-force, with liabilities then remeasured as provided under the standard. The cumulative effects from discount rate assumption changes as of the transition date will be reflected in accumulated other comprehensive income and the cumulative effect from cash flow assumption changes will be included in retained earnings. While we have not finalized our assessment of the impact of the adoption as of the transition date, we currently believe that the changes in discount rate assumptions will have a greater effect on our recorded liabilities than changes in cash flow assumptions. We also preliminarily estimate that the changes in discount rate assumptions as of January 1, 2021 will increase our life, health and annuity benefit liabilities from the amounts previously reported due to the historically low interest rate environment at that time. However, the ultimate impact of adopting ASU 2018-12 will be based on the discount rate and cash flow assumptions determined as of the January 1, 2023 adoption date. We, therefore, continue to evaluate the effect this standard will have on our Consolidated Financial Statements.

(2) Business acquisitions

Our long-held acquisition strategy is to acquire businesses that have consistent earning power, good returns on equity and able and honest management. Financial results attributable to business acquisitions are included in our Consolidated Financial Statements beginning on their respective acquisition dates.

Berkshire Hathaway Energy ("BHE") acquired certain businesses of Dominion Energy, Inc. ("Dominion") on November 1, 2020, pursuant to a definitive agreement with Dominion in July 2020. The acquired businesses included natural gas transmission, gathering and storage pipelines, natural gas storage capacity and partial ownership of a liquefied natural gas export, import and storage facility ("Cove Point"). In October 2020, BHE and Dominion also agreed to provide for the exclusion of certain pipeline businesses from the initial agreement and entered into a second acquisition agreement with respect to the excluded pipeline businesses. The closing of the second agreement was subject to regulatory and customary closing conditions; however, in July 2021, BHE and Dominion agreed to terminate the second agreement.

Notes to Consolidated Financial Statements (Continued)

(2) Business acquisitions (Continued)

The cost of the acquisition was approximately \$ 2.5 billion after post-closing adjustments as provided in the agreement. The fair values of identified assets acquired and liabilities assumed and residual goodwill are summarized as follows (in millions).

Property, plant and equipment	\$	9,264
Goodwill		1,741
Other		2,398
Assets acquired	\$	13,403
Notes payable and other borrowings	\$	5,615
Other		1,358
Liabilities assumed		6,973
Noncontrolling interests		3,916
Net assets	\$	2,514

As part of this acquisition, BHE acquired an indirect 25 % economic interest in Cove Point, consisting of 100 % of the general partnership interest and 25 % of the limited partnership interests. We concluded that Cove Point is a VIE and that we have the power to direct the activities that most significantly impact its economic performance as well as the obligation to absorb losses and receive benefits which could be significant to Cove Point. Therefore, we treat Cove Point as a consolidated subsidiary. The noncontrolling interests are attributable to the limited partner interests held by third parties.

In each of the past three years, we also completed several smaller-sized business acquisitions, which we consider as "bolt-ons" to several of our existing business operations. We do not believe that these acquisitions are material, individually or in the aggregate to our Consolidated Financial Statements.

(3) Investments in fixed maturity securities

Investments in fixed maturity securities as of December 31, 2021 and 2020 are summarized by type below (in millions).

	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value
December 31, 2021				
U.S. Treasury, U.S. government corporations and agencies	\$ 3,286	\$ 22	\$ (5)	\$ 3,303
Foreign governments	10,998	29	(33)	10,994
Corporate bonds	1,363	412	(1)	1,774
Other	317	47	(1)	363
	<u>\$ 15,964</u>	<u>\$ 510</u>	<u>\$ (40)</u>	<u>\$ 16,434</u>
December 31, 2020				
U.S. Treasury, U.S. government corporations and agencies	\$ 3,348	\$ 55	\$ —	\$ 3,403
Foreign governments	11,233	110	(5)	11,338
Corporate bonds	4,729	464	(2)	5,191
Other	414	66	(2)	478
	<u>\$ 19,724</u>	<u>\$ 695</u>	<u>\$ (9)</u>	<u>\$ 20,410</u>

Investments in foreign governments include securities issued by national and provincial government entities as well as instruments that are unconditionally guaranteed by such entities. As of December 31, 2021, approximately 93 % of our foreign government holdings were rated AA or higher by at least one of the major rating agencies. The amortized cost and estimated fair value of fixed maturity securities at December 31, 2021 are summarized below by contractual maturity dates. Amounts are in millions. Actual maturities may differ from contractual maturities due to prepayment rights held by issuers.

	Due in one year or less	Due after one year through five years	Due after five years through ten years	Due after ten years	Mortgage-backed securities	Total
Amortized cost	\$ 9,171	\$ 6,044	\$ 307	\$ 207	\$ 235	\$ 15,964
Fair value	9,165	6,086	559	347	277	16,434

Notes to Consolidated Financial Statements (Continued)

(4) Investments in equity securities

Investments in equity securities as of December 31, 2021 and 2020 are summarized based on the primary industry of the investee in the table below (in millions).

	Cost Basis	Net Unrealized Gains	Fair Value
December 31, 2021 *			
Banks, insurance and finance	\$ 26,822	\$ 62,236	\$ 89,058
Consumer products	36,076	154,945	191,021
Commercial, industrial and other	41,707	28,933	70,640
	<u>\$ 104,605</u>	<u>\$ 246,114</u>	<u>\$ 350,719</u>

* Approximately 73 % of the aggregate fair value was concentrated in four companies (American Express Company – \$ 24.8 billion; Apple Inc. – \$ 161.2 billion; Bank of America Corporation – \$ 46.0 billion and The Coca-Cola Company – \$ 23.7 billion).

	Cost Basis	Net Unrealized Gains	Fair Value
December 31, 2020 *			
Banks, insurance and finance	\$ 26,312	\$ 40,167	\$ 66,479
Consumer products	34,747	111,583	146,330
Commercial, industrial and other	47,561	20,800	68,361
	<u>\$ 108,620</u>	<u>\$ 172,550</u>	<u>\$ 281,170</u>

* Approximately 68 % of the aggregate fair value was concentrated in four companies (American Express Company – \$ 18.3 billion; Apple Inc. – \$ 120.4 billion; Bank of America Corporation – \$ 31.3 billion and The Coca-Cola Company – \$ 21.9 billion).

Investments in commercial, industrial and other equity securities include our investments in Occidental Corporation ("Occidental"), which we acquired in 2019. These investments were acquired for a total of \$ 10 billion and consist of Occidental Cumulative Perpetual Preferred Stock with an aggregate liquidation value of \$ 10 billion and warrants, which currently permit us to purchase up to 83.86 million shares of Occidental common stock at an exercise price of \$ 59.62 per share. The preferred stock accrues dividends at 8 % per annum and is redeemable at the option of Occidental commencing in 2029 at a redemption price equal to 105 % of the liquidation preference plus any accumulated and unpaid dividends and is mandatorily redeemable under certain specified events. The warrants are exercisable in whole or in part until one year after the redemption of the preferred stock.

(5) Equity method investments

Berkshire and its subsidiaries hold investments in certain businesses that are accounted for pursuant to the equity method. Currently, the most significant of these is our investment in the common stock of The Kraft Heinz Company ("Kraft Heinz"). Kraft Heinz is one of the world's largest manufacturers and marketers of food and beverage products, including condiments and sauces, cheese and dairy, meals, meats, refreshment beverages, coffee and other grocery products. Berkshire currently owns 26.6 % of the outstanding shares of Kraft Heinz common stock.

We recorded equity method earnings from our investment in Kraft Heinz of \$ 269 million in 2021, \$ 95 million in 2020 and \$ 493 million in 2019. Equity method earnings included the effects of goodwill and identifiable intangible asset impairment charges recorded by Kraft Heinz. Our share of such charges was approximately \$ 350 million in 2021, \$ 850 million in 2020 and \$ 450 million in 2019. We received dividends from Kraft Heinz of \$ 521 million in each of 2021, 2020 and 2019, which we recorded as reductions in our carrying value.

Shares of Kraft Heinz common stock are publicly-traded and the fair value of our investment was approximately \$ 11.7 billion at December 31, 2021 and \$ 11.3 billion at December 31, 2020. The carrying value of our investment was approximately \$ 13.1 billion at December 31, 2021 and \$ 13.3 billion at December 31, 2020. As of December 31, 2021, the carrying value of our investment exceeded the fair value based on the quoted market price by approximately 11 % of the carrying value. We evaluated our investment in Kraft Heinz for impairment. Based on the prevailing facts and circumstances, we concluded recognition of an impairment charge in earnings was not required as of December 31, 2021.

Notes to Consolidated Financial Statements (Continued)

(5) Equity method investments (Continued)

Summarized consolidated financial information of Kraft Heinz follows (in millions).

	December 25, 2021	December 26, 2020	
Assets	\$ 93,394	\$ 99,830	
Liabilities	43,942	49,587	
	Year ending December 25, 2021	Year ending December 26, 2020	Year ending December 28, 2019
Sales	\$ 26,042	\$ 26,185	\$ 24,977
Net earnings attributable to Kraft Heinz common shareholders	\$ 1,012	\$ 356	\$ 1,935

Other investments accounted for pursuant to the equity method include our investments in Berkadia Commercial Mortgage LLC ("Berkadia"), Pilot Travel Centers LLC ("Pilot"), Electric Transmission Texas, LLC ("ETT") and beginning in 2021, Iroquois Gas Transmission System L.P. ("Iroquois"). The aggregate carrying value of our investments in these entities was \$ 4.3 billion as of December 31, 2021 and \$ 4.0 billion as of December 31, 2020. Our equity method earnings in these entities were \$ 726 million in 2021, \$ 631 million in 2020 and \$ 683 million in 2019. During 2021, we received distributions of approximately \$ 1.2 billion from these investees. Additional information concerning these investments follows.

We own a 50 % interest in Berkadia, with Jefferies Financial Group Inc. ("Jefferies") owning the other 50 % interest. Berkadia is a servicer of commercial real estate loans in the U.S., performing primary, master and special servicing functions for U.S. government agency programs, commercial mortgage-backed securities transactions, banks, insurance companies and other financial institutions. Berkadia funds a portion of its operations through commercial paper borrowings, which are currently limited to \$ 1.5 billion. On December 31, 2021, Berkadia's commercial paper outstanding was \$ 1.47 billion. Berkadia's commercial paper is supported by a surety policy issued by a Berkshire insurance subsidiary. Jefferies is obligated to indemnify us for one-half of any losses incurred under the policy. BHE subsidiaries own a 50 % noncontrolling interest in ETT, an owner and operator of electric transmission assets in Texas and a 50 % noncontrolling interest in Iroquois, which owns and operates a natural gas pipeline located in New York and Connecticut.

We own a 38.6 % interest in Pilot, headquartered in Knoxville, Tennessee. Pilot is the largest operator of travel centers in North America with more than 800 retail locations across 44 U.S. states and six Canadian provinces and through wholesale distribution. Pilot's revenues in 2021 were approximately \$ 45 billion. The Haslam family currently owns a 50.1 % interest in Pilot and a third party owns the remaining 11.3 % interest. We have an agreement to acquire in 2023 an additional 41.4 % interest in Pilot with the Haslam family retaining a 20 % interest. As a result, Berkshire will become the majority owner of Pilot in 2023.

(6) Investment and derivative contract gains/losses

Investment and derivative contract gains/losses for each of the three years ending December 31, 2021 are summarized as follows (in millions).

	2021	2020	2019
Investment gains (losses):			
Equity securities:			
Change in unrealized investment gains (losses) during the year on securities held at the end of the year	\$ 76,375	\$ 54,951	\$ 69,581
Investment gains (losses) during the year on securities sold	997	(14,036)	1,585
	<u>77,372</u>	<u>40,915</u>	<u>71,166</u>
Fixed maturity securities:			
Gross realized gains	85	56	87
Gross realized losses	(29)	(27)	(25)
Other	148	(39)	(105)
Investment gains (losses)	<u>77,576</u>	<u>40,905</u>	<u>71,123</u>
Derivative contract gains (losses)	966	(159)	1,484
	<u>\$ 78,542</u>	<u>\$ 40,746</u>	<u>\$ 72,607</u>

Notes to Consolidated Financial Statements (Continued)

(6) Investment and derivative contract gains/losses (Continued)

Equity securities gains and losses include unrealized gains and losses from changes in fair values during the year on equity securities we still owned at the end of the year, as well as gains and losses on securities we sold during the year. As reflected in the Consolidated Statements of Cash Flows, we received proceeds of approximately \$ 15.8 billion in 2021, \$ 38.8 billion in 2020 and \$ 14.3 billion in 2019 from sales of equity securities. In the preceding table, investment gains and losses on equity securities sold during the year represent the difference between the sales proceeds and the fair value of the equity securities sold at the beginning of the applicable year or, if later, the purchase date. Our taxable gains and losses on equity securities sold are generally the difference between the proceeds from sales and original cost. Taxable gains were \$ 3.6 billion in 2021, \$ 6.2 billion in 2020 and \$ 3.2 billion in 2019.

The derivative contract gains and losses derive from equity index put option contracts written prior to March 2008 on four major equity indexes. Information related to these contracts follows (dollars in millions).

	December 31,	
	2021	2020
Balance sheet liabilities - at fair value	\$ 99	\$ 1,065
Notional value	6,992	10,991
Intrinsic value	—	727
Weighted average remaining life (in years)	0.5	1.2

Notional value in the preceding table represents the aggregate undiscounted amounts payable assuming the value of each index is zero on each contract's expiration date. Intrinsic value is the undiscounted liability assuming the contracts are settled based on the index values and foreign currency exchange rates as of the balance sheet date. Contracts comprising 63 % of the notional value as of December 31, 2021 will expire in the first quarter of 2022. Future payments, if any, under any given contract will be required if the index value is below the contract strike price at the contract expiration date. We received aggregate premiums on the contract inception dates of \$ 1.3 billion with respect to unexpired contracts as of December 31, 2021 and we have no counterparty credit risk.

(7) Loans and finance receivables

Loans and finance receivables are summarized as follows (in millions).

	December 31,	
	2021	2020
Loans and finance receivables before allowances and discounts	\$ 22,065	\$ 20,436
Allowances for credit losses	(765)	(712)
Unamortized acquisition discounts and points	(549)	(523)
	<u>\$ 20,751</u>	<u>\$ 19,201</u>

Loans and finance receivables are principally manufactured home loans, and to a lesser extent, commercial loans and site-built home loans. Reconciliations of the allowance for credit losses on loans and finance receivables for 2021, 2020 and 2019 follow (in millions).

	2021	2020	2019
Balance at beginning of year	\$ 712	\$ 167	\$ 177
Adoption of ASC 326	—	486	—
Provision for credit losses	88	177	125
Charge-offs, net of recoveries	(35)	(118)	(135)
Balance at December 31	<u>\$ 765</u>	<u>\$ 712</u>	<u>\$ 167</u>

At December 31, 2021, approximately 99 % of manufactured and site-built home loan balances were evaluated collectively for impairment. At December 31, 2021, we considered approximately 97 % of the loan balances to be current as to payment status. A summary of performing and non-performing home loans before discounts and allowances by year of loan origination as of December 31, 2021 follows (in millions).

	Origination Year						Total
	2021	2020	2019	2018	2017	Prior	
Performing	\$ 4,898	\$ 3,164	\$ 2,238	\$ 1,694	\$ 1,259	\$ 6,842	\$ 20,095
Non-performing	4	5	6	7	5	40	67
Total	<u>\$ 4,902</u>	<u>\$ 3,169</u>	<u>\$ 2,244</u>	<u>\$ 1,701</u>	<u>\$ 1,264</u>	<u>\$ 6,882</u>	<u>\$ 20,162</u>

Notes to Consolidated Financial Statements (Continued)

(7) Loans and finance receivables (Continued)

We are also party to commercial loan agreements with Seritage Growth Properties ("Seritage") and Lee Enterprises, Inc. ("Lee"), in which loan balances aggregated \$ 1.9 billion at December 31, 2021 and \$ 2.1 billion at December 31, 2020. The Seritage loan is pursuant to a \$ 2.0 billion term loan facility and the outstanding loan is secured by mortgages on its real estate properties. During the fourth quarter of 2021, the loan agreement with Seritage was amended to allow optional loan prepayments without penalty and on December 31, 2021, Seritage made a loan prepayment of \$ 160 million. The amendments further provide Seritage with the option to extend the maturity of the loan to July 31, 2025, if the outstanding principal has been reduced to \$ 800 million by the original expiration date of July 31, 2023. The loan to Lee matures in 2045 and was made in connection with its acquisition of our newspaper operations and the repayment by Lee of its then outstanding credit facilities. We are the sole lender to each of these entities and each of these loans is current as to payment status.

(8) Other receivables

Other receivables are comprised of the following (in millions).

