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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, 2018
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 1-9371

ALLEGHANY CORPORATION

(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation or organization)	**51-0283071** (I.R.S. Employer Identification Number)
1411 Broadway, 34th Floor **New York, New York** (Address of principal executive offices)	**10018** (Zip Code)

Registrant's telephone number, including area code:
212-752-1356

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

Title of Each Class	Name of Each Exchange on Which Registered
Common Stock, $1.00 par value	**New York Stock Exchange**

Securities registered pursuant to Section 12(g) of the Act:
Not applicable

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 if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐

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. (Check one):

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

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 126-2 of the Act).
Yes ☐ No ☑

The aggregate market value of voting and non-voting common shares held by non-affiliates of the registrant as of June 30, 2018 (the last business day of the registrant's most recently completed second fiscal quarter) was approximately $8,340,051,394 based on the closing sale price of the registrant's common shares on the New York Stock Exchange on that date.

As of February 11, 2019, 14,466,480 shares of the registrant's common stock, par value $1.00 per share, were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement relating to the Annual Meeting of Stockholders of Alleghany Corporation to be held on April 26, 2019 to be filed with the Securities and Exchange Commission pursuant to Regulation 14A are incorporated by reference into Part III of this Annual Report on Form 10-K.

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References in this Annual Report on Form 10-K for the year ended December 31, 2018, or this "Form 10-K," to the "Company," "Alleghany," "we," "us," and "our" refer to Alleghany Corporation and its consolidated subsidiaries unless the context otherwise requires. In addition, unless the context otherwise requires, references to

- "TransRe" are to our wholly-owned reinsurance holding company subsidiary Transatlantic Holdings, Inc. and its subsidiaries;
- "AIHL" are to our wholly-owned insurance holding company subsidiary Alleghany Insurance Holdings LLC;
- "RSUI" are to our wholly-owned subsidiary RSUI Group, Inc. and its subsidiaries;
- "CapSpecialty" are to our wholly-owned subsidiary CapSpecialty, Inc. and its subsidiaries;
- "PacificComp" are to our former wholly-owned subsidiary Pacific Compensation Corporation and its subsidiary, which were sold on December 31, 2017;
- "AIHL Re" are to our wholly-owned subsidiary AIHL Re LLC;
- "Roundwood" are to our wholly-owned subsidiary Roundwood Asset Management LLC;
- "SORC" are to our wholly-owned subsidiary Stranded Oil Resources Corporation and its subsidiaries;
- "Alleghany Capital" are to our wholly-owned subsidiary Alleghany Capital Corporation and its subsidiaries;
- "Bourn & Koch" are to our majority-owned subsidiary Bourn & Koch, Inc. and its subsidiary;
- "Kentucky Trailer" are to our majority-owned subsidiary R.C. Tway Company, LLC and its subsidiaries;
- "IPS" are to our majority-owned subsidiary IPS-Integrated Project Services, LLC and its subsidiaries;
- "Jazwares" are to our majority-owned subsidiary Jazwares, LLC and its subsidiaries and affiliates;
- "W&W|AFCO Steel" are to our majority-owned subsidiary WWSC Holdings, LLC and its subsidiaries;
- "Concord" are to our majority-owned subsidiary CHECO Holdings, LLC and its subsidiaries; and
- "Alleghany Properties" are to our wholly-owned subsidiary Alleghany Properties Holdings LLC and its subsidiaries.

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NOTE ON FORWARD-LOOKING STATEMENTS

Certain statements contained in this Form 10-K may be deemed to be "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements may be identified by the use of words such as "may," "will," "expect," "project," "estimate," "anticipate," "plan," "believe," "potential," "should" or the negative versions of those words or other comparable words. Forward-looking statements do not relate solely to historical or current facts, rather they are based on management's expectations as well as certain assumptions and estimates made by, and information available to, management at the time. These statements are not guarantees of future performance. These forward-looking statements are based upon Alleghany's current expectations and are subject to a number of uncertainties and risks that could significantly affect current plans, anticipated actions and Alleghany's future financial condition and results. Factors that could cause these forward-looking statements to differ, possibly materially, from that currently contemplated include:

- significant weather-related or other natural or man-made catastrophes and disasters;
- the cyclical nature of the property and casualty reinsurance and insurance industries;
- changes in market prices of our significant equity investments and changes in value of our debt securities portfolio;
- adverse loss development for events insured by our reinsurance and insurance subsidiaries in either the current year or prior years;
- the long-tail and potentially volatile nature of certain casualty lines of business written by our reinsurance and insurance subsidiaries;
- the cost and availability of reinsurance;
- the reliance by our reinsurance and insurance operating subsidiaries on a limited number of brokers;
- legal, political, judicial and regulatory changes;
- increases in the levels of risk retention by our reinsurance and insurance subsidiaries;
- changes in the ratings assigned to our reinsurance and insurance subsidiaries;
- claims development and the process of estimating reserves;
- exposure to terrorist acts and acts of war;
- the willingness and ability of our reinsurance and insurance subsidiaries' reinsurers to pay reinsurance recoverables owed to our reinsurance and insurance subsidiaries;
- the uncertain nature of damage theories and loss amounts;
- the loss of key personnel of our reinsurance or insurance operating subsidiaries;
- fluctuation in foreign currency exchange rates;
- the failure to comply with the restrictive covenants contained in the agreements governing our indebtedness;
- the ability to make payments on, or repay or refinance, our debt;
- risks inherent in international operations; and
- difficult and volatile conditions in the global market.

Additional risks and uncertainties include general economic and political conditions, including the effects of a prolonged U.S. or global economic downturn or recession; changes in costs; variations in political, economic or other factors; risks relating to conducting operations in a competitive environment; effects of acquisition and disposition activities, inflation rates, or recessionary or expansive trends; changes in interest rates; extended labor disruptions, civil unrest, or other external factors over which we have no control; changes in our plans, strategies, objectives, expectations, or intentions, which may happen at any time at our discretion; and other factors discussed in this Form 10-K and subsequent filings with the Securities and Exchange Commission, or the "SEC." All forward-looking statements speak only as of the date they are made and are based on information available at that time. Alleghany does not undertake any obligation to update or revise any forward-looking statements to reflect subsequent circumstances or events. See Part I, Item 1A, "Risk Factors" of this Form 10-K for additional information.

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PART I

Item 1. Business.

Overview

Alleghany Corporation owns and manages certain operating subsidiaries and investments, anchored by a core position in property and casualty reinsurance and insurance. We were incorporated in Delaware in 1984. Through our wholly-owned subsidiary TransRe, we are engaged in the property and casualty reinsurance business. TransRe has been a subsidiary of ours since March 2012. Through our wholly-owned subsidiary AIHL, we are engaged in the property and casualty insurance business. AIHL's insurance operations are principally conducted by its subsidiaries RSUI and CapSpecialty. Prior to December 31, 2017, AIHL's insurance operations also included PacificComp. RSUI has been a subsidiary of AIHL since July 2003 and CapSpecialty has been a subsidiary of AIHL since January 2002. AIHL Re, a captive reinsurance company which provides reinsurance to Alleghany's current and former insurance operating subsidiaries and affiliates, has been a wholly-owned subsidiary of Alleghany since its formation in May 2006.

Although our primary sources of revenues and earnings are our reinsurance and insurance operations and investments, we also generate revenues and earnings from a diverse portfolio of middle market businesses that are owned and managed through our wholly-owned subsidiary Alleghany Capital. Alleghany Capital's businesses include:

- *Bourn & Koch.* On April 26, 2012, we acquired a controlling interest in Bourn & Koch, a manufacturer/ remanufacturer of specialty machine tools and supplier of replacement parts, accessories and services for a variety of cutting technologies.
- *Kentucky Trailer.* On August 30, 2013, we acquired a controlling interest in Kentucky Trailer, a manufacturer of custom trailers and truck bodies for the moving and storage industry and other markets.
- *IPS.* On October 31, 2015, we acquired a controlling interest in IPS, a technical service provider focused on the global pharmaceutical and biotechnology industries.
- *Jazwares.* On April 15, 2016, we acquired a controlling interest in Jazwares, a global toy, entertainment and musical instrument company.
- *W&W|AFCO Steel.* On April 28, 2017, we acquired a controlling interest in W&W|AFCO Steel, a structural steel fabricator and erector.
- *Wilbert Funeral Services, Inc, or "Wilbert."* On August 1, 2017, we acquired a 45 percent equity interest in Wilbert, a provider of products and services for the funeral and cemetery industries and precast concrete markets.
- *Concord.* On October 1, 2018, we acquired a controlling interest in Concord, a hotel management and development company.

In addition, we own certain other holding company investments. Our wholly-owned subsidiary SORC is an exploration and production company focused on enhanced oil recovery. Our wholly-owned subsidiary Alleghany Properties owns and manages certain properties in the Sacramento, California region. Our public equity investments are managed primarily through our wholly-owned subsidiary Roundwood.

As of December 31, 2018, we had total assets of $25.3 billion and total stockholders' equity attributable to Alleghany stockholders of $7.7 billion.

Our principal executive offices are located in leased office space at 1411 Broadway, 34th Floor, New York, New York, 10018. Our telephone number is (212) 752-1356. Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, or the "Exchange Act," are available, free of charge, on our website at www.alleghany.com, as soon as reasonably practicable after we electronically file this material with, or furnish it to, the SEC. Reports and other information we file with the SEC may also be viewed at the SEC's website at www.sec.gov or viewed or obtained at the SEC Public Reference Room at 100 F Street, N.E., Washington, District of Columbia, 20549. Our Financial Personnel Code of Ethics, Employee Code of Business Conduct and Ethics, Director Code of Business Conduct and Ethics, Code of Business Conduct and Ethics for our Business Partners, Corporate Governance Guidelines and the charters for our Audit, Compensation and Nominating and Governance Committees are also available on our website. In addition, interested parties may obtain, free of charge, copies of any of the above reports or documents upon request to the Secretary of Alleghany.

Segment Information

Our segments are reported in a manner consistent with the way management evaluates the businesses. As such, we classify our businesses into three reportable segments – reinsurance, insurance and Alleghany Capital. Reinsurance and insurance underwriting activities are evaluated separately from investment and other activities.

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Corporate activities are not classified as a segment. The primary components of corporate activities are Alleghany Properties, SORC and activities at the Alleghany parent company.

See below and Note 13 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for an analysis of our underwriting results by segment and other activities, and Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations—Consolidated Results of Operations."

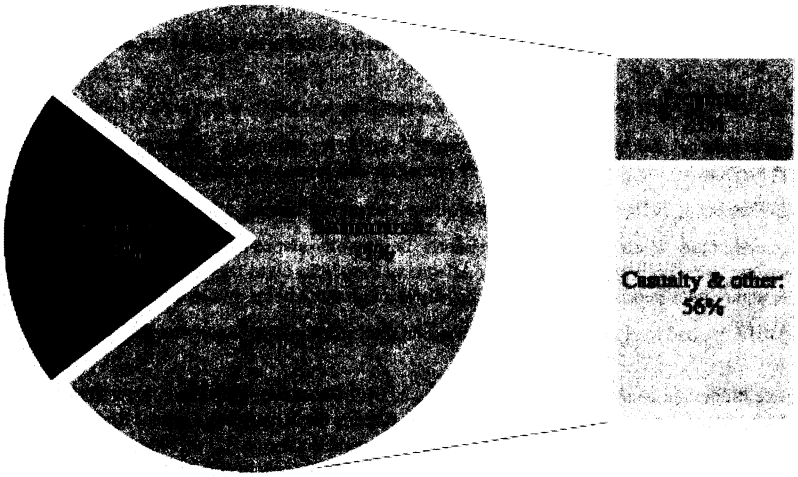
Reinsurance Segment

General. The reinsurance segment consists of property and casualty reinsurance operations conducted by TransRe's reinsurance operating subsidiaries. TransRe also writes a modest amount of property and casualty insurance business, which is included in the reinsurance segment.

TransRe, through its principal wholly-owned subsidiaries Transatlantic Reinsurance Company, or "TRC," TransRe London Ltd., or "TRL," and TransRe Zurich Ltd., or "TRZ," provides property and casualty reinsurance to insurance and other reinsurance companies. These products are distributed through brokers and on a direct basis in the domestic and foreign markets. TransRe is headquartered in New York, New York, with six other locations in the U.S. and has operations worldwide, including: Africa, Australia, Bermuda, Canada, five locations in Asia, three locations in Central and South America and four locations in the U.K. and Europe. TRC is licensed, accredited or authorized or can serve as a reinsurer in all 50 states and the District of Columbia in the U.S. and in Puerto Rico and Guam. TRC is also licensed in Bermuda, Canada, Japan, the U.K., the Dominican Republic, the Hong Kong Special Administrative Region of the People's Republic of China, Germany, Australia and Singapore. In addition, TRL is licensed as a reinsurer in the U.K. and TRZ is licensed as a reinsurer in Switzerland and Dubai.

The reinsurance segment constitutes the majority of our consolidated net premiums written, and is reported through two major product lines, "property" and "casualty & other."

2018 Net Premiums Written



- *Property.* TransRe's principal lines of business within property include: fire; allied lines; auto physical damage; and homeowners multiple peril (which include property catastrophe risks).
- *Casualty & other.* TransRe's principal lines of business within casualty & other include: directors' and officers' liability; errors and omissions liability; general liability; medical malpractice; ocean marine and aviation; auto liability; accident and health; mortgage reinsurance; surety; and credit.

Reinsurance contracts are generally classified as treaty or facultative contracts. TransRe provides property and casualty reinsurance on both a treaty and facultative basis. Treaty reinsurance is a contractual arrangement that provides for the automatic reinsuring of all or a portion of a specified class of risk underwritten by the ceding company. Facultative reinsurance is the reinsurance of individual risks. Rather than agreeing to reinsure all or a portion of a class of risk, the reinsurer separately rates and underwrites each risk. Facultative reinsurance is normally purchased for risks not covered by treaty reinsurance or for individual risks covered by reinsurance treaties that are in need of capacity beyond that provided by such treaties.

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A ceding company's reinsurance program may involve pro rata and excess-of-loss reinsurance on both a treaty and facultative basis. TransRe provides pro rata and excess-of-loss reinsurance for most major lines of business. Under pro rata reinsurance (also referred to as proportional or quota share reinsurance), the ceding company and the reinsurer share the premiums as well as the losses and expenses in an agreed proportion, and such proportional sharing of losses may be subject to a predetermined limit. As pro rata business is a proportional sharing of premiums and losses between the ceding company and the reinsurer, generally the underwriting results of such business more closely reflect the underwriting results of the business ceded than do the results of excess-of-loss business. In pro rata reinsurance, the reinsurer generally pays the ceding company a ceding commission, which is generally based on the ceding company's cost of obtaining the business being reinsured, such as brokers' and agents' commissions, local taxes and administrative expenses. Under excess-of-loss reinsurance (also referred to as non-proportional reinsurance), the reinsurer indemnifies the ceding company for all or a portion of the losses in excess of a predetermined amount, usually up to a predetermined limit. Premiums paid by the ceding company to the reinsurer for excess-of-loss coverage are generally not proportional to the premiums that the ceding company receives because the reinsurer does not assume a proportionate risk. Often there is no ceding commission on excess-of-loss reinsurance and therefore the pricing mechanism used by reinsurers in those instances is a rate applicable to premiums of the individual policy or policies subject to the reinsurance agreement. Both pro rata and excess-of-loss reinsurance may provide for aggregate limits of indemnification.

In July 2016, TransRe entered into a five-year agreement with General Reinsurance Corporation, a wholly-owned subsidiary of Berkshire Hathaway Inc., for TransRe to act as exclusive underwriting manager on behalf of General Reinsurance Corporation for U.S. and Canadian property and casualty treaty reinsurance business produced by brokers and intermediaries. Fees earned under this agreement are included in noninsurance revenue in the Consolidated Statements of Earnings and Comprehensive Income.

As of December 31, 2018, the statutory surplus of TRC was $4.6 billion, as determined in accordance with statutory accounting principles, or "SAP," and the consolidated equity of TransRe was $4.7 billion, as determined in accordance with accounting principles generally accepted in the U.S., or "GAAP."

Distribution. TransRe provides property and casualty reinsurance through brokers as well as directly to insurance and reinsurance companies in domestic and foreign markets. In 2018, approximately 84 percent of TransRe's gross premiums written were written through brokers with the balance written directly with ceding company clients. In the reinsurance brokerage industry, brokers are engaged by the ceding companies to place reinsurance on their behalf. In 2018, companies controlled by Aon plc, TigerRisk Partners, LLC and Marsh & McLennan Companies, Inc. were TransRe's largest brokerage sources of business, accounting for approximately 26 percent, 18 percent and 15 percent, respectively, of gross premiums written. The reinsurance brokerage industry is dominated by certain of these brokers. Due to the substantial percentages of premiums written through these brokers, the loss of business from any one of them could have a material adverse effect on TransRe's business.

Underwriting. TransRe's underwriting process emphasizes a team approach among TransRe's underwriters, actuaries, claims staff and senior management, as appropriate. Treaties are reviewed for compliance with TransRe's underwriting guidelines and objectives, and most treaties are evaluated in part based upon actuarial analyses conducted by TransRe. TransRe's actuarial models used in such analyses are tailored in each case to the exposures and experience underlying the specific treaty and the loss experience for the risks covered. Property catastrophe-exposed treaties are generally evaluated using industry standard models, as well as proprietary TransRe models. These models are used as a guide for risk assessment and portfolio optimization and are continually updated. TransRe also frequently conducts underwriting and claims audits at the offices of a ceding company before and after entering into major treaties, because reinsurers, including TransRe, do not separately evaluate each of the individual risks assumed under their treaties and, consequently, are largely dependent on the original underwriting decisions made by the ceding company. Such dependence subjects TransRe, and reinsurers in general, to the possibility that the ceding companies have not adequately evaluated and priced the risks to be reinsured and, therefore, that the premiums ceded may not adequately compensate reinsurers for the risk assumed.

TransRe often seeks to lead treaty placements. The lead reinsurer on a treaty generally accepts one of the largest percentage shares of the treaty and takes the initiative in negotiating price, terms and conditions. TransRe believes that this strategy enables it to influence more effectively the terms and conditions of the treaties in which it participates. TransRe may decline any treaty business offered to it based upon its assessment of all relevant factors. Such factors include type and level of risk assumed; actuarial and underwriting judgment with respect to rate adequacy; various treaty terms; prior and anticipated loss experience (including exposure to natural and man-made catastrophes) on the treaty; prior business experience with the ceding company; overall financial position; operating results; ratings from credit rating agencies of the ceding company; and social, legal, regulatory, environmental and general economic conditions affecting the risks assumed or the ceding company.

Ratings. TRC, TRL and TRZ are rated A+ by Standard & Poor's Ratings Services, or "S&P," and A+ (Superior) by A.M. Best Company, Inc., or "A.M. Best," and TRC is rated A1 by Moody's Investors Service Inc., or "Moody's." Additional information regarding ratings and the risks related to ratings from ratings agencies can be found on page 57 of this Form 10-K.

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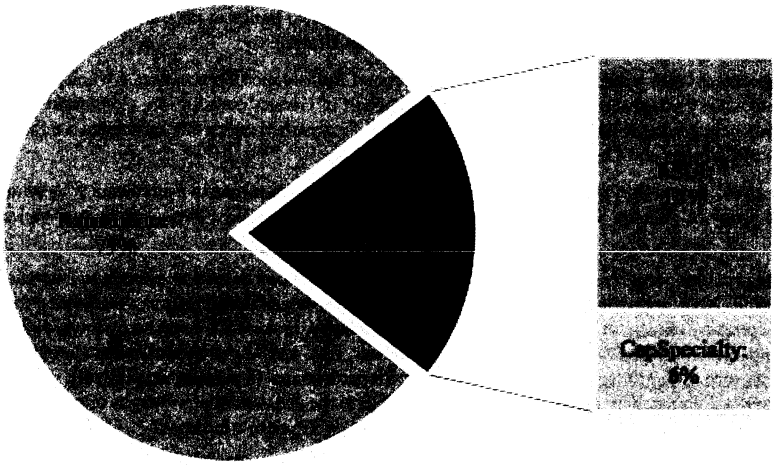
Insurance Segment

The insurance segment consists of property and casualty insurance operations conducted in the U.S. by AIHL through RSUI, headquartered in Atlanta, Georgia; CapSpecialty, headquartered in Middleton, Wisconsin; and, prior to December 31, 2017, PacificComp, headquartered in Westlake Village, California. AIHL Re, our Vermont-domiciled captive reinsurance company, provides reinsurance to our current and former insurance operating subsidiaries and affiliates. Unless we state otherwise, references to AIHL include the operations of RSUI, CapSpecialty, AIHL Re and, prior to December 31, 2017, PacificComp.

The insurance segment constitutes a smaller portion of our consolidated net premiums written and is reported through our RSUI and CapSpecialty subsidiaries.

2018 Net Premiums Written



RSUI

General. RSUI, which includes the operations of its wholly-owned subsidiaries RSUI Indemnity Company, or "RIC," Landmark American Insurance Company, or "Landmark," and Covington Specialty Insurance Company, or "Covington," underwrites specialty insurance coverages in the property, umbrella/excess liability, general liability, management liability and professional liability lines of business. RSUI also writes a modest amount of reinsurance business on an assumed basis, which is included in the insurance segment.

The market for specialty insurance coverages differs significantly from the market for standard insurance coverages. The specialty market provides coverage for hard-to-place risks that generally do not fit the underwriting criteria of the standard market which provides coverage for largely uniform and relatively predictable exposures and is highly regulated with respect to rates and forms.

RSUI writes specialty business on both an admitted and non-admitted basis. 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 from a state's admitted insurance markets. Non-admitted insurance is procured by either state-licensed surplus lines brokers who place risks with insurers not licensed in that state or by insureds' direct procurement from non-admitted insurers. Non-admitted insurance is subject to considerably less regulation with respect to policy rates and forms. RSUI writes specialty business in the admitted specialty market primarily through RIC, a New Hampshire-domiciled insurer, in the 50 states and the District of Columbia where RIC is licensed and subject to state form and rate regulations. Most of the risks in the admitted specialty market are unique and hard-to-place in the standard market, but must remain with an admitted insurance company for regulatory and/or marketing reasons. As an admitted carrier, RIC is subject to more state regulation than a non-admitted carrier, particularly with regard to rate and form filing requirements, restrictions on the ability to exit lines of business, premium tax payments and membership in various state associations, such as state guaranty funds and assigned risk plans.

RSUI writes business on an approved, non-admitted basis primarily through Landmark, a New Hampshire-domiciled insurer. Landmark, as a non-admitted company, is not subject to state form and rate regulations and thus has more flexibility in its rates and coverages for specialized or hard-to-place risks. This typically results in coverages that are more restrictive and expensive

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than coverages written by a standard insurance company. As of December 31, 2018, Landmark was approved to write business on a non-admitted basis in the 50 states.

Covington, a New Hampshire-domiciled insurer, was formed in September 2007 to, among other things, support non-admitted business written primarily by RSUI's binding authority department, which writes small, specialized coverages pursuant to underwriting authority arrangements with managing general agents.

Pursuant to quota share arrangements, effective as of January 1, 2009, Landmark and Covington cede 90 percent of all their respective premiums and losses, gross of third-party reinsurance, to RIC.

As of December 31, 2018, the statutory surplus of RIC was approximately $1.6 billion, the statutory surplus of Landmark was approximately $146 million, the statutory surplus of Covington was approximately $50 million, each as determined in accordance with SAP, and the consolidated equity of RSUI was $1.6 billion, as determined in accordance with GAAP.

Distribution. As of December 31, 2018, RSUI conducted its insurance business through approximately 95 independent wholesale insurance brokers located throughout the U.S. and 23 managing general agents. RSUI's wholesale brokers are appointed based on management's appraisal of expertise, premium production potential, loss history with other insurance companies that they represent and the size and experience of the agency. A wholesale broker's operations are appointed to distribute RSUI's products on a location by location basis. Producer agreements which stipulate premium collection, payment terms and commission arrangements are in place with each wholesale broker. No wholesale broker holds underwriting, claims or reinsurance authority for RSUI. RSUI's top five producing wholesale brokers accounted for approximately 71 percent of gross premiums written by RSUI in 2018. RSUI's top two producing wholesale brokers, CRC Insurance Services, Inc. and AmWINS Group, Inc., accounted for, in the aggregate, approximately 44 percent of RSUI's gross premiums written in 2018. RSUI has entered into underwriting authority arrangements with 23 managing general agents for small, specialized coverages.

Underwriting. RSUI's underwriting philosophy is based on handling only product lines in which its underwriters have underwriting expertise. RSUI generally focuses on higher severity, lower frequency specialty risks that can be effectively "desk underwritten" without the need for inspection or engineering reviews. RSUI tracks underwriting results for each of its underwriters and believes that the underwriting systems and applications it has in place facilitate efficient underwriting and high productivity levels. Underwriting authority is delegated on a "top-down" basis ultimately to individual underwriters based on experience and expertise. This authority is in writing and addresses maximum limits, excluded classes and coverages and premium size referral. Referral to a product line manager is required for risks exceeding an underwriter's authority.

Ratings. RIC, Landmark and Covington are each rated A+ (Superior) by A.M. Best and all three companies are rated "A" by S&P. RIC and Landmark are rated A2 by Moody's.

CapSpecialty

General. CapSpecialty, primarily through its wholly-owned subsidiaries Capitol Indemnity Corporation, or "CIC," Capitol Specialty Insurance Corporation, or "CSIC," and Platte River Insurance Company, or "Platte River," operates in the 50 states and the District of Columbia. CapSpecialty also includes the operations and results of Professional Risk Management Services, Inc., which was acquired from TransRe effective January 1, 2014.

CIC conducts its property and casualty insurance business on an admitted basis throughout the U.S. CIC also writes surety products such as commercial surety bonds and contract surety bonds on a national basis. Commercial surety bonds include all surety bonds other than contract surety bonds and cover obligations typically required by law or regulation, such as licenses and permits. CIC offers contract surety bonds in the non-construction segment of the market which secure performance under supply, service and maintenance contracts.

CSIC conducts all of its business on an approved, non-admitted basis nationally and writes primarily specialty lines of property and casualty insurance, including the professional lines of business.

Platte River is licensed in the 50 states and the District of Columbia and operates in conjunction with CIC, primarily providing surety products and offering pricing flexibility in those jurisdictions where both CIC and Platte River are licensed.