	December 31, 2021	December 31, 2020
Insurance and other:		
Insurance premiums receivable	\$ 15,050	\$ 14,025
Reinsurance recoverables	4,900	4,805
Trade receivables	12,971	11,521
Other	3,146	2,637
Allowances for credit losses	(679)	(678)
	<u>\$ 35,388</u>	<u>\$ 32,310</u>
Railroad, utilities and energy:		
Trade receivables	\$ 3,678	\$ 3,235
Other	650	438
Allowances for credit losses	(151)	(131)
	<u>\$ 4,177</u>	<u>\$ 3,542</u>

Provisions for credit losses with respect to receivables summarized above were \$ 441 million in 2021, \$ 564 million in 2020 and \$ 363 million in 2019. Charge-offs, net of recoveries, were \$ 420 million in 2021, \$ 401 million in 2020 and \$ 350 million in 2019.

(9) Inventories

Inventories are comprised of the following (in millions).

	December 31, 2021	December 31, 2020
Raw materials	\$ 5,743	\$ 4,821
Work in process and other	3,192	2,541
Finished manufactured goods	4,530	4,412
Goods acquired for resale	7,489	7,434
	<u>\$ 20,954</u>	<u>\$ 19,208</u>

(10) Property, plant and equipment

A summary of property, plant and equipment of our insurance and other businesses follows (in millions).

	December 31, 2021	December 31, 2020
Land, buildings and improvements	\$ 14,070	\$ 13,799
Machinery and equipment	26,063	25,488
Furniture, fixtures and other	4,640	4,530
	44,773	43,817
Accumulated depreciation	(23,939)	(22,617)
	<u>\$ 20,834</u>	<u>\$ 21,200</u>

Notes to Consolidated Financial Statements (Continued)

(10) Property, plant and equipment (Continued)

A summary of property, plant and equipment of railroad and utilities and energy businesses follows (in millions). The utility generation, transmission and distribution systems and interstate natural gas pipeline assets are owned by regulated public utility and natural gas pipeline subsidiaries.

	December 31,	
	2021	2020
Railroad:		
Land, track structure and other roadway	\$ 65,843	\$ 63,824
Locomotives, freight cars and other equipment	13,822	13,523
Construction in progress	1,027	916
	80,692	78,263
Accumulated depreciation	(14,978)	(13,175)
	65,714	65,088
Utilities and energy:		
Utility generation, transmission and distribution systems	90,223	86,730
Interstate natural gas pipeline assets	17,423	16,667
Independent power plants and other assets	13,695	12,671
Construction in progress	4,196	3,308
	125,537	119,376
Accumulated depreciation	(35,721)	(33,248)
	89,816	86,128
	<u>\$ 155,530</u>	<u>\$ 151,216</u>

Depreciation expense for each of the three years ending December 31, 2021 is summarized below (in millions).

	2021	2020	2019
Insurance and other	\$ 2,318	\$ 2,320	\$ 2,269
Railroad, utilities and energy	5,990	5,799	5,297
	<u>\$ 8,308</u>	<u>\$ 8,119</u>	<u>\$ 7,566</u>

(11) Equipment held for lease

Equipment held for lease includes railcars, aircraft, over-the-road trailers, intermodal tank containers, cranes, storage units and furniture. Equipment held for lease is summarized below (in millions).

	December 31,	
	2021	2020
Railcars	\$ 9,448	\$ 9,402
Aircraft	9,234	8,204
Other	5,053	4,868
	23,735	22,474
Accumulated depreciation	(8,817)	(7,873)
	<u>\$ 14,918</u>	<u>\$ 14,601</u>

Depreciation expense for equipment held for lease was \$ 1,158 million in 2021, \$ 1,200 million in 2020 and \$ 1,181 million in 2019. Fixed and variable operating lease revenues for each of the three years ending December 31, 2021 are summarized below (in millions).

	2021	2020	2019
Fixed lease revenue	\$ 4,482	\$ 4,262	\$ 4,415
Variable lease revenue	1,506	947	1,441
	<u>\$ 5,988</u>	<u>\$ 5,209</u>	<u>\$ 5,856</u>

Notes to Consolidated Financial Statements (Continued)

(11) Equipment held for lease (Continued)

A summary of future operating lease receipts as of December 31, 2021 follows (in millions).

2022	2023	2024	2025	2026	Thereafter	Total
\$ 2,922	\$ 2,233	\$ 1,623	\$ 1,009	\$ 536	\$ 392	\$ 8,715

(12) Leases

We are party to contracts where we lease property from others under contracts classified as operating leases. We primarily lease office and operating facilities, locomotives, freight cars, energy generation facilities and transmission assets. The weighted average remaining term of our operating leases was approximately 7.2 years at December 31, 2021 and 7.3 years at December 31, 2020. Operating lease right-of-use assets are included in other assets and were \$ 5,091 million at December 31, 2021 and \$ 5,579 million at December 31, 2020. Our lease liabilities are included in accounts payable, accruals and other liabilities and were \$ 4,991 million at December 31, 2021 and \$ 5,469 million at December 31, 2020. The weighted average discount rate used to measure lease liabilities was approximately 3.5 % at December 31, 2021 and 3.6 % at December 31, 2020. A summary of our remaining future operating lease payments reconciled to lease liabilities as of December 31, 2021 and December 31, 2020 follows (in millions).

	Year 1	Year 2	Year 3	Year 4	Year 5	Thereafter	Total lease payments	Amount representing interest	Lease liabilities
December 31:									
2021	\$ 1,238	\$ 1,038	\$ 835	\$ 631	\$ 418	\$ 1,571	\$ 5,731	\$ (740)	\$ 4,991
2020	1,342	1,111	905	725	544	1,691	6,318	(849)	5,469

Components of operating lease costs for the three years ending December 31, 2021, by type, are summarized in the following table (in millions).

	2021	2020	2019
Operating lease cost	\$ 1,426	\$ 1,413	\$ 1,459
Short-term lease cost	154	145	178
Variable lease cost	223	228	276
Sublease income	(10)	(10)	(24)
Total lease cost	\$ 1,793	\$ 1,776	\$ 1,889

(13) Goodwill and other intangible assets

Reconciliations of the changes in the carrying value of goodwill during 2021 and 2020 follow (in millions).

	December 31,	
	2021	2020
Balance at beginning of year	\$ 73,734	\$ 81,882
Business acquisitions	353	1,758
Impairment charges	—	(10,033)
Other, including foreign currency translation	(212)	127
Balance at end of year*	\$ 73,875	\$ 73,734

* Net of accumulated goodwill impairments of \$ 11.0 billion as of December 31, 2021 and 2020.

During 2020, we reevaluated goodwill and indefinite-lived intangible assets of certain of our reporting units for impairment due to the disruptions arising from the COVID-19 pandemic, which we believed most significantly affected the air travel, commercial aerospace and supporting industries. We recorded goodwill impairment charges of approximately \$ 10 billion and indefinite-lived intangible asset impairment charges of \$ 638 million in the second quarter of 2020. Approximately \$ 10 billion of these charges pertained to Precision Castparts Corp. ("PCC"), one of the largest businesses within Berkshire's manufacturing segment. The carrying values of PCC-related goodwill and indefinite-lived intangible assets prior to the impairment charges were approximately \$ 31 billion. The impairment charges were determined based on discounted cash flow methods and reflected our assessments of the risks and uncertainties associated with the aerospace industry. Significant judgment is required in estimating the fair value of a reporting unit and in performing impairment tests. Due to the inherent uncertainty in forecasting future cash flows and earnings, actual results in the future may vary significantly from the forecasts.

Notes to Consolidated Financial Statements (Continued)

(13) Goodwill and other intangible assets (Continued)

The gross carrying amounts and related accumulated amortization of other intangible assets are summarized as follows (in millions).

	December 31, 2021			December 31, 2020		
	Gross carrying amount	Accumulated amortization	Net carrying value	Gross carrying amount	Accumulated amortization	Net carrying value
Insurance and other:						
Customer relationships	\$ 27,335	\$ 6,450	\$ 20,885	\$ 27,374	\$ 5,756	\$ 21,618
Trademarks and trade names	5,176	802	4,374	5,206	779	4,427
Patents and technology	4,763	3,484	1,279	4,766	3,313	1,453
Other	3,390	1,442	1,948	3,339	1,375	1,964
	<u>\$ 40,664</u>	<u>\$ 12,178</u>	<u>\$ 28,486</u>	<u>\$ 40,685</u>	<u>\$ 11,223</u>	<u>\$ 29,462</u>
Railroad, utilities and energy:						
Customer relationships	\$ 678	\$ 396	\$ 282	\$ 678	\$ 361	\$ 317
Trademarks, trade names and other	1,015	146	869	1,003	98	905
	<u>\$ 1,693</u>	<u>\$ 542</u>	<u>\$ 1,151</u>	<u>\$ 1,681</u>	<u>\$ 459</u>	<u>\$ 1,222</u>

Intangible asset amortization expense was \$ 1,252 million in 2021, \$ 1,277 million in 2020 and \$ 1,317 million in 2019. Estimated amortization expense over the next five years is as follows (in millions): 2022 – \$ 1,189 ; 2023 – \$ 1,120 ; 2024 – \$ 1,023 ; 2025 – \$ 939 and 2026 – \$ 846 . Intangible assets with indefinite lives were \$ 18.5 billion as of December 31, 2021 and \$ 18.3 billion as of December 31, 2020 and primarily related to certain customer relationships and trademarks and trade names.

(14) Supplemental cash flow information

A summary of supplemental cash flow information for each of the three years ending December 31, 2021 is presented in the following table (in millions).

	2021	2020	2019
Cash paid during the year for:			
Income taxes	\$ 5,412	\$ 5,001	\$ 5,415
Interest:			
Insurance and other	1,227	1,001	1,011
Railroad, utilities and energy	3,162	3,006	2,879
Non-cash investing and financing activities:			
Liabilities assumed in connection with business acquisitions	102	6,981	766
Operating lease liabilities arising from obtaining right-of-use assets	687	729	782

(15) Dividend restrictions – Insurance subsidiaries

Payments of dividends by our insurance subsidiaries are restricted by insurance statutes and regulations. Without prior regulatory approval, our principal insurance subsidiaries may declare up to approximately \$ 30 billion as ordinary dividends during 2022. Investments in fixed maturity and equity securities and short-term investments on deposit with U.S. state insurance authorities in accordance with state insurance regulations were approximately \$ 6.4 billion at December 31, 2021 and \$ 5.5 billion at December 31, 2020.

Combined shareholders' equity of U.S. based insurance subsidiaries determined pursuant to statutory accounting rules (Surplus as Regards Policyholders) was approximately \$ 301 billion at December 31, 2021 and \$ 237 billion at December 31, 2020. Statutory surplus differs from the corresponding amount based on GAAP, due to differences in accounting for certain assets and liabilities. For instance, deferred charges reinsurance assumed, deferred policy acquisition costs, unrealized gains on certain investments and related deferred income taxes are recognized for GAAP but not for statutory reporting purposes. In addition, the carrying values of certain assets, such as goodwill and non-insurance entities owned by our insurance subsidiaries, are not fully recognized for statutory reporting purposes.

Notes to Consolidated Financial Statements (Continued)

(16) Unpaid losses and loss adjustment expenses

Our liabilities for unpaid losses and loss adjustment expenses (also referred to as "claim liabilities") under property and casualty insurance and reinsurance contracts are based upon estimates of the ultimate claim costs associated with claim occurrences as of the balance sheet date and include estimates for incurred-but-not-reported ("IBNR") claims. A reconciliation of the changes in claim liabilities, excluding liabilities under retroactive reinsurance contracts (see Note 17), for each of the three years ending December 31, 2021 is as follows (in millions).

	2021	2020	2019
Balances at beginning of year:			
Gross liabilities	\$ 79,854	\$ 73,019	\$ 68,458
Reinsurance recoverable on unpaid losses	(2,912)	(2,855)	(3,060)
Net liabilities	76,942	70,164	65,398
Incurred losses and loss adjustment expenses:			
Current accident year	52,099	43,400	43,335
Prior accident years	(3,116)	(356)	(752)
Total	48,983	43,044	42,583
Paid losses and loss adjustment expenses:			
Current accident year	(22,897)	(17,884)	(19,482)
Prior accident years	(18,904)	(18,862)	(17,642)
Total	(41,801)	(36,746)	(37,124)
Foreign currency effect	(420)	480	(23)
Business acquisition (disposition)	—	—	(670)
Balances at December 31:			
Net liabilities	83,704	76,942	70,164
Reinsurance recoverable on unpaid losses	2,960	2,912	2,855
Gross liabilities	<u>\$ 86,664</u>	<u>\$ 79,854</u>	<u>\$ 73,019</u>

Incurred losses and loss adjustment expenses shown in the preceding table were recorded in earnings and related to insured events occurring in the current year ("current accident year") and events occurring in all prior years ("prior accident years"). Incurred and paid losses and loss adjustment expenses are net of reinsurance recoveries. Current accident year incurred losses included approximately \$ 2.9 billion in 2021, \$ 950 million in 2020 and \$ 1.0 billion in 2019 from significant catastrophe events (losses in excess of \$ 100 million per event) occurring in the respective year. Current accident year incurred losses from private passenger auto insurance also increased significantly in 2021 as compared to 2020, primarily due to increased claims frequencies and severities. In 2020, current accident year incurred losses reflected low private passenger auto claims frequencies and increased loss estimates for certain commercial insurance and reinsurance business attributable to the COVID-19 pandemic.

We recorded net reductions of estimated ultimate liabilities for prior accident years of \$ 3.1 billion in 2021, \$ 356 million in 2020 and \$ 752 million in 2019, which produced corresponding reductions in incurred losses and loss adjustment expenses in those periods. These reductions, as percentages of the net liabilities at the beginning of each year, were 4.0 % in 2021, 0.5 % in 2020 and 1.1 % in 2019.

Estimated ultimate liabilities for prior accident years from primary insurance were reduced by \$ 2.4 billion in 2021, \$ 518 million in 2020 and \$ 457 million in 2019. The reductions in 2021 and 2020 derived primarily from private passenger auto and medical professional liability claims. In both 2021 and 2020, we also lowered estimated ultimate liabilities for prior accident years with respect to workers' compensation claims, which were largely offset by increases in ultimate liabilities for other casualty claims. The decrease in incurred losses for prior accident years in 2019 reflected reductions in medical professional liability and workers' compensation estimates partially offset by higher other casualty estimates. Estimated ultimate liabilities for prior accident years related to property and casualty reinsurance decreased \$ 718 million in 2021, increased \$ 162 million in 2020 and decreased \$ 295 million in 2019. The increase in 2020 included increased claims estimates for legacy casualty exposures.

Notes to Consolidated Financial Statements (Continued)

(16) Unpaid losses and loss adjustment expenses (Continued)

Estimated net claim liabilities for environmental, asbestos and other latent injury exposures were approximately \$ 2.1 billion at December 31, 2021 and 2020. These liabilities are subject to change due to changes in the legal and regulatory environment. We are unable to reliably estimate additional losses or a range of losses that are reasonably possible for these claims.

Disaggregated information concerning our claims liabilities is provided below and in the pages that follow. The effects of businesses acquired or disposed during the year are reflected in the data presented on a retrospective basis. A reconciliation of the disaggregated net unpaid losses and allocated loss adjustment expenses (the latter referred to as "ALAE") of GEICO, Berkshire Hathaway Primary Group ("BH Primary") and Berkshire Hathaway Reinsurance Group ("BHRG") to our consolidated unpaid losses and loss adjustment expenses as of December 31, 2021 follows (in millions).

	GEICO Physical Damage	GEICO Auto Liability	BH Primary Medical Professional Liability	BH Primary Workers' Compensation and Other Casualty	BHRG Property	BHRG Casualty	Total
Unpaid losses and ALAE, net	\$ 729	\$ 19,768	\$ 8,506	\$ 13,579	\$ 13,119	\$ 23,611	\$ 79,312
Reinsurance recoverable	11	1,085	28	639	181	892	2,836
Unpaid unallocated loss adjustment expenses							2,448
Other unpaid losses and loss adjustment expenses							2,068
Unpaid losses and loss adjustment expenses							<u>\$ 86,664</u>

GEICO

GEICO's claim liabilities predominantly relate to various types of private passenger auto liability and physical damage claims. For such claims, we establish and evaluate unpaid claim liabilities using standard actuarial loss development methods and techniques. The actuarial methods utilize historical claims data, adjusted when deemed appropriate to reflect perceived changes in loss patterns. Claim liabilities include average, case, case development and IBNR estimates.

We establish average liabilities based on expected severities for newly reported physical damage and liability claims prior to establishing individual case reserves when insufficient time or information is available for specific claim estimates and for large volumes of minor physical damage claims that once reported are quickly settled. We establish case loss estimates for liability claims, including estimates for loss adjustment expenses, as the facts and merits of the claim are evaluated.

Claim estimates for liability coverages normally reflect greater uncertainty than physical damage coverages, primarily due to the longer claim-tails, the greater chance of litigation and the time needed to evaluate facts at the time the case estimate is first established. The "claim-tail" is the period between the claim occurrence date and claim settlement or payment date. Consequently, we establish additional case development liabilities, which are usually percentages of the case liabilities. For unreported claims, IBNR liabilities are estimated by projecting the ultimate number of claims expected (reported and unreported) for each significant coverage and deducting reported claims to produce estimated unreported claims. The product of the average cost per unreported claim and the number of unreported claims produces the IBNR liability estimate. We may record supplemental IBNR liabilities in certain situations when actuarial techniques are difficult to apply.

Notes to Consolidated Financial Statements (Continued)

(16) Unpaid losses and loss adjustment expenses (Continued)

GEICO's net incurred and paid auto physical damage and liability losses and ALAE are summarized by accident year below. IBNR and case development liabilities are as of December 31, 2021. Claim counts are established when accidents that may result in a liability are reported and are based on policy coverage. Each claim event may generate claims under multiple coverages, and thus may result in multiple counts. The "Cumulative Number of Reported Claims" includes the combined number of reported claims for all auto policy coverages. Dollars are in millions.

Physical Damage

Incurred Losses and ALAE through December 31,					IBNR and Case Development Liabilities	Cumulative Number of Reported Claims (in thousands)
Accident Year	2020*		2021			
2020	\$	8,603	\$	8,396	\$ 64	7,935
2021				12,135	420	8,967
Incurred losses and ALAE			\$	20,531		

Cumulative Paid Losses and ALAE through December 31,						
Accident Year	2020*		2021			
2020	\$	8,118	\$	8,385		
2021				11,427		
Paid losses and ALAE				19,812		
Net unpaid losses and ALAE for 2020 – 2021 accident years				719		
Net unpaid losses and ALAE for accident years before 2020				10		
Net unpaid losses and ALAE				\$ 729		

Auto Liability

Incurred Losses and ALAE through December 31,							IBNR and Case Development Liabilities	Cumulative Number of Reported Claims (in thousands)
Accident Year	2017*	2018*	2019*	2020*	2021			
2017	\$ 14,095	\$ 13,864	\$ 13,888	\$ 13,824	\$ 13,777	\$ 232		2,646
2018		15,383	15,226	14,985	14,838	495		2,713
2019			16,901	16,678	16,191	1,202		2,778
2020				14,637	14,024	2,564		2,087
2021					17,481	5,541		2,216
Incurred losses and ALAE					\$ 76,311			

Cumulative Paid Losses and ALAE through December 31,								
Accident Year	2017*	2018*	2019*	2020*	2021			
2017	\$ 5,806	\$ 9,944	\$ 11,799	\$ 12,729	\$ 13,260			
2018		6,218	10,772	12,658	13,757			
2019			6,742	11,671	13,851			
2020				5,395	9,839			
2021					6,450			
Paid losses and ALAE					57,157			
Net unpaid losses and ALAE for 2017 – 2021 accident years					19,154			
Net unpaid losses and ALAE for accident years before 2017					614			
Net unpaid losses and ALAE					\$ 19,768			

* Unaudited required supplemental information

Notes to Consolidated Financial Statements (Continued)

(16) Unpaid losses and loss adjustment expenses (Continued)

BH Primary

BH Primary's liabilities for unpaid losses and loss adjustment expenses primarily derive from medical professional liability and workers' compensation and other casualty insurance, which includes commercial auto and general liability insurance. Net incurred and paid losses and ALAE are summarized by accident year in the following tables, disaggregated by medical professional liability coverages and workers' compensation and other casualty coverages. IBNR and case development liabilities are as of December 31, 2021. The cumulative number of reported claims reflects the number of individual claimants and includes claims that ultimately resulted in no liability or payment. Dollars are in millions.

Medical Professional Liability

We estimate the ultimate expected incurred losses and loss adjustment expenses for medical professional claim liabilities using a variety of commonly accepted actuarial methodologies, such as the paid and incurred development method and Bornhuetter-Ferguson based methods, as well as other techniques that consider insured loss exposures and historical and expected loss trends, among other factors. These methodologies produce loss estimates from which we determine our best estimate. In addition, we study developments in older accident years and adjust initial loss estimates to reflect recent developments based upon claim age, coverage and litigation experience.

Incurred Losses and ALAE through December 31,											IBNR and Case Development Liabilities	Cumulative Number of Reported Claims (in thousands)
Accident Year	2012*	2013*	2014*	2015*	2016*	2017*	2018*	2019*	2020*	2021		
2012	\$ 1,336	\$ 1,306	\$ 1,277	\$ 1,223	\$ 1,168	\$ 1,078	\$ 1,035	\$ 998	\$ 988	\$ 971	\$ 51	11
2013		1,328	1,296	1,261	1,195	1,127	1,086	1,019	985	978	62	11
2014			1,370	1,375	1,305	1,246	1,218	1,127	1,061	1,033	108	11
2015				1,374	1,342	1,269	1,290	1,218	1,157	1,093	136	12
2016					1,392	1,416	1,414	1,394	1,341	1,288	213	15
2017						1,466	1,499	1,495	1,474	1,382	328	21
2018							1,602	1,650	1,659	1,580	495	23
2019								1,670	1,691	1,663	869	20
2020									1,704	1,751	1,319	27
2021										1,852	1,672	15
Incurred losses and ALAE										\$ 13,591		

Cumulative Paid Losses and ALAE through December 31,											
Accident Year	2012*	2013*	2014*	2015*	2016*	2017*	2018*	2019*	2020*	2021	
2012	\$ 15	\$ 93	\$ 218	\$ 377	\$ 522	\$ 642	\$ 725	\$ 789	\$ 830	\$ 848	
2013		15	90	219	368	518	635	743	793	821	
2014			21	106	238	396	540	671	752	788	
2015				23	108	218	382	543	663	719	
2016					22	115	274	461	620	712	
2017						27	128	300	457	582	
2018							35	166	367	543	
2019								39	160	314	
2020									34	148	
2021										36	
Paid losses and ALAE										5,511	
Net unpaid losses and ALAE for 2012 – 2021 accident years										8,080	
Net unpaid losses and ALAE for accident years before 2012										426	
Net unpaid losses and ALAE										\$ 8,506	

* Unaudited required supplemental information

Notes to Consolidated Financial Statements (Continued)

(16) Unpaid losses and loss adjustment expenses (Continued)

Workers' Compensation and Other Casualty

We periodically evaluate ultimate loss and loss adjustment expense estimates for the workers' compensation and other casualty claims using a combination of commonly accepted actuarial methodologies such as the Bornhuetter-Ferguson and chain-ladder approaches using paid and incurred loss data. Paid and incurred loss data is segregated and analyzed by state due to the different state regulatory frameworks that may impact certain factors, including the duration and amount of loss payments. We also separately study the various components of liabilities, such as employee lost wages, medical expenses and the costs of claims investigations and administration. We establish case liabilities for reported claims based upon the facts and circumstances of the claim. The excess of the ultimate projected losses, including the expected development of case estimates, and the case-basis liabilities is included in IBNR liabilities.

Incurred Losses and ALAE through December 31,											IBNR and Case Development Liabilities	Cumulative Number of Reported Claims (in thousands)
Accident Year	2012*	2013*	2014*	2015*	2016*	2017*	2018*	2019*	2020*	2021		
2012	\$ 873	\$ 850	\$ 837	\$ 791	\$ 780	\$ 762	\$ 750	\$ 736	\$ 718	\$ 709	\$ 39	53
2013		1,258	1,228	1,178	1,127	1,096	1,072	1,050	1,028	1,008	96	67
2014			1,743	1,638	1,614	1,548	1,482	1,497	1,477	1,460	163	90
2015				2,169	2,127	2,042	2,014	2,025	1,997	2,006	242	111
2016					2,511	2,422	2,359	2,325	2,365	2,370	396	115
2017						3,044	2,907	2,842	2,843	2,852	503	139
2018							3,544	3,412	3,480	3,536	908	160
2019								4,074	4,102	4,175	1,278	173
2020									4,421	4,278	2,089	141
2021										5,197	3,545	218
Incurred losses and ALAE										\$ 27,591		

Cumulative Paid Losses and ALAE through December 31,												
Accident Year	2012*	2013*	2014*	2015*	2016*	2017*	2018*	2019*	2020*	2021		
2012	\$ 116	\$ 299	\$ 414	\$ 501	\$ 560	\$ 592	\$ 611	\$ 626	\$ 634	\$ 640		
2013		177	422	609	725	793	835	858	874	884		
2014			239	557	800	1,007	1,111	1,176	1,214	1,245		
2015				289	700	1,017	1,289	1,488	1,570	1,648		
2016					329	775	1,148	1,461	1,661	1,778		
2017						441	1,003	1,434	1,771	1,956		
2018							538	1,198	1,683	2,028		
2019								682	1,478	2,022		
2020									695	1,391		
2021										833		
Paid losses and ALAE										14,425		
Net unpaid losses and ALAE for 2012 – 2021 accident years										13,166		
Net unpaid losses and ALAE for accident years before 2012										413		
Net unpaid losses and ALAE										\$ 13,579		

* Unaudited required supplemental information

BHRG

We use a variety of methodologies to establish BHRG's estimates for property and casualty claims liabilities. These methodologies include paid and incurred loss development techniques, incurred and paid loss Bornhuetter-Ferguson techniques and frequency and severity techniques, as well as ground-up techniques when appropriate.

Our claims liabilities are principally a function of reported losses from ceding companies, case development and IBNR liability estimates. Case loss estimates are reported under our contracts either individually or in bulk as provided under the terms of the contracts. We may independently evaluate case losses reported by the ceding company, and if deemed appropriate, we may establish case liabilities based on our estimates.

Notes to Consolidated Financial Statements (Continued)

(16) Unpaid losses and loss adjustment expenses (Continued)

Estimated IBNR liabilities are affected by expected case loss emergence patterns and expected loss ratios, which are evaluated as groups of contracts with similar exposures or on a contract-by-contract basis. Estimated case and IBNR liabilities for major catastrophe events are generally based on a per-contract assessment of the ultimate cost associated with the individual loss event. Claim count data is not provided consistently by ceding companies under our contracts or is otherwise considered unreliable.

Net incurred and paid losses and ALAE of BHRG are disaggregated based on losses that are expected to have shorter claim-tails (property) and losses expected to have longer claim-tails (casualty). Under certain contracts, the coverage can apply to multiple lines of business written by the ceding company, whether property, casualty or combined, and the ceding company may not report loss data by such lines consistently, if at all. In those instances, we allocated losses to property and casualty coverages based on internal estimates. BHRG's disaggregated incurred and paid losses and ALAE are summarized by accident year. IBNR and case development liabilities are as of December 31, 2021. Dollars are in millions.

Property

Incurred Losses and ALAE through December 31,

Accident Year	2012*	2013*	2014*	2015*	2016*	2017*	2018*	2019*	2020*	2021	IBNR and Case Development Liabilities
2012	\$ 3,129	\$ 2,822	\$ 2,621	\$ 2,382	\$ 2,330	\$ 2,327	\$ 2,309	\$ 2,294	\$ 2,285	\$ 2,305	\$ 31
2013		3,198	3,035	2,690	2,600	2,579	2,520	2,469	2,455	2,453	29
2014			2,619	2,408	2,297	2,154	2,100	2,028	1,999	1,996	33
2015				3,256	3,103	2,546	2,950	2,948	2,971	2,975	154
2016					3,261	3,890	3,616	3,585	3,589	3,578	112
2017						5,253	4,953	4,806	4,698	4,631	141
2018							4,375	4,467	4,344	4,227	461
2019								4,065	4,234	3,992	541
2020									5,795	6,048	1,504
2021										6,669	3,405
Incurred losses and ALAE										\$ 38,874	

Cumulative Paid Losses and ALAE through December 31,

Accident Year	2012*	2013*	2014*	2015*	2016*	2017*	2018*	2019*	2020*	2021
2012	\$ 259	\$ 1,218	\$ 1,796	\$ 1,934	\$ 2,022	\$ 2,097	\$ 2,117	\$ 2,162	\$ 2,180	\$ 2,201
2013		515	1,424	1,863	2,060	2,180	2,260	2,300	2,328	2,352
2014			465	1,234	1,555	1,693	1,758	1,808	1,838	1,860
2015				577	1,596	1,946	2,141	2,245	2,427	2,510
2016					705	1,794	2,186	2,647	2,899	3,083
2017						1,025	2,712	3,633	3,944	4,163
2018							907	2,310	2,831	3,061
2019								748	2,247	2,830
2020									956	2,882
2021										1,214
Paid losses and ALAE										26,156
Net unpaid losses and ALAE for 2012 – 2021 accident years										12,718
Net unpaid losses and ALAE for accident years before 2012										401
Net unpaid losses and ALAE										\$ 13,119

* Unaudited required supplemental information

Notes to Consolidated Financial Statements (Continued)

(16) Unpaid losses and loss adjustment expenses (Continued)

Casualty

Incurred Losses and ALAE through December 31,

Accident Year	2012*	2013*	2014*	2015*	2016*	2017*	2018*	2019*	2020*	2021	IBNR and Case Development Liabilities
2012	\$ 2,792	\$ 2,974	\$ 2,808	\$ 2,871	\$ 2,799	\$ 2,686	\$ 2,619	\$ 2,562	\$ 2,556	\$ 2,557	\$ 372
2013		2,132	2,268	2,298	2,141	2,086	2,032	1,937	1,865	1,837	331
2014			1,872	2,069	2,038	2,001	1,915	1,952	1,942	1,847	431
2015				1,877	2,082	2,109	2,008	1,882	1,844	1,817	395
2016					1,906	2,115	2,023	1,980	1,900	1,843	451
2017						2,193	2,685	2,563	2,470	2,383	582
2018							2,924	3,559	3,482	3,340	904
2019								3,429	3,901	3,780	1,521
2020									3,861	3,987	2,147
2021										3,744	2,584
Incurred losses and ALAE										\$ 27,135	

Cumulative Paid Losses and ALAE through December 31,

Accident Year	2012*	2013*	2014*	2015*	2016*	2017*	2018*	2019*	2020*	2021
2012	\$ 308	\$ 747	\$ 1,139	\$ 1,368	\$ 1,525	\$ 1,650	\$ 1,750	\$ 1,810	\$ 1,868	\$ 1,906
2013		290	519	805	933	1,037	1,139	1,199	1,256	1,290
2014			149	477	642	752	874	959	1,103	1,147
2015				196	489	713	833	924	1,014	1,088
2016					253	555	732	862	960	1,043
2017						230	564	819	1,269	1,376
2018							265	867	1,639	1,909
2019								353	896	1,176
2020									404	970
2021										307
Paid losses and ALAE										12,212
Net unpaid losses and ALAE for 2012 – 2021 accident years										14,923
Net unpaid losses and ALAE for accident years before 2012										8,688
Net unpaid losses and ALAE										\$ 23,611

* Unaudited required supplemental information

Required supplemental unaudited average historical claims duration information based on the net losses and ALAE incurred and paid accident year data in the preceding tables follows. The percentages show the average portions of net losses and ALAE paid by each succeeding year, with year 1 representing the current accident year.

Average Annual Percentage Payout of Incurred Losses by Age, Net of Reinsurance

In Year	1	2	3	4	5	6	7	8	9	10
GEICO Physical Damage	97 %	3 %								
GEICO Auto Liability	41 %	30 %	13 %	8 %	4 %					
BH Primary Medical Professional Liability	2 %	8 %	12 %	14 %	13 %	11 %	8 %	5 %	4 %	2 %
BH Primary Workers' Compensation and Other Casualty	16 %	21 %	16 %	12 %	8 %	4 %	3 %	2 %	1 %	1 %
BHRG Property	19 %	36 %	16 %	8 %	5 %	4 %	2 %	1 %	1 %	1 %
BHRG Casualty	11 %	16 %	13 %	9 %	6 %	5 %	5 %	3 %	2 %	2 %

Notes to Consolidated Financial Statements (Continued)

(17) Retroactive reinsurance contracts

Retroactive reinsurance policies provide indemnification of losses and loss adjustment expenses of short-duration insurance contracts with respect to underlying loss events that occurred prior to the contract inception date. Claims payments may commence immediately after the contract date or, when applicable, after a contractual retention amount has been reached. Reconciliations of the changes in estimated liabilities for retroactive reinsurance unpaid losses and loss adjustment expenses ("claim liabilities") and related deferred charge reinsurance assumed assets for each of the three years ended December 31, 2021 follow (in millions).