Effective January 1, 2014, CapSpecialty was recapitalized pursuant to a series of transactions which included the exchange by AIHL of its common stock in CapSpecialty for Series A Convertible Preferred Stock carrying a five percent preference, or the "Preferred Stock," and the subsequent sale by AIHL to TransRe of 24.9 percent of the Preferred Stock for a cash purchase price based on CapSpecialty's December 31, 2013 GAAP book value. At the same time, CapSpecialty reserved shares of restricted common stock, or the "Restricted Stock," which are subordinate to the Preferred Stock, for issuance to the management of CapSpecialty pursuant to a restricted stock plan. To the extent all shares of Restricted Stock are vested and issued, the Restricted Stock will represent 20 percent of the value of CapSpecialty in excess of the Preferred Stock and its cumulative preference.

In the third quarter of 2015, AIHL Re and CapSpecialty entered into an intercompany reinsurance contract, effective July 1, 2015, pursuant to which AIHL Re provides CapSpecialty with coverage primarily for adverse development on certain net loss and

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allocated loss adjustment expenses, or "LAE," in excess of its carried reserves at June 30, 2015. AIHL Re's commitments are intended to cover the statutory collateral requirements at CapSpecialty, if and when necessary, and AIHL Re's obligations are subject to an aggregate limit of $50.0 million. See Note 5(e) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional detail on the reinsurance contract.

As of December 31, 2018, the statutory surplus of CIC was approximately $268 million, which included the statutory surplus of CSIC of approximately $61 million and the statutory surplus of Platte River of approximately $50 million, each as determined in accordance with SAP. As of December 31, 2018, the consolidated equity of CapSpecialty was $367.1 million, as determined in accordance with GAAP.

Distribution. CapSpecialty conducts its insurance business through independent wholesale brokerage and retail agents and general insurance agents located throughout the U.S. As of December 31, 2018, CapSpecialty had 71 general agents licensed to write property and casualty and surety coverages, approximately 170 brokers specializing in professional liability coverages and approximately 248 independent agents licensed to write surety coverages only. Certain independent agents have binding authority for specific business owner policy products, including property and liability coverages and non-contract surety products.

Underwriting. Elements of CapSpecialty's underwriting process include prudent risk selection, appropriate pricing and coverage customization. All accounts are reviewed on an individual basis to determine underwriting acceptability. CapSpecialty is a subscriber to the Insurance Service Organization, or "ISO," and the Surety and Fidelity Association of America, or "SFAA," insurance reference resources recognized by the insurance industry. CapSpecialty's underwriting procedures, rates and contractual coverage obligations are based on procedures and data developed by ISO for property and casualty lines and by SFAA for surety lines. Underwriting acceptability is determined by type of business, claims experience, length of time in business and business experience, age and condition of premises occupied and financial stability. Information is obtained from, among other sources, agent applications, financial reports and on-site loss control surveys. If an account does not meet pre-determined acceptability parameters, coverage is declined. If an in-force policy becomes unprofitable due to extraordinary claims activity or inadequate premium levels, a non-renewal notice is issued in accordance with individual state statutes and rules.

Ratings. CIC, CSIC and Platte River are rated A (Excellent) on a reinsured basis by A.M. Best.

PacificComp

On December 31, 2017, AIHL sold PacificComp to CopperPoint Mutual Insurance Company, or "CopperPoint," for total cash consideration of approximately $158 million, at which time: (i) approximately $442 million of PacificComp assets, consisting primarily of debt securities, and approximately $316 million of PacificComp liabilities, consisting primarily of loss and LAE reserves, were transferred to CopperPoint; and (ii) AIHL recorded an after-tax gain of approximately $16 million, which included a tax benefit. In connection with the transaction, AIHL Re provides adverse development reinsurance coverage on PacificComp's pre-acquisition claims, subject to certain terms and conditions. AIHL Re's obligations, which are guaranteed by Alleghany, are subject to an aggregate limit of $150.0 million and a final commutation and settlement as of December 31, 2024.

Alleghany Capital Segment

We own and manage a diverse portfolio of middle market businesses primarily through Alleghany Capital. Alleghany Capital's businesses include:

- *Bourn & Koch.* A manufacturer/remanufacturer of specialty machine tools and supplier of replacement parts, accessories and services for a variety of cutting technologies, headquartered in Rockford, Illinois. In October 2016, Bourn & Koch acquired Diamond Technology Innovations, Inc., or "DTI," a manufacturer of waterjet orifices and nozzles. As of December 31, 2018, we owned approximately 89 percent of Bourn & Koch.
- *Kentucky Trailer.* A manufacturer of custom trailers and truck bodies for the moving and storage industry and other markets, headquartered in Louisville, Kentucky. Since 2014, Kentucky Trailer has acquired several manufacturers of specialty trailers and mobile solutions and, on December 28, 2018, Kentucky trailer acquired a controlling interest in CEI Equipment Company, LLC, or "CEI," a manufacturer of aluminum feed transportation equipment based in Cedar Rapids, Iowa. As of December 31, 2018, we owned approximately 77 percent of the common equity of Kentucky Trailer, as well as our original preferred equity interest.
- *Jazwares.* On July 31, 2014, we invested in Jazwares, a global toy, entertainment and musical instrument company, headquartered in Sunrise, Florida, for a 30 percent interest. On April 15, 2016, we acquired a controlling interest in Jazwares and, beginning on that date, the results of Jazwares have been included in our consolidated results. Prior to April 15, 2016, Jazwares was accounted for under the equity method of accounting. In July 2016, Jazwares acquired a musical products business, and made two smaller acquisitions in 2018. As of December 31, 2018, we owned approximately 77 percent of Jazwares.
- *IPS.* A technical service provider focused on the global pharmaceutical and biotechnology industries, headquartered in Blue Bell, Pennsylvania. As of December 31, 2018, we owned approximately 85 percent of IPS.

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- *W&W|AFCO Steel.* A structural steel fabricator and erector, headquartered in Oklahoma City, Oklahoma. On February 7, 2018, W&W|AFCO Steel acquired Hirschfeld Holdings, LP, or "Hirschfeld," a fabricator of steel bridges and structural steel for stadiums, airports and other large commercial and industrial projects. As of December 31, 2018, we owned approximately 80 percent of W&W|AFCO Steel.
- *Wilbert.* A provider of products and services for the funeral and cemetery industries and precast concrete markets, headquartered in Overland Park, Kansas. Wilbert is accounted for under the equity method of accounting.
- *Concord.* A hotel management and development company, headquartered in Raleigh, North Carolina. As of December 31, 2018, we owned approximately 85 percent of Concord.

Corporate Activities

At the parent level, we seek out attractive investment opportunities, including strategic investments in operating companies, delegate responsibilities to competent and motivated managers at the operating business level, set goals for our operating businesses, assist managers in the achievement of these goals, define risk parameters and appropriate incentives for our operating businesses and monitor progress against their long-term objectives.

We own certain holding company investments, including:

- *Roundwood.* Our public equity investments are managed primarily by Roundwood. For a discussion of our reinsurance and insurance subsidiaries' investment results, see pages 94 and 95 of this Form 10-K.
- *SORC.* In June 2011, we formed SORC, an exploration and production company focused on enhanced oil recovery, headquartered in Golden, Colorado. From formation through December 31, 2018, we have invested $267.7 million in SORC. As of December 31, 2018, SORC's stockholder's equity was $88.0 million.
- *Alleghany Properties.* We own and manage properties in the Sacramento, California region through Alleghany Properties. These properties include primarily improved and unimproved commercial land, as well as residential lots. As of December 31, 2018, Alleghany Properties owned approximately 125 acres of property in various land use categories ranging from multi-family residential to commercial.

Reserves

Each of our reinsurance and insurance subsidiaries establishes reserves on its balance sheet for unpaid loss and LAE related to its property and casualty reinsurance and insurance contracts. The reserves for loss and LAE represent management's best estimate of the ultimate cost of all reported and unreported losses incurred through the balance sheet date. The process of estimating these reserves is inherently difficult and involves a considerable degree of judgment, especially in view of changing legal and economic environments that impact loss reserve development. Therefore, quantitative techniques have to be supplemented by subjective considerations and managerial judgment. In addition, conditions and trends that have affected development of liabilities in the past may not necessarily occur or affect liability development to the same degree in the future. See Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations—Critical Accounting Estimates" of this Form 10-K for additional detail on our critical accounting estimates.

Information on prior year loss reserve development and incurred and paid loss and LAE development by segment can be found in Note 6(b) and Note 6(c), respectively, to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K.

The following table presents the reconciliation of the aggregate net loss and LAE reserves of our reinsurance and insurance subsidiaries reported in the annual statements filed with state insurance departments prepared in accordance with SAP and those reported in our consolidated financial statements prepared in accordance with GAAP for the three years ended December 31, 2018 is presented below:

Reconciliation of Reserves for Loss and LAE from SAP Basis to GAAP Basis

	As of December 31,		
	2018	2017	2016
		($ in millions)	
Statutory reserves	$ 9,796.0	$ 9,633.4	$ 9,339.8
Net reserves of non-U.S. subsidiaries(1)	596.9	587.8	511.2
Reinsurance recoverables(2)	1,857.4	1,650.1	1,236.2
GAAP reserves	$ 12,250.3	$ 11,871.3	$ 11,087.2

(1) TransRe's non-U.S. subsidiaries do not file annual statements with state insurance departments in the U.S.
(2) Reinsurance recoverables in this table include only unpaid ceded loss and LAE reserves.

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The following table presents the reconciliation of beginning and ending aggregate reserve balances for unpaid loss and LAE of our reinsurance and insurance subsidiaries for the last three years is presented below:

Reconciliation of Reserves for Loss and LAE

	Year Ended December 31,		
	2018	2017	2016
		($ in millions)	
Reserves as of January 1	$ 11,871.3	$ 11,087.2	$ 10,799.2
Less: reinsurance recoverables(1)	1,650.1	1,236.2	1,169.3
Net reserves as of January 1	10,221.2	9,851.0	9,629.9
Other adjustments	0.9	(293.7)(2)	2.4
Incurred loss and LAE, net of reinsurance, related to:			
Current year	3,849.4	3,918.8	3,285.2
Prior years	(329.0)	(298.6)	(368.0)
Total incurred loss and LAE, net of reinsurance	3,520.4	3,620.2	2,917.2
Paid loss and LAE, net of reinsurance, related to:(3)			
Current year	838.9	853.2	734.3
Prior years	2,419.0	2,225.2	1,866.5
Total paid loss and LAE, net of reinsurance	3,257.9	3,078.4	2,600.8
Foreign currency exchange rate effect	(91.7)	122.1	(97.7)
Net reserves as of December 31	10,392.9	10,221.2	9,851.0
Reinsurance recoverables as of December 31(1)	1,857.4	1,650.1	1,236.2
Reserves as of December 31	$ 12,250.3	$ 11,871.3	$ 11,087.2

(1) Reinsurance recoverables in this table include only ceded loss and LAE reserves.
(2) Primarily represents the impact on net reserves arising from the sale of PacificComp.
(3) Includes paid loss and LAE, net of reinsurance, related to commutations.

Asbestos-Related Illness and Environmental Impairment Reserves

Our reinsurance and insurance subsidiaries' reserves for loss and LAE include amounts for risks related to asbestos-related illness and environmental impairment. The reserves carried for such claims, including the reserves for loss and LAE incurred but not reported, or "IBNR," claims, are based upon known facts and current law at the respective balance sheet dates. However, significant uncertainty exists in determining the amount of ultimate liability for asbestos-related illness and environmental impairment losses. This uncertainty is due to, among other reasons, inconsistent and changing court resolutions and judicial interpretations with respect to underlying policy intent and coverage and uncertainties as to the allocation of responsibility for resultant damages. Further, possible future changes in statutes, laws, regulations, theories of liability and other factors could have a material effect on these liabilities and, accordingly, future earnings. Although we are unable at this time to determine whether additional reserves, which could have a material adverse effect upon our results of operations, may be necessary in the future, we believe that our asbestos-related illness and environmental impairment reserves were adequate as of December 31, 2018.

The following table presents the gross and net loss and LAE reserve balances for asbestos-related illness and environmental impairment liabilities as of December 31, 2018 and 2017:

	December 31, 2018		December 31, 2017	
	Gross	Net	Gross	Net
		($ in millions)		
TransRe	$ 128.1	$ 124.6	$ 152.4	$ 148.0
CapSpecialty	5.6	5.6	6.0	6.0
Total	$ 133.7	$ 130.2	$ 158.4	$ 154.0

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At December 31, 2018 and 2017, the reserves for asbestos-related illness liabilities were approximately seven and eight times, respectively, the average paid claims for the respective prior three year period. At December 31, 2018 and 2017, the reserves for environmental impairment liabilities were approximately six times the average paid claims for the respective prior three year period.

The following tables present the reconciliation of the beginning and ending gross reserve balances for unpaid loss and LAE related to asbestos–related illness and environmental impairment claims of our reinsurance and insurance subsidiaries for the three years ended December 31, 2018.

Reconciliation of Asbestos-Related Illness Claims Reserves for Loss and LAE

	2018	2017	2016
		($ in millions)	
Reserves as of January 1	$ 39.4	$ 47.2	$ 43.2
Loss and LAE incurred	-	4.1	8.6
Paid losses	(3.1)	(11.9)	(4.6)
Reserves as of December 31	$ 36.3	$ 39.4	$ 47.2
Type of reserves			
Case	$ 14.4	$ 15.4	$ 15.9
IBNR	21.9	24.0	31.3
Total	$ 36.3	$ 39.4	$ 47.2

Reconciliation of Environmental Impairment Claims Reserves for Loss and LAE

	2018	2017	2016
		($ in millions)	
Reserves as of January 1	$ 119.0	$ 124.8	$ 140.4
Loss and LAE incurred	(8.1)	7.1	8.2
Paid losses	(13.5)	(12.9)	(23.8)
Reserves as of December 31	$ 97.4	$ 119.0	$ 124.8
Type of reserves			
Case	$ 25.4	$ 30.7	$ 34.0
IBNR	72.0	88.3	90.8
Total	$ 97.4	$ 119.0	$ 124.8

Catastrophe Risk Management

Our reinsurance and insurance subsidiaries' businesses expose them to losses related to various catastrophe events. In a catastrophe event, losses related to many insureds across multiple lines of business may result directly or indirectly from any such event. The extent of losses caused by catastrophes is a function of the amount and type of insured exposure in the area affected by the event, as well as the severity of the event, potentially mitigated by any reinsurance coverage purchased by our reinsurance and insurance subsidiaries. Our reinsurance and insurance subsidiaries take certain measures to mitigate the impact of catastrophe events through various means, including considering catastrophe risks in their underwriting and pricing decisions, monitoring and modeling accumulated exposures and managing exposure in key geographic zones and product lines that are prone to catastrophe events. Our reinsurance and insurance subsidiaries also use reinsurance to further limit their exposure to catastrophes, as is discussed in more detail under "Reinsurance Protection" below.

Natural disasters such as hurricanes, other windstorms, earthquakes and other catastrophes have the potential to materially and adversely affect our operating results. Other risks, such as an outbreak of a pandemic disease, a major terrorist event, the bankruptcy of a major company or a marine or an aviation disaster, could also have a material adverse effect on our business and operating results.

We evaluate catastrophe events and assess the probability of occurrence and magnitude through the use of industry recognized models and other techniques. In addition, our reinsurance and insurance subsidiaries use modeled loss scenarios and internal analyses to set risk retention levels and help structure their reinsurance programs in an effort to ensure that the aggregate amount of catastrophe exposures conform to established risk tolerances and fit within the existing exposure portfolio. We supplement these models by interpreting and adjusting when appropriate the modeled output and monitoring our operations'

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exposure to risks. There is no single standard methodology to project possible losses related to catastrophe exposures. Further, there are no industry standard assumptions used in projecting these losses and the form and quality of the data obtained, including data obtained from insureds and ceding companies, and used in these models are not uniformly compatible with the data requirements of all models. Therefore, the use of different methodologies and assumptions could materially change our estimates of projected losses. Finally, these modeled losses may not be comparable with estimates made by other companies.

Reinsurance Protection

General

Our reinsurance and insurance subsidiaries reinsure portions of the risks they underwrite in order to reduce the effect of individual or aggregate exposure to losses, manage capacity, protect capital resources, reduce volatility in specific lines of business, improve risk-adjusted portfolio returns and enable them to increase gross premium writings and risk-capacity without requiring additional capital. Our reinsurance and insurance subsidiaries purchase reinsurance and retrocessional coverages from highly-rated third-party reinsurers. If the assuming reinsurers are unable or unwilling to meet the obligations assumed under the applicable reinsurance agreements, our reinsurance and insurance subsidiaries would remain liable for such reinsurance portion not paid by these reinsurers. As such, funds, trust agreements and letters of credit are held to collateralize a portion of our reinsurance and insurance subsidiaries' reinsurance recoverables, and our reinsurance and insurance subsidiaries reinsure portions of the risks they underwrite or assume with multiple reinsurance programs.

TransRe enters into retrocession arrangements, including property catastrophe retrocession arrangements, in order to reduce the effect of individual or aggregate exposure to losses, reduce volatility in specific lines of business, improve risk-adjusted portfolio returns and increase gross premium writings and risk-capacity without requiring additional capital.

RSUI reinsures its property lines of business through a program consisting of surplus share treaties, facultative placements, per risk and catastrophe excess-of-loss treaties. RSUI's catastrophe reinsurance program and property per risk reinsurance program run on an annual basis from May 1 to the following April 30 and portions of these programs expired on April 30, 2018. Both programs were renewed on May 1, 2018 with substantially similar terms as the expired programs.

Terrorism Act

With respect to potential losses arising from acts of terrorism, the Terrorism Risk Insurance Act of 2002, as extended and amended, most recently by the Terrorism Risk Insurance Program Reauthorization Act of 2015, which we collectively refer to as the "Terrorism Act," established a program to provide federal assistance to the insurance industry in order to meet the needs of commercial insurance policyholders for coverages against losses due to certain acts of terrorism. The Terrorism Act fixes the insurer deductible at 20 percent of an insurer's direct earned premium of the preceding calendar year. The Terrorism Act also initially fixed the federal share of compensation at 85 percent of insured losses that exceed insurer deductibles. As provided in the Terrorism Act, beginning on January 1, 2016, the federal share began to decrease by 1 percentage point per calendar year and will continue to decrease on that basis until the federal share is equal to 80 percent. The Terrorism Act is administered by the U.S. Secretary of the Treasury.

The Terrorism Act applies to foreign or domestic acts of terrorism occurring within the U.S. (including in the U.S. territorial sea and the Outer Continental Shelf), at U.S. missions abroad or on U.S. flag vessels or aircraft. In return for requiring insurers writing certain lines of property and casualty insurance to offer coverage to commercial insurance policyholders against specified acts of terrorism, the Terrorism Act requires the U.S. federal government to reimburse such insurers for the federal share (81 percent, as of January 1, 2019) of insured losses during a program year resulting from such acts of terrorism above a statutorily-defined deductible. In addition, federal reimbursement will only be paid under the Terrorism Act if the aggregate industry insured losses resulting from a covered act of terrorism exceed $180.0 million for insured losses occurring in 2019, but no payment will be made for any portion of aggregate industry insured losses that exceeds $100.0 billion during a particular calendar year. The Terrorism Act program trigger gradually increases from $140.0 million to $200.0 million by 2020.

In general, TransRe does not provide coverage for certified acts of terrorism, as defined by the Terrorism Act, but it is nonetheless exposed to potential losses related to both certified and uncertified acts of terrorism in the U.S. or elsewhere, such as from terrorism-specific treaty coverages offered to ceding companies or terrorism risk pools outside of the U.S. on a limited basis, and with respect to other lines of business from the assumption of terrorism risk in marine, aviation and other casualty treaties. Although TransRe assumes such terrorism risk after careful underwriting consideration and, in many cases, with limitations, a major terrorist event could have a material adverse impact on TransRe and us.

Approximately 10 percent of all policies and approximately 12 percent of property policies written by RSUI in 2018 contained coverage for domestic and foreign acts of terrorism. RSUI uses various underwriting strategies to mitigate its exposure to terrorism losses. In addition, its casualty reinsurance programs provide coverage for domestic and foreign acts of terrorism. RSUI's property reinsurance programs provide coverage only for domestic acts of terrorism and, as a result, RSUI is liable for losses under property policies that provide coverage for foreign acts of terrorism, subject to potential Terrorism Act reimbursement.

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Reinsurance Security Committee

We have established a Reinsurance Security Committee, which includes certain of our officers and the chief financial officers of each of our reinsurance and insurance subsidiaries. The Reinsurance Security Committee meets to track, analyze and manage the use of reinsurance by our reinsurance and insurance subsidiaries. The Reinsurance Security Committee also considers and oversees the limits on the maximum amount of unsecured reinsurance recoverables that should be outstanding from any particular reinsurer, the lines of business that should be ceded to a particular reinsurer and, where applicable, the types of collateral that should be posted by a reinsurer. As of December 31, 2018, our reinsurance and insurance subsidiaries had total reinsurance recoverables of $1,921.3 million, consisting of $1,857.4 million of ceded outstanding loss and LAE and $63.9 million of recoverables on paid losses. The reinsurance purchased by our reinsurance and insurance subsidiaries does not relieve them from their obligations to their policyholders and cedants, and therefore, the financial strength of their reinsurers is important. Approximately 70 percent of our reinsurance recoverables balance as of December 31, 2018 was due from reinsurers having an A.M. Best financial strength rating of A (Excellent) or higher, with a majority of the other reinsurance recoverables being secured by funds held, trust agreements or letters of credit. Our reinsurance and insurance subsidiaries had no allowance for uncollectible reinsurance as of December 31, 2018. Information related to concentration of reinsurance recoverables can be found in Part II, Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations – Reinsurance Recoverables" of this Form 10-K and Note 5(b) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K. Information regarding the risks faced by our reinsurance and insurance subsidiaries with respect to their use of reinsurance can be found on pages 56 and 57 of this Form 10-K.

Competition

The reinsurance and insurance industry is highly competitive, and industry consolidation has created an even more competitive business environment. Competition in the businesses of our reinsurance and insurance subsidiaries is based on many factors, including the perceived financial strength of the company, premiums charged, other terms and conditions offered, services provided, commissions paid to producers, ratings assigned by independent rating agencies, speed of claims payment and reputation and experience in the lines of business to be written.

Our reinsurance and insurance subsidiaries compete with a large number of major U.S. and non-U.S. reinsurers and insurers in their selected lines of business, including regional companies, mutual companies, specialty insurance companies, underwriting agencies, government-owned or subsidized facilities, European underwriting syndicates and diversified financial services companies. In our reinsurance segment, TransRe's property and casualty businesses compete on a worldwide basis. In our insurance segment, RSUI's property and casualty businesses, and CapSpecialty's admitted property and casualty businesses and surety and non-admitted specialty businesses, compete on a national basis. Some of these competitors have significantly more premiums, capital and resources than our reinsurance and insurance subsidiaries.

In addition to competition from the reinsurance industry, TransRe faces competition from the capital markets, as well as some traditional reinsurers, which from time to time produce alternative products or reinsurance vehicles (such as collateralized reinsurance, reinsurance securitizations, catastrophe bonds and various derivatives, such as swaps and sidecars) that may compete with certain types of reinsurance, such as property catastrophe. Hedge funds also provide reinsurance and retrocessional protections through captive companies or other alternative transactions on a fully collateralized basis for property and energy catastrophe business. Over time, these initiatives could significantly affect supply, pricing and competition in the reinsurance industry.

A discussion of the risks faced by our reinsurance and insurance subsidiaries due to competition within, and the cyclicality of, the reinsurance and insurance business can be found on page 56 of this Form 10-K.

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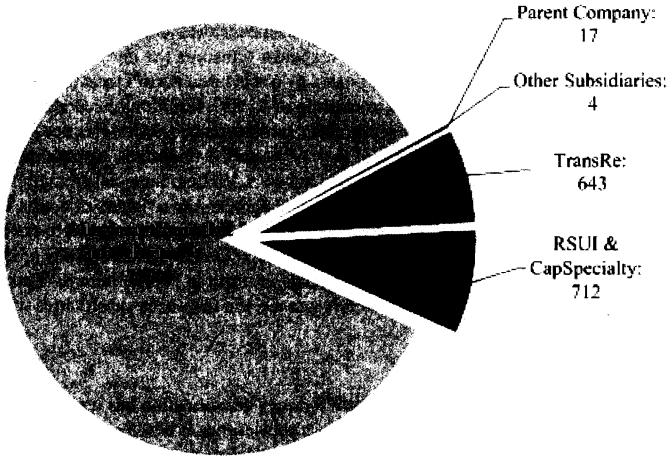
Employees

As of December 31, 2018, we employed a total of 9,300 persons, as presented below:



(1) Primarily consisting of 3,709 employees at Concord, 1,773 employees at W&W|AFCO Steel, 1,087 employees at IPS and 903 employees at Kentucky Trailer.

Regulation

General

Our reinsurance and insurance subsidiaries are subject to extensive supervision and regulation in the jurisdictions in which they operate and are required to comply with a wide range of laws and regulations applicable to insurance and reinsurance companies, although the degree and type of regulation varies from jurisdiction to jurisdiction. We expect the scope and extent of regulation globally, as well as regulatory oversight generally, to continue to increase. The material regulations under which we operate are described below.

U.S. Regulation

Our reinsurance and insurance subsidiaries are regulated in all U.S. jurisdictions in which they are licensed to conduct business. The extent of this regulation varies, but state insurance laws and regulations generally govern the financial condition of reinsurers and insurers, including standards of solvency, types and concentrations of permissible investments, establishment and maintenance of reserves, credit for reinsurance and requirements of capital adequacy. In addition, state insurance laws and regulations govern the business conduct of insurers, including marketing and sales practices and claims handling and require the approval of nearly all rates, policy forms and related materials for lines of insurance. We anticipate that U.S jurisdictions will continue to make some movement towards a harmonized regulatory environment at the state level through solvency regulation modernization efforts.