	2021		2020		2019	
	Unpaid losses and loss adjustment expenses	Deferred charges - retroactive reinsurance	Unpaid losses and loss adjustment expenses	Deferred charges - retroactive reinsurance	Unpaid losses and loss adjustment expenses	Deferred charges - retroactive reinsurance
Balances at beginning of year	\$ 40,966	\$ (12,441)	\$ 42,441	\$ (13,747)	\$ 41,834	\$ (14,104)
Incurred losses and loss adjustment expenses:						
Current year contracts	153	(17)	—	—	1,138	(453)
Prior years' contracts	(974)	1,819	(399)	1,306	378	810
Total	(821)	1,802	(399)	1,306	1,516	357
Paid losses and loss adjustment expenses	(1,889)	—	(1,076)	—	(909)	—
Balances at December 31	\$ 38,256	\$ (10,639)	\$ 40,966	\$ (12,441)	\$ 42,441	\$ (13,747)
Incurred losses and loss adjustment expenses, net of deferred charges	\$ 981		\$ 907		\$ 1,873	

In the preceding table, classifications of incurred losses and loss adjustment expenses are based on the inception dates of the contracts, which reflect when our exposures to losses began. We do not believe that analysis of losses incurred and paid by accident year of the underlying event is relevant or meaningful given that our exposure to losses incepts when the contract incepts. Further, we believe the classifications of reported claims and case development liabilities have little or no practical analytical value.

Currently, our largest retroactive reinsurance contract is between our subsidiary, National Indemnity Company, and certain subsidiaries of American International Group, Inc. (collectively, "AIG"). Our estimated unpaid claim liabilities with regard to the AIG contract were approximately \$ 15.8 billion at December 31, 2021 and \$ 17.7 billion at December 31, 2020. Claim payments under this contract commenced in 2021 and were \$ 1.2 billion during 2021. Deferred charges related to the AIG contract were approximately \$ 4.5 billion at December 31, 2021 and \$ 5.4 billion at December 31, 2020.

Incurred losses and loss adjustment expenses related to contracts written in prior years were \$ 845 million in 2021, \$ 907 million in 2020 and \$ 1,188 million in 2019, which included recurring amortization of deferred charges and the effect of changes in the timing and amount of expected future loss payments.

In establishing retroactive reinsurance claim liabilities, we analyze historical aggregate loss payment patterns and project losses into the future under various probability-weighted scenarios. We expect the claim-tail to be very long for many contracts, with some lasting several decades. We monitor claim payment activity and review ceding company reports and other information concerning the underlying losses. We reassess and revise the expected timing and amounts of ultimate losses periodically or when significant events are revealed through our monitoring and review processes.

Estimated claim liabilities for retroactive reinsurance included estimates for environmental, asbestos and other latent injury exposures of approximately \$ 12.3 billion at December 31, 2021 and \$ 12.5 billion at December 31, 2020. Retroactive reinsurance contracts are generally subject to aggregate policy limits and thus, our exposure to such claims under these contracts is likewise limited. We monitor evolving case law and its effect on environmental and other latent injury claims. Changing laws or government regulations, newly identified toxins, newly reported claims, new theories of liability, new contract interpretations and other factors could result in increases in these liabilities, which could be material to our results of operations. We are unable to reliably estimate the amount of additional net loss or the range of net loss that is reasonably possible.

Notes to Consolidated Financial Statements (Continued)

(18) Notes payable and other borrowings

Notes payable and other borrowings are summarized below (in millions). The weighted average interest rates and maturity date ranges shown in the following tables are based on borrowings as of December 31, 2021.

	Weighted Average	December 31,	
	Interest Rate	2021	2020
Insurance and other:			
Berkshire Hathaway Inc. ("Berkshire"):			
U.S. Dollar denominated due 2022 - 2047	3.3%	\$ 6,820	\$ 8,308
Euro denominated due 2023 - 2041	1.0%	7,792	8,326
Japanese Yen denominated due 2023 - 2060	0.6%	6,797	6,031
Berkshire Hathaway Finance Corporation ("BHFC"):			
U.S. Dollar denominated due 2022 - 2051	3.6%	10,758	10,766
Great Britain Pound denominated due 2039 - 2059	2.5%	2,325	2,347
Other subsidiary borrowings due 2022 - 2045	4.0%	4,438	4,682
Short-term subsidiary borrowings	2.9%	342	1,062
		\$ 39,272	\$ 41,522

During 2021, Berkshire repaid € 550 million and \$ 1.5 billion of maturing senior notes and issued € 600 million of 0.5 % senior notes due in 2041 and ¥ 160 billion (approximately \$ 1.5 billion) of senior notes with maturity dates ranging from 2026 to 2041 and a weighted average interest rate of 0.5 %. In January 2022, Berkshire repaid \$ 600 million of maturing debt and issued ¥ 128.5 billion (approximately \$ 1.1 billion) of senior notes with maturity dates ranging from 2027 to 2052 and a weighted average interest rate of 0.5 %.

Borrowings of BHFC, a wholly owned finance subsidiary of Berkshire, consist of senior unsecured notes used to fund manufactured housing loans originated or acquired and equipment held for lease of certain subsidiaries. BHFC borrowings are fully and unconditionally guaranteed by Berkshire. In 2021, BHFC repaid \$ 750 million of maturing senior notes and issued \$ 750 million of 2.5 % senior notes due in 2051 .

The carrying values of Berkshire and BHFC non-U.S. Dollar denominated senior notes (€ 6.9 billion, £ 1.75 billion and ¥ 785.5 billion par) reflect the applicable exchange rates as of the balance sheet dates. The effects of changes in foreign currency exchange rates during the period are recorded in earnings as a component of selling, general and administrative expenses. Changes in the exchange rates resulted in pre-tax gains of \$ 1.3 billion in 2021, pre-tax losses of \$ 1.0 billion in 2020 and pre-tax gains of \$ 192 million in 2019.

Berkshire also guarantees debt of other subsidiaries, aggregating approximately \$ 3.8 billion at December 31, 2021. Generally, Berkshire's guarantee of a subsidiary's debt obligation is an absolute, unconditional and irrevocable guarantee for the full and prompt payment when due of all payment obligations.

	Weighted Average Interest Rate	December 31,	
		2021	2020
Railroad, utilities and energy:			
Berkshire Hathaway Energy Company ("BHE") and subsidiaries:			
BHE senior unsecured debt due 2023 - 2051	4.3%	\$ 13,003	\$ 13,447
Subsidiary and other debt due 2022 - 2064	4.1%	36,759	36,420
Short-term borrowings	1.4%	2,009	2,286
Burlington Northern Santa Fe ("BNSF") and subsidiaries due 2022 - 2097	4.5%	23,219	23,220
		\$ 74,990	\$ 75,373

BHE subsidiary debt represents amounts issued pursuant to separate financing agreements. Substantially all of the assets of certain BHE subsidiaries are, or may be, pledged or encumbered to support or otherwise secure debt. These borrowing arrangements generally contain various covenants, including covenants which pertain to leverage ratios, interest coverage ratios and/or debt service coverage ratios. During 2021, BHE and its subsidiaries issued term debt of approximately \$ 2.2 billion with maturity dates ranging from 2028 to 2052 and a weighted average interest rate of 3.2 % and repaid \$ 2.5 billion of term debt.

Notes to Consolidated Financial Statements (Continued)

(18) Notes payable and other borrowings (Continued)

BNSF's borrowings are primarily senior unsecured debentures. During 2021, BNSF issued \$ 1.55 billion of term debt with maturity dates in 2051 and 2052 and a weighted average interest rate of 3.1 % and repaid debt of \$ 1.54 billion. As of December 31, 2021, BNSF, BHE and their subsidiaries were in compliance with all applicable debt covenants. Berkshire does not guarantee any debt, borrowings or lines of credit of BNSF, BHE or their subsidiaries.

Our subsidiaries had unused lines of credit and commercial paper capacity to support short-term borrowing programs and provide additional liquidity. Unused lines of credit were approximately \$ 10.4 billion at December 31, 2021, which included approximately \$ 8.7 billion related to BHE and its subsidiaries.

Debt principal repayments expected during each of the next five years are as follows (in millions). Amounts in 2022 include short-term borrowings.

	2022	2023	2024	2025	2026
Insurance and other	\$ 1,933	\$ 5,879	\$ 2,154	\$ 2,703	\$ 3,422
Railroad, utilities and energy	4,206	4,832	3,991	3,792	2,033
	<u>\$ 6,139</u>	<u>\$ 10,711</u>	<u>\$ 6,145</u>	<u>\$ 6,495</u>	<u>\$ 5,455</u>

(19) Income taxes

The liabilities for income taxes reflected in our Consolidated Balance Sheets are as follows (in millions).

	December 31,	
	2021	2020
Currently payable (receivable)	\$ (482)	\$ (276)
Deferred	89,679	73,261
Other	1,046	1,113
	<u>\$ 90,243</u>	<u>\$ 74,098</u>

The tax effects of temporary differences that give rise to significant portions of deferred tax assets and deferred tax liabilities are shown below (in millions).

	December 31,	
	2021	2020
Deferred tax liabilities:		
Investments – unrealized appreciation	\$ 55,437	\$ 40,181
Deferred charges reinsurance assumed	2,234	2,613
Property, plant and equipment and equipment held for lease	31,323	30,203
Goodwill and other intangible assets	6,748	6,753
Other	4,094	3,736
	<u>99,836</u>	<u>83,486</u>
Deferred tax assets:		
Unpaid losses and loss adjustment expenses	(1,091)	(1,135)
Unearned premiums	(990)	(900)
Accrued liabilities	(1,868)	(2,193)
Regulatory liabilities	(1,349)	(1,421)
Other	(4,859)	(4,576)
	<u>(10,157)</u>	<u>(10,225)</u>
Net deferred tax liability	<u>\$ 89,679</u>	<u>\$ 73,261</u>

We have not established deferred income taxes on accumulated undistributed earnings of certain foreign subsidiaries, which are expected to be reinvested indefinitely. Repatriation of all accumulated earnings of foreign subsidiaries would be impracticable to the extent that such earnings represent capital to support normal business operations. Generally, no U.S. federal income taxes will be imposed on future distributions of foreign earnings under current law. However, distributions to the U.S. or other foreign jurisdictions could be subject to withholding and other local taxes.

Notes to Consolidated Financial Statements (Continued)

(19) Income taxes (Continued)

Income tax expense reflected in our Consolidated Statements of Earnings for each of the three years ending December 31, 2021 was as follows (in millions).

	2021	2020	2019
Federal	\$ 20,345	\$ 10,596	\$ 19,069
State	(527)	1,086	625
Foreign	1,061	758	1,210
	<u>\$ 20,879</u>	<u>\$ 12,440</u>	<u>\$ 20,904</u>
Current	\$ 5,326	\$ 5,052	\$ 5,818
Deferred	15,553	7,388	15,086
	<u>\$ 20,879</u>	<u>\$ 12,440</u>	<u>\$ 20,904</u>

Income tax expense is reconciled to hypothetical amounts computed at the U.S. federal statutory rate for each of the three years ending December 31, 2021 in the table below (in millions).

	2021	2020	2019
Earnings before income taxes	<u>\$ 111,686</u>	<u>\$ 55,693</u>	<u>\$ 102,696</u>
Hypothetical income tax expense computed at the U.S. federal statutory rate	\$ 23,454	\$ 11,696	\$ 21,566
Dividends received deduction and tax-exempt interest	(457)	(448)	(433)
State income taxes, less U.S. federal income tax benefit	(417)	858	494
U.S. income tax credits	(1,860)	(1,519)	(942)
Goodwill impairments	—	1,977	20
Other differences, net	159	(124)	199
	<u>\$ 20,879</u>	<u>\$ 12,440</u>	<u>\$ 20,904</u>
Effective income tax rate	<u>18.7%</u>	<u>22.3%</u>	<u>20.4%</u>

We file income tax returns in the United States and in state, local and foreign jurisdictions. We have settled income tax liabilities with the U.S. federal taxing authority ("IRS") for tax years through 2011. The U.S. federal income tax returns from 2012 through 2019 remain open, and tax years 2014 through 2019 are under audit. We are also under audit or subject to audit with respect to income taxes in many state and foreign jurisdictions. It is reasonably possible that certain of these income tax examinations will be settled in 2022. We currently do not believe that the outcome of unresolved issues or claims will be material to our Consolidated Financial Statements.

At December 31, 2021 and 2020, net unrecognized tax benefits were \$ 1,046 million and \$ 1,113 million, respectively. Included in the balance at December 31, 2021, were \$ 878 million of tax positions that, if recognized, would impact the effective tax rate. The remaining balance in net unrecognized tax benefits principally relates to tax positions where the ultimate recognition is highly certain but there is uncertainty about the timing of recognition. Because of the impact of deferred income tax accounting, these positions, when recognized, would not affect the annual effective income tax rate. Other differences, net included expense of \$ 60 million in 2020 and \$ 377 million in 2019 for uncertain tax positions related to investments by a subsidiary in certain tax equity investment funds that generated income tax benefits from 2015 through 2018. We concluded it was more likely than not those income tax benefits are not valid. We do not expect any material increases to the estimated amount of unrecognized tax benefits during 2022.

Notes to Consolidated Financial Statements (Continued)

(20) Fair value measurements

Our financial assets and liabilities are summarized below as of December 31, 2021 and December 31, 2020, with fair values shown according to the fair value hierarchy (in millions). The carrying values of cash and cash equivalents, U.S. Treasury Bills, other receivables and accounts payable, accruals and other liabilities are considered to be reasonable estimates of their fair values.

	Carrying Value	Fair Value	Quoted Prices (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
December 31, 2021					
Investments in fixed maturity securities:					
U.S. Treasury, U.S. government corporations and agencies	\$ 3,303	\$ 3,303	\$ 3,261	\$ 42	\$ —
Foreign governments	10,994	10,994	10,286	708	—
Corporate bonds	1,774	1,774	—	1,774	—
Other	363	363	—	363	—
Investments in equity securities	350,719	350,719	339,225	8	11,486
Investment in Kraft Heinz common stock	13,112	11,683	11,683	—	—
Loans and finance receivables	20,751	22,174	—	2,178	19,996
Derivative contract assets ⁽¹⁾	329	329	6	230	93
Derivative contract liabilities:					
Railroad, utilities and energy ⁽¹⁾	277	277	2	51	224
Equity index put options ⁽¹⁾	99	99	—	—	99
Notes payable and other borrowings:					
Insurance and other	39,272	42,339	—	42,292	47
Railroad, utilities and energy	74,990	87,065	—	87,065	—
December 31, 2020					
Investments in fixed maturity securities:					
U.S. Treasury, U.S. government corporations and agencies	\$ 3,403	\$ 3,403	\$ 3,358	\$ 45	\$ —
Foreign governments	11,338	11,338	9,259	2,079	—
Corporate bonds	5,191	5,191	—	5,191	—
Other	478	478	—	478	—
Investments in equity securities	281,170	281,170	271,848	38	9,284
Investment in Kraft Heinz common stock	13,336	11,280	11,280	—	—
Loans and finance receivables	19,201	20,554	—	2,692	17,862
Derivative contract assets ⁽¹⁾	270	270	1	72	197
Derivative contract liabilities:					
Railroad, utilities and energy ⁽¹⁾	121	121	6	96	19
Equity index put options ⁽¹⁾	1,065	1,065	—	—	1,065
Notes payable and other borrowings:					
Insurance and other	41,522	46,676	—	46,665	11
Railroad, utilities and energy	75,373	92,593	—	92,593	—

(1) Assets are included in other assets and liabilities are included in accounts payable, accruals and other liabilities.

Notes to Consolidated Financial Statements (Continued)

(20) Fair value measurements (Continued)

The fair values of substantially all of our financial instruments were measured using market or income approaches. The hierarchy for measuring fair value consists of Levels 1 through 3, which are described below.

Level 1 – Inputs represent unadjusted quoted prices for identical assets or liabilities exchanged in active markets.

Level 2 – Inputs include directly or indirectly observable inputs (other than Level 1 inputs) such as quoted prices for similar assets or liabilities exchanged in active or inactive markets; quoted prices for identical assets or liabilities exchanged in inactive markets; other inputs that may be considered in fair value determinations of the assets or liabilities, such as interest rates and yield curves, volatilities, prepayment speeds, loss severities, credit risks and default rates; and inputs that are derived principally from or corroborated by observable market data by correlation or other means. Pricing evaluations generally reflect discounted expected future cash flows, which incorporate yield curves for instruments with similar characteristics, such as credit ratings, estimated durations and yields for other instruments of the issuer or entities in the same industry sector.

Level 3 – Inputs include unobservable inputs used in the measurement of assets and liabilities. Management is required to use its own assumptions regarding unobservable inputs because there is little, if any, market activity in the assets or liabilities and it may be unable to corroborate the related observable inputs. Unobservable inputs require management to make certain projections and assumptions about the information that would be used by market participants in valuing assets or liabilities.

Reconciliations of assets and liabilities measured and carried at fair value on a recurring basis with the use of significant unobservable inputs (Level 3) for each of the three years ending December 31, 2021 follow (in millions).