Through state "credit for reinsurance" laws, our reinsurance companies are indirectly subject to the effects of regulatory requirements imposed by the states in which their ceding insurers are domiciled. In general, an insurer that obtains reinsurance from a reinsurer that is licensed, accredited, authorized or approved by the state in which the insurer is domiciled is permitted to take a credit on its statutory financial statements in an aggregate amount equal to all of the reinsurance recoverable on paid losses and LAE and the liabilities for unearned premiums and loss and LAE reserves ceded to the reinsurer, subject to certain limitations. Additionally, a majority of states allow credit to be taken for the amount ceded to a non-U.S. reinsurer domiciled in a country recognized as a "qualified jurisdiction" (based upon an assessment of the strength of such jurisdiction's supervisory structure) that is designated by the state as a "certified reinsurer." In such instances the ceding company is permitted to take credit on its statutory financial statements in an aggregate amount equal to all of the reinsurance recoverable on paid losses and LAE and the liabilities for unearned premiums and loss and LAE reserves ceded to the reinsurer, subject to certain limitations and provided the reinsurer posts acceptable security in an amount that varies in proportion to the reinsurer's ratings (A.M. Best, S&P, Moody's and/or Fitch Ratings Inc., or "Fitch"). Finally, for reinsurance ceded to reinsurers that are not licensed, accredited, authorized, approved or certified in the ceding company's state, the reinsurer must agree to post 100 percent qualified security, either in the form of a deposit, trust or letter of credit, in order that the ceding insurer be allowed to take full credit on its statutory financial statements in an aggregate amount equal to all or a portion of the reinsurance recoverable on paid losses and LAE and the liabilities for unearned premiums and loss and LAE reserves ceded to such reinsurers.

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As described in more detail below, in September 2017, U.S. federal authorities signed a covered agreement with the European Union, or the "EU," on matters including reinsurance collateral. Such covered agreement requires U.S. states to adopt, over the next several years, laws removing reinsurance collateral requirements for reinsurance ceded to a qualifying non-U.S. reinsurer domiciled in an EU jurisdiction. We cannot currently predict whether this covered agreement or any future covered agreements will be successfully adopted and implemented, and cannot currently estimate the impact of changes to the laws and regulations as a consequence of any such adopted covered agreements on our business, financial condition or operating results.

Insurance Holding Company Regulation. As an insurance holding company, we and our reinsurance and insurance subsidiaries are subject to regulation under the insurance holding company laws enacted in those states where our reinsurance and insurance subsidiaries are domiciled or where they conduct business. These laws generally require an insurance holding company and its reinsurer and insurer subsidiaries to register with their respective insurance regulators and to file with those regulators certain reports, including information concerning their capital structure, ownership, financial condition, certain intercompany transactions, including dividends and distributions, and general business operations. The insurance holding company laws of some states, including with respect to the payment of dividends and distributions, may be more restrictive than the insurance holding company laws of other states.

Under the insurance holding company laws and regulations, our reinsurance and insurance subsidiaries may not pay an "extraordinary" dividend or distribution without the approval of state insurance regulators. In general, an "extraordinary" dividend or distribution is defined as a dividend or distribution that, together with other dividends and distributions made within the preceding 12 months, exceeds the lesser (or, in some jurisdictions, the greater) of (i) 10 percent of the statutory surplus of the reinsurer or insurer as of the end of the prior calendar year (or, in certain states, as of the end of the prior quarter) and (ii) statutory net income during the prior calendar year (or, in certain states, the adjusted statutory net investment income). In addition, certain states where Alleghany's reinsurance and insurance subsidiaries are domiciled prohibit a domestic insurance company from paying dividends except out of earned surplus.

In addition, insurance holding company laws and regulations to which we and our reinsurance and insurance subsidiaries are subject generally require prior notification and approval or non-disapproval by the applicable insurance regulators of certain other significant transactions, including sales, loans, reinsurance agreements and service agreements between an insurer subsidiary, on the one hand, and its holding company or other subsidiaries of the holding company, on the other hand.

Insurance holding company laws and regulations to which we and our reinsurance and insurance subsidiaries are subject also generally require the ultimate controlling person of the reinsurer or insurer to comply with certain informational requirements with the purpose of protecting such reinsurer or insurer from enterprise risk, including requiring an annual enterprise risk report by the ultimate controlling person of the reinsurer or insurer that identifies the material risks within the insurance holding company system that could pose enterprise risk to the reinsurer or insurer.

The insurance holding company laws and regulations of the states in which our reinsurance and insurance subsidiaries are domiciled also generally require that, before a person can acquire direct or indirect control of a reinsurer or an insurer domiciled in the state (or any person controlling such domestic insurer or reinsurer), prior written approval must be obtained from the insurer's domiciliary state insurance regulator. The state insurance regulators are required to consider various factors, including the financial strength of the acquirer, the integrity and management experience of the acquirer's board of directors and executive officers and the acquirer's plans for the future operations of the reinsurer or insurer. Pursuant to applicable laws and regulations, "control" over a reinsurer or an insurer is generally presumed to exist if any person, directly or indirectly, owns, controls, holds the power to vote or holds proxies representing 10 percent or more of the voting securities of that reinsurer or insurer. Indirect ownership includes ownership of the shares of the ultimate controlling person's common stock.

The acquisition of control laws described above may discourage potential acquisition proposals and may delay, deter or prevent an acquisition of control of us, including through transactions, and in particular unsolicited transactions, that some or all of our stockholders might consider to be desirable.

Risk Management. State insurance laws enacted in nearly all U.S. states (including all of the states where our reinsurance and insurance subsidiaries are domiciled) require reinsurers and insurers that exceed certain specified premium thresholds to maintain a framework for managing the risks associated with their entire holding company group, including non-insurance companies. In addition these laws require that, at least annually, the reinsurer or insurer must prepare a summary report, or the "ORSA Report," regarding its internal assessment of risk management and capital adequacy for the entire holding company group. The ORSA Report is filed, on a confidential basis, with the insurance holding company group's lead state regulator and made available to other domiciliary regulators within the holding company group.

Corporate Governance. The National Association of Insurance Commissioners, or the "NAIC," has adopted the Corporate Governance Annual Disclosure Model Act and the Corporate Governance Annual Disclosure Model Regulation, or the "Corporate Governance Model Act," which, following enactment at the state level, will require insurers and reinsurers to disclose detailed

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information regarding their governance practices. As of December 31, 2018, the Corporate Governance Model Act had been adopted in full or in substantial part in approximately 26 states, including some of the states where our reinsurance and insurance subsidiaries are domiciled, and legislation was pending or under consideration in certain other states. The NAIC has adopted a requirement, effective January 1, 2020, that the provisions of the Corporate Governance Model Act must be adopted by the states in order for them to maintain their NAIC accreditation. The Corporate Governance Model Act is therefore expected to be adopted in full or substantial part by the remaining states over the next year.

Group Supervision and Group Capital. In response to international developments, the NAIC has established procedures for the supervision of domestic and international insurance groups, including those groups with both insurance and non-insurance entities. The NAIC has also adopted amendments to the Model Insurance Holding Company System Regulatory Act and Regulation, or the "Model Holding Company Act," which, following enactment at the state level, would authorize U.S. regulators to lead or participate in the group-wide supervision of certain international insurance groups. As of December 31, 2018, these amendments to the Model Holding Company Act had been adopted by approximately 26 states, including some of the states where our reinsurance and insurance subsidiaries are domiciled. The NAIC has adopted a requirement, effective January 1, 2020, that these amendments to the Model Holding Company Act must be adopted by the states in order for them to maintain their NAIC accreditation. The amendments to the Model Holding Company Act are therefore expected to be adopted in full or substantial part by the remaining states over the next year.

Additionally, the NAIC is continuing the development of a methodology for the calculation of group capital for all entities in an insurance holding company system. The goal is to provide U.S. regulators with a simple method to aggregate the available capital and the minimum capital of each entity in a group in a way that applies to all companies regardless of their structure. The NAIC has stated that the calculation will be a regulatory tool and does not constitute a requirement or standard. While it is still under discussion and will be field tested by volunteers in 2019, it is anticipated that this new calculation tool will use a risk-based capital, or "RBC," (discussed in further detail below) aggregation methodology.

Cybersecurity. The NAIC has adopted an Insurance Data Security Model Law, which, when adopted by the states, will require insurers, insurance producers and other entities required to be licensed under state insurance laws to comply with certain requirements under state insurance laws, such as developing and maintaining a written information security program, conducting risk assessments and overseeing the data security practices of third-party vendors. To date, the Insurance Data Security Model Law has only been adopted in South Carolina, which is not a domiciliary state for our insurance and reinsurance companies. In addition, certain state insurance regulators are developing or have developed regulations that may impose regulatory requirements related to cybersecurity on insurance and reinsurance companies (potentially including insurance and reinsurance companies that are not domiciled, but are licensed, in the relevant state). For example, the New York State Department of Financial Services has adopted a regulation pertaining to cybersecurity for all banking and insurance entities under its jurisdiction, effective as of March 1, 2017, which applies to us.

Rates and Policy Forms. The policy forms and various premium rates and rates for property or casualty or surety insurance policies of our insurance subsidiaries are subject to regulation in every state in which they conduct business. In many states, rates and policy forms must be filed with the applicable insurance regulator prior to their use, and in some states, rates and forms must be affirmatively approved by the applicable insurance regulator prior to use.

The rates and coverage terms of reinsurance agreements with non-affiliates are generally not subject to regulation by any governmental authority. As a practical matter, however, the rates charged by primary insurers and the policy terms of primary insurance agreements may affect the rates charged and the policy terms under associated reinsurance agreements.

Market Conduct Examinations. The insurance laws and regulations to which our insurance companies are subject govern their marketplace activities, affecting the form and content of disclosure to consumers, product illustrations, advertising, product replacement, sales and underwriting practices and complaint and claims handling. These provisions are generally enforced through periodic market conduct examinations. Such insurance laws and regulations also govern the licensing of insurance companies and agents and regulate trade practices.

Periodic Financial Reporting and Risk-Based Capital. Reinsurance and insurance companies in the U.S. are required to report their financial condition and results of operations in accordance with SAP prescribed or permitted by state insurance regulators in conjunction with the NAIC. State insurance regulators also prescribe the form and content of statutory financial statements, perform periodic financial examinations of reinsurers and insurers, set minimum reserve and loss ratio requirements, establish standards for permissible types and amounts of investments and require minimum capital and surplus levels. These statutory capital and surplus requirements include RBC rules promulgated by the NAIC. These RBC standards are intended to assess the level of risk inherent in a reinsurance or an insurance company's business and consider items such as asset risk, credit risk, underwriting risk and other business risks relevant to its operations. In accordance with RBC formulas, a company's RBC requirements are calculated and compared with its total adjusted capital to determine whether the company may be undercapitalized and whether regulatory intervention is warranted. As of December 31, 2018, the total adjusted capital of our U.S. domiciled reinsurance and insurance companies exceeded the minimum levels required under applicable RBC rules, and each had excess capacity to write additional premiums in relation to these requirements. Specifically, as of December 31, 2018, the amount of statutory capital and surplus necessary to satisfy regulatory requirements was not significant in relation to the actual statutory capital and surplus of our reinsurance and insurance companies in the U.S.

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The NAIC annually calculates certain statutory financial ratios for most reinsurance and insurance companies in the U.S. These calculations are known as the Insurance Regulatory Information System, or "IRIS," ratios. There presently are thirteen IRIS ratios, with each ratio having an established "usual range" of results. The IRIS ratios assist state insurance departments in executing their statutory mandate to oversee the financial condition of insurance companies. A ratio falling outside the usual range is not considered a failing result; rather, unusual values are viewed as part of the regulatory early monitoring system. Furthermore, in some years, it may not be unusual for financially sound companies to have several ratios with results outside the usual ranges. The NAIC reports the ratios to state insurance departments that may then contact a company if four or more of its ratios fall outside the NAIC's usual ranges. Our reinsurance and insurance subsidiaries are not currently subject to regulatory scrutiny based on their respective IRIS ratios.

Guarantee Associations and Similar Arrangements. Certain U.S. insurance companies are required under the guaranty fund laws of most states in which they transact business to pay assessments up to certain prescribed limits to fund policyholder losses or liabilities of insolvent insurance companies. Our U.S. insurance companies also are required to participate in various involuntary pools, principally involving windstorms.

Statutory Accounting Principles. State insurance regulators have developed SAP as a basis of accounting used to monitor and regulate the solvency of reinsurers and insurers. SAP is primarily concerned with measuring a reinsurer's or insurer's surplus to policyholders. Accordingly, SAP focuses on valuing assets and liabilities of a reinsurer or insurer at financial reporting dates in accordance with applicable insurance laws and regulations in the state in which such reinsurer or insurer is domiciled. SAP determines, among other things, the amount of statutory surplus and statutory net income of our reinsurance and insurance subsidiaries and thus determines, in part, the amount of funds they have available to pay as dividends.

GAAP is concerned with a company's solvency, but it is also concerned with other financial measurements, such as income and cash flows. Accordingly, GAAP gives more consideration to appropriate matching of revenue and expenses and accounting for management's stewardship of assets than does SAP. Due to differences in methodology between SAP and GAAP, the values for assets, liabilities and equity reflected in financial statements prepared in accordance with GAAP are materially different from those reflected in financial statements prepared in accordance with SAP.

Legislative and Regulatory Initiatives. As discussed in more detail under "Reinsurance Protection" above, the Terrorism Act established a federal assistance program to help the commercial property and casualty insurance industry cover claims arising from terrorism-related losses and regulates the terms of insurance related to the terrorism coverage provided by our insurance companies.

On July 21, 2010, President Barack H. Obama signed into law the Dodd-Frank Wall Street Reform and Consumer Protection Act, or the "Dodd-Frank Act." The Dodd-Frank Act made extensive changes to the laws regulating financial services firms and requires various federal agencies to adopt a broad range of new implementing rules and regulations. In addition to introducing sweeping reform of the U.S. financial services industry, the Dodd-Frank Act adopts certain changes to U.S. insurance regulation in general, and to non-admitted insurance and reinsurance in particular. While the Dodd-Frank Act does not result in the federal regulation of insurance, it does establish federal measures that will impact the reinsurance and insurance business and preempt certain state insurance measures. For example, the Dodd-Frank Act incorporates the Non-Admitted and Reinsurance Reform Act, or the "NRRA," which became effective on July 21, 2011. Among other things, the NRRA establishes national uniform standards on how states may regulate and tax surplus lines insurance (and also sets national standards concerning the regulation of reinsurance). In particular, the NRRA gives regulators in the state where an insurer is domiciled exclusive authority to regulate and tax surplus lines insurance transactions, and regulators in a ceding insurer's state of domicile are given the sole responsibility for regulating the balance sheet credit that the ceding insurer may take for reinsurance recoverables. It is difficult to predict whether legislative or executive action will amend the Dodd-Frank Act, as described below.

The Dodd-Frank Act created the Financial Stability Oversight Council, or the "FSOC," to identify and respond to risks to the financial stability of the U.S. and to promote market discipline. The FSOC is authorized to designate a nonbank financial company as "systemically significant" if its material financial distress could threaten the financial stability of the U.S. There are currently no such nonbank financial companies designated by the FSOC as "systemically significant." When the FSOC designates an entity as "systemically significant," it becomes subject to supervision by the Board of Governors of the Federal Reserve System as well as enhanced prudential standards, including stress tests, liquidity requirements, annual resolution plans or "living wills," and enhanced public disclosures. The FSOC's potential recommendation of measures to address systemic risk in the insurance industry could affect our insurance and reinsurance operations as could a determination that we or our counterparties are systemically significant.

The Dodd-Frank Act also created the Federal Insurance Office, or the "FIO," within the U.S. Department of the Treasury, or the "Treasury Department," which is designed to promote national coordination within the insurance sector and which has the authority, in part, to monitor all aspects of the insurance industry, including identifying issues or gaps in the regulation of reinsurers and insurers that could contribute to a systemic crisis in the insurance industry or the U.S. financial system. Although the FIO is intended principally to exercise a monitoring and information gathering role, it does have the authority to assist the Secretary of the Treasury Department in negotiating "covered agreements" with regulatory authorities outside the U.S. with respect to certain agreements with foreign governments regarding the supervision and regulation of the global reinsurance and insurance

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markets. In implementing such international agreements, the FIO has the authority to preempt state law if it is determined that state law is inconsistent with the agreement and treats a non-U.S. reinsurer or insurer less favorably than a U.S. reinsurer or insurer.

In January 2017, the Treasury Department and the Office of the U.S. Trade Representative announced their successful completion of negotiations of a covered agreement with the EU. The covered agreement addresses three areas of prudential insurance and reinsurance supervision: reinsurance, group supervision and the exchange of information between the U.S. and EU. The covered agreement was thereafter signed on September 22, 2017, and each party has begun the process of completing its internal requirements and procedures (such as amending or promulgating appropriate statutes and regulations) in order for the covered agreement to enter into force. In terms of reinsurance, the covered agreement eliminates collateral and local presence requirements for EU and U.S. reinsurers operating in each other's markets. In connection with an alien reinsurer's assumption of insurance business from a U.S. cedent, the covered agreement gives the U.S. states five years from the execution of the covered agreement to remove the existing reinsurance collateral requirements for such alien, non-admitted reinsurers domiciled in the EU that meet certain standards. These standards include, among others, minimum capital and solvency ratios, confirmation of financial condition by the reinsurer's domestic regulator and claims payment standards. If U.S. states do not remove such reinsurance collateral requirements, the states' credit for reinsurance laws will face federal pre-emption determinations. The NAIC is working on proposed amendments to the NAIC's Credit for Reinsurance Model Law in order to satisfy the substantive and timing requirements of the covered agreement. In addition, the covered agreement establishes group supervision practices that apply only to U.S. and EU insurance groups operating in both territories. For instance, the covered agreement provides that U.S. insurance groups with operations in the EU will be supervised at the worldwide level only by U.S. insurance regulators, provided those regulators apply a group capital assessment calculating risk at the group level, and precludes EU insurance supervisors from exercising solvency and capital requirements over the worldwide operations of U.S. insurers. While on the face of it, this covered agreement would appear to be beneficial to TransRe, we cannot currently predict whether this covered agreement or any future covered agreements will be successfully adopted and implemented, and cannot currently estimate the impact of changes to the laws and regulations as a consequence of any such adopted covered agreements on our business, financial condition or operating results.

The Dodd-Frank Act gave federal agencies significant discretion in drafting the rules and regulations to implement the Dodd-Frank Act. In addition, the Dodd-Frank Act mandated multiple studies and reports for the U.S. Congress, which could result in additional legislative or regulatory action. We cannot predict the requirements of the regulations ultimately adopted under the Dodd-Frank Act or any related additional legislation, the additional costs resulting from compliance with such regulations or legislation or any changes to our operations that may be necessary to comply with the Dodd-Frank Act.

However, President Donald J. Trump has expressed goals to amend the Dodd-Frank Act, which may present risks to our business. For example, on February 3, 2017, President Trump issued an Executive Order that calls for a comprehensive review of laws, treaties, regulations, policies and guidance regulating the U.S. financial system and requires the Secretary of the Treasury Department to consult with the heads of the member agencies of the FSOC to identify any laws, regulations or requirements that inhibit federal regulation of the financial system in a manner consistent with the core principles identified in the Executive Order. In furtherance, the Secretary of the U.S. Department of Treasury issued a report on asset management and insurance that recommended activities-based evaluations of systemic risk in the insurance industry rather than an entity-based approach. The report also supported primary regulation of the U.S. insurance industry by the states rather than the federal government. The U.S. Secretary of the Treasury also issued a report recommending changes to the FSOC's process for designating non-bank financial companies systemically significant, including prioritizing an activities-based approach instead of individual designations, and enhancing the analytical process, engagement, and transparency of the designation process.

In addition, on May 24, 2018, President Trump signed into law the Economic Growth, Regulatory Relief and Consumer Protection Act, or the "Economic Growth Act," which includes provisions meant to roll back certain banking regulations contained in the Dodd-Frank Act. Section 211 of the Economic Growth Act, "International Insurance Capital Standards Accountability," directs the Director of FIO and the Board of Governors of the Federal Reserve to (i) support increasing transparency at any global insurance or international standard-setting regulatory or supervisory forum in which they participate, including by advocating for greater public access to International Association of Insurance Supervisors, or the "IAIS," meetings; and (ii) to achieve consensus positions with the states through the NAIC prior to taking a position with respect to an insurance proposal by a global insurance regulatory or supervisory forum. However, President Trump issued a signed statement with the Economic Growth Act signaling that the executive branch bodies may not achieve consensus positions with the states through the NAIC prior to taking a position on international insurance proposals.

International Regulation

General. TransRe is regulated in various foreign jurisdictions where it conducts business. In certain jurisdictions, TransRe operates through branches or representative offices of TRC and in other jurisdictions TransRe has local reinsurance or insurance subsidiaries, such as TRL in the U.K. and TRZ in Switzerland.

The extent of the regulation varies by foreign jurisdiction, but generally governs licensing requirements, solvency, currency, amount and type of security deposits, amount and type of reserves and amount and type of local investments. International operations and assets held abroad may be materially and adversely affected by economic, political and other developments in

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foreign countries and the U.S., including possible changes in foreign and U.S. laws and regulations, nationalization and changes in regulatory policy, unexpected financial restrictions that foreign governments may impose and potential costs and difficulties in complying with a wide variety of foreign laws and regulations, as well as by the consequences of international hostilities and unrest. The risks of such occurrences and their overall effect upon us vary from country to country and cannot easily be predicted. International operations are also subject to risks related to complying, or monitoring compliance, with the requirements of anti-corruption laws, such as the U.S. Foreign Corrupt Practices Act and the U.K. Bribery Act, the Office of Foreign Assets Control of the Treasury Department, or "OFAC," Solvency II, and the economic and trade sanctions laws of the U.S., including but not limited to the regulations administered by the OFAC and sanctions laws implemented by other countries in which TransRe operates. Further, regulations governing technical reserves and remittance of balances in some countries may hinder remittance of profits and repatriation of assets. A discussion of risks unique to international operations faced by TransRe's offices that operate in jurisdictions outside the U.S. can be found on pages 59 through 61 of this Form 10-K.

U.K. Regulation. Prior to December 2013, TransRe's operations in the U.K. were conducted through a branch of TRC. Since December 2013, TransRe's operations in the U.K. have been conducted by TRL and TRC's branch in the U.K. TRL and TRC's operations in the U.K. are supervised by the Prudential Regulatory Authority, or the "PRA," which is responsible, among other things, for regulating the solvency of insurance and reinsurance companies, and the Financial Conduct Authority, or the "FCA," which is responsible, among other things, for regulating market conduct. The PRA and the FCA have extensive powers to intervene in the affairs of a regulated entity, including the power to enforce and take disciplinary measures in respect of breaches of its rules by authorized firms and approved persons. TRL and TRC's branch in the U.K. is required to maintain a margin of solvency at all times in respect of the business conducted in accordance with PRA and FCA rules. The calculation of the margin of solvency depends on the type and amount of reinsurance business written, the type and amount of reserves held and other risk-related factors, including market risk, counterparty default risk and operational risk.

Swiss Regulation. TRZ is licensed to carry on reinsurance business in Switzerland. As a result, TRZ is required to comply with the Federal Insurance Supervision Act, the Federal Insurance Supervision Ordinance and the regulations and guidance issued by the Swiss Financial Market Supervisory Authority, or "FINMA." Some of the significant aspects of the Swiss regulatory framework include complying with capital and solvency, corporate governance, risk management and internal control requirements. In addition, TRZ is subject to annual reporting requirements enacted by FINMA.

Branch Regulation. TRC operates in a number of other jurisdictions through a series of foreign branches, including branches in Australia, Bermuda, Canada, France, Germany, Japan, the Hong Kong Special Administrative Region of the People's Republic of China, the U.K., Switzerland and Singapore, and TRZ operates in Dubai through a branch. As a result, TRC and TRZ are required, among other things, to meet local licensing, reserve, currency, investment and capital requirements for these branches.

Legislative and Regulatory Initiatives. Our insurance business throughout the EU is subject to an EU directive known as "Solvency II," and its implementing rules, which have been in effect since January 1, 2016. The implementation of Solvency II represented a fundamental revision to the European regulatory regime that sought to enhance transparency and risk management and encourage a proactive approach to company solvency. It is built on a risk-based approach to setting capital requirements for reinsurers and insurers. TransRe could be materially impacted by Solvency II and a key risk is that Solvency II rules may reduce TRL's and/or TRC's branch's regulatory solvency position by, for example, increased capital requirements or a reduction in eligible funds. Solvency II could also materially impact TransRe, given that Solvency II affects the calculation of the solvency of international groups which, like TransRe, conduct reinsurance and insurance operations both inside and outside of the EU. Other risks include more complex and intensive regulatory reporting burdens, regulatory requirements that conflict with requirements in other jurisdictions, and shortages of skilled staff in critical areas such as the actuarial function, all of which may have a negative impact on the results of TRL, the branches of TRC and the TransRe group. In addition, we could be required to undertake a significant amount of additional work if compliance with the Solvency II regime came into question which in turn may divert finite resources from other business related tasks.

Within the EU, EU member states, or "Member States," are required to adopt common standards for authorizing and supervising reinsurance companies that are head quartered in a Member State. TRC operates within the EU as a "Third Country Reinsurer" under Solvency II through a series of foreign branches and on a cross-border basis. Each branch of TRC in the EU is separately authorized by the relevant regulator in the Member State in which it is established. Currently, TRC continues to conduct business within the EU through its foreign branches with no significant impact on its operations. However, TransRe could be materially and adversely affected by rules adopted by a Member State related to Third Country Reinsurers. For example, TRC may be required to post additional collateral in EU countries or may need to consider restructuring its business in order to comply with the rules adopted in EU countries related to Third Country Reinsurers. Since 2013, TransRe has been working to mitigate the risks associated with being a Third Country Reinsurer by migrating business originating in the EU from TransRe branches to TRL.

The referendum on the U.K.'s membership in the EU was held on June 23, 2016 and resulted in a vote in favor of the withdrawal of the U.K. from the EU, or "Brexit." As a result of Brexit, our U.K. operations could lose their European Economic Area financial services passporting rights. Additional information on the uncertainty surrounding the implementation and effect of Brexit can be found on pages 59 through 61 of this Form 10-K.

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In anticipation of the U.K.'s pending exit from the EU, on December 1, 2018, the Treasury Department and the Office of the U.S. Trade Representative announced that they intend to sign a new Bilateral Agreement between the U.S. and the U.K. on Prudential Measures Regarding Insurance and Reinsurance. On December 18, 2018, the U.S. issued a policy statement to provide additional clarification with respect to the implementation of the U.S. and U.K. covered agreement. We cannot currently predict whether the covered agreement between the U.S. and the U.K. will be successfully adopted and implemented. We expect the final terms of this agreement to closely follow the U.S. and EU covered agreement. We also expect, that if successfully implemented, this covered agreement will resolve some of the regulatory uncertainty that will follow Brexit for U.S. reinsurers writing business in the U.K., as well as U.K. based reinsurers writing business in the U.S.

In Argentina, Brazil, Ecuador, People's Republic of China and India, emerging markets where TransRe underwrites business on a cross-border basis, local regulations have recently been adopted that may operate to limit, restrict or increase the costs of TransRe's access to these markets. If this trend continues to spread to other jurisdictions, TransRe's ability to operate globally may be materially and adversely affected.

In addition to regulation within the U.S., by the EU and by the various jurisdictions outside the U.S. where TransRe operates, we may be affected by regulatory policies adopted by the IAIS. Regulators in more than 200 jurisdictions and approximately 140 countries, representing both established and emerging markets, are working with the IAIS to consider changes to reinsurer and insurer solvency standards and group supervision of companies in a holding company system, including non-insurance companies. Current IAIS initiatives include development of a Common Framework for the Supervision of Internationally Active Insurance Groups, or "ComFrame," which has been in progress since 2010. ComFrame is intended to provide a framework of basic standards for internationally active insurance groups, or "IAIGs," and a process for supervisors to cooperate in the supervision of IAIGs. A fourth draft of ComFrame was published during 2014, to be followed by field testing. Since the field testing is expected to result in further modifications to ComFrame, IAIS currently anticipates that ComFrame will be adopted in 2018 and implemented in 2019. In October 2013, IAIS announced that it intends to develop a risk-based group-wide global insurance capital standard which will be included within ComFrame. When adopted and implemented, ComFrame may impose additional and duplicative supervisory and regulatory costs on our reinsurance and insurance companies. In 2018, the IAIS announced that it will commence development of a Holistic Framework for the Supervision of Insurance Companies. While it is too early to predict the final terms of this framework, we anticipate this development to affect to a broader group of companies and markets than ComFrame. When adopted and implemented, the Holistic Framework may impose additional and duplicative supervisory and regulatory costs on our reinsurance and insurance companies.

Regulatory Convergence

Regulators within and outside the U.S. are increasingly coordinating the regulation of multinational insurers by conducting a supervisory college. A supervisory college, as defined by the IAIS, is "a forum for cooperation and communication between the involved supervisors established for the fundamental purpose of facilitating the effectiveness of supervision of entities which belong to an insurance group; facilitating both the supervisor of the group as a whole on a group-wide basis and improving the legal entity supervision of the entities within the insurance group." We continue to assess the impact, if any, such coordination may have on insurance regulation and our reinsurance and insurance subsidiaries.

Item 1A. Risk Factors.

Our operating businesses and investments are subject to a number of risks and uncertainties, including those discussed below, which could have a material and adverse effect on our businesses, results of operations or financial condition. Our businesses may also be materially and adversely affected by risks and uncertainties not currently known to us or that we currently consider immaterial.

Risk Factors Related to our Business

The reserves for loss and LAE of our reinsurance and insurance subsidiaries are estimates and may not be adequate, which would require our reinsurance and insurance subsidiaries to establish additional reserves. Gross reserves for loss and LAE reported on our balance sheet as of December 31, 2018 were approximately $12.3 billion. These loss and LAE reserves reflect management's best estimates of the cost of settling all claims and related expenses with respect to insured events that have occurred. Reserves do not represent an exact calculation of liability, but rather an estimate of what management expects the ultimate settlement and claims administration will cost for events that have occurred, whether known or unknown. These reserve estimates, which generally involve actuarial projections, are based on management's assessment of facts and circumstances currently known and assumptions about anticipated loss emergence patterns, including expected future trends in claims severity and frequency, inflation, court resolutions and judicial interpretations, reinsurance coverage, legislative changes and other factors.

The inherent uncertainties of estimating reserves are greater for certain types of liabilities, where long periods of time elapse before a definitive determination of liability is made and settlement is reached. Our liabilities for loss and LAE can generally be categorized into two distinct groups, short-tail business and long-tail business. Short-tail business refers to lines of business, such as property, for which losses are usually known and paid relatively soon after the loss actually occurs. Long-tail business describes lines of business for which specific losses may not be known and reported for some period and losses take much longer to emerge. Given the time frame over which long-tail exposures are ultimately settled, there is greater uncertainty and volatility in these lines than in short-tail lines of business. Our long-tail coverages consist of most casualty lines of business including professional

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liability, directors' and officers' liability, general liability, umbrella/excess liability and certain workers' compensation exposures. Some factors that contribute to the uncertainty and volatility of long-tail casualty business, and thus require a significant degree of judgment in the reserving process, include the inherent uncertainty as to the length of reporting and payment development patterns, the possibility of judicial interpretations or legislative changes that might impact future loss experience relative to prior loss experience and the potential lack of comparability of the underlying data used in performing loss reserve analyses. In general, reinsurance business for any particular line of business is longer-tailed and, by its nature, losses are more difficult to estimate than they are for comparable insurance business.

In periods with increased economic volatility, it becomes more difficult to accurately predict claims costs. It is especially difficult to estimate the impact of inflation on loss reserves given the current economic environment and related government actions. Reserve estimates are continually refined in an ongoing process as experience develops and further claims are reported and settled. Adjustments to reserves are reflected in the results of the periods in which the adjustments are made. Because setting reserves is inherently uncertain, our current reserves could prove to be too low or too high in light of subsequent events. Should our reinsurance and insurance subsidiaries need to increase or decrease their reserves, our pre-tax income for the period would decrease or increase, respectively, by a corresponding amount. Although current reserves reflect our best estimate of the costs of settling claims, we cannot assure you that our reserve estimates will not change, perhaps by a material amount, in the future.

Because our reinsurance and insurance subsidiaries are property and casualty reinsurers and insurers, we face losses related to natural and man-made catastrophes. Property and casualty reinsurers and insurers are subject to claims arising out of catastrophes that may have a significant effect on their results of operations, liquidity and financial condition. Catastrophe losses, or the absence thereof, have historically had a significant impact on our results.

Natural or man-made catastrophes can be caused by various events, including hurricanes, other windstorms, earthquakes, floods wildfires, as well as terrorist activities. The frequency and severity of catastrophes in any short period of time are inherently unpredictable. The extent of gross losses related to a catastrophe event is a function of both the total amount of insured exposure in the area affected by the event and the severity of the event, potentially mitigated by any reinsurance coverage purchased by our reinsurance and insurance subsidiaries. Most catastrophes are restricted to limited geographic areas; however, hurricanes, other windstorms, earthquakes and floods may produce significant damage when those areas are heavily populated. It is therefore possible that a catastrophic event or multiple catastrophic events could produce significant losses and have a material adverse effect on our financial condition and results of operations.

In addition, longer-term natural catastrophe trends may be changing due to climate change, a phenomenon that has been associated with extreme weather events linked to rising temperatures, and includes effects on global weather patterns, greenhouse gases, sea, land and air temperatures, sea levels, rain and snow. Climate change, to the extent it produces rising temperatures and changes in weather patterns, could impact the frequency or severity of weather events such as hurricanes, tornado activity, other windstorms and wildfires. To the extent climate change increases the frequency and severity of such weather events, our reinsurance and insurance subsidiaries, particularly TransRe and RSUI, may face increased claims, particularly with respect to properties located in coastal areas. Our reinsurance and insurance subsidiaries take certain measures to mitigate the impact of such events by considering these risks in their underwriting and pricing decisions, including their management of aggregate exposure levels and through the purchase of reinsurance. To the extent broad environmental factors, exacerbated by climate change or otherwise, lead to increases in insured losses, particularly if those losses exceed the expectations of our reinsurance and insurance subsidiaries, our financial condition and results of operations could be materially and adversely affected.

With respect to terrorism, to the extent that reinsurers have excluded coverage for certain terrorist acts or have priced this coverage at rates that make purchasing such coverage uneconomic, our reinsurance and insurance subsidiaries will not have reinsurance protection and are exposed to potential losses as a result of any acts of terrorism. To the extent an act of terrorism is certified by the U.S. Secretary of the Treasury, we may be covered under the Terrorism Act. This coverage under the Terrorism Act does not apply to reinsurers. Information regarding the Terrorism Act and its impact on our insurance subsidiaries can be found on page 46 of this Form 10-K.

In general, TransRe does not provide coverage for certified acts of terrorism, as defined by the Terrorism Act, but it is nonetheless exposed to potential losses related to both certified and uncertified acts of terrorism in the U.S. or elsewhere, such as from terrorism-specific treaty coverages offered to ceding companies or terrorism risk pools outside of the U.S. on a limited basis, and with respect to other lines of business from the assumption of terrorism risk in marine, aviation and other casualty treaties. Although TransRe assumes such terrorism risk after careful underwriting consideration and, in many cases, with limitations, a major terrorist event could have a material adverse impact on TransRe and us.

Finally, other catastrophes, such as an outbreak of a pandemic disease, the bankruptcy of a major company or a marine or aviation disaster, could also have a materially adverse effect on our business and operating results.

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Significant competitive pressures may prevent our reinsurance and insurance subsidiaries from retaining existing business or writing new business at adequate rates. Our reinsurance and insurance subsidiaries compete with a large number of other companies in their selected lines of business. They compete, and will continue to compete, with major U.S. and non-U.S. reinsurers and insurers, other regional companies, mutual companies, specialty insurance companies, underwriting agencies, government-owned or subsidized facilities, European underwriting syndicates and diversified financial services companies. Many competitors have considerably more financial resources, greater experience and may offer more products or services than our reinsurance and insurance subsidiaries. Except for regulatory considerations, there are virtually no barriers to entry into the reinsurance and insurance industry.

Additionally, the reinsurance and insurance industry continues to consolidate and, accordingly, competition for customers will continue to increase. As a result, our reinsurance and insurance subsidiaries may incur greater customer retention and acquisition expense, which would affect the profitability of existing and new business. Further, as the industry continues to consolidate, reinsurance and insurance companies that merge could have increased market size and capital resources with which to negotiate price reductions and retain more risk, decreasing pricing and demand for reinsurance.

Competition in the businesses of our reinsurance and insurance subsidiaries is based on many factors, including the perceived financial strength of a company, premiums charged, other terms and conditions offered, services provided, commissions paid to producers, ratings assigned by independent rating agencies, speed of claims payment and reputation and experience in the lines to be written. Such competition could cause the supply or demand for insurance to change, which could affect the ability of our reinsurance and insurance subsidiaries to price their products at adequate rates. If our reinsurance and insurance subsidiaries are unable to retain existing business or write new business at adequate rates, our results of operations could be materially and adversely affected.

In addition to competition from the reinsurance industry, TransRe faces competition from the capital markets, as well as some traditional reinsurers, which from time to time produce alternative products or reinsurance vehicles (such as collateralized reinsurance, reinsurance securitizations, catastrophe bonds and various derivatives, such as swaps and sidecars) that may compete with certain types of reinsurance, such as property catastrophe. Hedge funds may also provide reinsurance and retrocessional protections through captive companies or other alternative transactions on a fully collateralized basis for property and energy catastrophe business. Over time, these initiatives could significantly affect supply, pricing and competition in the reinsurance industry.

Our results may fluctuate as a result of many factors, including cyclical changes in the reinsurance and insurance industries. Historically, the performance of the property and casualty reinsurance and insurance industries has tended to fluctuate in cyclical periods of price competition and excess underwriting capacity, followed by periods of high premium rates and shortages of underwriting capacity. Although an individual reinsurance and insurance company's performance is dependent on its own specific business characteristics, the profitability of most property and casualty reinsurance and insurance companies tends to follow this market cycle. Further, this cyclical market pattern can be more pronounced in the reinsurance market in which TransRe competes and in the excess and surplus market in which RSUI primarily competes than in the standard insurance market. In addition, compared with historical cyclical periods, a cycle of increased price competition and excess underwriting capacity may continue for a prolonged period of time as new and existing reinsurance and insurance market participants and products continue to enter the reinsurance and insurance markets. Unfavorable market conditions may affect the ability of our reinsurance and insurance subsidiaries to write business at rates they consider appropriate relative to the risk assumed. If we cannot write business at appropriate rates, our business would be significantly and adversely affected.

When premium rates are high and there is a shortage of capacity in the standard insurance market, growth in the excess and surplus market can be significantly more rapid than growth in the standard insurance market. Similarly, when there is price competition and excess underwriting capacity in the standard insurance market, many customers that were previously driven into the excess and surplus market may return to the standard insurance market, exacerbating the effects of price competition.

Demand for reinsurance is influenced significantly by underwriting and investment results in both the standard insurance and the excess and surplus markets and market conditions. The supply of reinsurance is related to prevailing prices, the levels of insured losses and the levels of reinsurance industry surplus, among other factors, that, in turn, may fluctuate in response to changes in rates of return on investments being earned in the reinsurance industry. In addition, the supply of reinsurance is affected by a reinsurer's confidence in its ability to accurately assess the probability of expected underwriting outcomes, particularly with respect to catastrophe losses.

Since cyclicality is due in large part to the collective actions of insurers, reinsurers and general economic conditions and the occurrence of unpredictable events, we cannot predict the timing or duration of changes in the market cycle. These cyclical patterns cause our revenues and net earnings to fluctuate. In addition, our results may fluctuate as a result of changes in economic, legal, political and social factors, among others.

We cannot guarantee that the reinsurers used by our reinsurance and insurance subsidiaries will pay in a timely fashion, if at all, and, as a result, we could experience losses even if reinsured. As part of their overall risk and capacity management strategy, our reinsurance and insurance subsidiaries purchase reinsurance by transferring or ceding part of the risk that they have underwritten to a reinsurance company in exchange for part of the premium received by our subsidiaries in connection with that risk. Although reinsurance makes the reinsurer liable to our reinsurance and insurance subsidiaries to the extent the risk is transferred or ceded to the reinsurer, our reinsurance and insurance subsidiaries remain liable for amounts not paid by a reinsurer.

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Reinsurers may not pay the reinsurance recoverables that they owe to our subsidiaries or they may not pay these recoverables on a timely basis. This risk may increase significantly if these reinsurers experience financial difficulties as a result of catastrophes, investment losses or other events. Accordingly, we bear credit risk with respect to our reinsurance and insurance subsidiaries' reinsurers, and if they fail to pay, our financial results would be adversely affected. As of December 31, 2018, reinsurance recoverables reported on our balance sheet were $1.9 billion.

If market conditions cause reinsurance to be more costly or unavailable, our reinsurance and insurance subsidiaries may be required to bear increased risks or reduce the level of their underwriting commitments. As part of their overall risk management strategy, our reinsurance and insurance subsidiaries purchase reinsurance for certain amounts of risk underwritten by them, including catastrophe risks. The reinsurance programs purchased by our subsidiaries are generally subject to annual renewal. Market conditions beyond their control determine the availability and cost of the reinsurance protection they purchase, which may affect the level of their business written and thus their profitability. If our reinsurance and insurance subsidiaries are unable to renew their expiring facilities or to obtain new reinsurance facilities, which could result as the number of companies offering reinsurance coverage declines due to industry consolidation, either their net exposures on future policies or reinsurance contracts would increase, which could increase the volatility of their results or, if they are unwilling or unable to bear an increase in net exposures, they would have to reduce the level of their underwriting commitments, especially catastrophe-exposed risks, which may reduce their revenues and net earnings. In certain reinsurance contracts, a cedant, to the extent it exhausts its original coverage under a reinsurance contract during a single coverage period (typically a single twelve-month period), can pay a reinsurance reinstatement premium to restore coverage during such coverage period. If our reinsurance and insurance subsidiaries exhaust their original and, if applicable, reinstated coverage under their third-party reinsurance contracts during a single coverage period, they will not have any reinsurance coverage available for losses incurred as a result of additional loss events during that coverage period. The exhaustion of such reinsurance coverage could have a material adverse effect on the profitability of our reinsurance and insurance subsidiaries in any given period and on our results of operations.

TransRe and RSUI attempt to manage their exposure to catastrophe risk partially through the use of catastrophe modeling software. The failure of this software to accurately gauge the catastrophe-exposed risks they write could have a material adverse effect on our financial condition, results of operations and cash flows. As part of their approach to managing catastrophe risk, TransRe and RSUI use a number of tools, including third-party catastrophe modeling software, to help evaluate potential losses. TransRe and RSUI use modeled loss scenarios and internal analyses to set their level of risk retention and help structure their reinsurance programs. Modeled loss estimates, however, have not always accurately predicted their ultimate losses with respect to catastrophe events. Accordingly, TransRe and RSUI periodically review their catastrophe exposure management approach, which may result in the implementation of new monitoring tools and a revision of their underwriting guidelines and procedures. However, these efforts may not be successful in sufficiently mitigating risk exposures and losses resulting from future catastrophes.

Our reinsurance and insurance subsidiaries are rated by rating agencies and a decline in these ratings could affect the standings of these units in the reinsurance and insurance industries and cause their premium volume and earnings to decrease. Ratings have become an increasingly important factor in establishing the competitive positions of reinsurance and insurance companies. Some of our reinsurance and insurance subsidiaries are rated by A.M. Best, S&P and/or Moody's, which we collectively refer to as the "Rating Agencies." The Rating Agencies' financial strength ratings reflect their opinions of a reinsurance or an insurance company's financial strength, operating performance, strategic position and ability to meet its obligations to policyholders, and are neither an evaluation directed to investors of a security nor a recommendation to buy, sell or hold a security. These ratings are subject to periodic review, and we cannot assure you that any of our reinsurance or insurance companies will be able to retain their current ratings. If the ratings of our reinsurance or insurance companies are reduced from their current levels by the Rating Agencies, their competitive positions could suffer and it would be more difficult for them to market their products. A significant downgrade could result in a substantial loss of business as customers move to other companies with higher financial strength ratings.

In addition, in general, if the financial strength ratings of TransRe's operating subsidiaries from the Rating Agencies fall below A-, a significant portion of TransRe's operating subsidiaries' contracts that contain rating agency triggers would allow customers to elect to take a number of actions such as terminating the contracts on a run-off or cut-off basis, requiring TransRe's operating subsidiaries to post collateral for all or a portion of the obligations or requiring commutation under the contracts. Some of these contracts, however, contain dual triggers, such as requiring both a ratings downgrade below A- and a significant decline in the statutory surplus of TransRe's operating subsidiaries before such cancellation or collateralization rights would be exercisable. Contracts may contain one or both of the aforementioned contractual provisions, or certain other collateralization or cancellation triggers. Whether a ceding company would exercise any of these cancellation rights would depend on, among other factors, the reason and extent of such downgrade or surplus reduction, the prevailing market conditions and the pricing and availability of replacement reinsurance coverage. We cannot predict the extent to which these contractual rights would be exercised, if at all, or what effect such exercises would have on our financial condition or future operations, but such effect potentially could be materially adverse to us.

TransRe may also enter into agreements with ceding companies that require it to provide collateral for its obligations, including where TransRe's obligations to these ceding companies exceed negotiated thresholds. These thresholds may vary depending on the ratings of TransRe's operating subsidiaries, and a ratings downgrade or a failure to achieve a certain rating may increase the amount of collateral TransRe is required to provide. An increase in the amount of collateral TransRe is obligated to

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provide to secure its obligations may have an adverse impact on, among other things, TransRe's ability to write additional reinsurance.

A limited number of brokers account for a large portion of TransRe's premiums; the loss of all or a substantial portion of the business provided by them may have an adverse effect on us. The great majority of TransRe's premiums are written through brokers. Several large international brokers dominate the reinsurance brokerage industry, and TransRe derives a significant portion of its premiums from these brokers. Further, TransRe may become increasingly reliant on these brokers due to continued consolidation in the broker sector. The loss of all or a substantial portion of the business provided by these brokers could have a material adverse effect on us.

Difficult and volatile conditions in the global capital and credit markets and in the overall economy could materially and adversely affect the results of our reinsurance and insurance subsidiaries. Disruption and volatility in the global capital and credit markets and in the overall economy affects our business in a number of ways, including the following:

- disruption in the capital and credit markets may increase claims activity in our reinsurance business, such as directors' and officers' liability, errors and omissions liability and trade credit lines;
- volatility in the capital and credit markets makes it more difficult to access those markets, if necessary, to maintain or improve financial strength and credit ratings of our reinsurance and insurance subsidiaries or to generate liquidity;
- disruption in the overall economy may reduce demand for reinsurance and insurance products; and
- increases in inflation could result in higher losses on reinsurance contracts, particularly in longer-tailed lines of business, increased operating costs and a decrease in the fair value of our investment portfolio.

It is difficult to predict when and how long these types of conditions may exist and how our markets, business and investments will be adversely affected. Accordingly, these conditions could have a material adverse effect on our consolidated financial condition or results of operations in future periods.

The businesses of our reinsurance and insurance subsidiaries are heavily regulated, and changes in regulation may limit their ability to pay dividends, reduce their profitability and limit their growth. Our reinsurance and insurance operating subsidiaries are subject to extensive regulation and supervision in the jurisdictions in which they conduct business, both in the U.S. and other countries. This regulation is generally designed to protect the interests of policyholders and not necessarily the interests of insurers, their stockholders or other investors. The regulation relates to authorization for lines of business, capital and surplus requirements, investment limitations, underwriting limitations, transactions with affiliates, dividend limitations, changes in control, premium rates and a variety of other financial and non-financial components of a reinsurance or insurance company's business. Moreover, insurance laws and regulations, among other things: establish solvency requirements, including minimum reserves and capital and surplus requirements; limit the amount of dividends, tax distributions, intercompany loans and other payments our insurance subsidiaries can make without prior regulatory approval; and impose restrictions on the amount and type of investments we may hold. The application of these laws could affect our liquidity and ability to pay dividends, interest and other payments on securities, among other things.

Virtually all states in which our insurance operating subsidiary companies conduct their business require them, together with other insurers licensed to do business in that state, to bear a portion of the loss suffered by some insureds as the result of impaired or insolvent insurance companies. In addition, in various states, our insurance operating subsidiary companies must participate in mandatory arrangements to provide various types of insurance coverage to individuals or other entities that otherwise are unable to purchase that coverage from private insurers. A few states require our insurance operating subsidiary companies to purchase reinsurance from a mandatory reinsurance fund. Such reinsurance funds can create a credit risk for insurers if not adequately funded by the state and, in some cases, the existence of a reinsurance fund could affect the prices charged for the policies issued by our reinsurance and insurance subsidiaries. The effect of these and similar arrangements could reduce the profitability of our insurance operating subsidiaries in any given period or limit their ability to grow their business.

In recent years, the state insurance regulatory framework has come under increased scrutiny, and some state legislatures have considered or enacted laws that may alter or increase state authority to regulate insurance companies and insurance holding companies. Further, the NAIC and state insurance regulators are continually reexamining existing laws and regulations, specifically focusing on modifications to statutory accounting principles, credit for reinsurance laws, interpretations of existing laws and the development of new laws and regulations. On the federal level, the Dodd-Frank Act, signed into law on July 2010, mandated significant changes to the regulation of U.S. insurance effective as of July 21, 2011. We cannot predict the requirements of the regulations ultimately adopted under the Dodd-Frank Act or the impact such regulations will have on our business. In addition, we cannot predict the impact on our business, if any, of any potential "roll back" or dismantling of the Dodd-Frank Act. These regulations, and any proposed or future state or federal legislation or NAIC initiatives, if adopted, may be more restrictive on the ability of our reinsurance and insurance subsidiaries to conduct business than current regulatory requirements or may result in higher costs. Information regarding the impact of regulation and current regulatory changes on our reinsurance and insurance operating subsidiaries can be found on pages 48 through 54 of this Form 10-K.

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TransRe's offices that operate in jurisdictions outside the U.S. are subject to certain limitations and risks that are unique to foreign operations. TransRe's international operations are also regulated in various jurisdictions with respect to licensing requirements, solvency, currency, amount and type of security deposits, amount and type of reserves, amount and type of local investments and other matters. International operations and assets held abroad are subject to significant legal, market, operational, compliance and regulatory risks, including risks related to:

- economic, political and other developments in foreign countries;
- changes in foreign or U.S. laws and regulations;
- nationalization and changes in regulatory policy;
- unexpected financial restrictions that foreign governments may impose;
- the potential costs and difficulties in complying with a wide variety of foreign laws and regulations; and
- the consequences of international hostilities and unrest.

The risks of such occurrences and their overall effect upon us vary from country to country and cannot be predicted. In addition, our results of operations and net unrealized currency translation gain or loss (a component of accumulated other comprehensive income) are subject to volatility as the value of the foreign currencies fluctuate relative to the U.S. dollar. Further, regulations governing technical reserves and remittance balances in some countries may hinder remittance of profits and repatriation of assets.

The international and U.S. laws and regulations that are applicable to TransRe's operations are complex and may increase the costs of regulatory compliance, limit or restrict TransRe's reinsurance business or subject TransRe to regulatory actions or proceedings in the future. Although TransRe attempts to comply with all applicable laws and regulations and seeks licenses to undertake various activities where appropriate, there can be no assurance that TransRe is, or will be, in full compliance with all applicable laws and regulations, or interpretations of these laws and regulations, at all times. In addition, it is TransRe's policy to continually monitor compliance with, and voluntarily report to appropriate regulatory authorities any potential violations of, all applicable laws and regulations where it is deemed appropriate, including anti-corruption and trade sanction laws, and any failure to comply with any such laws and regulations may subject TransRe to investigations, sanctions or other remedies, including fines, injunctions, increased scrutiny or oversight by regulatory authorities. The cost of compliance or the consequences of non-compliance, including reputational damage, could have a material adverse effect on our consolidated financial condition or results of operations in future periods.

On January 16, 2016, following implementation of the Joint Comprehensive Plan of Action, or the "JCPOA," certain trade sanctions laws of the EU and the United Nations restricting dealings with Iran and Iranian entities were substantially eased, and the U.S. also provided relief for certain restrictions on individuals and entities outside of the U.S. On Implementation Day, the U.S. also authorized, under General License H, foreign companies owned or controlled by U.S. persons, such as TRL and TRZ, to engage in certain transactions involving Iran and Iranian entities. Pursuant to General License H and a specific license issued to TransRe, TRL and TRZ provided reinsurance coverage to non-Iranian cedants that had exposure to de minimis Iran-related risks that were permissible under General License H. On May 8, 2018, the U.S. announced it would cease participation in the JCPOA and reinstated the sanctions that were in effect prior to U.S. participation. Foreign companies owned or controlled by U.S. persons were allowed 180 days to withdraw from any business dealings that were entered into under General License H and any additional authoriziations, including general or specific licenses, granted by OFAC. Consequently, TRL and TRZ timely discontinued such coverage. As the failure to comply with trade sanctions prohibitions could subject TransRe to investigations, significant fines and other penalties, TransRe has implemented processes and procedures to comply with the reinstated trade sanctions laws of the U.S. Additionally, as the decision to withdraw from the JCPOA was unilateral, TransRe may be subject to penalties and fines in jurisdictions, such as the EU, that disallow compliance with such unilateral trade sanctions by TransRe's operations within those jurisdictions. The cost of compliance or the consequences of non-compliance with the trade sanctions laws of the U.S. and other jurisdictions, including reputational damage, could have a material adverse effect on our consolidated financial condition or results of operations.