	Balance at beginning of year	Gains (losses) included in earnings	Acquisitions, dispositions and settlements	Transfers out of Level 3	Balance at December 31,
Investments in equity securities:					
2021	\$ 8,978	\$ 1,902	\$ 1,100	\$ (500)	\$ 11,480
2020	10,405	(1,426)	—	(1)	8,978
2019	1	404	10,000	—	10,405
Equity index put option contract liabilities:					
2021	\$ (1,065)	\$ 966	\$ —	\$ 99	\$ —
2020	(968)	(159)	62	—	(1,065)
2019	(2,452)	1,484	—	—	(968)

We acquired investments in Occidental Cumulative Perpetual Preferred Stock ("Occidental Preferred") and Occidental common stock warrants in August 2019 at an aggregate cost of \$ 10 billion. We currently consider the related fair value measurements to contain Level 3 inputs. See Note 4 for information regarding these investments.

Quantitative information as of December 31, 2021 for assets and liabilities measured and carried at fair value on a recurring basis with the use of significant unobservable inputs (Level 3) follows (in millions).

	Fair Value	Principal Valuation Techniques	Unobservable Inputs	Weighted Average
Investments in equity securities:				
Preferred stock	\$ 10,864	Discounted cash flow	Expected duration	7 years
			Discount for transferability restrictions and subordination	372 bps
Common stock warrants	616	Warrant pricing model	Expected duration	7 years
			Volatility	37%

Notes to Consolidated Financial Statements (Continued)

(20) Fair value measurements (Continued)

Investments in equity securities in the preceding table include our investments in certain preferred and common stock warrants that do not have readily determinable market values as defined under GAAP. These investments are subject to contractual restrictions on transferability and contain provisions that currently prevent us from economically hedging our investments. We applied discounted cash flow techniques in valuing the preferred stock and we made assumptions regarding the expected duration of the investment and the effects of subordination in liquidation. In valuing the common stock warrants, we used a warrant valuation model. While most of the inputs to the model are observable, we made assumptions regarding the expected duration and volatility of the warrants.

(21) Common stock

Changes in Berkshire's issued, treasury and outstanding common stock during the three years ending December 31, 2021 are shown in the table below. In addition to our common stock, 1,000,000 shares of preferred stock are authorized, but none are issued.

	Class A, \$ 5 Par Value (1,650,000 shares authorized)			Class B, \$ 0.0033 Par Value (3,225,000,000 shares authorized)		
	Issued	Treasury	Outstanding	Issued	Treasury	Outstanding
Balance December 31, 2018	742,213	(12,897)	729,316	1,373,558,983	(6,138,909)	1,367,420,074
Conversions of Class A common stock to Class B common stock and exercises of replacement stock options	(22,906)	—	(22,906)	34,624,869	—	34,624,869
Treasury stock acquired	—	(4,440)	(4,440)	—	(17,563,410)	(17,563,410)
Balance December 31, 2019	719,307	(17,337)	701,970	1,408,183,852	(23,702,319)	1,384,481,533
Conversions of Class A common stock to Class B common stock	(40,784)	—	(40,784)	61,176,000	—	61,176,000
Treasury stock acquired	—	(17,255)	(17,255)	—	(95,614,062)	(95,614,062)
Balance December 31, 2020	678,523	(34,592)	643,931	1,469,359,852	(119,316,381)	1,350,043,471
Conversions of Class A common stock to Class B common stock	(12,622)	—	(12,622)	18,933,000	—	18,933,000
Treasury stock acquired	—	(14,196)	(14,196)	—	(78,501,968)	(78,501,968)
Balance December 31, 2021	<u>665,901</u>	<u>(48,788)</u>	<u>617,113</u>	<u>1,488,292,852</u>	<u>(197,818,349)</u>	<u>1,290,474,503</u>

Each Class A common share is entitled to one vote per share. Class B common stock possesses dividend and distribution rights equal to one-fifteen-hundredth (1/1,500) of such rights of Class A common stock. Each Class B common share possesses voting rights equal to one-ten-thousandth (1/10,000) of the voting rights of a Class A share. Unless otherwise required under Delaware General Corporation Law, Class A and Class B common shares vote as a single class. Each share of Class A common stock is convertible, at the option of the holder, into 1,500 shares of Class B common stock. Class B common stock is not convertible into Class A common stock. On an equivalent Class A common stock basis, there were 1,477,429 shares outstanding as of December 31, 2021 and 1,543,960 shares outstanding as of December 31, 2020.

Since we have two classes of common stock, we provide earnings per share data on the Consolidated Statements of Earnings for average equivalent Class A shares outstanding and average equivalent Class B shares outstanding. Class B shares are economically equivalent to one-fifteen-hundredth (1/1,500) of a Class A share. Average equivalent Class A shares outstanding represents average Class A shares outstanding plus one-fifteen-hundredth (1/1,500) of the average Class B shares outstanding. Average equivalent Class B shares outstanding represents average Class B shares outstanding plus 1,500 times average Class A shares outstanding.

Berkshire's common stock repurchase program, as amended, permits Berkshire to repurchase shares any time that Warren Buffett, Berkshire's Chairman of the Board and Chief Executive Officer, and Charlie Munger, Vice Chairman of the Board, believe that the repurchase price is below Berkshire's intrinsic value, conservatively determined. The program continues to allow share repurchases in the open market or through privately negotiated transactions and does not specify a maximum number of shares to be repurchased. However, repurchases will not be made if they would reduce the total value of Berkshire's consolidated cash, cash equivalents and U.S. Treasury Bill holdings below \$ 30 billion. The repurchase program does not obligate Berkshire to repurchase any specific dollar amount or number of Class A or Class B shares and there is no expiration date to the program.

Notes to Consolidated Financial Statements (Continued)

(22) Revenues from contracts with customers

We recognize revenue when a good or service is transferred to a customer. A good or service is transferred when or as the customer obtains control of that good or service. Revenues are based on the consideration we expect to receive in connection with our promises to deliver goods and services to our customers. The following tables summarize customer contract revenues disaggregated by reportable segment and the source of the revenue for each of the three years ended December 31, 2021 (in millions). Other revenues, which are not considered to be revenues from contracts with customers under GAAP, are primarily insurance premiums earned, interest, dividend and other investment income and leasing revenues.

2021	Manufacturing	McLane	Service and retailing	BNSF	Berkshire Hathaway Energy	Insurance, Corporate and other	Total
Manufactured products:							
Industrial and commercial products	\$ 22,184	\$ —	\$ 159	\$ —	\$ —	\$ —	\$ 22,343
Building products	19,604	—	—	—	—	—	19,604
Consumer products	18,540	—	—	—	—	—	18,540
Grocery and convenience store distribution	—	31,245	—	—	—	—	31,245
Food and beverage distribution	—	17,332	—	—	—	—	17,332
Auto sales	—	—	9,966	—	—	—	9,966
Other retail and wholesale distribution	2,997	—	15,898	—	—	—	18,895
Service	1,486	751	4,123	23,120	5,583	—	35,063
Electricity and natural gas	—	—	—	—	18,264	—	18,264
Total	64,811	49,328	30,146	23,120	23,847	—	191,252
Other revenues	3,766	122	4,601	57	1,096	75,200	84,842
	<u>\$ 68,577</u>	<u>\$ 49,450</u>	<u>\$ 34,747</u>	<u>\$ 23,177</u>	<u>\$ 24,943</u>	<u>\$ 75,200</u>	<u>\$ 276,094</u>

2020

Manufactured products:							
Industrial and commercial products	\$ 20,772	\$ —	\$ 192	\$ —	\$ —	\$ —	\$ 20,964
Building products	15,943	—	—	—	—	—	15,943
Consumer products	14,757	—	—	—	—	—	14,757
Grocery and convenience store distribution	—	30,795	—	—	—	—	30,795
Food and beverage distribution	—	15,368	—	—	—	—	15,368
Auto sales	—	—	8,258	—	—	—	8,258
Other retail and wholesale distribution	2,452	—	12,470	—	—	—	14,922
Service	1,456	584	3,332	20,693	4,595	—	30,660
Electricity and natural gas	—	—	—	—	15,066	—	15,066
Total	55,380	46,747	24,252	20,693	19,661	—	166,733
Other revenues	3,598	93	3,859	57	1,353	69,817	78,777
	<u>\$ 58,978</u>	<u>\$ 46,840</u>	<u>\$ 28,111</u>	<u>\$ 20,750</u>	<u>\$ 21,014</u>	<u>\$ 69,817</u>	<u>\$ 245,510</u>

2019

Manufactured products:							
Industrial and commercial products	\$ 25,311	\$ —	\$ 184	\$ —	\$ —	\$ —	\$ 25,495
Building products	15,620	—	—	—	—	—	15,620
Consumer products	14,120	—	—	—	—	—	14,120
Grocery and convenience store distribution	—	33,057	—	—	—	—	33,057
Food and beverage distribution	—	16,767	—	—	—	—	16,767
Auto sales	—	—	8,481	—	—	—	8,481
Other retail and wholesale distribution	2,299	—	12,213	—	—	—	14,512
Service	1,642	539	4,062	23,302	4,096	—	33,641
Electricity and natural gas	—	—	—	—	14,819	—	14,819
Total	58,992	50,363	24,940	23,302	18,915	—	176,512
Other revenues	3,632	95	4,459	55	1,181	68,682	78,104
	<u>\$ 62,624</u>	<u>\$ 50,458</u>	<u>\$ 29,399</u>	<u>\$ 23,357</u>	<u>\$ 20,096</u>	<u>\$ 68,682</u>	<u>\$ 254,616</u>

Notes to Consolidated Financial Statements (Continued)

(22) Revenues from contracts with customers (Continued)

A summary of the transaction price allocated to the significant unsatisfied remaining performance obligations relating to contracts with expected durations in excess of one year as of December 31, 2021 and the timing of when the performance obligations are expected to be satisfied follows (in millions).

	Less than 12 months	Greater than 12 months	Total
Electricity and natural gas	\$ 2,607	\$ 21,038	\$ 23,645
Other sales and service contracts	1,411	2,236	3,647

(23) Pension plans

Certain of our subsidiaries sponsor defined benefit pension plans. Benefits under the plans are generally based on years of service and compensation or fixed benefit rates. Plan sponsors may make contributions to the plans to meet regulatory requirements and may also make discretionary contributions. The components of our net periodic pension expense for each of the three years ending December 31, 2021 follow (in millions).

	2021	2020	2019
Service cost	\$ 257	\$ 235	\$ 224
Interest cost	410	510	618
Expected return on plan assets	(1,008)	(955)	(936)
Amortization of actuarial losses and other	203	171	26
Net periodic pension expense	<u>\$ (138)</u>	<u>\$ (39)</u>	<u>\$ (68)</u>

The projected benefit obligation ("PBO") is the actuarial present value of benefits earned based upon service and compensation prior to the valuation date and, if applicable, includes assumptions regarding future compensation levels. Benefit obligations under qualified U.S. defined benefit pension plans are funded through assets held in trusts. Pension obligations under certain non-U.S. plans and non-qualified U.S. plans are unfunded and the aggregate PBOs of such plans were \$ 1.4 billion and \$ 1.6 billion as of December 31, 2021 and 2020, respectively. The cost of certain BHE pension plans are expected to be recoverable through the regulated rate making process.

The funded status at year end 2021 and 2020 and reconciliations of the changes in PBOs and plan assets related to BHE's pension plans and all other pension plans for each of the two years ending December 31, 2021 follow (in millions).

	2021			2020		
	BHE	Other	Total	BHE	Other	Total
Benefit obligations						
PBO beginning of year	\$ 5,282	\$ 15,147	\$ 20,429	\$ 4,898	\$ 13,808	\$ 18,706
Service cost	46	211	257	33	202	235
Interest cost	109	301	410	133	377	510
Benefits paid	(214)	(795)	(1,009)	(285)	(709)	(994)
Settlements	(185)	(22)	(207)	(63)	(12)	(75)
Actuarial (gains) losses and other	(258)	(830)	(1,088)	566	1,481	2,047
PBO end of year	<u>\$ 4,780</u>	<u>\$ 14,012</u>	<u>\$ 18,792</u>	<u>\$ 5,282</u>	<u>\$ 15,147</u>	<u>\$ 20,429</u>
Plan assets						
Plan assets beginning of year	\$ 5,158	\$ 12,780	\$ 17,938	\$ 4,808	\$ 11,688	\$ 16,496
Employer contributions	41	124	165	69	127	196
Benefits paid	(214)	(795)	(1,009)	(285)	(709)	(994)
Actual return on plan assets	382	1,401	1,783	554	1,820	2,374
Settlements	(185)	(22)	(207)	(63)	(12)	(75)
Other	(24)	(26)	(50)	75	(134)	(59)
Plan assets end of year	<u>\$ 5,158</u>	<u>\$ 13,462</u>	<u>\$ 18,620</u>	<u>\$ 5,158</u>	<u>\$ 12,780</u>	<u>\$ 17,938</u>
Funded status – net (asset) liability	<u>\$ (378)</u>	<u>\$ 550</u>	<u>\$ 172</u>	<u>\$ 124</u>	<u>\$ 2,367</u>	<u>\$ 2,491</u>

Notes to Consolidated Financial Statements (Continued)

(23) Pension plans (Continued)

The funded status reflected in assets was \$ 1,954 million and in liabilities was \$ 2,126 million at December 31, 2021. The funded status included in assets was \$ 1,351 million and in liabilities was \$ 3,842 million at December 31, 2020.

The accumulated benefit obligation ("ABO") is the actuarial present value of benefits earned based on service and compensation prior to the valuation date. The ABO was \$ 17.9 billion at December 31, 2021 and \$ 19.4 billion at December 31, 2020. Information for plans with PBOs and ABOs in excess of plan assets as of December 31, 2021 and 2020 follows (in millions).

	2021	2020
PBOs	\$ 9,643	\$ 12,775
Plan assets	7,518	9,018
ABOs	9,111	10,875
Plan assets	7,429	7,820

Weighted average assumptions used in determining PBOs and net periodic pension expense follow.

	2021	2020	2019
Discount rate applicable to PBOs	2.7%	2.3%	3.1%
Expected long-term rate of return on plan assets	6.1	6.2	6.4
Rate of compensation increase	2.6	2.6	2.5
Discount rate applicable to net periodic pension expense	2.4	3.1	4.0

Pension benefit payments expected over the next ten years are as follows (in millions): in 2022 – \$ 1,048 ; in 2023 – \$ 1,006 ; in 2024 – \$ 1,007 ; in 2025 – \$ 1,013 ; in 2026 – \$ 1,014 ; and in 2027 to 2031 – \$ 4,948 . Sponsoring subsidiaries expect to contribute \$ 149 million to the plans in 2022.

Fair value measurements of plan assets as of December 31, 2021 and 2020 follow (in millions).

	Fair Value				Investment funds and partnerships at net asset value
	Total	Level 1	Level 2	Level 3	
December 31, 2021					
Cash and cash equivalents	\$ 992	\$ 901	\$ 91	\$ —	\$ —
Equity securities	11,343	10,358	660	325	—
Fixed maturity securities	3,422	2,226	1,168	28	—
Investment funds and other	2,863	180	361	57	2,265
	<u>\$ 18,620</u>	<u>\$ 13,665</u>	<u>\$ 2,280</u>	<u>\$ 410</u>	<u>\$ 2,265</u>
December 31, 2020					
Cash and cash equivalents	\$ 383	\$ 243	\$ 140	\$ —	\$ —
Equity securities	11,383	10,123	851	409	—
Fixed maturity securities	3,173	2,214	926	33	—
Investment funds and other	2,999	198	398	56	2,347
	<u>\$ 17,938</u>	<u>\$ 12,778</u>	<u>\$ 2,315</u>	<u>\$ 498</u>	<u>\$ 2,347</u>

See Note 20 for a discussion of the three levels of fair value measurements. Plan assets are generally invested with the long-term objective of producing earnings to adequately cover expected benefit obligations, while assuming a prudent level of risk. Allocations may change due to changing market conditions and investment opportunities. The expected rates of return on plan assets reflect subjective assessments of expected long-term investment returns. Generally, past investment returns are not given significant consideration when establishing assumptions for expected long-term rates of return on plan assets. Actual experience will differ from the assumed rates of return.

Notes to Consolidated Financial Statements (Continued)

(23) Pension plans (Continued)

A reconciliation of the pre-tax accumulated other comprehensive income (loss) related to defined benefit pension plans for each of the two years ending December 31, 2021 follows (in millions).

	2021	2020
Balance beginning of year	\$ (2,251)	\$ (1,896)
Amount included in net periodic pension expense	170	141
Actuarial gains (losses) and other	1,596	(496)
Balance end of year	<u>\$ (485)</u>	<u>\$ (2,251)</u>

Several of our subsidiaries also sponsor defined contribution retirement plans, such as 401(k) or profit-sharing plans. Employee contributions are subject to regulatory limitations and the specific plan provisions. Several plans provide for employer matching contributions up to levels specified in the plans and provide for additional discretionary contributions as determined by management. Our defined contribution plan expense was approximately \$ 1.0 billion in 2021, \$ 1.4 billion in 2020 and \$ 1.2 billion in 2019.