Prior to January 13, 2017, the U.S. maintained comprehensive sanctions against Sudan. On January 13, 2017, OFAC issued a general license authorizing all transactions previously prohibited by the Sudan Sanctions Regulations, which sanctions were then revoked on October 12, 2017. As a result, beginning January 13, 2017, sanctions exclusions clauses, which TransRe utilizes in its reinsurance contracts to exclude coverage of prohibited risks, no longer excluded coverage by TransRe of Sudanese risks authorized under such license, and TransRe was obliged under the language of its reinsurance contracts to provide coverage and pay valid claims occurring on or after that date on any covered Sudanese risks legally permissible. TransRe continues to be exposed to Sudanese risks on treaties underwritten after January 13, 2017. Despite the lifting of U.S. sanctions, Sudan remains on the U.S. list of State Sponsors of Terrorism. TransRe has no direct business with Sudanese cedants or any contracts with Sudanese entities. TransRe has determined that a small number of Sudanese-related risks are underwritten by non-Sudanese cedants for which TransRe provides coverage under reinsurance treaties and which are not, as a result of the lifting of U.S. sanctions, excluded under such treaties. The revenue associated with such reinsurance covering this small number of Sudanese-related risks is immaterial to both TransRe and Alleghany.

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With regards to TransRe's operations within the EU, TRC operates within the EU as a Third Country Reinsurer under Solvency II through a series of foreign branches and on a cross-border basis. Each branch of TRC in the EU that is required to be authorized is separately authorized by the relevant regulator in the Member State in which it is established. Currently, TRC continues to conduct business within the EU through its foreign branches with no significant impact on its operations. However, TransRe could be materially and adversely affected by rules adopted by a Member State related to Third Country Reinsurers. For example, TRC may be required to post additional collateral in EU countries or may need to consider further restructuring its business in order to comply with the rules adopted in EU countries related to Third Country Reinsurers.

Solvency II, which is a fundamental revision to the European regulatory regime that seeks to enhance transparency and risk management and encourages a proactive approach to company solvency, came into effect on January 1, 2016. It is built on a risk-based approach to setting capital requirements for reinsurers and insurers. Solvency II may affect the way in which TransRe's international group, including TRL and TRC's branches in the EU operate and may have a negative impact on our results. Solvency II may reduce TRL's and/or TRC's EU branches' regulatory solvency position, for example, by increased capital requirements or a reduction in eligible funds. Solvency II could also materially impact the group, since Solvency II affects the calculation of the solvency of international groups which, like TransRe, conduct reinsurance and insurance operations both inside and outside of the EU. The changes also require an accelerated quarterly close process across the group to allow TRL and TRC's EU branches to meet the regulatory disclosure timetable under Solvency II. Other risks include more complex and intensive regulatory reporting burdens, regulatory requirements that conflict with requirements in other jurisdictions, and shortages of skilled staff in critical areas such as the actuarial function, all of which may have a negative impact on the results of TRL, the branches of TRC and the TransRe group. In addition, we could be required to undertake a significant amount of additional work to comply with the Solvency II regime, which in turn may divert finite resources from other business related tasks.

Although Solvency II is now in force, uncertainty remains as to how the Solvency II regime will be enforced or amended and the effectiveness of the coordination and cooperation of information sharing among supervisory bodies and regulators or the effect, if any, these developments may have on the TransRe group's operations and financial condition. This uncertainty has increased as a result of the Brexit referendum which will lead to the U.K. leaving the EU at a yet to be determined date. Following Brexit, the U.K. would be free to determine its own regulatory regime. We cannot currently predict whether the U.K.'s regulatory regime will be deemed equivalent to Solvency II or the impact on TRL and TRC if the future U.K. regulatory regime is not found to be equivalent to Solvency II.

The uncertainty has also increased as a result of the announcement in January 2017 by the Treasury Department and the Office of the U.S. Trade Representative that the covered agreement with the EU has been successfully negotiated. For example, the covered agreement provides for the elimination of local presence and reinsurance collateral requirements for EU-domiciled reinsurers operating in the U.S. and for U.S.-domiciled reinsurers operating in the EU. Further, the covered agreement includes certain provisions limiting the ability of EU jurisdictions to impose group supervision (including governance, solvency and capital, and reporting) requirements on U.S. insurance and reinsurance groups. While this development would appear to be beneficial to TransRe, we cannot currently predict whether the covered agreement between the U.S. and the EU will be successfully adopted, nor, if adopted, what its application to the U.K. will be post-Brexit. Our Solvency II implementation approach is based on our current understanding of the Solvency II requirements and any material changes thereto could have a material adverse effect on our business.

The 2016 Brexit vote whereby the U.K. electorate voted in favor of the U.K.'s exit from the EU could have an adverse effect on our business, financial condition and results of operations. The Brexit vote means that insurance and reinsurance carriers operating in the U.K. are experiencing a period of regulatory uncertainty as the U.K. and the EU undertake the challenge of redefining the U.K.'s economic and political relationships with the EU. The U.K. will remain a member state of the EU until it negotiates and reaches an agreement in relation to the withdrawal from the EU or, if earlier, upon the expiration of a two year period following the Article 50 notification (i.e. on March 29, 2019). In November 2018, the U.K. and the EU announced their agreement on a draft text of a withdrawal agreement, which would include the application of transitional provisions under which EU law would broadly remain in force in the U.K. until the end of December 2020. However, there is uncertainty as to whether the withdrawal agreement, with is subject to approval of the U.K. Parliament, will actually be entered into. In the absence of such an agreement there would be no transitional provisions and a "hard Brexit" would occur on March 29, 2019, unless the U.K. government were to revoke its Article 50 notice or if the two year Article 50 period were to be extended. It is possible that the withdrawal process may last significantly longer than the two year period envisaged by the Treaty of the EU. The uncertainty surrounding the implementation and effect of Brexit, including the commencement of the exit negotiation period, the terms and conditions of such exit, the uncertainty in relation to the legal and regulatory framework that would apply to the U.K. and its relationship with the remaining members of the EU (including in relation to trade and services) during a withdrawal process and after any Brexit is effected, has caused and is likely to cause increased economic volatility and market uncertainty globally, in particular volatility of currency exchange rates, interest rates and credit spreads. It has already led, and may continue to lead, to disruptions for the European and global financial markets, such as the decrease in the value of the British Pound and of market values of listed U.K. companies, in particular from the financial services and insurance sector, and the recent downgrade of the credit ratings for the U.K. by S&P, Moody's and Fitch (each with a negative outlook).

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The long-term effect of Brexit on the value of our investment portfolio at this time is uncertain and such volatility and uncertainty will likely continue as negotiations progress to determine the future terms of the U.K.'s relationship with the EU.

Brexit could lead to potentially divergent national laws and regulations as the U.K. determines which EU laws to replace or replicate. We may have to review our underwriting platforms and incur additional regulatory and transactional costs as a result. For example, depending on the outcome of the negotiations referred to above, TRL could lose its EEA financial services passport which provides it the license to operate across borders within the single EU market without obtaining any required local regulatory approval where insurers and cedants are located. In addition, depending on the terms of Brexit, the U.K.'s regulatory regime in terms of Solvency II regulation and governance could also diverge and no longer be equivalent.

Depending on the terms of Brexit or if there is a hard Brexit, the U.K. could also lose tariff-free access to the single EU market and to the global trade deals negotiated by the EU on behalf of its Member States. Any consequential decline in trade could affect the attractiveness of the U.K. as a global investment center and, as a result, could have a detrimental impact on U.K. growth. We could be adversely affected by reduced growth and greater volatility in the U.K. economy.

In Argentina, Brazil, Ecuador, India and the People's Republic of China, emerging markets where TransRe underwrites business on a cross-border basis, local regulations have recently been adopted that may operate to limit, restrict or increase the costs of TransRe's access to these markets. If this trend continues to spread to other jurisdictions, TransRe's ability to operate globally may be materially and adversely affected.

The loss of key personnel at our reinsurance and insurance subsidiaries could adversely affect our results of operations, financial condition and cash flows. We rely upon the knowledge and talent of the employees of our reinsurance and insurance subsidiaries to successfully conduct their business. Changes in local employment legislation, taxation and the approach of regulatory bodies to compensation practice within our operating jurisdictions may impact our ability to recruit and retain senior employees or the cost to us of doing so. A loss of key personnel, especially the loss of underwriters or underwriting teams, could have a material adverse effect on our results of operations, financial condition and cash flows in future periods. Our success has depended, and will continue to depend in substantial part, upon our ability to attract and retain teams of underwriters in various business lines at our reinsurance and insurance subsidiaries. The loss of key services of any members of current underwriting teams at our reinsurance and insurance subsidiaries may adversely affect our business and results of operations.

Errors and misconduct by our employees, agents, intermediaries or representatives may be difficult to detect and prevent and could expose us to significant legal liability and reputational harm. Our employees and the employees of our subsidiaries could engage in misconduct that adversely affects our business. It is not always possible to deter or prevent employee error or misconduct, and the controls and procedures that we have in place to prevent and detect this activity may not be effective in all cases. Losses may result from, among other things, illegal acts, unethical behavior, fraud, errors, failure to document transactions properly, failure to obtain proper internal authorization, failure to comply with underwriting or other internal guidelines by our reinsurance and insurance subsidiaries, or failure to comply with regulatory requirements or our internal policies. We could be subject to litigation, regulatory sanctions and serious harm to our reputation or financial position if employees were to engage or be accused of engaging in illegal or suspicious activities or failing to comply with internal guidelines and protocols. Misconduct by employees, or even unsubstantiated allegations, could result in a material adverse effect on our reputation, financial condition and results of operations.

We are subject to the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act and similar worldwide anti-bribery laws, which impose restrictions and may carry substantial penalties. Violations of these laws or allegations of such violations could adversely affect results of operations or financial condition. The U.S. Foreign Corrupt Practices Act and anti-bribery laws in other jurisdictions, including the U.K. Bribery Act that took effect in 2011, generally prohibit companies and their intermediaries from making improper payments for the purpose of obtaining or retaining business or other commercial advantage. Our policies and controls are designed to ensure compliance with these anti-bribery laws and regulations, which often carry substantial penalties. We cannot assure you that our internal control policies and procedures always will protect us from reckless or other inappropriate acts committed by our affiliates, employees, agents or other third parties with whom we do business. In such event, we could be exposed to civil penalties, criminal penalties and other sanctions, including fines or other punitive actions. In addition, such violations could damage our business and/or our reputation. Such criminal or civil sanctions, penalties, other sanctions and damage to our business or reputation, could have a material adverse effect on our business, financial position and results of operations.

There are significant hazards associated with oil exploration and production activities, some of which may not be fully covered by insurance. The business of exploring for, producing, storing and transporting oil is subject to risks and hazards, including environmental hazards, construction risks, industrial accidents, the encountering of unusual or unexpected geological formations, cave-ins, blowouts, fires, explosions, craterings, pipeline ruptures and spills, flooding, earthquakes and other natural disasters. These occurrences could result in personal injury or death, environmental damage, damage to, or destruction of, mineral properties or production facilities or other physical assets, monetary losses and possible legal liability. Although we maintain insurance against some of these risks, insurance fully covering many of these risks is not generally available to us or if it is, we may elect not to obtain it due to the high premium costs or commercial impracticality. Any liabilities that we may incur for these risks and hazards could be significant and could have a material adverse effect on our reputation, financial condition and results of operations.

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We are subject to risks related to our use of information technology. We rely on information technology in virtually all aspects of our business. Our reinsurance and insurance subsidiaries in particular depend on the proper functioning and availability of their information technology platforms, including communications and data processing systems, in operating their businesses. These systems consist of software programs that are integral to the efficient operation of the businesses of our reinsurance and insurance subsidiaries, including programs for proprietary pricing and exposure management, processing payments and claims, filing and making changes to records and providing customer support. Our reinsurance and insurance subsidiaries are also required to effect electronic transmissions with third parties including brokers, clients, vendors and others with whom they do business.

A significant disruption or failure of our information technology systems may have a significant impact on our operations, potentially resulting in service interruptions, security violations, regulatory compliance failures and other operational difficulties. In addition, any attack perpetrated against our information systems including through a system failure, security breach or disruption by malware or other damage, could similarly impact our operations and result in loss or misuse of information, litigation and potential liability. Although we have taken steps intended to mitigate the risks presented by potential cyber incidents, it is not possible to protect against every potential power loss, telecommunications failure, cybersecurity attack or similar event that may arise. Moreover, the safeguards we use are subject to human implementation and maintenance and to other uncertainties. Any of these cyber incidents may result in a violation of applicable laws or regulations (including privacy and other laws), damage our reputation, cause a loss of customers and give rise to monetary fines and other penalties, which could be significant. Such events could have an adverse effect on our results of operations, financial condition and liquidity.

The costs of complying with, or our failure to comply with, U.S. and foreign laws related to privacy, data security and data protection, such as the EU General Data Protection Regulation, could adversely affect our results of operations or financial condition and our reputation. The regulatory environment surrounding information security and privacy is increasingly demanding. We are subject to numerous U.S. federal and state laws and non-U.S. regulations governing the protection of personal and confidential information of our clients or employees, including the New York Department of Financial Services' Cybersecurity Regulation, or the "NYDFS Cybersecurity Regulation," which mandates detailed cybersecurity standards for all institutions, including insurance entities, authorized by the NYDFS to operate in New York. Among the requirements are the maintenance of a cybersecurity program with governance controls, risk-based minimum data security standards for technology systems, cyber breach preparedness and response requirements, including reporting obligations, vendor oversight, training and program record keeping and certification obligations. The NYDFS Cybersecurity Regulation has increased our compliance costs and the consequences of noncompliance could include regulatory enforcement actions and penalties, as well as reputation risk.

The NAIC adopted an Insurance Data Security Model Law, which would require licensed insurance entities to comply with detailed information security requirements. The NAIC model law is similar in many respects to the NYDFS Cybersecurity Regulation. It is not yet known whether, and to what extent, states legislatures or insurance regulators where our insurance and reinsurance subsidiaries operate will enact the Insurance Data Security Model Law. Such enactments, especially if inconsistent between states or with existing laws and regulations could raise compliance costs or increase the risk of noncompliance, with the attendant risk of being subject to regulatory enforcement actions and penalties, as well as reputational harm. Any such events could potentially have an adverse impact on our business, financial condition or results of operations.

More broadly, the General Data Protection Regulation, or the "GDPR," which regulates data protection for all individuals within the EU, including foreign companies processing data of EU residents, became effective on May 25, 2018 and applies to all of our subsidiaries operating in the EU. The regulation sets out a number of requirements that must be complied with when handling the personal data of such EU based data subjects including: the obligation to appoint data protection officers in certain circumstances; new rights for individuals to be "forgotten" and rights to data portability; the principal of accountability and the obligation to make public notification of significant data breaches. The GDPR also retains and adds to some existing requirements, including restrictions on transfers outside the European Economic Area, or the "EEA" (including Switzerland), and the requirement to include specific data protection provisions in agreements with data processors. The GDPR enhances individuals' rights, introduces complex and far-reaching company obligations and increases penalties significantly in case of violation. The interpretation and application of data protection laws in the U.S., Europe and elsewhere are developing and are often uncertain and in flux. The introduction of the GDPR, and any resultant changes in EU member states' national laws and regulations, may increase our compliance obligations and costs, and may necessitate the review and implementation of policies and processes relating to our collection and use of data. It is possible that these laws or cybersecurity regulations may be interpreted and applied in a manner that is inconsistent with our data protection or security practices.

If any person, including any of our employees, our subsidiaries' employees or those with whom we share such information, negligently disregards or intentionally breaches our established controls with respect to our client or employee data, or otherwise mismanages or misappropriates that data, we could be subject to significant monetary damages, regulatory enforcement actions, fines and/or criminal prosecution in one or more jurisdictions. For example, the GDPR increases sanctions for non-compliance, which could result in a penalty of up to the higher of (a) €20 million; and (b) 4 percent of a company's global annual revenue for the preceding financial year for certain infringements, such as unlawful data transfer outside of the EEA. In addition, a data breach could result in negative publicity which could damage our reputation and have a material adverse effect on our financial condition and results of operations.

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The impact of changes in current accounting practices and future pronouncements could have a material adverse effect on our financial condition, results of operations and cash flows. Our financial statements are prepared in accordance with GAAP, which is periodically revised by the Financial Accounting Standards Board, or the "FASB," and they are subject to the accounting-related rules and interpretations of the SEC. We are required to adopt new and revised accounting standards implemented by the FASB. Unanticipated developments in accounting practices may require us to incur considerable additional time and expenses to comply with such developments, particularly if we are required to prepare information relating to prior periods for comparative purposes or to apply the new requirements retroactively. For a description of changes in accounting standards that are currently pending and, if known, our estimates of their expected impact, see Note 1(r) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K.

Risk Factors Related to our Investments and Assets

The valuation of our investments includes methodologies, estimates and assumptions which are subject to differing interpretations or judgments; a change in interpretations or judgments could result in changes to investment valuations that may adversely affect our results of operations or financial condition. The vast majority of our investments are measured at fair value using methodologies, estimates and assumptions which are subject to differing interpretations or judgments. Financial instruments with quoted prices in active markets generally have more price observability and less judgment is used in measuring fair value. Conversely, financial instruments traded in other-than-active markets or that do not have quoted prices have less observability and are measured at fair value using valuation models or other pricing techniques that require more judgment. Investments recorded at fair value in the consolidated balance sheet are classified in a hierarchy for disclosure purposes consisting of three "levels" based on the observability of inputs available in the market used to measure the fair values.

Securities that are less liquid are more difficult to value and trade. During periods of market disruption, including periods of significantly rising or high interest rates, rapidly widening credit spreads or illiquidity, it may be difficult to value certain of the securities in our investment portfolio if trading becomes less frequent or market data becomes less observable. Certain asset classes in active markets with significant observable data may become illiquid due to changes in the financial environment. In such cases, valuing these securities may require more subjectivity and judgment. In addition, prices provided by third-party pricing services and broker quotes can vary widely even for the same security.

As such, valuations may include inputs and assumptions that are less observable or require greater estimation as well as valuation methods which are more sophisticated, thereby resulting in values which may be greater or less than the value at which the investments may be ultimately sold. Further, rapidly changing or strained credit and equity market conditions could materially impact the value of securities as reported within our consolidated financial statements and the period-to-period changes in value could vary significantly. Decreases in value may have a material adverse effect on our results of operations or financial condition.

Our investments in debt and equity securities are subject to market fluctuations. As of December 31, 2018, our investments in debt securities were approximately $11.8 billion, or approximately 67 percent of our total investment portfolio, and our investments in equity securities had a fair value of approximately $3.6 billion, which represented approximately 20 percent of our investment portfolio. The fair value of these assets and the investment income from these assets fluctuate depending on general economic and market conditions.

With respect to our investments in debt securities, a rise in interest rates would decrease unrealized gains and/or increase unrealized losses on our debt securities portfolio and potentially produce a net unrealized loss position, offset by our ability to earn higher rates of return on reinvested funds. Conversely, a decline in interest rates would increase unrealized gains and/or decrease unrealized losses on our debt securities portfolio, offset by lower rates of return on reinvested funds. Based upon the composition and duration of our investment portfolio as of December 31, 2018, a 100 basis point increase in interest rates would result in an approximate $490.7 million decrease in the fair value of our debt securities portfolio. In addition, some debt securities, such as mortgage-backed and other asset-backed securities, carry prepayment risk, the risk that principal will be returned more rapidly or slowly than expected, as a result of interest rate fluctuations.

With respect to our investments in equity securities, we consider all of our equity securities to be measured at fair value with changes in fair value recognized in net earnings.

Defaults, downgrades or other events impairing the value of our debt securities portfolio may reduce our earnings. We are subject to the risk that the issuers of debt securities we own may default on principal and interest payments they owe us. The occurrence of a major economic downturn, acts of corporate malfeasance, widening risk spreads or other events that adversely affect the issuers of these debt securities could cause the value of our debt securities portfolio and our net earnings to decline and the default rate of the debt securities in our investment portfolio to increase. In addition, with economic uncertainty, the credit quality of issuers could be adversely affected and a ratings downgrade of the issuers of the debt securities we own could also cause the value of our debt securities portfolio and our net earnings to decrease. Any event reducing the value of these securities other than on a temporary basis could have a material adverse effect on our business, results of operations and financial condition. We continually monitor the difference between cost and the estimated fair value of our investments in debt securities. If a decline in the

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value of a particular debt security is deemed to be temporary, we record the decline as an unrealized loss in stockholders' equity. If the decline is deemed to be other than temporary, we write it down to the carrying value of the investment and record an other than temporary impairment loss in our statement of earnings, which may be material to our operating results.

Changes in foreign currency exchange rates could impact the value of our assets and liabilities denominated in foreign currencies. A principal exposure to foreign currency risk is our obligation to settle claims denominated in foreign currencies in the subject foreign currencies. The possibility exists that we may incur foreign currency exchange gains or losses when we ultimately settle these claims. To mitigate this risk, we maintain investments denominated in certain foreign currencies in which the claims payments will be made and we have recently initiated a hedging program that is designed to mitigate this risk for a portion of our exposure to certain currencies. To the extent we do not seek to hedge our foreign currency risk or our hedges prove ineffective, the resulting impact of a movement in foreign currency exchange rates could materially and adversely affect our results of operations or financial condition. For example, stockholders' equity attributable to Alleghany stockholders was decreased by $21.9 million during 2018 from the impact of changes in foreign currency exchange rates.

If any of our businesses do not perform well, we may be required to recognize an impairment of our assets, including goodwill or other intangible assets or to establish a valuation allowance against the deferred income tax asset, which could adversely affect our results of operations or financial condition. Goodwill represents the excess of the amount we paid to acquire subsidiaries and other businesses over the fair value of their net assets as of the date of acquisition. We test goodwill at least annually for impairment. Impairment testing is performed based upon estimates of the fair value of the operating subsidiary to which the goodwill relates. The fair value of the operating subsidiary is impacted by the performance of the business. The performance of our businesses may be adversely impacted by prolonged market declines. If we determine the goodwill has been impaired, we must write down the goodwill by the amount of the impairment, with a corresponding charge to net earnings. Such write-downs could have a material adverse effect on our results of operations or financial position. A decrease in the expected future earnings of an operating subsidiary could lead to an impairment of some or all of the goodwill or other long-lived intangible assets associated with such operating subsidiaries in future periods.

Deferred income tax represents the tax effect of the differences between the book and tax basis of assets and liabilities. Deferred tax assets are assessed periodically by management to determine if they are recoverable. Factors in management's determination include the performance of the business including the ability to generate capital gains. If it is more likely than not that the deferred income tax asset will not be realized based on available information then a valuation allowance must be established with a corresponding charge to net earnings. Net earnings charges and reduced value of our net deferred tax assets could have a material adverse effect on our results of operations or financial position.

Deterioration of financial market conditions could result in the impairment of long-lived intangible assets and the establishment of a valuation allowance on our deferred income tax assets.

Oil and gas prices are volatile and a prolonged reduction in these prices could adversely affect the value of our investments in energy-related businesses. As of December 31, 2018, we had holdings in energy-related businesses of $385.2 million, comprised of $288.9 million of debt securities, $8.3 million of equity securities and $88.0 million of our equity attributable to SORC. The results and prospects of these energy-related businesses tend to depend highly upon the prices of oil and gas. Historically, the markets for oil and gas have been volatile and are likely to continue to be volatile in the future. A prolonged reduction in the prices of oil and gas may adversely affect the results and prospects of, and the potentially the value of our investments in, these energy-related businesses.

Risks Related to our Senior Notes and the Credit Agreement

Our failure to comply with restrictive covenants contained in the indentures governing the Senior Notes (as defined on page 110 of this Form 10-K) or any other indebtedness, including indebtedness under our revolving credit facility and any future indebtedness, could trigger prepayment obligations, which could adversely affect our business, financial condition and results of operations. The indentures governing the Senior Notes contain covenants that impose restrictions on Alleghany and TransRe with respect to, among other things, the incurrence of liens on the capital stock of certain of our subsidiaries. In addition, the indentures governing the Senior Notes contain certain other covenants, including covenants to timely pay principal and interest, and the Credit Agreement (as defined on page 108 of this Form 10-K) also requires us to comply with certain covenants. Our failure to comply with such covenants could result in an event of default under the indentures, under the Credit Agreement or under any other debt agreement we may enter into in the future, which could, if not cured or waived, result in us being required to repay the Senior Notes, the indebtedness under the Credit Agreement or any other future indebtedness. As a result, our business, financial condition, results of operations and liquidity could be adversely affected.

To service our debt, we will require a significant amount of cash, which may not be available to us. Our ability to make payments on, or repay or refinance, our debt, including the Senior Notes, will depend largely upon the future performance and use of our investment portfolio and our future operating performance, including the operating performance of our subsidiaries. Our future performance, to a certain extent, is subject to general economic, financial, competitive, legislative, regulatory and other factors that are beyond our control. In addition, our ability to borrow funds in the future will depend on the satisfaction of the

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covenants in the indentures governing the Senior Notes, in the Credit Agreement and in other debt agreements we may enter into in the future. Under the Credit Agreement, we also need to maintain certain financial ratios. We cannot assure you that our business, including the operating performance of our subsidiaries, will generate sufficient cash flow from operations or that future borrowings will be available to us under the Credit Agreement or from other sources in an amount sufficient to enable us to pay our debt, including the Senior Notes, or to fund our other liquidity needs.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

The principal executive offices of Alleghany, Alleghany Capital and Roundwood are located in leased office space in New York, New York. TransRe leases office space in New York, New York for its headquarters and office space in almost all of its locations around the world. RSUI leases office space in Atlanta, Georgia for its headquarters and office space in Sherman Oaks, California. CapSpecialty leases office space in Middleton, Wisconsin for its headquarters and office space in its other locations throughout the U.S. Bourn & Koch owns its principal offices and manufacturing facilities, which are located in Rockford, Illinois and leases certain offices and manufacturing facilities, which are located in Olympia, Washington. Kentucky Trailer leases its principal offices and manufacturing facilities, which are located in Louisville, Kentucky, and has additional leased manufacturing facilities in locations including Michigan, Illinois, Iowa and the Netherlands. IPS leases office space in Blue Bell, Pennsylvania for its headquarters and office space in its locations around the world. Jazwares owns and leases office space in Sunrise, Florida for its headquarters and office space in its locations around the world. W&W|AFCO Steel owns its principal office in Oklahoma City, Oklahoma for its headquarters and owns its principal facilities, which are located in Arkansas, Colorado, Oklahoma, North Carolina and Texas. Concord leases office space in Raleigh, North Carolina for its headquarters. SORC leases office space in Golden, Colorado for its headquarters and owns facilities, mineral rights and land in other locations in the Midwestern and Southeastern U.S. Alleghany Properties leases office space in Sacramento, California. Management considers its facilities suitable and adequate for the current level of operations. See Note 12(b) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information on our leases.

Item 3. Legal Proceedings.

Certain of our subsidiaries are parties to pending litigation and claims in connection with the ordinary course of their businesses. Each such subsidiary makes provisions for estimated losses to be incurred in such litigation and claims, including legal costs. We believe such provisions are adequate and do not believe that any pending litigation will have a material adverse effect on our consolidated results of operations, financial position or cash flows.

Item 4. Mine Safety Disclosures.

Not applicable.

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PART II

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

Market Information, Holders and Dividends

Our common stock trades under the symbol "Y" on the New York Stock Exchange.

As of February 10, 2019, there were approximately 530 holders of record of our common stock. This figure does not represent the actual number of beneficial owners of our common stock because such stock is frequently held in "street name" by securities dealers and others for the benefit of individual owners who may vote the shares.

In February 2018, our Board of Directors declared a special dividend of $10.00 per share for stockholders of record on March 5, 2018. On March 15, 2018, we paid dividends to stockholders totaling $154.0 million. Our Board of Directors determined not to declare a dividend for 2017. Any future determination to pay dividends to holders of our common stock will be at the discretion of our Board of Directors and will be dependent upon many factors, including our earnings, financial condition, business needs and growth objectives, capital and surplus requirements of our reinsurance and insurance subsidiaries, regulatory restrictions, rating agency considerations and other factors.

Repurchases of Equity Securities

The following table presents our common stock repurchases in the quarter ended December 31, 2018:

	Total Number of Shares Repurchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs(1)	Approximate Dollar Value of Shares That May Yet be Purchased Under the Plans or Programs(1) (in millions)
October 1 to October 31	131,017	$ 603.86	131,017	$ 402.0
November 1 to November 30	101,572	621.10	101,572	338.9
December 1 to December 31	110,338	610.66	110,338	271.5
Total	342,927	611.15	342,927	

(1) In November 2015, our Board of Directors authorized the repurchase of shares of our common stock, at such times and at prices as management determines to be advisable, up to an aggregate of $400.0 million. In June 2018, our Board of Directors authorized, upon the completion of the previously announced program, the repurchase of additional shares of our common stock, at such times and at prices as management determines to be advisable, up to an aggregate of $400.0 million.

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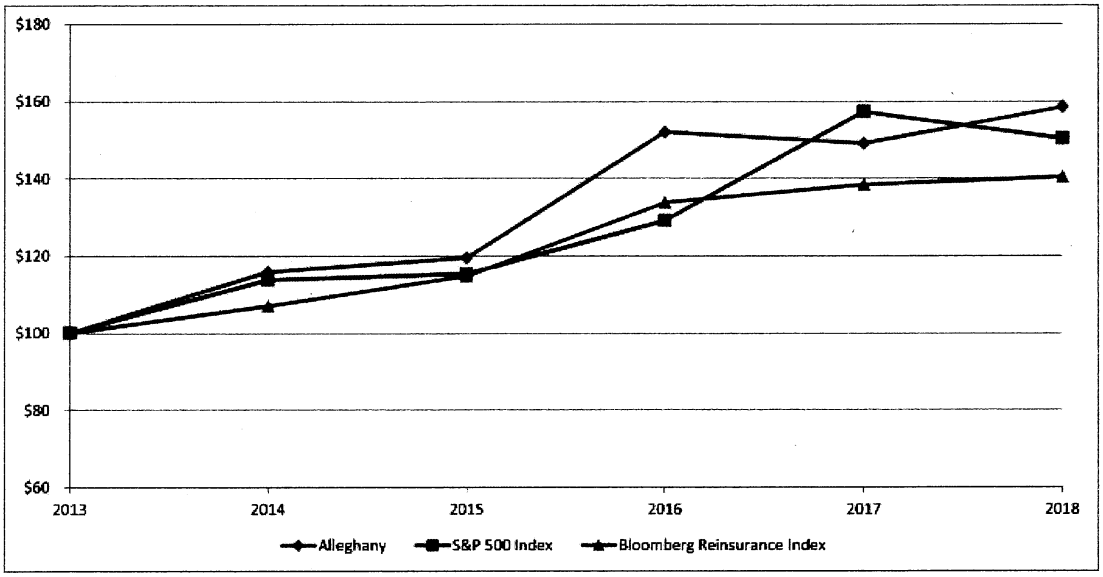
Performance Graph

The following information is not deemed to be "soliciting material" or to be "filed" with the SEC or subject to the liabilities of Section 18 of the Exchange Act, and the information shall not be deemed to be incorporated by reference in any filing by us under the Securities Act of 1933 or the Exchange Act, whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

The following graph presents (i) the cumulative total stockholder return on our common stock; (ii) the cumulative total return on the Standard & Poor's 500 Stock Index, or the "S&P 500 Index;" and (iii) the cumulative total return on the BI Global P&C Reinsurance Competitive Peer Group Index, or the "Bloomberg Reinsurance Index," for the five year period beginning on December 31, 2013 through December 31, 2018. The graph assumes that the value of the investment was $100.00 on December 31, 2013.



	Base Period 12/31/2013	INDEXED RETURNS Year Ending				
		12/31/2014	12/31/2015	12/31/2016	12/31/2017	12/31/2018
Alleghany	$100.00	$115.89	$119.49	$152.05	$149.04	$158.47
S&P 500 Index	$100.00	$113.68	$115.24	$129.02	$157.17	$150.27
Bloomberg Reinsurance Index	$100.00	$107.01	$114.76	$133.73	$138.32	$140.41

The graph and table above are based on the assumption that cash dividends are reinvested on the ex-dividend date in respect of such dividend.

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Item 6. Selected Financial Data.

Alleghany Corporation and Subsidiaries(1)

	Year Ended December 31,				
	2018	2017	2016	2015	2014
	($ in millions, except per share and share amounts)				
Operating Data					
Revenue	$ 6,887.2	$ 6,424.6	$ 6,131.1	$ 4,999.5	$ 5,231.8
Net earnings(2)	$ 39.5	$ 90.1	$ 456.9	$ 560.3	$ 679.2
Basic earnings per share of common stock(2)	$ 2.62	$ 5.85	$ 29.60	$ 35.14	$ 41.40
Average number of shares of common stock	15,062,567	15,410,034	15,436,286	15,871,055	16,405,388

	As of December 31,				
	2018	2017	2016	2015	2014
	($ in millions, except per share amounts)				
Balance Sheet					
Total assets	$ 25,344.9	$ 25,384.3	$ 23,756.6	$ 22,839.1	$ 23,481.6
Senior Notes and other debt	$ 1,669.0	$ 1,484.9	$ 1,476.5	$ 1,419.4	$ 1,795.3
Common stockholders' equity(2)	$ 7,692.7	$ 8,514.1	$ 7,939.9	$ 7,554.7	$ 7,473.4
Common stockholders' equity per share of common stock(2)	$ 527.75	$ 553.20	$ 515.24	$ 486.02	$ 465.51

(1) On October 1, 2018, we acquired Concord; on February 7, 2018, we acquired Hirschfeld; on April 28, 2017, we acquired W&W|AFCO Steel; on April 15, 2016, we acquired Jazwares; and on October 31, 2015, we acquired IPS. On December 31, 2017, we sold PacificComp.

(2) Attributable to Alleghany stockholders; excludes dividends.

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

The following is a discussion and analysis of our financial condition and results of operations for the twelve months ended December 31, 2018, 2017 and 2016. This discussion and analysis should be read in conjunction with our audited consolidated financial statements and Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K. This discussion contains forward-looking statements that involve risks and uncertainties and that are not historical facts, including statements about our beliefs and expectations. Our actual results could differ materially from those anticipated in these forward-looking statements as a result of various factors, including those discussed below and particularly under the headings "Risk Factors," "Business" and "Note on Forward-Looking Statements" contained in Item 1A, Item 1, and Part I of this Form 10-K, respectively.

Comment on Non-GAAP Financial Measures

Throughout this Form 10-K, our analysis of our financial condition and results of operations is based on our consolidated financial statements which have been prepared in accordance with GAAP. Our results of operations have been presented in the way that we believe will be the most meaningful and useful to investors, analysts, rating agencies and others who use financial information in evaluating our performance. This presentation includes the use of underwriting profit and operating earnings before income taxes, which are "non-GAAP financial measures," as such term is defined in Item 10(e) of Regulation S-K promulgated by the SEC. The presentation of these financial measures is not intended to be considered in isolation or as a substitute for, or superior to, financial information prepared and presented in accordance with GAAP. These measures may also be different from non-GAAP financial measures used by other companies, limiting their usefulness for comparison purposes. A discussion of our calculation and use of these financial measures is provided below.

Underwriting profit is a non-GAAP financial measure for our reinsurance and insurance segments. Underwriting profit represents net premiums earned less net loss and LAE and commissions, brokerage and other underwriting expenses, all as determined in accordance with GAAP and does not include: (i) net investment income; (ii) change in the fair value of equity securities; (iii) net realized capital gains; (iv) other than temporary impairment, or "OTTI" losses; (v) noninsurance revenue; (vi) other operating expenses; (vii) corporate administration; (viii) amortization of intangible assets; and (ix) interest expense. We use underwriting profit as a supplement to earnings before income taxes, the most comparable GAAP financial measure, to evaluate the performance of our reinsurance and insurance segments and believe that underwriting profit provides useful additional information to investors because it highlights net earnings attributable to our reinsurance and insurance segments' underwriting performance. Earnings before income taxes may show a profit despite an underlying underwriting loss, and when underwriting losses persist over extended periods, a reinsurance or an insurance company's ability to continue as an ongoing concern may be at risk. A reconciliation of underwriting profit to earnings before income taxes is presented within "Consolidated Results of Operations."

Operating earnings before income taxes is a non-GAAP financial measure for our Alleghany Capital segment. Operating earnings before income taxes represents noninsurance revenue and net investment income less other operating expenses and interest expense, and does not include: (i) amortization of intangible assets; (ii) change in the fair value of equity securities; (iii) net realized capital gains; (iv) OTTI losses; and (v) income taxes. Because operating earnings before income taxes excludes amortization of intangible assets, change in the fair value of equity securities, net realized capital gains, OTTI losses and income taxes, it provides an indication of economic performance that is not affected by levels of effective tax rates or levels of amortization resulting from acquisition accounting. We use operating earnings before income taxes as a supplement to earnings before income taxes, the most comparable GAAP financial measure, to evaluate the performance of certain of our noninsurance operating subsidiaries and investments. A reconciliation of operating earnings before income taxes to earnings before income taxes is presented within "Consolidated Results of Operations."

In prior filings, we have used Adjusted EBITDA as a non-GAAP financial measure for our noninsurance operating subsidiaries held by Alleghany Capital. We believe that operating earnings before income taxes is a more useful non-GAAP financial measure, as it reflects ongoing capital expenditures through the inclusion of depreciation expense (a component of other operating expenses) and ongoing levels of debt through the inclusion of interest expense.

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Overview

The following overview does not address all of the matters covered in the other sections of Management's Discussion and Analysis of Financial Condition and Results of Operations or contain all of the information that may be important to our stockholders or the investing public. This overview should be read in conjunction with the other sections of Management's Discussion and Analysis of Financial Condition and Results of Operations.

- Net earnings attributable to Alleghany stockholders were $39.5 million in 2018, compared with $90.1 million in 2017 and $456.9 million in 2016.
- Net investment income increased by 11.0 percent in 2018 from 2017, and increased by 2.9 percent in 2017 from 2016.
- Net premiums written increased by 1.7 percent in 2018 from 2017, and decreased by 2.5 percent in 2017 from 2016.
- Underwriting loss was $161.5 million in 2018, compared with an underwriting loss of $316.4 million in 2017 and an underwriting profit of $401.3 million in 2016.
- The combined ratio for our reinsurance and insurance segments was 103.2 percent in 2018, compared with 106.4 percent in 2017 and 91.9 percent in 2016.
- Catastrophe losses, net of reinsurance, were $657.7 million in 2018, compared with $818.1 million in 2017 and $226.0 million in 2016.
- Net favorable prior accident year loss reserve development was $329.0 million in 2018, compared with $298.6 million in 2017 and $368.0 million in 2016.
- Noninsurance revenue for Alleghany Capital was $1,574.6 million in 2018, compared with $896.9 million in 2017 and $677.8 million in 2016.
- Earnings before income taxes for Alleghany Capital were $58.1 million in 2018, compared with $52.8 million in 2017 and $21.2 million in 2016. Operating earnings before income taxes were $81.6 million in 2018, compared with $50.7 million in 2017 and $30.5 million in 2016.

As of December 31, 2018, we had total assets of $25.3 billion and total stockholders' equity attributable to Alleghany stockholders of $7.7 billion. As of December 31, 2018, we had consolidated total investments of approximately $17.5 billion, consisting of $11.8 billion invested in debt securities, $3.6 billion invested in equity securities, $0.9 billion invested in short-term investments, $0.7 billion invested in commercial mortgage loans and $0.5 billion invested in other invested assets.

We incurred significant catastrophe losses in 2018, primarily arising from: wildfires in California, which caused widespread property damage primarily in the fourth quarter of 2018; Typhoons Jebi and Trami, each of which caused widespread property damage and flooding in September 2018, primarily in Japan; Hurricane Michael, which caused widespread property damage and flooding in October 2018, primarily in Florida and Georgia; and Hurricane Florence, which caused widespread property damage and flooding in September 2018, primarily in North Carolina. We also incurred significant catastrophe losses in 2017, primarily arising from three major hurricanes. Hurricane Irma caused widespread property damage and flooding in September 2017, primarily in Florida. Hurricane Harvey caused widespread property damage and flooding in August 2017, primarily in Texas. Hurricane Maria caused widespread property damage and flooding in September 2017, primarily in Puerto Rico. Our loss estimates for all of these catastrophes were based on information available at the time, including an analysis of reported claims, an underwriting review of in-force contracts, estimates of losses resulting from wind and other perils, including storm surge and flooding to the extent covered by applicable policies, and other factors requiring considerable judgment.

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The following table presents the impact of our catastrophe losses, net of reinsurance, for 2018 and 2017:

	Reinsurance Segment	Insurance Segment	Total Segments
		($ in millions)	
2018			
Net loss and LAE:			
Typhoon Jebi	$ 167.2	$ 16.2	$ 183.4
California wildfires	163.7	18.3(1)	182.0
Hurricane Michael	80.1	55.1	135.2
Hurricane Florence	36.5	33.9(2)	70.4
Typhoon Trami	29.7	4.0	33.7
Other	22.9	30.1	53.0
Total net loss and LAE	500.1	157.6	657.7
Net reinstatement premiums (earned)(3)	(31.9)	-	(31.9)
Losses before income taxes	468.2	157.6	625.8
Income taxes	98.3	33.1	131.4
Net losses attributable to Alleghany stockholders	$ 369.9	$ 124.5	$ 494.4
2017			
Net loss and LAE:			
Hurricane Irma	$ 154.3	$ 97.8(4)	$ 252.1
Hurricane Harvey	130.9	86.8(5)	217.7
Hurricane Maria	196.7	20.1	216.8
Other	99.2(6)	32.3	131.5
Total net loss and LAE	581.1	237.0	818.1
Net reinstatement premiums (earned)(3)	(34.5)	-	(34.5)
Losses before income taxes	546.6	237.0	783.6
Income taxes	191.3	83.0	274.3
Net losses attributable to Alleghany stockholders	$ 355.3	$ 154.0	$ 509.3

(1) Includes $17.4 million attributable to RSUI and $0.9 million attributable to CapSpecialty.
(2) Includes $33.8 million attributable to RSUI and $0.1 million attributable to CapSpecialty.
(3) Represents an increase in net premiums earned.
(4) Includes $97.6 million attributable to RSUI and $0.2 million attributable to CapSpecialty.
(5) Includes $86.6 million attributable to RSUI and $0.2 million attributable to CapSpecialty.
(6) Attributable to wildfires in California and earthquakes in Mexico.

Our catastrophe losses are more fully described on pages 84, 85 and 92.

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Consolidated Results of Operations

The following table presents our consolidated revenues, costs and expenses and earnings.

	Year Ended December 31,		
	2018	2017	2016
	($ in millions)		
Revenues			
Net premiums earned	$ 4,976.2	$ 4,955.0	$4,975.8
Net investment income	500.5	451.0	438.5
Change in the fair value of equity securities	(229.0)	-	-
Net realized capital gains	(3.2)	107.2	63.2
Other than temporary impairment losses	(1.3)	(16.9)	(45.2)
Noninsurance revenue	1,644.0	928.3	698.8
Total revenues	6,887.2	6,424.6	6,131.1
Costs and Expenses			
Net loss and loss adjustment expenses	3,520.4	3,620.2	2,917.2
Commissions, brokerage and other underwriting expenses	1,617.3	1,651.2	1,657.3
Other operating expenses	1,579.3	967.1	765.2
Corporate administration	15.9	47.0	43.0
Amortization of intangible assets	24.0	19.4	19.0
Interest expense	90.7	83.0	81.6
Total costs and expenses	6,847.6	6,387.9	5,483.3
Earnings before income taxes	39.6	36.7	647.8
Income taxes	(15.0)	(63.8)	187.1
Net earnings	54.6	100.5	460.7
Net earnings attributable to noncontrolling interest	15.1	10.4	3.8
Net earnings attributable to Alleghany stockholders	$ 39.5	$ 90.1	$ 456.9

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Alleghany's segments are reported in a manner consistent with the way management evaluates the businesses. As such, Alleghany classifies its businesses into three reportable segments – reinsurance, insurance and Alleghany Capital. Alleghany determined that Alleghany Capital qualified as a reportable segment in the first quarter of 2018, reflecting the increased significance of Alleghany Capital's business to Alleghany and its projected growth. Corporate activities are not classified as a segment.

See Note 13 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional detail on our segments and corporate activities. The tables below present the results for our segments and for corporate activities for 2018, 2017 and 2016:

	Segments						
Year Ended December 31, 2018	Reinsurance Segment	Insurance Segment	Subtotal	Alleghany Capital	Total Segments	Corporate Activities(1)	Consolidated
				($ in millions)			
Gross premiums written	$ 4,451.0	$ 1,470.8	$ 5,921.8	$ -	$ 5,921.8	$ (26.2)	$ 5,895.6
Net premiums written	3,969.1	1,079.3	5,048.4	-	5,048.4	-	5,048.4
Net premiums earned	3,939.0	1,037.2	4,976.2	-	4,976.2	-	4,976.2
Net loss and LAE:							
Current year (excluding catastrophe losses)	2,635.3	556.4	3,191.7	-	3,191.7	-	3,191.7
Current year catastrophe losses	500.1	157.6	657.7	-	657.7	-	657.7
Prior years	(266.1)	(62.9)	(329.0)	-	(329.0)	-	(329.0)
Total net loss and LAE	2,869.3	651.1	3,520.4	-	3,520.4	-	3,520.4
Commissions, brokerage and other underwriting expenses	1,282.3	335.0	1,617.3	-	1,617.3	-	1,617.3
Underwriting (loss) profit(2)	$ (212.6)	$ 51.1	(161.5)	-	(161.5)	-	(161.5)
Net investment income			480.9	3.1	484.0	16.5	500.5
Change in the fair value of equity securities			(184.2)	-	(184.2)	(44.8)	(229.0)
Net realized capital gains			31.6	0.9	32.5	(35.7)	(3.2)
Other than temporary impairment losses			(1.3)	-	(1.3)	-	(1.3)
Noninsurance revenue			22.0	1,574.6	1,596.6	47.4	1,644.0
Other operating expenses			59.8	1,485.6	1,545.4	33.9	1,579.3
Corporate administration			(1.7)	-	(1.7)	17.6	15.9
Amortization of intangible assets			(0.4)	24.4	24.0	-	24.0
Interest expense			27.1	10.5	37.6	53.1	90.7
Earnings (losses) before income taxes			$ 102.7	$ 58.1	$ 160.8	$ (121.2)	$ 39.6
Loss ratio(3):							
Current year (excluding catastrophe losses)	66.9%	53.6%	64.1%				
Current year catastrophe losses	12.7%	15.3%	13.2%				
Prior years	(6.8%)	(6.1%)	(6.6%)				
Total net loss and LAE	72.8%	62.8%	70.7%				
Expense ratio(4)	32.6%	32.3%	32.5%				
Combined ratio(5)	105.4%	95.1%	103.2%				

(1) Includes elimination of minor reinsurance activity between segments.
(2) Underwriting profit represents net premiums earned less net loss and LAE and commissions, brokerage and other underwriting expenses, all as determined in accordance with GAAP, and does not include net investment income, change in the fair value of equity securities, net realized capital gains, OTTI losses, noninsurance revenue, other operating expenses, corporate administration, amortization of intangible assets and interest expense. Underwriting profit is a non-GAAP financial measure and does not replace earnings before income taxes determined in accordance with GAAP as a measure of profitability. See "Comment on Non-GAAP Financial Measures" herein for additional detail on the presentation of our results of operations.
(3) The loss ratio is derived by dividing the amount of net loss and LAE by net premiums earned, all as determined in accordance with GAAP.
(4) The expense ratio is derived by dividing the amount of commissions, brokerage and other underwriting expenses by net premiums earned, all as determined in accordance with GAAP.
(5) The combined ratio is the sum of the loss ratio and the expense ratio, all as determined in accordance with GAAP. The combined ratio represents the percentage of each premium dollar a reinsurance or an insurance company has to spend on net loss and LAE, and commissions, brokerage and other underwriting expenses.

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Year Ended December 31, 2017	Segments						
	Reinsurance Segment	Insurance Segment	Subtotal	Alleghany Capital	Total Segments	Corporate Activities(1)	Consolidated
				($ in millions)			
Gross premiums written	$ 4,210.6	$ 1,509.6	$ 5,720.2	$ -	$ 5,720.2	$ (23.3)	$ 5,696.9
Net premiums written	3,810.1	1,155.8	4,965.9	-	4,965.9	-	4,965.9
Net premiums earned	3,808.7	1,146.3	4,955.0	-	4,955.0	-	4,955.0
Net loss and LAE:							
Current year (excluding catastrophe losses)	2,453.8	646.9	3,100.7	-	3,100.7	-	3,100.7
Current year catastrophe losses	581.1	237.0	818.1	-	818.1	-	818.1
Prior years	(249.5)	(49.1)	(298.6)	-	(298.6)	-	(298.6)
Total net loss and LAE	2,785.4	834.8	3,620.2	-	3,620.2	-	3,620.2
Commissions, brokerage and other underwriting expenses	1,286.7	364.5	1,651.2	-	1,651.2	-	1,651.2
Underwriting (loss)(2)	$ (263.4)	$ (53.0)	(316.4)	-	(316.4)	-	(316.4)
Net investment income			434.6	2.7	437.3	13.7	451.0
Change in the fair value of equity securities			-	-	-	-	-
Net realized capital gains			85.7	23.0	108.7	(1.5)	107.2
Other than temporary impairment losses			(16.9)	-	(16.9)	-	(16.9)
Noninsurance revenue			15.5	896.9	912.4	15.9	928.3
Other operating expenses			82.8	844.9	927.7	39.4	967.1
Corporate administration			1.7	-	1.7	45.3	47.0
Amortization of intangible assets			(1.5)	20.9	19.4	-	19.4
Interest expense			26.9	4.0	30.9	52.1	83.0
Earnings (losses) before income taxes			$ 92.6	$ 52.8	$ 145.4	$ (108.7)	$ 36.7
Loss ratio(3):							
Current year (excluding catastrophe losses)	64.3%	56.4%	62.6%				
Current year catastrophe losses	15.3%	20.7%	16.5%				
Prior years	(6.5%)	(4.3%)	(6.0%)				
Total net loss and LAE	73.1%	72.8%	73.1%				
Expense ratio(4)	33.8%	31.8%	33.3%				
Combined ratio(5)	106.9%	104.6%	106.4%				

(1) Includes elimination of minor reinsurance activity between segments.
(2) Underwriting profit represents net premiums earned less net loss and LAE and commissions, brokerage and other underwriting expenses, all as determined in accordance with GAAP, and does not include net investment income, change in the fair value of equity securities, net realized capital gains, OTTI losses, noninsurance revenue, other operating expenses, corporate administration, amortization of intangible assets and interest expense. Underwriting profit is a non-GAAP financial measure and does not replace earnings before income taxes determined in accordance with GAAP as a measure of profitability. See "Comment on Non-GAAP Financial Measures" herein for additional detail on the presentation of our results of operations.
(3) The loss ratio is derived by dividing the amount of net loss and LAE by net premiums earned, all as determined in accordance with GAAP.
(4) The expense ratio is derived by dividing the amount of commissions, brokerage and other underwriting expenses by net premiums earned, all as determined in accordance with GAAP.
(5) The combined ratio is the sum of the loss ratio and the expense ratio, all as determined in accordance with GAAP. The combined ratio represents the percentage of each premium dollar a reinsurance or an insurance company has to spend on net loss and LAE, and commissions, brokerage and other underwriting expenses.