(24) Accumulated other comprehensive income

A summary of the net changes in after-tax accumulated other comprehensive income attributable to Berkshire Hathaway shareholders for each of the three years ending December 31, 2021 follows (in millions).

	Unrealized appreciation of fixed maturity securities, net	Foreign currency translation	Defined benefit pension plans	Other	Accumulated other comprehensive income
Balance December 31, 2018	\$ 370	\$ (4,603)	\$ (816)	\$ 34	\$ (5,015)
Other comprehensive income	160	257	(644)	(48)	(275)
Reclassifications into net earnings	(49)	—	91	5	47
Balance December 31, 2019	481	(4,346)	(1,369)	(9)	(5,243)
Other comprehensive income	78	1,264	(385)	(52)	905
Reclassifications into net earnings	(23)	—	109	9	95
Balance December 31, 2020	536	(3,082)	(1,645)	(52)	(4,243)
Other comprehensive income	(123)	(1,021)	1,163	80	99
Reclassifications into net earnings	(44)	11	135	15	117
Balance December 31, 2021	<u>\$ 369</u>	<u>\$ (4,092)</u>	<u>\$ (347)</u>	<u>\$ 43</u>	<u>\$ (4,027)</u>

Notes to Consolidated Financial Statements (Continued)**(25) Business segment data**

Our operating businesses include a large and diverse group of insurance, manufacturing, service and retailing businesses. We organize our reportable business segments in a manner that reflects how management views those business activities. Certain businesses are grouped together for segment reporting based upon similar products or product lines, marketing, selling and distribution characteristics, even though those business units are operated under separate local management.

The tabular information that follows shows data of reportable segments reconciled to amounts reflected in our Consolidated Financial Statements. Intersegment transactions are not eliminated from segment results when management considers those transactions in assessing the results of the respective segments. Furthermore, our management does not consider investment and derivative gains/losses, impairments or amortization of certain business acquisition accounting adjustments related to Berkshire's business acquisitions or certain other corporate income and expense items in assessing the financial performance of operating units. Collectively, these items are included in reconciliations of segment amounts to consolidated amounts.

Berkshire's operating segments are as follows.

Business Identity	Business Activity
Insurance:	
GEICO	Underwriting private passenger automobile insurance mainly by direct response methods
Berkshire Hathaway Primary Group	Underwriting multiple lines of property and casualty insurance policies for primarily commercial accounts
Berkshire Hathaway Reinsurance Group	Underwriting excess-of-loss, quota-share and facultative reinsurance worldwide
Railroad ("BNSF")	Operation of one of the largest railroad systems in North America through Burlington Northern Santa Fe LLC
Utilities and energy ("BHE")	Regulated electric and gas utility, including power generation and distribution activities and real estate brokerage activities through Berkshire Hathaway Energy Company and affiliates
Manufacturing	Manufacturers of numerous products including industrial, consumer and building products, including home building and related financial services
McLane Company ("McLane")	Wholesale distribution of groceries and non-food items
Service and retailing	Providers of numerous services including shared aircraft ownership programs, aviation pilot training, electronic components distribution, various retailing businesses, including automobile dealerships and trailer and furniture leasing

Notes to Consolidated Financial Statements (Continued)

(25) Business segment data (Continued)

A disaggregation of our consolidated data for each of the three most recent years is presented as follows (in millions).

	Revenues			Earnings before income taxes		
	2021	2020	2019	2021	2020	2019
Operating Businesses						
Insurance:						
Underwriting:						
GEICO	\$ 37,706	\$ 35,093	\$ 35,572	\$ 1,259	\$ 3,428	\$ 1,506
Berkshire Hathaway Primary Group	11,575	9,615	9,165	607	110	383
Berkshire Hathaway Reinsurance Group	20,197	18,693	16,341	(930)	(2,700)	(1,472)
Insurance underwriting	69,478	63,401	61,078	936	838	417
Investment income	5,662	5,960	6,615	5,649	5,949	6,600
Total insurance	75,140	69,361	67,693	6,585	6,787	7,017
BNSF	23,282	20,869	23,515	7,861	6,792	7,250
BHE	24,987	21,031	20,114	3,184	2,479	2,618
Manufacturing	68,730	59,079	62,730	9,841	8,010	9,522
McLane	49,450	46,840	50,458	230	251	288
Service and retailing	34,832	28,178	29,487	4,481	2,628	2,555
	276,421	245,358	253,997	32,182	26,947	29,250
Reconciliation to consolidated amount						
Investment and derivative gains (losses)	—	—	—	78,542	40,746	72,607
Interest expense, not allocated to segments	—	—	—	(455)	(483)	(416)
Equity method investments	—	—	—	995	726	1,176
Goodwill and intangible asset impairments	—	—	—	—	(10,671)	(96)
Corporate, eliminations and other	(327)	152	619	422	(1,572)	175
	<u>\$ 276,094</u>	<u>\$ 245,510</u>	<u>\$ 254,616</u>	<u>\$ 111,686</u>	<u>\$ 55,693</u>	<u>\$ 102,696</u>
	Interest expense			Income tax expense		
	2021	2020	2019	2021	2020	2019
Operating Businesses						
Insurance	\$ —	\$ —	\$ —	\$ 1,050	\$ 1,089	\$ 1,166
BNSF	1,032	1,037	1,070	1,871	1,631	1,769
BHE	2,054	1,941	1,835	(1,177)	(1,010)	(526)
Manufacturing	704	737	752	2,193	1,795	2,253
McLane	—	—	—	61	71	71
Service and retailing	38	61	86	1,086	669	603
	3,828	3,776	3,743	5,084	4,245	5,336
Reconciliation to consolidated amount						
Investment and derivative gains	—	—	—	16,025	8,855	15,159
Interest expense, not allocated to segments	455	483	416	(96)	(102)	(88)
Equity method investments	—	—	—	106	57	148
Corporate, eliminations and other	(111)	(176)	(198)	(240)	(615)	349
	<u>\$ 4,172</u>	<u>\$ 4,083</u>	<u>\$ 3,961</u>	<u>\$ 20,879</u>	<u>\$ 12,440</u>	<u>\$ 20,904</u>

Notes to Consolidated Financial Statements (Continued)

(25) Business segment data (Continued)

	Capital expenditures			Depreciation of tangible assets		
	2021	2020	2019	2021	2020	2019
Operating Businesses						
Insurance	\$ 62	\$ 50	\$ 108	\$ 72	\$ 74	\$ 82
BNSF	2,910	3,063	3,608	2,406	2,423	2,350
BHE	6,611	6,765	7,364	3,584	3,376	2,947
Manufacturing	2,100	2,133	2,981	2,037	2,026	1,951
McLane	106	98	158	189	204	225
Service and retailing	1,487	903	1,760	1,177	1,216	1,192
	<u>\$ 13,276</u>	<u>\$ 13,012</u>	<u>\$ 15,979</u>	<u>\$ 9,465</u>	<u>\$ 9,319</u>	<u>\$ 8,747</u>
	Goodwill at year-end			Identifiable assets at year-end		
	2021	2020	2019	2021	2020	2019
Operating Businesses						
Insurance	\$ 15,181	\$ 15,224	\$ 15,289	\$ 482,813	\$ 399,169	\$ 364,550
BNSF	14,852	14,851	14,851	76,586	73,809	73,699
BHE	11,906	11,763	9,979	112,117	109,286	88,651
Manufacturing	25,463	25,512	34,800	107,231	104,318	104,437
McLane	232	232	734	6,841	6,771	6,872
Service and retailing	6,241	6,152	6,229	28,221	26,173	26,494
	<u>\$ 73,875</u>	<u>\$ 73,734</u>	<u>\$ 81,882</u>	<u>813,809</u>	<u>719,526</u>	<u>664,703</u>
Reconciliation to consolidated amount						
Corporate and other				71,100	80,469	71,144
Goodwill				<u>73,875</u>	<u>73,734</u>	<u>81,882</u>
				<u>\$ 958,784</u>	<u>\$ 873,729</u>	<u>\$ 817,729</u>

Property/casualty and life/health insurance premiums written and earned are summarized below (in millions).

	Property/Casualty			Life/Health		
	2021	2020	2019	2021	2020	2019
Premiums Written:						
Direct	\$ 53,829	\$ 47,838	\$ 47,578	\$ 649	\$ 510	\$ 839
Assumed	12,461	11,533	10,214	5,685	5,960	5,046
Ceded	(1,015)	(898)	(821)	(40)	(42)	(45)
	<u>\$ 65,275</u>	<u>\$ 58,473</u>	<u>\$ 56,971</u>	<u>\$ 6,294</u>	<u>\$ 6,428</u>	<u>\$ 5,840</u>
Premiums Earned:						
Direct	\$ 52,139	\$ 46,418	\$ 46,540	\$ 649	\$ 510	\$ 839
Assumed	12,072	11,449	9,643	5,713	5,973	4,952
Ceded	(1,054)	(907)	(851)	(41)	(42)	(45)
	<u>\$ 63,157</u>	<u>\$ 56,960</u>	<u>\$ 55,332</u>	<u>\$ 6,321</u>	<u>\$ 6,441</u>	<u>\$ 5,746</u>

Notes to Consolidated Financial Statements (Continued)

(25) Business segment data (Continued)

Insurance premiums written by geographic region (based upon the domicile of the insured or reinsured) are summarized below (in millions).

	Property/Casualty			Life/Health		
	2021	2020	2019	2021	2020	2019
United States	\$ 55,451	\$ 50,250	\$ 50,529	\$ 2,161	\$ 2,820	\$ 2,553
Western Europe	4,613	3,751	2,535	1,298	1,120	908
Asia Pacific	3,822	3,410	3,114	2,030	1,652	1,582
All other	1,389	1,062	793	805	836	797
	<u>\$ 65,275</u>	<u>\$ 58,473</u>	<u>\$ 56,971</u>	<u>\$ 6,294</u>	<u>\$ 6,428</u>	<u>\$ 5,840</u>

Consolidated sales, service and leasing revenues were \$ 151.0 billion in 2021, \$ 132.3 billion in 2020 and \$ 140.8 billion in 2019. Sales, service and leasing revenues attributable to the United States were 85 % in 2021, 86 % in 2020 and 85 % in 2019 of such amounts. The remainder of sales, service and leasing revenues were primarily in Europe, Canada and the Asia Pacific region. Railroad, utilities and energy revenues were \$ 48.1 billion in 2021, \$ 41.8 billion in 2020 and \$ 43.5 billion in 2019. In each of the three years, approximately 96 % of such revenues were attributable to the United States. At December 31, 2021, approximately 89 % of our consolidated net property, plant and equipment and equipment held for lease was located in the United States with the remainder primarily in Canada and the United Kingdom.

(26) Contingencies and Commitments

We are parties in a variety of legal actions that routinely arise out of the normal course of business, including legal actions seeking to establish liability directly through insurance contracts or indirectly through reinsurance contracts issued by Berkshire subsidiaries. Plaintiffs occasionally seek punitive or exemplary damages. We do not believe that such normal and routine litigation will have a material effect on our financial condition or results of operations. Berkshire and certain of its subsidiaries are also involved in other kinds of legal actions, some of which assert or may assert claims or seek to impose fines and penalties. We believe that any liability that may arise as a result of other pending legal actions will not have a material effect on our consolidated financial condition or results of operations.

Our subsidiaries regularly make commitments in the ordinary course of business for the future purchase of goods and services used in their businesses, which are not yet reflected in our Consolidated Financial Statements. The most significant of our long-term commitments relate to our railroad, utilities and energy businesses and our shared aircraft ownership and leasing business. As of December 31, 2021, estimated future payments under those arrangements were as follows: \$ 8 billion in 2022, \$ 4 billion in 2023, \$ 3 billion in 2024, \$ 2 billion in 2025, \$ 2 billion in 2026 and \$ 15 billion after 2026.

As indicated in Note 5, we have an agreement to acquire an additional 41.4 % ownership interest in Pilot in 2023. At that time, Pilot will become a consolidated subsidiary. Additionally, we may be obligated to acquire certain noncontrolling interests in less-than-wholly-owned subsidiaries in the future, pursuant to the terms of agreements with the noncontrolling shareholders. The timing and the amount of any future payments that might be required to such noncontrolling shareholders are contingent on future actions of the noncontrolling owners and the value of the interest being acquired. If we had acquired the additional interest in Pilot and all outstanding noncontrolling interests as of December 31, 2021, we estimate the aggregate cost of these acquisitions would approximate \$ 11 billion.

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

None

Item 9A. Controls and Procedures

At the end of the period covered by this Annual Report on Form 10-K, the Corporation carried out an evaluation, under the supervision and with the participation of the Corporation's management, including the Chairman (Chief Executive Officer) and the Senior Vice President (Chief Financial Officer), of the effectiveness of the design and operation of the Corporation's disclosure controls and procedures pursuant to Exchange Act Rule 13a-15. Based upon that evaluation, the Chairman (Chief Executive Officer) and the Senior Vice President (Chief Financial Officer) concluded that the Corporation's disclosure controls and procedures are effective in timely alerting them to material information relating to the Corporation (including its consolidated subsidiaries) required to be included in the Corporation's periodic SEC filings. The report called for by Item 308(a) of Regulation S-K is incorporated herein by reference to Management's Report on Internal Control Over Financial Reporting, included on page K-66 of this report. The attestation report called for by Item 308(b) of Regulation S-K is incorporated herein by reference to the Report of Independent Registered Public Accounting Firm, included on page K-67 of this report. There has been no change in the Corporation's internal control over financial reporting during the quarter ended December 31, 2021 that has materially affected, or is reasonably likely to materially affect, the Corporation's internal control over financial reporting.

Item 9B. Other Information

None

Part III

Except for the information set forth under the caption "Executive Officers of the Registrant" in Part I hereof, information required by this Part (Items 10, 11, 12, 13 and 14) is incorporated by reference from the Registrant's definitive proxy statement, filed pursuant to Regulation 14A, for the Annual Meeting of Shareholders of the Registrant to be held on April 30, 2022, which meeting will involve the election of directors.

Part IV**Item 15. Exhibits and Financial Statement Schedules****(a)1. Financial Statements**

The following Consolidated Financial Statements, as well as the Report of Independent Registered Public Accounting Firm, are included in Part II Item 8 of this report:

	<u>PAGE</u>
<u>Report of Independent Registered Public Accounting Firm</u> (PCAOB ID No. 34)	K-67
<u>Consolidated Balance Sheets—</u>	
<u>December 31, 2021 and December 31, 2020</u>	K-70
<u>Consolidated Statements of Earnings—</u>	
<u>Years Ended December 31, 2021, December 31, 2020, and December 31, 2019</u>	K-72
<u>Consolidated Statements of Comprehensive Income—</u>	
<u>Years Ended December 31, 2021, December 31, 2020, and December 31, 2019</u>	K-73
<u>Consolidated Statements of Changes in Shareholders' Equity—</u>	
<u>Years Ended December 31, 2021, December 31, 2020, and December 31, 2019</u>	K-73
<u>Consolidated Statements of Cash Flows—</u>	
<u>Years Ended December 31, 2021, December 31, 2020, and December 31, 2019</u>	K-74
<u>Notes to Consolidated Financial Statements</u>	K-75
2. Financial Statement Schedule	
<u>Report of Independent Registered Public Accounting Firm</u>	K-114
<u>Schedule I—Parent Company Condensed Financial Information</u>	
<u>Balance Sheets as of December 31, 2021 and 2020, Statements of Earnings and Comprehensive Income</u> <u>and Cash Flows for the years ended December 31, 2021, December 31, 2020 and December 31, 2019</u> <u>and Note to Condensed Financial Information</u>	K-115

Other schedules are omitted because they are not required, information therein is not applicable, or is reflected in the Consolidated Financial Statements or notes thereto.

(b) Exhibits

See the "Exhibit Index" at page K-117.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and the Board of Directors of
Berkshire Hathaway Inc.
Omaha, Nebraska

Opinion on the Financial Statement Schedule

We have audited the consolidated financial statements of Berkshire Hathaway Inc. and subsidiaries (the "Company") as of December 31, 2021 and 2020, and for each of the three years in the period ended December 31, 2021, and the Company's internal control over financial reporting as of December 31, 2021, and have issued our report thereon dated February 26, 2022; such consolidated financial statements and report are included elsewhere in this Form 10-K. Our audits also included the financial statement schedule of the Company listed in the Index at Item 15. This financial statement schedule is the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statement schedule based on our audits. In our opinion, such financial statement schedule, when considered in relation to the financial statements taken as a whole, presents fairly, in all material respects, the information set forth therein.