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Year Ended December 31, 2016	Segments: Reinsurance Segment	Insurance Segment	Subtotal	Alleghany Capital	Total Segments	Corporate Activities(1)	Consolidated
				($ in millions)			
Gross premiums written	$ 4,330.3	$ 1,462.7	$ 5,793.0	$ -	$ 5,793.0	$ (25.9)	$ 5,767.1
Net premiums written	3,969.4	1,122.4	5,091.8	-	5,091.8	-	5,091.8
Net premiums earned	3,845.0	1,130.8	4,975.8	-	4,975.8	-	4,975.8
Net loss and LAE:							
Current year (excluding catastrophe losses)	2,440.3	618.9	3,059.2	-	3,059.2	-	3,059.2
Current year catastrophe losses	138.6	87.4	226.0	-	226.0	-	226.0
Prior years	(293.5)	(74.5)	(368.0)	-	(368.0)	-	(368.0)
Total net loss and LAE	2,285.4	631.8	2,917.2	-	2,917.2	-	2,917.2
Commissions, brokerage and other underwriting expenses	1,299.0	358.3	1,657.3	-	1,657.3	-	1,657.3
Underwriting profit(2)	$ 260.6	$ 140.7	401.3	-	401.3	-	401.3
Net investment income			433.1	(2.3)	430.8	7.7	438.5
Change in the fair value of equity securities			-	-	-	-	-
Net realized capital gains			159.9	12.8	172.7	(109.5)	63.2
Other than temporary impairment losses			(45.2)	-	(45.2)	-	(45.2)
Noninsurance revenue			4.4	677.8	682.2	16.6	698.8
Other operating expenses			80.6	643.1	723.7	41.5	765.2
Corporate administration			1.0	-	1.0	42.0	43.0
Amortization of intangible assets			(3.1)	22.1	19.0	-	19.0
Interest expense			27.2	1.9	29.1	52.5	81.6
Earnings (losses) before income taxes			$ 847.8	$ 21.2	$ 869.0	$ (221.2)	$ 647.8
Loss ratio(3):							
Current year (excluding catastrophe losses)	63.5%	54.8%	61.5%				
Current year catastrophe losses	3.6%	7.7%	4.5%				
Prior years	(7.6%)	(6.6%)	(7.4%)				
Total net loss and LAE	59.5%	55.9%	58.6%				
Expense ratio(4)	33.8%	31.7%	33.3%				
Combined ratio(5)	93.3%	87.6%	91.9%				

(1) Includes elimination of minor reinsurance activity between segments.
(2) Underwriting profit represents net premiums earned less net loss and LAE and commissions, brokerage and other underwriting expenses, all as determined in accordance with GAAP, and does not include net investment income, change in the fair value of equity securities, net realized capital gains, OTTI losses, noninsurance revenue, other operating expenses, corporate administration, amortization of intangible assets and interest expense. Underwriting profit is a non-GAAP financial measure and does not replace earnings before income taxes determined in accordance with GAAP as a measure of profitability. See "Comment on Non-GAAP Financial Measures" herein for additional detail on the presentation of our results of operations.
(3) The loss ratio is derived by dividing the amount of net loss and LAE by net premiums earned, all as determined in accordance with GAAP.
(4) The expense ratio is derived by dividing the amount of commissions, brokerage and other underwriting expenses by net premiums earned, all as determined in accordance with GAAP.
(5) The combined ratio is the sum of the loss ratio and the expense ratio, all as determined in accordance with GAAP. The combined ratio represents the percentage of each premium dollar a reinsurance or an insurance company has to spend on net loss and LAE, and commissions, brokerage and other underwriting expenses.

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Comparison of 2018, 2017 and 2016

Premiums. The following table presents our consolidated premiums:

	Year Ended December 31,			Percent Change	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
	($ in millions)				
Premiums written:					
Gross premiums written	$ 5,895.6	$ 5,696.9	$ 5,767.1	3.5%	(1.2%)
Net premiums written	5,048.4	4,965.9	5,091.8	1.7%	(2.5%)
Net premiums earned	4,976.2	4,955.0	4,975.8	0.4%	(0.4%)

2018 vs 2017. The increase in gross premiums written in 2018 from 2017 is primarily attributable to an increase at our reinsurance segment and, to a lesser extent, growth at CapSpecialty and RSUI, partially offset by the impact of the sale of PacificComp. The increase at our reinsurance segment primarily reflects increases in premiums written by the North America and Asia-Pacific operations and the impact of TransRe's August 29, 2018 purchase of renewal rights associated with a certain block of U.S. treaty reinsurance business focused on regional property and casualty, accident and health and personal auto lines of business, or the "Renewal Rights Purchase." The increase in gross premiums written at our reinsurance segment was partially offset by a decrease in gross premiums written related to a certain large whole account quota share treaty, or the "Quota Share Treaty," due to a reduction of TransRe's quota share participation. Premiums written related to the Quota Share Treaty were $737.6 million and $780.9 million in 2018 and 2017, respectively.

The increase in net premiums written in 2018 from 2017 primarily reflects higher gross premiums written, partially offset by higher ceded premiums written due to an increase in retrocessional coverage purchased in 2018 at our reinsurance segment and, to a lesser extent, higher ceded premiums written at RSUI.

The increase in net premiums earned in 2018 from 2017 reflects an increase at our reinsurance segment due to an increase in net premiums written in recent quarters, partially offset by a decrease at our insurance segment due to the impact of the sale of PacificComp.

2017 vs 2016. The decrease in gross and net premiums written in 2017 from 2016 was primarily attributable to a decrease at our reinsurance segment, partially offset by an increase at our insurance segment, reflecting growth at CapSpecialty and PacificComp. The decrease at our reinsurance segment was primarily related to cancellations, non-renewals and reduced participations in certain treaties, the impact of rate pressures and increased retentions by cedants, partially offset by gross and net premiums written in 2017 related to reinstatement premiums written on treaties impacted by catastrophe losses. The decrease at our reinsurance segment in gross and net premiums written also reflected lower premiums related to the Quota Share Treaty. Premiums written related to the Quota Share Treaty were $780.9 million and $854.3 million in 2017 and 2016, respectively. Premiums written related to the Quota Share Treaty in 2016 reflected elevated premiums written in the first quarter of 2016 due to differences between initial premium estimates at contract inception, which were recorded in the fourth quarter of 2015, and actual data subsequently reported. As a consequence of this change in estimate, premiums written in the fourth quarter of 2015 were understated and premiums written in the first quarter of 2016 were correspondingly increased. In general, when actual data has not been reported by ceding companies, premiums written are estimated based on historical patterns and other relevant factors. Any differences between these estimates and actual data subsequently reported are recorded in the period when actual data becomes available.

The decrease in net premiums earned in 2017 from 2016 primarily reflected a decrease at our reinsurance segment due primarily to a decrease in net premiums written in earlier quarters, partially offset by an increase at our insurance segment, reflecting growth of premiums written at CapSpecialty and PacificComp.

A detailed comparison of premiums by segment for 2018, 2017 and 2016 is contained on pages 83, 84 and 90.

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Net loss and LAE. The following table presents our consolidated net loss and LAE:

	Year Ended December 31,			Percent Change	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
	($ in millions)				
Net loss and LAE:					
Current year (excluding catastrophe losses)	$ 3,191.7	$ 3,100.7	$ 3,059.2	2.9%	1.4%
Current year catastrophe losses	657.7	818.1	226.0	(19.6%)	262.0%
Prior years	(329.0)	(298.6)	(368.0)	10.2%	(18.9%)
Total net loss and LAE	$ 3,520.4	$ 3,620.2	$ 2,917.2	(2.8%)	24.1%
Loss ratio:					
Current year (excluding catastrophe losses)	64.1%	62.6%	61.5%		
Current year catastrophe losses	13.2%	16.5%	4.5%		
Prior years	(6.6%)	(6.0%)	(7.4%)		
Total net loss and LAE	70.7%	73.1%	58.6%		

2018 vs 2017. The decrease in net loss and LAE in 2018 from 2017 primarily reflects significantly lower catastrophe losses at our reinsurance and insurance segments and the impact of the sale of PacificComp. The catastrophe losses in 2018 primarily include $183.4 million related to Typhoon Jebi, $182.0 million related to wildfires in California, $135.2 million related to Hurricane Michael, $70.4 million related to Hurricane Florence and $33.7 million related to Typhoon Trami. The catastrophe losses in 2017 primarily included $252.1 million related to Hurricane Irma, $217.7 million related to Hurricane Harvey and $216.8 million related to Hurricane Maria, as well as losses related to wildfires in California and earthquakes in Mexico.

2017 vs 2016. The increase in net loss and LAE in 2017 from 2016 primarily reflected a significant increase in catastrophe losses at our reinsurance and insurance segments.

Net loss and LAE in 2017 for the reinsurance segment included $24.4 million of unfavorable prior accident year loss reserve development related to the U.K. Ministry of Justice's reduction in the discount rate used to calculate lump-sum bodily injury payouts in personal injury insurance claims in the U.K.

A detailed comparison of net loss and LAE by segment for 2018, 2017 and 2016 is contained on pages 84 through 86 and pages 91 through 93.

Commissions, brokerage and other underwriting expenses. The following table presents our consolidated commissions, brokerage and other underwriting expenses:

	Year Ended December 31,			Percent Change	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
	($ in millions)				
Commissions, brokerage and other underwriting expenses	$ 1,617.3	$ 1,651.2	$ 1,657.3	(2.1%)	(0.4%)
Expense ratio	32.5%	33.3%	33.3%		

2018 vs 2017. The decrease in commissions, brokerage and other underwriting expenses in 2018 from 2017 primarily reflects the impact of the sale of PacificComp, partially offset by an increase at CapSpecialty due primarily to the impact of higher net premiums earned.

2017 vs 2016. The slight decrease in commissions, brokerage and other underwriting expenses in 2017 from 2016 primarily reflected a decrease at our reinsurance segment from the impact of lower net premiums earned and losses arising from Hurricanes Irma, Harvey and Maria on short-term incentive compensation expense accruals, largely offset by an increase at our insurance segment due to the impact of higher net premiums earned at CapSpecialty and PacificComp.

A detailed comparison of commissions, brokerage and other underwriting expenses by segment for 2018, 2017 and 2016 is contained on pages 86 and 93.

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Underwriting profit. The following table presents our consolidated underwriting (loss) profit:

	Year Ended December 31,			Percent Change	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
	($ in millions)				
Underwriting (loss) profit	$ (161.5)	$ (316.4)	$ 401.3	(49.0%)	(178.8%)
Combined ratio	103.2%	106.4%	91.9%		

2018 vs 2017. The decrease in underwriting loss in 2018 from 2017 primarily reflects significantly lower catastrophe losses at our reinsurance and insurance segments, as discussed above.

2017 vs 2016. The underwriting loss in 2017 compared with the underwriting profit in 2016 primarily reflected significant catastrophe losses related to Hurricanes Irma, Harvey and Maria at our reinsurance and insurance segments, as discussed above.

A detailed comparison of underwriting profits by segment for 2018, 2017 and 2016 is contained on pages 87 and 94.

Investment results. The following table presents our consolidated investment results:

	Year Ended December 31,			Percent Change	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
		($ in millions)			
Net investment income	$ 500.5	$ 451.0	$ 438.5	11.0%	2.9%
Change in the fair value of equity securities	(229.0)	-	-	-	-
Net realized capital gains	(3.2)	107.2	63.2	(103.0%)	69.6%
Other than temporary impairment losses	(1.3)	(16.9)	(45.2)	(92.3%)	(62.6%)

2018 vs 2017. The increase in net investment income in 2018 from 2017 primarily reflects higher dividend income primarily resulting from an increase in the size of our equity securities portfolio during the first three quarters of 2018 and, to a lesser extent, an increase in interest income primarily resulting from higher yields on short-term investments and floating-rate debt securities, partially offset by the impact of the sale of PacificComp.

The increase in net investment income in 2018 from 2017 also reflects higher income from AIHL's limited partnership interests in certain subsidiaries of Ares, as defined below, partially offset by lower income from other partnerships. Partnership income in 2018 includes a $12.9 million increase in the carrying value of our equity investment in Ares. See Note 4(i) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information.

In the first quarter of 2018, we adopted new investment accounting guidance which required changes in the fair value of equity securities, except those accounted for under the equity method, to be recognized in net earnings. In earlier periods, equity securities were considered to be available-for-sale, or "AFS," and were included in the analysis of OTTI. See Note 1(r) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information regarding our adoption of this new guidance.

The change in the fair value of equity securities in 2018 reflects depreciation in the value of our equity securities portfolio, primarily from our holdings in the energy, consumer, communications and materials sectors, partially offset by appreciation in the value of our equity holdings in the information technology sector.

The net realized capital losses in 2018 compared with net realized capital gains in 2017 primarily reflect the absence of net realized capital gains from equity securities in 2018 as a result of our adoption of the new investment accounting guidance discussed above, net realized capital losses taken in 2018 from the sale of debt securities and a $35.4 million capital loss due to an impairment charge from the write-down of certain SORC assets arising from a decline in energy prices as of December 31, 2018, partially offset by a $45.7 million gain on AIHL's conversion of its limited partnership interests in certain subsidiaries of Ares into Ares common units. See Note 4(i) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information on AIHL's conversion.

The decrease in OTTI losses in 2018 from 2017 primarily reflects the absence of impairments from equity securities in 2018 resulting from our adoption of the new investment accounting guidance, as discussed above.

2017 vs 2016. The increase in net investment income in 2017 from 2016 primarily related to higher interest income, partially offset by a decrease in income from other invested assets. The increase in interest income primarily reflected growth in funds withheld and commercial mortgage loan balances, higher yields on short term investments and floating-rate debt securities, as well as the fact that interest income in the fourth quarter of 2016 was reduced by approximately $7 million of adjustments made to more accurately reflect premium amortization associated with certain bonds. The decrease in income from other invested assets primarily reflected a $12.6 million charge on our equity investment in Ares in early 2017. The charge on our equity investment in Ares reflected our share

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of a one-time payment recorded by Ares related to an acquisition by its affiliated entity. In connection with this acquisition, Ares agreed to make certain transaction support payments to the sellers of the acquired entity. Ares expects to receive future management fees derived from the assets under management of the acquired entity.

The increase in net realized capital gains in 2017 from 2016 primarily reflected a $98.8 million capital loss due to an impairment charge from the write-down of certain SORC assets as of December 31, 2016, as more fully described in the following pages, partially offset by lower net realized capital gains from the sale of equity securities.

The decrease in OTTI losses in 2017 from 2016 reflects lower losses related to debt securities.

A detailed comparison of investment results for 2018, 2017 and 2016 is contained on pages 94 and 95.

Noninsurance revenue and expenses. The following table presents our consolidated noninsurance revenue and expenses:

	Year Ended December 31,			Percent Change	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
	($ in millions)				
Noninsurance revenue	$ 1,644.0	$ 928.3	$ 698.8	77.1%	32.8%
Other operating expenses	1,579.3	967.1	765.2	63.3%	26.4%
Corporate administration	15.9	47.0	43.0	(66.2%)	9.3%
Amortization of intangible assets	24.0	19.4	19.0	23.7%	2.1%
Interest expense	90.7	83.0	81.6	9.3%	1.7%

Noninsurance revenue and Other operating expenses. Noninsurance revenue and other operating expenses primarily include sales and expenses associated with our Alleghany Capital segment. Other operating expenses also include the long-term incentive compensation of our reinsurance and insurance segments, which totaled $49.8 million, $72.9 million and $76.1 million in 2018, 2017 and 2016, respectively. The decrease in long-term incentive compensation at our reinsurance and insurance segments in 2018 from 2017 primarily reflects the impact of depreciation in the value of our debt and equity securities portfolios in 2018 compared with appreciation in the value of our equity and, to a lesser extent, debt securities portfolios in 2017. The decrease in long-term incentive compensation at our reinsurance and insurance segments in 2017 from 2016 primarily reflected the impact of losses arising from Hurricanes Irma, Harvey and Maria, partially offset by the impact of appreciation in the value of our equity and, to a lesser extent, debt securities portfolios. See Note 14 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information.

On February 7, 2018, W&W|AFCO Steel acquired the outstanding equity of Hirschfeld for $109.1 million, consisting of $94.4 million in cash and $14.7 million of incremental debt. On October 1, 2018, Alleghany Capital acquired its approximately 85 percent equity in Concord for $136.6 million, consisting of $68.6 million in cash paid on October 1, 2018, $38.2 million of potential contingent consideration based on future profitability and $29.8 million of incremental debt.

The increase in noninsurance revenue and other operating expenses in 2018 from 2017 primarily reflects the acquisitions of Hirschfeld, W&W|AFCO Steel and, to a lesser extent, Concord. The increase in other operating expenses in 2018 from 2017 was partially offset by a decrease in long-term incentive compensation at our reinsurance and insurance segments, as discussed above.

The increase in noninsurance revenue in 2017 from 2016 primarily reflected the acquisition of W&W|AFCO Steel. The increase in other operating expenses in 2017 from 2016 primarily reflected the acquisition of W&W|AFCO Steel and finders' fees, legal and accounting costs and other transaction-related expenses at the Alleghany Capital level, partially offset by a decrease in the long-term incentive compensation of our reinsurance and insurance segments, as discussed above.

Corporate administration. The decrease in corporate administration expense in 2018 from 2017 primarily reflects lower long-term incentive compensation expense accruals at Alleghany, driven by the impact of depreciation in the value of our debt and equity securities portfolios in 2018 compared with appreciation in 2017 in the value of our equity and, to a lesser extent, debt securities portfolios, partially offset by the impact of lower catastrophe losses in 2018. The increase in corporate administration expense in 2017 from 2016 primarily reflected higher long-term incentive compensation expense accruals at Alleghany, driven by the impact of appreciation in the value of our equity and, to a lesser extent, debt securities portfolios, partially offset by losses arising from Hurricanes Irma, Harvey and Maria.

Amortization of intangible assets. The increase in amortization expense in 2018 from 2017 primarily reflects the W&W|AFCO Steel, Hirschfeld and Concord acquisitions. The increase in amortization expenses in 2017 from 2016 primarily reflected the amortization of net intangible assets related to the acquisition of W&W|AFCO Steel, partially offset by a decrease in amortization expense at IPS, as certain of IPS's intangible assets were fully amortized as of December 31, 2016.

Interest expense. The increase in interest expense in 2018 from 2017 primarily reflects borrowings at W&W|AFCO Steel and, to a lesser extent, Concord, as well as the impact of higher interest rates. The increase in interest expense in 2017 from 2016 reflected

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new or increased borrowings at Jazwares, IPS and Bourn & Koch and borrowings at W&W|AFCO Steel. See Note 8 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information.

Income taxes. The following table presents our consolidated income tax expense.

	Year Ended December 31,			Percent Change	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
	($ in millions)				
Income taxes	$ (15.0)	$ (63.8)	$ 187.1	(76.5%)	(134.1%)
Effective tax rate	(38.0%)	(173.9%)	28.9%		

2018 vs 2017. The lower income tax benefit in 2018 from 2017 and the decrease in the effective tax rate in 2018 from 2017, primarily reflect the decrease in the U.S. corporate federal income tax rate due to the Tax Cuts and Jobs Act of 2017, or the "Tax Act," as well as new limitations on certain deductions as a result of the Tax Act and a tax benefit associated with the sale of PacificComp.

The Tax Act was signed into law on December 22, 2017. Among other provisions, the Tax Act reduced the corporate federal income tax rate from 35.0 percent to 21.0 percent, effective January 1, 2018, for the 2018 tax year. As a result, the value of our deferred tax assets and liabilities as of December 31, 2017 was reduced. The net impact of this reduction to our consolidated 2017 tax expense was not material.

2017 vs 2016. The income tax benefit in 2017, compared with income tax expense in 2016, reflected the impact of taxable losses arising from Hurricanes Irma, Harvey and Maria. In addition, income taxes in 2016 included prior period income tax expense adjustments. The effective tax rate in 2017 compared with 2016 primarily reflected income tax benefits from taxable losses arising from Hurricanes Irma, Harvey and Maria in 2017 and, to a lesser extent, a tax benefit associated with the sale of PacificComp, as well as prior period income tax expense adjustments in 2016, which included $16.1 million of out-of-period reductions to current and deferred TransRe tax assets recorded in 2016 that related primarily to periods prior to our merger with TransRe in 2012.

Earnings. The following table presents our consolidated earnings:

	Year Ended December 31,			Percent Change	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
	($ in millions)				
Earnings before income taxes	$ 39.6	$ 36.7	$ 647.8	7.9%	(94.3%)
Net earnings attributable to Alleghany stockholders	39.5	90.1	456.9	(56.2%)	(80.3%)

2018 vs 2017. The increase in earnings before income taxes in 2018 from 2017 primarily reflects significantly lower catastrophe losses and, to a lesser extent, lower long-term incentive compensation expense accruals at the Alleghany parent company and our reinsurance and insurance segments, partially offset by depreciation of our equity securities portfolio, which was recorded in earnings as a result of our adoption of new investment accounting guidance in 2018, and net realized capital losses in 2018 compared with net realized capital gains in 2017, all as discussed above. The decrease in net earnings attributable to Alleghany stockholders in 2018 from 2017 primarily reflects a significantly lower income tax benefit, as discussed above.

2017 vs 2016. The decrease in earnings before income taxes and net earnings attributable to Alleghany stockholders in 2017 from 2016 primarily reflected significant catastrophe losses related to Hurricanes Irma, Harvey and Maria at our reinsurance and insurance segments, as discussed above.

Reinsurance Segment Underwriting Results

The reinsurance segment is comprised of TransRe's property and casualty & other lines of business. TransRe also writes a modest amount of property and casualty insurance business, which is included in the reinsurance segment. For a more detailed description of our reinsurance segment, see Part I, Item 1, "Business—Segment Information—Reinsurance Segment" of this Form 10-K.

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The following tables present the underwriting results of the reinsurance segment:

Year Ended December 31, 2018	Property	Casualty & other(1)	Total
		($ in millions)	
Gross premiums written	$ 1,532.7	$ 2,918.3	$ 4,451.0
Net premiums written	1,169.4	2,799.7	3,969.1
Net premiums earned	1,177.3	2,761.7	3,939.0
Net loss and LAE:			
Current year (excluding catastrophe losses)	670.9	1,964.4	2,635.3
Current year catastrophe losses	481.8	18.3	500.1
Prior years	(84.9)	(181.2)	(266.1)
Total net loss and LAE	1,067.8	1,801.5	2,869.3
Commissions, brokerage and other underwriting expenses	384.9	897.4	1,282.3
Underwriting (loss) profit(2)	$ (275.4)	$ 62.8	$ (212.6)
Loss ratio(3):			
Current year (excluding catastrophe losses)	57.0%	71.1%	66.9%
Current year catastrophe losses	40.9%	0.7%	12.7%
Prior years	(7.2%)	(6.6%)	(6.8%)
Total net loss and LAE	90.7%	65.2%	72.8%
Expense ratio(4)	32.7%	32.5%	32.6%
Combined ratio(5)	123.4%	97.7%	105.4%

Year Ended December 31, 2017	Property	Casualty & other(1)	Total
		($ in millions)	
Gross premiums written	$ 1,557.8	$ 2,652.8	$ 4,210.6
Net premiums written	1,233.1	2,577.0	3,810.1
Net premiums earned	1,181.9	2,626.8	3,808.7
Net loss and LAE:			
Current year (excluding catastrophe losses)	658.3	1,795.5	2,453.8
Current year catastrophe losses	516.3	64.8	581.1
Prior years	(94.5)	(155.0)	(249.5)
Total net loss and LAE	1,080.1	1,705.3	2,785.4
Commissions, brokerage and other underwriting expenses	383.4	903.3	1,286.7
Underwriting (loss) profit(2)	$ (281.6)	$ 18.2	$ (263.4)
Loss ratio(3):			
Current year (excluding catastrophe losses)	55.7%	68.3%	64.3%
Current year catastrophe losses	43.7%	2.5%	15.3%
Prior years	(8.0%)	(5.8%)	(6.5%)
Total net loss and LAE	91.4%	65.0%	73.1%
Expense ratio(4)	32.4%	34.4%	33.8%
Combined ratio(5)	123.8%	99.4%	106.9%

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Year Ended December 31, 2016	Property	Casualty & other(1)	Total
		($ in millions)	
Gross premiums written	$ 1,515.5	$ 2,814.8	$ 4,330.3
Net premiums written	1,237.2	2,732.2	3,969.4
Net premiums earned	1,168.0	2,677.0	3,845.0
Net loss and LAE:			
Current year (excluding catastrophe losses)	547.4	1,892.9	2,440.3
Current year catastrophe losses	136.7	1.9	138.6
Prior years	(105.7)	(187.8)	(293.5)
Total net loss and LAE	578.4	1,707.0	2,285.4
Commissions, brokerage and other underwriting expenses	376.2	922.8	1,299.0
Underwriting profit(2)	$ 213.4	$ 47.2	$ 260.6
Loss ratio(3):			
Current year (excluding catastrophe losses)	46.9%	70.7%	63.5%
Current year catastrophe losses	11.7%	0.1%	3.6%
Prior years	(9.0%)	(7.0%)	(7.6%)
Total net loss and LAE	49.6%	63.8%	59.5%
Expense ratio(4)	32.2%	34.5%	33.8%
Combined ratio(5)	81.8%	98.3%	93.3%

(1) Primarily consists of the following assumed reinsurance lines of business: directors' and officers' liability; errors and omissions liability; general liability; medical malpractice; ocean marine and aviation; auto liability; accident and health; mortgage reinsurance; surety; and credit.

(2) Underwriting profit represents net premiums earned less net loss and LAE and commissions, brokerage and other underwriting expenses, all as determined in accordance with GAAP, and does not include net investment income, change in the fair value of equity securities, net realized capital gains, OTTI losses, noninsurance revenue, other operating expenses, corporate administration, amortization of intangible assets and interest expense. Underwriting profit is a non-GAAP financial measure and does not replace earnings before income taxes determined in accordance with GAAP as a measure of profitability. See "Comment on Non-GAAP Financial Measures" herein for additional detail on the presentation of our results of operations.

(3) The loss ratio is derived by dividing the amount of net loss and LAE by net premiums earned, all as determined in accordance with GAAP.

(4) The expense ratio is derived by dividing the amount of commissions, brokerage and other underwriting expenses by net premiums earned, all as determined in accordance with GAAP.

(5) The combined ratio is the sum of the loss ratio and the expense ratio, all as determined in accordance with GAAP. The combined ratio represents the percentage of each premium dollar a reinsurance or an insurance company has to spend on net loss and LAE, and commissions, brokerage and other underwriting expenses.