/s/ Deloitte & Touche LLP
Omaha, Nebraska
February 26, 2022

BERKSHIRE HATHAWAY INC. (Parent Company)
Condensed Financial Information
(Dollars in millions)
Schedule I
Balance Sheets

	December 31,	
	2021	2020
Assets:		
Cash and cash equivalents	\$ 18,797	\$ 12,329
Short-term investments in U.S. Treasury Bills	9,681	29,773
Investments in and advances to/from consolidated subsidiaries	486,862	411,826
Investment in The Kraft Heinz Company	13,112	13,336
Other assets	140	108
	<u>\$ 528,592</u>	<u>\$ 467,372</u>
Liabilities and Shareholders' Equity:		
Accounts payable, accrued interest and other liabilities	\$ 237	\$ 369
Income taxes, principally deferred	747	1,174
Notes payable and other borrowings	21,409	22,665
	<u>22,393</u>	<u>24,208</u>
Berkshire Hathaway shareholders' equity	506,199	443,164
	<u>\$ 528,592</u>	<u>\$ 467,372</u>

Statements of Earnings and Comprehensive Income

	Year ended December 31,		
	2021	2020	2019
Income items:			
From consolidated subsidiaries:			
Dividends and distributions	\$ 13,462	\$ 26,110	\$ 15,603
Undistributed earnings	74,819	17,402	65,237
	<u>88,281</u>	<u>43,512</u>	<u>80,840</u>
Investment gains (losses)	35	(24)	(125)
Equity in net earnings of The Kraft Heinz Company	269	95	493
Other income	73	328	780
	<u>88,658</u>	<u>43,911</u>	<u>81,988</u>
Cost and expense items:			
General and administrative	136	194	122
Interest expense	444	489	591
Foreign exchange (gains) losses on non-U.S. Dollar denominated debt	(1,281)	970	(193)
Income tax expense (benefit)	(436)	(263)	51
	<u>(1,137)</u>	<u>1,390</u>	<u>571</u>
Net earnings attributable to Berkshire Hathaway shareholders	89,795	42,521	81,417
Other comprehensive income attributable to Berkshire Hathaway shareholders	216	1,000	(228)
Comprehensive income attributable to Berkshire Hathaway shareholders	<u>\$ 90,011</u>	<u>\$ 43,521</u>	<u>\$ 81,189</u>

See Note to Condensed Financial Information

BERKSHIRE HATHAWAY INC. (Parent Company)
Condensed Financial Information
(Dollars in millions)
Schedule I (continued)
Statements of Cash Flows

	Year ended December 31,		
	2021	2020	2019
Cash flows from operating activities:			
Net earnings attributable to Berkshire Hathaway shareholders	\$ 89,795	\$ 42,521	\$ 81,417
Adjustments to reconcile net earnings to cash flows from operating activities:			
Investment gains/losses	(35)	24	125
Undistributed earnings of consolidated subsidiaries	(74,819)	(17,402)	(65,237)
Non-cash dividends from subsidiaries	(2,126)	(8,296)	—
Income taxes payable	(389)	(72)	(56)
Other	(1,038)	1,100	(693)
Net cash flows from operating activities	<u>11,388</u>	<u>17,875</u>	<u>15,556</u>
Cash flows from investing activities:			
Investments in and advances to/from consolidated subsidiaries, net	(174)	(1,947)	60
Purchases of U.S. Treasury Bills	(34,988)	(54,715)	(40,107)
Sales and maturities of U.S. Treasury Bills	57,296	59,035	36,943
Other	—	11	737
Net cash flows from investing activities	<u>22,134</u>	<u>2,384</u>	<u>(2,367)</u>
Cash flows from financing activities:			
Proceeds from borrowings	2,174	2,923	3,967
Repayments of borrowings	(2,167)	(1,151)	(758)
Acquisition of treasury stock	(27,061)	(24,706)	(4,850)
Other	—	—	19
Net cash flows from financing activities	<u>(27,054)</u>	<u>(22,934)</u>	<u>(1,622)</u>
Increase (decrease) in cash and cash equivalents	6,468	(2,675)	11,567
Cash and cash equivalents at beginning of year	12,329	15,004	3,437
Cash and cash equivalents at end of year	<u>\$ 18,797</u>	<u>\$ 12,329</u>	<u>\$ 15,004</u>
Other cash flow information:			
Income taxes paid	\$ 3,403	\$ 3,391	\$ 3,531
Interest paid	377	359	364

Note to Condensed Financial Information

Berkshire currently owns 26.6 % of the outstanding shares of The Kraft Heinz Company ("Kraft Heinz") common stock, which is accounted for pursuant to the equity method. See Note 5 to the accompanying Consolidated Financial Statements for additional information regarding this investment.

In 2021, the Parent Company repaid € 550 million of maturing senior notes and \$ 1.5 billion of maturing senior notes and issued € 600 million of 0.5 % senior notes due in 2041 and ¥ 160 billion (approximately \$ 1.5 billion) of senior notes with maturity dates ranging from 2026 to 2041 with a weighted average interest rate of 0.5 %. As of December 31, 2021, the Parent Company's non-U.S. Dollar denominated borrowings included € 6.9 billion and ¥ 785.5 billion par value senior notes. The gains and losses from the periodic remeasurement of these non-U.S. Dollar denominated notes due to changes in foreign currency exchange rates are included in earnings. In January 2022, Berkshire repaid \$ 600 million of maturing debt and issued ¥ 128.5 billion (approximately \$ 1.1 billion) of senior notes with maturity dates ranging from 2027 to 2052 and a weighted average interest rate of 0.5 %.

Parent Company debt maturities over the next five years are as follows: 2022—\$ 600 million; 2023—\$ 4,467 million; 2024—\$ 2,080 million; 2025—\$ 1,681 million and 2026—\$ 3,378 million. The Parent Company guarantees certain debt of subsidiaries, which aggregated approximately \$ 17.0 billion at December 31, 2021, which was primarily debt issued by Berkshire Hathaway Finance Corporation. Such guarantees are an absolute, unconditional and irrevocable guarantee for the full and prompt payment when due of all present and future payment obligations. The Parent Company has also provided guarantees in connection with certain retroactive reinsurance contracts issued by subsidiaries. The amounts of subsidiary payments under these contracts, if any, is contingent upon the outcome of future events.

EXHIBIT INDEX

Exhibit No.	
2(i)	<u>Agreement and Plan of Merger dated as of June 19, 1998 between Berkshire and General Re Corporation. Incorporated by reference to Annex I to Registration Statement No. 333-61129 filed on Form S-4.</u>
2(ii)	<u>Agreement and Plan of Merger dated as of November 2, 2009 by and among Berkshire, R Acquisition Company, LLC and BNSF. Incorporated by reference to Annex A to Registration Statement No. 333-163343 on Form S-4.</u>
2(iii)	<u>Agreement and Plan of Merger dated August 8, 2015, by and among Berkshire, NW Merger Sub Inc. and Precision Castparts Corporation ("PCC") Incorporated by reference to Exhibit 2.1 to PCC's Current Report on Form 8-K filed on August 10, 2015 (SEC File No. 001-10348)</u>
3(i)	<u>Restated Certificate of Incorporation Incorporated by reference to Exhibit 3(i) to Form 10-K filed on March 2, 2015.</u>
3(ii)	<u>By-Laws Incorporated by reference to Exhibit 3(ii) to Form 8-K filed on May 4, 2016.</u>
4.1	<u>Indenture, dated as of December 22, 2003, between Berkshire Hathaway Finance Corporation, Berkshire Hathaway Inc. and The Bank of New York Mellon Trust Company, N.A. (as successor to J.P. Morgan Trust Company, National Association), as trustee. Incorporated by reference to Exhibit 4.1 on Form S-4 of Berkshire Hathaway Finance Corporation and Berkshire Hathaway Inc. filed on February 4, 2004. SEC File No. 333-112486</u>
4.2	<u>Indenture, dated as of February 1, 2010, among Berkshire Hathaway Inc., Berkshire Hathaway Finance Corporation and The Bank of New York Mellon Trust Company, N.A., as trustee. Incorporated by reference to Exhibit 4.1 to Berkshire's Registration Statement on Form S-3 filed on February 1, 2010. SEC File No. 333-164611</u>
4.3	<u>Indenture, dated as of January 26, 2016, by and among Berkshire Hathaway Inc., Berkshire Hathaway Finance Corporation and The Bank of New York Mellon Trust Company, N.A., as trustee. Incorporated by reference to Exhibit 4.1 to Berkshire's Registration Statement on Form S-3 filed on January 26, 2016. SEC File No. 333-209122</u>
4.4	<u>Indenture, dated as of December 1, 1995, between BNSF and The First National Bank of Chicago, as trustee. Incorporated by reference to Exhibit 4 on Form S-3 of BNSF filed on February 8, 1999.</u>
4.5	<u>Indenture, dated as of October 4, 2002, by and between MidAmerican Energy Holdings Company and The Bank of New York, Trustee. Incorporated by reference to Exhibit 4.1 to the Berkshire Hathaway Energy Company Registration Statement No. 333-101699 dated December 6, 2002.</u>
4.6	<u>Indenture, dated as of January 28, 2022, by and among Berkshire Hathaway Inc., as an issuer and a guarantor of the debt securities issued by Berkshire Hathaway Finance Corporation, Berkshire Hathaway Finance Corporation, as an issuer, and The Bank of New York Mellon Trust Company, N.A., as trustee. Incorporated by reference to Exhibit 4.1 to Berkshire's Registration Statement on Form S-3 filed on January 28, 2022. SEC File No 333-262384.</u>
	Other instruments defining the rights of holders of long-term debt of Registrant and its subsidiaries are not being filed since the total amount of securities authorized by all other such instruments does not exceed 10% of the total assets of the Registrant and its subsidiaries on a consolidated basis as of December 31, 2021. The Registrant hereby agrees to furnish to the Commission upon request a copy of any such debt instrument to which it is a party.
10.1	<u>Equity Commitment Letter of Berkshire Hathaway Inc. with Hawk Acquisition Holding Corporation dated February 13, 2013. Incorporated by reference to Exhibit 10.1 on Form 8-K of Berkshire Hathaway Inc. filed on February 14, 2013.</u>
14	Code of Ethics Berkshire's Code of Business Conduct and Ethics is posted on its Internet website at <u>www.berkshirehathaway.com</u>
21	<u>Subsidiaries of Registrant</u>
23	<u>Consent of Independent Registered Public Accounting Firm</u>

Exhibit No.	
31.1	Rule 13a—14(a)/15d-14(a) Certification
31.2	Rule 13a—14(a)/15d-14(a) Certification
32.1	Section 1350 Certification
32.2	Section 1350 Certification
95	Mine Safety Disclosures
101	The following financial information from Berkshire Hathaway Inc.'s Annual Report on Form 10-K for the year ended December 31, 2021, formatted in iXBRL (Inline Extensible Business Reporting Language) includes: (i) the Cover Page (ii) the Consolidated Balance Sheets, (iii) the Consolidated Statements of Earnings, (iv) the Consolidated Statements of Comprehensive Income, (v) the Consolidated Statements of Changes in Shareholders' Equity, (vi) the Consolidated Statements of Cash Flows, and (vii) the Notes to Consolidated Financial Statements and Schedule I, tagged in summary and detail.
104	Cover Page Interactive Data File (formatted as iXBRL and contained in Exhibit 101)

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.

BERKSHIRE HATHAWAY INC.

Date: February 26, 2022

/s/ **MARC D. HAMBURG**

Marc D. Hamburg
Senior Vice President and
Principal Financial Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

/s/ WARREN E. BUFFETT Warren E. Buffett	Chairman of the Board of Directors—Chief Executive Officer	February 26, 2022 Date
/s/ GREGORY E. ABEL Gregory E. Abel	Director—Vice Chairman—Non-Insurance Operations	February 26, 2022 Date
/s/ HOWARD G. BUFFETT Howard G. Buffett	Director	February 26, 2022 Date
/s/ SUSAN A. BUFFETT Susan A. Buffett	Director	February 26, 2022 Date
/s/ STEPHEN B. BURKE Stephen B. Burke	Director	February 26, 2022 Date
/s/ KENNETH I. CHENAULT Kenneth I. Chenault	Director	February 26, 2022 Date
/s/ CHRISTOPHER C. DAVIS Christopher C. Davis	Director	February 26, 2022 Date
/s/ SUSAN L. DECKER Susan L. Decker	Director	February 26, 2022 Date
/s/ DAVID S. GOTTESMAN David S. Gottesman	Director	February 26, 2022 Date
/s/ CHARLOTTE GUYMAN Charlotte Guyman	Director	February 26, 2022 Date
/s/ AJIT JAIN Ajit Jain	Director—Vice Chairman—Insurance Operations	February 26, 2022 Date
/s/ CHARLES T. MUNGER Charles T. Munger	Director—Vice Chairman	February 26, 2022 Date
/s/ RONALD L. OLSON Ronald L. Olson	Director	February 26, 2022 Date
/s/ MERYL B. WITMER Meryl B. Witmer	Director	February 26, 2022 Date
/s/ MARC D. HAMBURG Marc D. Hamburg	Senior Vice President—Principal Financial Officer	February 26, 2022 Date
/s/ DANIEL J. JAKSICH Daniel J. Jaksich	Vice President—Principal Accounting Officer	February 26, 2022 Date

BERKSHIRE HATHAWAY INC.
Subsidiaries of Registrant (1)
December 31, 2021

Company Name	Domicile or State of Incorporation
Acme Brick Company	Delaware
Acme Building Brands, Inc.	Delaware
Affordable Housing Partners, Inc.	Delaware
Albecca Inc.	Georgia
AltaLink, L.P.	Canada
American Dairy Queen Corporation	Delaware
AmGUARD Insurance Company	Pennsylvania
Ben Bridge Corporation	Washington
Ben Bridge Jeweler, Inc.	Washington
Benjamin Moore & Co.	New Jersey
Benjamin Moore & Co., Limited	Canada
Benson Industries, Inc.	Oregon
Berkshire Hathaway Assurance Corporation	New York
Berkshire Hathaway Automotive Inc.	Delaware
Berkshire Hathaway Credit Corporation	Nebraska
Berkshire Hathaway Direct Insurance Company	Nebraska
Berkshire Hathaway Energy Company	Iowa
Berkshire Hathaway European Insurance Designated Activity Company	Ireland
Berkshire Hathaway Finance Corporation	Delaware
Berkshire Hathaway Homestate Insurance Company	Nebraska
Berkshire Hathaway International Insurance Limited	United Kingdom
Berkshire Hathaway Life Insurance Company of Nebraska	Nebraska
Berkshire Hathaway Specialty Insurance Company	Nebraska
Berkshire Production Supply LLC	Michigan
BH Columbia Inc.	Nebraska
BH Credit LLC	Delaware
BH Finance LLC	Nebraska
BH Media Group, Inc.	Delaware
BH Shoe Holdings, Inc.	Delaware
BHA Real Estate Holdings, LLC	Delaware
BHE Canada Holdings Corporation	Canada
BHE GT&S, LLC	Delaware
BHE Pipeline Group, LLC	Delaware
BHE Renewables, LLC	Delaware
BHE U.S. Transmission, LLC	Delaware
BH-IMC Holdings B.V.	Netherlands
BHSF, Inc.	Delaware
BNSF Railway Company	Delaware
Boat America Corporation	Virginia
Borsheim Jewelry Company, Inc.	Nebraska
Brooks Sports, Inc.	Washington
Burlington Northern Santa Fe, LLC	Delaware
Business Wire, Inc.	Delaware
Cannon-Muskegon Corporation	Michigan
Central States Indemnity Co. of Omaha	Nebraska
Central States of Omaha Companies, Inc.	Nebraska
Cerro Flow Products LLC	Delaware
Cerro Wire LLC	Delaware

BERKSHIRE HATHAWAY INC.
Subsidiaries of Registrant (1)
December 31, 2021

Company Name	Domicile or State of Incorporation
Charter Brokerage Holdings Corp.	Delaware
Charter Brokerage Holdings, LLC	Delaware
Charter Brokerage LLC	New York
Chemtool Incorporated	Delaware
Chore-Time Brock Holding B.V.	Netherlands
Clayton Homes, Inc.	Delaware
Clayton Properties Group II, Inc.	Colorado
Clayton Properties Group, Inc.	Tennessee
CMH Capital, Inc.	Delaware
CMH Homes, Inc.	Tennessee
CMH Manufacturing, Inc.	Tennessee
Colson Medical, LLC	Delaware
Columbia Insurance Company	Nebraska
CORT Business Services Corporation	Delaware
Cove Point LNG, LP	Maryland
CTB, Inc.	Indiana
CTB International Corp.	Indiana
Cypress Insurance Company	California
Detlev Louis Motorrad-Vertriebs GmbH	Austria
Detlev Louis Motorrad-Vertriebsgesellschaft GmbH	Germany
Duracell (China) Limited	China
Duracell Batteries BVBA	Belgium
Duracell International Operations Sàrl	Switzerland
Duracell Manufacturing LLC	Delaware
Duracell U.S. Holding LLC	Delaware
Duracell U.S. Operations, Inc.	Delaware
Eastern Energy Gas Holdings, LLC	Virginia
Eastern MLP Holding Company II, LLC	Virginia
Ecowater Systems LLC	Delaware
Empire Distributors of North Carolina, Inc.	Georgia
Empire Distributors of Tennessee, Inc.	Tennessee
Empire Distributors, Inc.	Georgia
EXSIF Worldwide, Inc.	Delaware
Faraday Underwriting Limited	United Kingdom
FlightSafety International Inc.	New York
FlightSafety Defense Corporation	Delaware
FOL International Unlimited Company	Ireland
Forest River Manufacturing, LLC	Indiana
Forest River, Inc.	Indiana
Freedom Warehouse Corp.	Nevada
Freo Group Pty Ltd	Australia
Fruit of the Loom, Inc.	Delaware
Garan, Incorporated	Delaware
Garan Manufacturing Corp.	Delaware
GEICO Advantage Insurance Company	Nebraska
GEICO Casualty Company	Nebraska
GEICO Choice Insurance Company	Nebraska
GEICO Corporation	Delaware
GEICO County Mutual Insurance Company	Texas

BERKSHIRE HATHAWAY INC.
Subsidiaries of Registrant (1)
December 31, 2021

Company Name	Domicile or State of Incorporation
GEICO General Insurance Company	Nebraska
GEICO Indemnity Company	Nebraska
GEICO Insurance Agency, LLC	Maryland
GEICO Secure Insurance Company	Nebraska
GEICO Texas County Mutual Insurance Company	Texas
Gen Re Intermediaries Corporation	New York
General Re Corporation	Delaware
General Re Life Corporation	Connecticut
General Reinsurance Africa Ltd.	South Africa
General Reinsurance AG	Germany
General Reinsurance Australia Ltd	Australia
General Reinsurance Corporation	Delaware
General Reinsurance Life Australia Ltd.	Australia
General Star Indemnity Company	Delaware
General Star National Insurance Company	Delaware
Genesis Insurance Company	Delaware
Global Cranes Pty Ltd	Australia
Government Employees Insurance Company	Nebraska
GRD Holdings Corporation	Delaware
H. H. Brown Shoe Company, Inc.	Delaware
Helzberg's Diamond Shops, LLC	Missouri
Henley Holdings, LLC	Delaware
Homemakers Plaza, Inc.	Iowa
HomeServices of America, Inc.	Delaware
IMC (Germany) Holdings GmbH	Germany
IMC International Metalworking Companies B.V.	Netherlands
Ingersoll Cutting Tool Company	Delaware
Ingersoll Werkzeuge GmbH	Germany
International Dairy Queen, Inc.	Delaware
Iscar Ltd.	Israel
ITTI Group USA Holdings, Inc.	Delaware
Johns Manville	Delaware
Johns Manville Canada, Inc.	Canada
Johns Manville Corporation	Delaware
Johns Manville GmbH	Germany
Johns Manville Slovakia, a.s.	Slovakia
Jordan's Furniture, Inc.	Massachusetts
Justin Brands, Inc.	Delaware
Kahn Ventures, Inc.	Georgia
L. A. Darling Company LLC	Delaware
Larson-Juhl US LLC	Georgia
LeachGarner, Inc.	Delaware
Lipotec, S.A.	Spain
LiquidPower Specialty Products Inc.	Delaware
Lubrizol Additive (Zhuhai) Co., Ltd.	China
Lubrizol Advanced Materials Europe BVBA	Belgium
Lubrizol Advanced Materials India Private Limited	India
Lubrizol Advanced Materials International, LLC	Delaware
Lubrizol Advanced Materials, Inc.	Delaware

BERKSHIRE HATHAWAY INC.
Subsidiaries of Registrant (1)
December 31, 2021

Company Name	Domicile or State of Incorporation
Lubrizol de Mexico Comercial S. de R.L. de C.V.	Mexico
Lubrizol Deutschland GmbH	Germany
Lubrizol do Brasil Aditivos, Ltda.	Brazil
Lubrizol Europe Coordination Center BV	Belgium
Lubrizol France SAS	France
Lubrizol Holdings France SAS	France
Lubrizol Holdings Netherlands B.V.	Netherlands
Lubrizol India Private Limited	India
Lubrizol International, Inc.	Delaware
Lubrizol Japan Limited	Japan
Lubrizol Korea, Inc.	Korea
Lubrizol Luxembourg S.a.r.l.	Luxembourg
Lubrizol Overseas Trading Corporation	Delaware
Lubrizol Southeast Asia (Pte.) Ltd.	Singapore
Lubrizol Specialty Chemicals Manufacturing (Shanghai) Co., Ltd.	China
Marmon Beverage Technologies, Inc.	Delaware
Marmon Crane Services, Inc.	Delaware
Marmon Distribution Services, Inc.	Delaware
Marmon Energy Services Company	Delaware
Marmon Engineered Components Company	Delaware
Marmon Food, Beverage & Water Technologies Company LLC	Delaware
Marmon Highway Technologies LLC	Delaware
Marmon Holdings, Inc.	Delaware
Marmon Retail & Highway Technologies Company LLC	Delaware
Marmon Retail Technologies Company	Delaware
Marmon Transportation Services LLC	Delaware
Marmon Tubing, Fittings & Wire Products, Inc.	Delaware
Marmon Water, Inc.	Delaware
Marmon Wire & Cable, Inc.	Delaware
McLane Company, Inc.	Texas
McLane Foodservice Distribution, Inc.	North Carolina
McLane Foodservice, Inc.	Texas
McLane Suneast, Inc.	Texas
MedPro Group Inc	Indiana
Meyn America, LLC	Georgia
Meyn Food Processing Technology B.V.	Netherlands
Meyn Holding B.V.	Netherlands
Meyn, LLC	Georgia
MHC Inc.	Iowa
MidAmerican Energy Company	Iowa
MidAmerican Funding, LLC	Iowa
Mindware Corporation	Minnesota
MiTek Inc.	Missouri
MiTek Industries, Inc.	Delaware
MLMIC Insurance Company	New York
Mount Vernon Fire Insurance Company	Nebraska
Mouser Electronics, Inc.	Delaware
MPP Co., Inc.	Kansas
National Fire & Marine Insurance Company	Nebraska

BERKSHIRE HATHAWAY INC.
Subsidiaries of Registrant (1)
December 31, 2021

Company Name	Domicile or State of Incorporation
National Indemnity Company	Nebraska
National Indemnity Company of Mid-America	Iowa
National Indemnity Company of the South	Iowa
National Liability & Fire Insurance Company	Connecticut
Nebraska Furniture Mart, Inc.	Nebraska
Nederlandse Reassurantie Groep N.V.	Netherlands
NetJets Aviation, Inc.	Delaware
NetJets Inc.	Delaware
NetJets Sales, Inc.	Delaware
Nevada Power Company	Nevada
NFM of Kansas, Inc.	Kansas
Northern Powergrid Holdings Company	United Kingdom
NV Energy, Inc.	Nevada
NVE Holdings, LLC	Delaware
Oak River Insurance Company	Nebraska
Old United Casualty Company	Kansas
Oriental Trading Company, Inc.	Delaware
OTC Brands, Inc.	Delaware
OTC Worldwide Holdings, Inc.	Delaware
PacifiCorp	Oregon
PCC Airfoils LLC	Ohio
PCC Structurals, Inc.	Oregon
PPW Holdings LLC	Delaware
Precision Castparts Corp.	Oregon
Princeton Insurance Company	New Jersey
Procor Limited	Canada
Procrane Holdings, Inc.	Delaware
Procrane Inc.	Canada
R. C. Willey Home Furnishings	Utah
Railsplitter Holdings Corporation	Delaware
Redwood Fire and Casualty Insurance Company	Nebraska
Richline Group, Inc.	Delaware
Rio Grande, Inc.	New Mexico
RSCC Wire & Cable LLC	Delaware
Russell Brands, LLC	Delaware
Scott Fetzer Company	Delaware
Scott Fetzer Financial Group, Inc.	Delaware
See's Candies, Inc.	California
See's Candy Shops, Inc.	California
Shaw Contract Flooring Services, Inc.	Georgia
Shaw Industries Group, Inc.	Georgia
Shaw Industries, Inc.	Georgia
Sierra Pacific Power Company	Nevada
Smilemakers, Inc	South Carolina
Söffl Shoe Company, LLC	Delaware
SPS International Investment Company	Delaware
SPS Technologies, LLC	Pennsylvania
Star Furniture Company, LLC	Texas
Sterling Crane LLC	Delaware

BERKSHIRE HATHAWAY INC.
Subsidiaries of Registrant (1)
December 31, 2021

Company Name	Domicile or State of Incorporation
TaeguTec Ltd.	Korea
The Duracell Company	Delaware
The Fechheimer Brothers Company	Delaware
The Lubrizol Corporation	Ohio
The Marmon Group of Canada Ltd.	Canada
The Medical Protective Company	Indiana
The Pampered Chef, Ltd.	Illinois
Titanium Metals Corporation	Delaware
TTI, Inc.	Delaware
Tungaloy Corporation	Japan
TXFM Inc.	Texas
U.S. Investment Corporation	Pennsylvania
U.S. Underwriters Insurance Company	North Dakota
Union Tank Car Company	Delaware
Union Underwear Company, Inc.	Delaware
United States Liability Insurance Company	Nebraska
UTLX Company	Delaware
Vanderbilt Mortgage and Finance, Inc.	Tennessee
Vanity Fair Brands, LP	Delaware
Vesta Intermediate Funding, Inc.	Delaware
Warwick International Group Limited	United Kingdom
Webb Wheel Products, Inc.	Delaware
Wellfleet Insurance Company	Indiana
Wellfleet New York Insurance Company	New York
Wells Lamont LLC	Delaware
WestGUARD Insurance Company	Pennsylvania
World Book/Scott Fetzer Company, Inc.	Nebraska
Worldwide Containers, Inc.	Delaware
WPLG, Inc.	Delaware
Wyman-Gordon Company	Massachusetts
XTRA Companies, Inc.	Delaware
XTRA Corporation	Delaware
XTRA Finance Corporation	Delaware
XTRA Lease LLC	Delaware
XTRA LLC	Maine
Yorkshire Electricity Group plc.	United Kingdom
Yorkshire Power Group Limited	United Kingdom
21st Mortgage Corporation	Delaware

- (1) Each of the named subsidiaries is not necessarily a "significant subsidiary" as defined in Rule 1-02(w) of Regulation S-X, and Berkshire has several additional subsidiaries not named above. The unnamed subsidiaries, considered in the aggregate as a single subsidiary, would not constitute a "significant subsidiary" at the end of the year covered by this report.

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement Nos. 333-229396 and 333-262384 on Form S-3 and Registration Statement Nos. 333-225027, 333-224221, 333-215556, 333-53046, 333-64284, 333-70609, 333-74312, 333-75612, 333-101662, 333-164961, 333-164959, 333-164958, 333-111614, 333-179855, 333-194948, 333-203130, and 333-232424 on Form S-8 of our reports dated February 26, 2022, relating to the consolidated financial statements and financial statement schedule of Berkshire Hathaway Inc. and subsidiaries, and the effectiveness of Berkshire Hathaway Inc.'s internal control over financial reporting appearing in the Annual Report on Form 10-K of Berkshire Hathaway Inc. for the year ended December 31, 2021.

/s/ Deloitte & Touche LLP

Omaha, Nebraska
February 26, 2022

FORM 10-K
Year ended December 31, 2021
Rule 13a-14(a)/15d-14(a) Certifications
CERTIFICATIONS

I, Warren E. Buffett, certify that:

1. I have reviewed this annual report on Form 10-K of Berkshire Hathaway Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 26, 2022

/s/ WARREN E. BUFFETT
Chairman—Principal Executive Officer

FORM 10-K
Year ended December 31, 2021
Rule 13a-14(a)/15d-14(a) Certifications
CERTIFICATIONS

I, Marc D. Hamburg, certify that:

1. I have reviewed this annual report on Form 10-K of Berkshire Hathaway Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 26, 2022

/s/ MARC D. HAMBURG

Senior Vice President—Principal Financial Officer

FORM 10-K

Section 1350 Certifications

Year ended December 31, 2021

I, Warren E. Buffett, Chairman and Chief Executive Officer of Berkshire Hathaway Inc. (the "Company"), certify, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, 18 U.S.C. Section 1350, that to the best of my knowledge:

- (1) the Annual Report on Form 10-K of the Company for the period ended December 31, 2021 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)); and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: February 26, 2022

/s/ WARREN E. BUFFETT

Warren E. Buffett
Chairman and Chief Executive Officer

FORM 10-K

Section 1350 Certifications

Year ended December 31, 2021

I, Marc D. Hamburg, Senior Vice President and Chief Financial Officer of Berkshire Hathaway Inc. (the "Company"), certify, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, 18 U.S.C. Section 1350, that to the best of my knowledge:

- (1) the Annual Report on Form 10-K of the Company for the period ended December 31, 2021 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)); and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Dated: February 26, 2022

/s/ MARC D. HAMBURG

Marc D. Hamburg
Senior Vice President and Chief Financial Officer

**MINE SAFETY VIOLATIONS AND OTHER LEGAL MATTER DISCLOSURES
PURSUANT TO SECTION 1503(a) OF THE DODD-FRANK WALL STREET
REFORM AND CONSUMER PROTECTION ACT**

PacifiCorp and its subsidiaries operate coal mines and coal processing facilities and Acme Brick and its affiliates operate clay, shale and limestone excavation facilities (collectively, the “mining facilities”) that are regulated by the Federal Mine Safety and Health Administration (“MSHA”) under the Federal Mine Safety and Health Act of 1977 (the “Mine Safety Act”). MSHA inspects mining facilities on a regular basis. The total number of reportable Mine Safety Act citations, orders, assessments and legal actions for the year ended December 31, 2021 are summarized in the table below and are subject to contest and appeal. The severity and assessment of penalties may be reduced or, in some cases, dismissed through the contest and appeal process. Amounts are reported regardless of whether PacifiCorp or Acme has challenged or appealed the matter. Mines that are closed or idled are not included in the information below as no reportable events occurred at those locations during the year ended December 31, 2021. PacifiCorp and Acme have not received any notice of a pattern, or notice of the potential to have a pattern, of violations of mandatory health or safety standards that are of such nature as could have significantly and substantially contributed to the cause and effect of coal or other mine health or safety hazards under Section 104(e) of the Mine Safety Act during the year ended December 31, 2021.

Mining Facilities	Mine Safety Act					Total Value of Proposed MSHA Assessments (in thousands)	Total Number of Mining Related Fatalities	Legal Actions		
	Section 104 Significant and Substantial Citations (1)	Section 104(b) Orders (2)	Section 104(d) Citations/Orders (3)	Section 110(b)(2) Violations (4)	Section 107(a) Imminent Danger Orders (5)			Pending as of Last Day of Period (6)	Instituted During Period	Resolved During Period
Coal:										
Bridger (surface)	1	—	—	—	—	\$ 1	—	1	1	—
Bridger (underground)	7	—	—	—	—	42	—	1	2	2
Wyodak Coal Crushing Facility	—	—	—	—	—	—	—	—	—	—
Clay, shale and limestone:										
Malvern	—	—	—	—	—	—	—	—	—	—
Jonesboro	—	—	—	—	—	—	—	—	—	—
Oklahoma City	—	—	—	—	—	—	—	—	—	—
Tulsa	—	—	—	—	—	—	—	—	—	—
Bennett	—	—	—	—	—	—	—	—	—	—
Denton	—	—	—	—	—	—	—	—	—	—
Elgin	—	—	—	—	—	—	—	—	—	—
Sealy	—	—	—	—	—	—	—	—	—	—
Texas Clay	—	—	—	—	—	—	—	—	—	—
Leeds	—	—	—	—	—	—	—	—	—	—
Montgomery	—	—	—	—	—	—	—	—	—	—
Cordova	—	—	—	—	—	—	—	—	—	—

(1) Citations for alleged violations of mandatory health and safety standards that could significantly or substantially contribute to the cause and effect of a safety or health hazard under Section 104 of the Mine Safety Act.

(2) For alleged failure to totally abate the subject matter of a Mine Safety Act Section 104(a) citation within the period specified in the citation.

(3) For alleged unwarrantable failure (i.e., aggravated conduct constituting more than ordinary negligence) to comply with a mandatory health or safety standard.

(4) For alleged flagrant violations (i.e., reckless or repeated failure to make reasonable efforts to eliminate a known violation of a mandatory health or safety standard that substantially and proximately caused, or reasonably could have been expected to cause, death or serious bodily injury).

(5) For the existence of any condition or practice in a coal or other mine which could reasonably be expected to cause death or serious physical harm before such condition or practice can be abated.

(6) Amounts include two contests of proposed penalties under Subpart C of the Federal Mine Safety and Health Review Commission's procedural rules. The pending legal actions are not exclusive to citations, notices, orders and penalties assessed by MSHA during the reporting period.