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Reinsurance Segment: Premiums. The following table presents premiums for the reinsurance segment:

	Year Ended December 31, 2018	2017	2016	Percent Change 2018 vs 2017	2017 vs 2016
	($ in millions)				
Property					
Premiums written:					
Gross premiums written	$ 1,532.7	$ 1,557.8	$ 1,515.5	(1.6%)	2.8%
Net premiums written	1,169.4	1,233.1	1,237.2	(5.2%)	(0.3%)
Net premiums earned	1,177.3	1,181.9	1,168.0	(0.4%)	1.2%
Casualty & other					
Premiums written:					
Gross premiums written	$ 2,918.3	$ 2,652.8	$ 2,814.8	10.0%	(5.8%)
Net premiums written	2,799.7	2,577.0	2,732.2	8.6%	(5.7%)
Net premiums earned	2,761.7	2,626.8	2,677.0	5.1%	(1.9%)
Total					
Premiums written:					
Gross premiums written	$ 4,451.0	$ 4,210.6	$ 4,330.3	5.7%	(2.8%)
Net premiums written	3,969.1	3,810.1	3,969.4	4.2%	(4.0%)
Net premiums earned	3,939.0	3,808.7	3,845.0	3.4%	(0.9%)

Property. The decrease in gross premiums written in 2018 from 2017 primarily reflects a decline in property-related Quota Share Treaty premiums written, partially offset by an increase in premiums written by the Asia-Pacific operations. Gross premiums written related to the Quota Share Treaty were $280.8 million and $364.3 million in 2018 and 2017, respectively, reflecting a reduction of TransRe's quota share participation, as well as a decline in property-related premiums written. Excluding the impact of changes in foreign currency exchange rates, gross premiums written decreased by 1.7 percent in 2018 from 2017. The slight decrease in net premiums earned in 2018 from 2017 primarily reflects higher ceded premiums earned due to an increase in retrocessional coverage. Excluding the impact of changes in foreign currency exchange rates, net premiums earned decreased by 0.5 percent in 2018 from 2017.

The increase in gross premiums written in 2017 from 2016 primarily reflected reinstatement premiums written on treaties impacted by catastrophe losses and an increase in gross premiums written related to the Quota Share Treaty, partially offset by cancellations, non-renewals and reduced participations in certain international treaties. Gross premiums written related to the Quota Share Treaty were $364.3 million and $353.2 million in 2017 and 2016, respectively. Excluding the impact of changes in foreign currency exchange rates, gross premiums written increased by 2.7 percent in 2017 from 2016. The increase in net premiums earned in 2017 from 2016 primarily reflected increased premiums earned related to the Quota Share Treaty and $30.2 million of net reinstatement premiums earned on treaties impacted by catastrophe losses, partially offset by higher ceded premiums earned due to an increase in retrocessional coverage purchased in 2017. Excluding the impact of changes in foreign currency exchange rates, net premiums earned increased by 1.2 percent in 2017 from 2016.

Casualty & other. The increase in gross premiums written in 2018 from 2017 primarily reflects the impact of the Renewal Rights Purchase, an increase in casualty-related Quota Share Treaty premiums written and an increase in premiums written by the North America and Asia-Pacific operations. Gross premiums written related to the Quota Share Treaty were $456.8 million and $416.6 million in 2018 and 2017, respectively, reflecting an increase in casualty-related premiums written, partially offset by a reduction of TransRe's quota share participation. Excluding the impact of changes in foreign currency exchange rates, gross premiums written increased by 9.8 percent in 2018 from 2017. The increase in net premiums earned in 2018 from 2017 primarily reflects an increase in gross premiums written in recent quarters. Excluding the impact of changes in foreign currency exchange rates, net premiums earned increased by 5.0 percent in 2018 from 2017.

The decrease in gross premiums written in 2017 from 2016 primarily reflected cancellations, non-renewals and reduced participations in certain treaties, as well as the impact of rate pressures and increased retentions by cedants and a decrease in casualty-related premiums written related to the Quota Share Treaty, partially offset by reinstatement premiums written on treaties impacted by catastrophe losses. Gross premiums written related to the Quota Share Treaty were $416.6 million and $501.1 million in 2017 and 2016, respectively. Premiums written related to the Quota Share Treaty in 2016 reflected elevated premiums written in the first quarter of 2016 due to differences between initial premium estimates at contract inception, which were recorded in the fourth quarter of 2015, and actual data subsequently reported. As a consequence of this change in estimate, premiums written in the fourth quarter of 2015 were understated and premiums written in the first quarter of 2016 were correspondingly increased. In general, when actual data has not been reported by

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ceding companies, premiums written are estimated based on historical patterns and other relevant factors. Any differences between these estimates and actual data subsequently reported are recorded in the period when actual data becomes available. Excluding the impact of changes in foreign currency exchange rates, gross premiums written decreased by 5.6 percent in 2017 from 2016. The decrease in net premiums earned in 2017 from 2016 primarily reflected the decline in net premiums written in recent quarters and the impact of changes in foreign currency exchange rates, partially offset by $4.3 million of net reinstatement premiums earned on treaties impacted by catastrophe losses. Excluding the impact of changes in foreign currency exchange rates, net premiums earned decreased by 1.5 percent in 2017 from 2016.

Reinsurance Segment: Net loss and LAE. The following table presents net loss and LAE for the reinsurance segment:

	Year Ended December 31,			Percent Change	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
		($ in millions)			
Property					
Net loss and LAE:					
Current year (excluding catastrophe losses)	$ 670.9	$ 658.3	$ 547.4	1.9%	20.3%
Current year catastrophe losses	481.8	516.3	136.7	(6.7%)	277.7%
Prior years	(84.9)	(94.5)	(105.7)	(10.2%)	(10.6%)
Total net loss and LAE	$ 1,067.8	$ 1,080.1	$ 578.4	(1.1%)	86.7%
Loss ratio:					
Current year (excluding catastrophe losses)	57.0%	55.7%	46.9%		
Current year catastrophe losses	40.9%	43.7%	11.7%		
Prior years	(7.2%)	(8.0%)	(9.0%)		
Total net loss and LAE	90.7%	91.4%	49.6%		
Casualty & other					
Net loss and LAE:					
Current year (excluding catastrophe losses)	$ 1,964.4	$ 1,795.5	$ 1,892.9	9.4%	(5.1%)
Current year catastrophe losses	18.3	64.8	1.9	(71.8%)	3,310.5%
Prior years	(181.2)	(155.0)	(187.8)	16.9%	(17.5%)
Total net loss and LAE	$ 1,801.5	$ 1,705.3	$ 1,707.0	5.6%	(0.1%)
Loss ratio:					
Current year (excluding catastrophe losses)	71.1%	68.3%	70.7%		
Current year catastrophe losses	0.7%	2.5%	0.1%		
Prior years	(6.6%)	(5.8%)	(7.0%)		
Total net loss and LAE	65.2%	65.0%	63.8%		
Total					
Net loss and LAE:					
Current year (excluding catastrophe losses)	$ 2,635.3	$ 2,453.8	$ 2,440.3	7.4%	0.6%
Current year catastrophe losses	500.1	581.1	138.6	(13.9%)	319.3%
Prior years	(266.1)	(249.5)	(293.5)	6.7%	(15.0%)
Total net loss and LAE	$ 2,869.3	$ 2,785.4	$ 2,285.4	3.0%	21.9%
Loss ratio:					
Current year (excluding catastrophe losses)	66.9%	64.3%	63.5%		
Current year catastrophe losses	12.7%	15.3%	3.6%		
Prior years	(6.8%)	(6.5%)	(7.6%)		
Total net loss and LAE	72.8%	73.1%	59.5%		

Property. The decrease in net loss and LAE in 2018 from 2017 primarily reflects lower catastrophe losses, partially offset by higher non-catastrophe losses and less favorable prior accident year loss reserve development. The catastrophe losses in 2018 include

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$163.2 million related to Typhoon Jebi, $160.6 million related to wildfires in California, $76.7 million related to Hurricane Michael, $31.9 million related to Hurricane Florence, $29.7 million related to Typhoon Trami and $19.7 million related to several severe weather events in East Asia. Catastrophe losses in 2017 included $181.3 million related to Hurricane Maria in September 2017, $128.1 million related to Hurricane Irma in September 2017, $110.8 million related to Hurricane Harvey in August 2017, $69.2 million related to wildfires in California in the fourth quarter of 2017 and $26.9 million related to earthquakes in Mexico in September 2017.

The increase in net loss and LAE in 2017 from 2016 primarily reflected higher catastrophe losses. The catastrophe losses in 2016 related to wildfire losses in Alberta, Canada, earthquake losses in Japan, earthquake losses in Ecuador, all of which occurred in the second quarter, typhoon and flood losses in China in the third quarter, earthquake losses related to an earthquake in New Zealand in the fourth quarter and $21.8 million of losses related to Hurricane Matthew, which caused property damage and flooding in the Southeast Coast of the U.S. in October.

Net loss and LAE in 2018, 2017 and 2016 include (favorable) unfavorable prior accident year loss reserve development as presented in the table below:

	Year Ended December 31,					
	2018		2017		2016	
	($ in millions)					
Catastrophe events	$ (20.2)	(1)	$ (22.2)	(2)	$ (14.2)	(3)
Non-catastrophe	(64.7)	(4)	(72.3)	(5)	(91.5)	(6)
Total	$ (84.9)		$ (94.5)		$ (105.7)	

(1) Primarily reflects favorable prior accident year loss reserve development related to Hurricane Harvey in the 2017 accident year and catastrophes in the 2016 accident year, partially offset by unfavorable prior accident year loss reserve development related to Hurricanes Maria and Irma in the 2017 accident year.
(2) Reflects favorable prior accident year loss reserve development related to several catastrophes primarily in the 2016 accident year.
(3) Reflects favorable prior accident year loss reserve development related to several catastrophes in the 2010 through 2015 accident years.
(4) Primarily reflects favorable prior accident year loss reserve development in the 2015 and 2016 accident years, partially offset by unfavorable prior accident year loss reserve development in the 2017 accident year.
(5) Reflects favorable prior accident year loss reserve development primarily in the 2011 through 2016 accident years.
(6) Reflects favorable prior accident year loss reserve development primarily in the 2011 through 2015 accident years.

The favorable prior accident year loss reserve development in 2018, 2017 and 2016 reflects favorable loss emergence compared with loss emergence patterns assumed in earlier periods. The favorable prior accident year loss reserve development in 2018 did not impact assumptions used in estimating TransRe's loss and LAE liabilities for business earned in 2018.

Casualty & other. The increase in net loss and LAE in 2018 from 2017 primarily reflects the impact of higher net premiums earned, partially offset by lower catastrophe losses. Catastrophe losses in 2018 relate primarily to the marine and nontraditional lines of business and include $4.6 million related to Hurricane Florence in September 2018, $3.4 million related to Hurricane Michael in October 2018, $3.1 million related to wildfires in California in the fourth quarter of 2018, $4.0 million related to Typhoon Jebi in September 2018 and $3.2 million related to several severe weather events in East Asia. Catastrophe losses in 2017 relate primarily to the marine lines of business and include $26.2 million related to Hurricane Irma in September 2017, $20.1 million related to Hurricane Harvey in August 2017, $15.4 million related to Hurricane Maria in September 2017, $1.6 million related to wildfires in California in the fourth quarter of 2017 and $1.5 million related to earthquakes in Mexico in September 2017.

Net loss and LAE in 2017 approximated those in 2016, primarily reflecting higher catastrophe losses and less favorable prior accident year loss reserve development, offset by the impact of lower net premiums earned and lower non-catastrophe losses in the 2017 accident year. Catastrophe losses in 2017 related primarily to the marine lines of business and included $26.2 million related to Hurricane Irma, $20.1 million related to Hurricane Harvey, $15.4 million related to Hurricane Maria, $1.6 million related to wildfires in California and $1.5 million related to earthquakes in Mexico. The modest catastrophe losses in 2016 related primarily to earthquake losses in Ecuador.

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Net loss and LAE in 2018, 2017 and 2016 include (favorable) unfavorable prior accident year loss reserve development as presented in the table below:

	Year Ended December 31,		
	2018	2017	2016
	($ in millions)		
Malpractice Treaties(1)	$ (3.4)	$ (5.0)	$ (10.8)
Ogden rate impact(2)	-	24.4	-
Other	(177.8)(3)	(174.4)(4)	(177.0)(5)
Total	$ (181.2)	$ (155.0)	$ (187.8)

(1) Represents certain medical malpractice treaties, or the "Malpractice Treaties," pursuant to which the increased underwriting profits created by the favorable prior accident year loss reserve development are largely retained by the cedants. As a result, the favorable prior accident year loss reserve development is largely offset by an increase in profit commission expense incurred when such favorable prior accident year loss reserve development occurs.

(2) Represents unfavorable prior accident year loss reserve development related to the U.K. Ministry of Justice's reduction in the discount rate used to calculate lump-sum bodily injury payouts in personal injury insurance claims in the U.K to negative 0.75 percent as of March 20, 2017 from 2.50 percent.

(3) Primarily reflects favorable prior accident year loss reserve development in the longer-tailed casualty lines of business in the 2002 through 2010 accident years and in the shorter-tailed casualty lines of business (specifically, ocean marine, automobile liability and accident and health) in the 2017 accident year, partially offset by unfavorable prior accident year loss reserve development in the professional liability lines of business in the 2015 accident year.

(4) Primarily reflects favorable prior accident year loss reserve development in: (i) longer-tailed professional liability and general liability lines of business in the 2003 through 2012 accident years; and (ii) shorter-tailed casualty lines of business in the 2010 through 2014 accident years; partially offset by unfavorable prior accident year loss reserve development in shorter-tailed casualty lines of business in the 2015 and 2016 accident years.

(5) Generally reflects favorable prior accident year loss reserve development reserves in a variety of casualty & other lines of business primarily in the 2003 through 2015 accident years.

The favorable prior accident year loss reserve development in 2018, 2017 and 2016 reflects favorable loss emergence compared with loss emergence patterns assumed in earlier periods. The favorable prior accident year loss reserve development in 2018 did not impact assumptions used in estimating TransRe's loss and LAE liabilities for business earned in 2018.

Reinsurance Segment: Commissions, brokerage and other underwriting expenses. The following table presents commissions, brokerage and other underwriting expenses for the reinsurance segment:

	Year Ended December 31,			Percent Change	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
	($ in millions)				
Property					
Commissions, brokerage and other underwriting expenses	$ 384.9	$ 383.4	$ 376.2	0.4%	1.9%
Expense ratio	32.7%	32.4%	32.2%		
Casualty & other					
Commissions, brokerage and other underwriting expenses	$ 897.4	$ 903.3	$ 922.8	(0.7%)	(2.1%)
Expense ratio	32.5%	34.4%	34.5%		
Total					
Commissions, brokerage and other underwriting expenses	$ 1,282.3	$1,286.7	$ 1,299.0	(0.3%)	(0.9%)
Expense ratio	32.6%	33.8%	33.8%		

Property. The slight increase in commissions, brokerage and other underwriting expenses in 2018 from 2017 primarily reflects higher commission rates, partially offset by the impact of slightly lower net premiums earned. The increase in commissions, brokerage and other underwriting expenses in 2017 from 2016 primarily reflected the impact of higher net premiums earned and an increase in commission rates, partially offset by lower short-term incentive compensation expense accruals arising from the significant catastrophe losses in 2017.

Casualty & other. The slight decrease in commissions, brokerage and other underwriting expenses in 2018 from 2017 primarily reflects lower commission rates and lower short-term incentive compensation accruals, partially offset by the impact of higher net premiums earned. The decrease in commissions, brokerage and other underwriting expenses in 2017 from 2016 primarily reflected lower short-term incentive compensation expense accruals arising from the significant catastrophe losses in 2017, the impact of lower net premiums earned and a decrease in profit commissions related to the Malpractice Treaties.

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Reinsurance Segment: Underwriting profit. The following table presents our underwriting (loss) profit for the reinsurance segment:

	Year Ended December 31,			Percent Change	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
	($ in millions)				
Property					
Underwriting (loss) profit	$ (275.4)	$ (281.6)	$ 213.4	(2.2%)	(232.0%)
Combined ratio	123.4%	123.8%	81.8%		
Casualty & other					
Underwriting profit	$ 62.8	$ 18.2	$ 47.2	245.1%	(61.4%)
Combined ratio	97.8%	99.4%	98.3%		
Total					
Underwriting (loss) profit	$ (212.6)	$ (263.4)	$ 260.6	(19.3%)	(201.1%)
Combined ratio	105.4%	106.9%	93.3%		

Property. The decrease in underwriting loss in 2018 from 2017 primarily reflects lower catastrophe losses, partially offset by an increase in non-catastrophe losses, all as discussed above. The underwriting loss in 2017, compared with the underwriting profit in 2016, primarily reflected significant catastrophe losses related to Hurricanes Maria, Irma and Harvey, as discussed above.

Casualty & other. The increase in underwriting profit in 2018 from 2017 primarily reflects lower catastrophe losses, as discussed above. The decrease in underwriting profit in 2017 from 2016 primarily reflected significant catastrophe losses related to Hurricanes Irma, Harvey and Maria, as well as less favorable prior accident year loss reserve development, as discussed above.

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Insurance Segment Underwriting Results

The insurance segment is comprised of AIHL's RSUI, CapSpecialty and PacificComp (prior to its sale on December 31, 2017) operating subsidiaries. RSUI also writes a modest amount of assumed reinsurance business, which is included in the insurance segment. For a more detailed description of our insurance segment, see Part I, Item 1, "Business—Segment Information—Insurance Segment" of this Form 10-K.

The following tables present the underwriting results of the insurance segment:

Year Ended December 31, 2018	RSUI	CapSpecialty	Total
		($ in millions)	
Gross premiums written	$ 1,142.0	$ 328.8	$ 1,470.8
Net premiums written	773.3	306.0	1,079.3
Net premiums earned	747.3	289.9	1,037.2
Net loss and LAE:			
Current year (excluding catastrophe losses)	395.0	161.4	556.4
Current year catastrophe losses	154.9	2.7	157.6
Prior years	(58.7)	(4.2)	(62.9)
Total net loss and LAE	491.2	159.9	651.1
Commissions, brokerage and other underwriting expenses	211.9	123.1	335.0
Underwriting profit(1)	$ 44.2	$ 6.9	$ 51.1
Loss ratio(2):			
Current year (excluding catastrophe losses)	52.9%	55.7%	53.6%
Current year catastrophe losses	20.7%	0.9%	15.3%
Prior years	(7.9%)	(1.4%)	(6.1%)
Total net loss and LAE	65.7%	55.2%	62.8%
Expense ratio(3)	28.4%	42.5%	32.3%
Combined ratio(4)	94.1%	97.7%	95.1%

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Year Ended December 31, 2017	RSUI	CapSpecialty	PacificComp	Total
		($ in millions)		
Gross premiums written	$ 1,056.8	$ 290.2	$ 162.6	$ 1,509.6
Net premiums written	724.4	271.2	160.2	1,155.8
Net premiums earned	721.7	260.9	163.7	1,146.3
Net loss and LAE:				
Current year (excluding catastrophe losses)	380.7	142.7	123.5	646.9
Current year catastrophe losses	232.4	4.6	-	237.0
Prior years	(43.2)	(3.4)	(2.5)	(49.1)
Total net loss and LAE	569.9	143.9	121.0	834.8
Commissions, brokerage and other underwriting expenses	208.9	112.7	42.9	364.5
Underwriting (loss) profit(1)	$ (57.1)	$ 4.3	$ (0.2)	$ (53.0)
Loss ratio(2):				
Current year (excluding catastrophe losses)	52.8%	54.7%	75.4%	56.4%
Current year catastrophe losses	32.2%	1.8%	- %	20.7%
Prior years	(6.0%)	(1.4%)	(1.5%)	(4.3%)
Total net loss and LAE	79.0%	55.1%	73.9%	72.8%
Expense ratio(3)	28.9%	43.2%	26.2%	31.8%
Combined ratio(4)	107.9%	98.3%	100.1%	104.6%

Year Ended December 31, 2016	RSUI	CapSpecialty	PacificComp	Total
		($ in millions)		
Gross premiums written	$ 1,056.4	$ 266.5	$ 139.8	$ 1,462.7
Net premiums written	734.1	250.0	138.3	1,122.4
Net premiums earned	754.5	237.5	138.8	1,130.8
Net loss and LAE:				
Current year (excluding catastrophe losses)	391.4	122.8	104.7	618.9
Current year catastrophe losses	80.7	6.7	-	87.4
Prior years	(68.3)	(4.2)	(2.0)	(74.5)
Total net loss and LAE	403.8	125.3	102.7	631.8
Commissions, brokerage and other underwriting expenses	212.3	107.3	38.7	358.3
Underwriting profit (loss)(1)	$ 138.4	$ 4.9	$ (2.6)	$ 140.7
Loss ratio(2):				
Current year (excluding catastrophe losses)	51.9%	51.7%	75.4%	54.8%
Current year catastrophe losses	10.7%	2.8%	- %	7.7%
Prior years	(9.1%)	(1.8%)	(1.4%)	(6.6%)
Total net loss and LAE	53.5%	52.7%	74.0%	55.9%
Expense ratio(3)	28.1%	45.2%	27.9%	31.7%
Combined ratio(4)	81.6%	97.9%	101.9%	87.6%

(1) Underwriting profit represents net premiums earned less net loss and LAE and commissions, brokerage and other underwriting expenses, all as determined in accordance with GAAP, and does not include net investment income, change in the fair value of equity securities, net realized capital gains, OTTI losses, noninsurance revenue, other operating expenses, corporate administration, amortization of intangible assets and interest expense. Underwriting profit is a non-GAAP financial measure and does not replace earnings before income taxes determined in accordance with GAAP as a measure of profitability. See "Comment on Non-GAAP Financial Measures" herein for additional detail on the presentation of our results of operations.

(2) The loss ratio is derived by dividing the amount of net loss and LAE by net premiums earned, all as determined in accordance with GAAP.

(3) The expense ratio is derived by dividing the amount of commissions, brokerage and other underwriting expenses by net premiums earned, all as determined in accordance with GAAP.

(4) The combined ratio is the sum of the loss ratio and the expense ratio, all as determined in accordance with GAAP. The combined ratio represents the percentage of each premium dollar a reinsurance or an insurance company has to spend on net loss and LAE, and commissions, brokerage and other underwriting expenses.

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Insurance Segment: Premiums. The following table presents premiums for the insurance segment:.

	Year Ended December 31,			Percent Change	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
		($ in millions)			
RSUI					
Premiums written:					
Gross premiums written	$ 1,142.0	$ 1,056.8	$ 1,056.4	8.1%	-
Net premiums written	773.3	724.4	734.1	6.8%	(1.3%)
Net premiums earned	747.3	721.7	754.5	3.5%	(4.3%)
CapSpecialty					
Premiums written:					
Gross premiums written	$ 328.8	$ 290.2	$ 266.5	13.3%	8.9%
Net premiums written	306.0	271.2	250.0	12.8%	8.5%
Net premiums earned	289.9	260.9	237.5	11.1%	9.9%
PacificComp					
Premiums written:					
Gross premiums written	$ -	$ 162.6	$ 139.8	(100.0%)	16.3%
Net premiums written	-	160.2	138.3	(100.0%)	15.8%
Net premiums earned	-	163.7	138.8	(100.0%)	17.9%
Total					
Premiums written:					
Gross premiums written	$ 1,470.8	$ 1,509.6	$ 1,462.7	(2.6%)	3.2%
Net premiums written	1,079.3	1,155.8	1,122.4	(6.6%)	3.0%
Net premiums earned	1,037.2	1,146.3	1,130.8	(9.5%)	1.4%

RSUI. The increase in gross premiums written in 2018 from 2017 primarily reflects growth in most lines of business due to an increase in business opportunities and improved general market conditions, particularly in the property lines of business. Gross premiums written in 2017 approximated gross premiums written in 2016, primarily reflecting declines in the property and most casualty lines of business in the first nine months of 2017 due to an increase in competition, offset by 2017 fourth quarter growth due to an increase in business opportunities and improved general market conditions, particularly in the property lines of business.

The increase in net premiums earned in 2018 from 2017 primarily reflects an increase in gross premiums written in recent quarters, partially offset by higher ceded premiums earned related to reinstatement premiums on RSUI's per risk property reinsurance treaties and the impact of growth in the heavily-reinsured property lines of business. The decrease in net premiums earned in 2017 from 2016 primarily reflected a general trend of declining gross premiums written prior to the fourth quarter of 2017.

CapSpecialty. The increases in gross premiums written in 2018 from 2017 and in 2017 from 2016 primarily reflect growth in the professional liability and miscellaneous medical lines of business due to CapSpecialty's distribution initiatives and expanded product offerings. The increase in gross premiums written in 2018 from 2017 also reflects the impact of CapSpecialty's February 20, 2018 purchase of certain renewal rights associated with a small environmental block of business and growth in the surety lines of business.

The increases in net premiums earned in 2018 from 2017 and in 2017 from 2016 primarily reflect increases in gross premiums written.

PacificComp. The results shown for 2018 reflect the sale of PacificComp on December 31, 2017. The increases in gross premiums written and net premiums earned in 2017 from 2016 primarily reflected premium growth due to PacificComp's distribution initiatives and growth in targeted segments of the workers' compensation market in California.

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Insurance Segment: Net loss and LAE. The following table presents net loss and LAE for the insurance segment:

	Year Ended December 31,			Percent Change	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
	($ in millions)				
RSUI					
Net loss and LAE:					
Current year (excluding catastrophe losses)	$ 395.0	$ 380.7	$ 391.4	3.8%	(2.7%)
Current year catastrophe losses	154.9	232.4	80.7	(33.3%)	188.0%
Prior years	(58.7)	(43.2)	(68.3)	35.9%	(36.7%)
Total net loss and LAE	$ 491.2	$ 569.9	$ 403.8	(13.8%)	41.1%
Loss ratio:					
Current year (excluding catastrophe losses)	52.9%	52.8%	51.9%		
Current year catastrophe losses	20.7%	32.2%	10.7%		
Prior years	(7.9%)	(6.0%)	(9.1%)		
Total net loss and LAE	65.7%	79.0%	53.5%		
CapSpecialty					
Net loss and LAE:					
Current year (excluding catastrophe losses)	$ 161.4	$ 142.7	$ 122.8	13.1%	16.2%
Current year catastrophe losses	2.7	4.6	6.7	(41.3%)	(31.3%)
Prior years	(4.2)	(3.4)	(4.2)	23.5%	(19.0%)
Total net loss and LAE	$ 159.9	$ 143.9	$ 125.3	11.1%	14.8%
Loss ratio:					
Current year (excluding catastrophe losses)	55.7%	54.7%	51.7%		
Current year catastrophe losses	0.9%	1.8%	2.8%		
Prior years	(1.4%)	(1.4%)	(1.8%)		
Total net loss and LAE	55.2%	55.1%	52.7%		
PacificComp					
Net loss and LAE:					
Current year (excluding catastrophe losses)	$ -	$ 123.5	$ 104.7	(100.0%)	18.0%
Current year catastrophe losses	-	-	-	–	–
Prior years	-	(2.5)	(2.0)	(100.0%)	25.0%
Total net loss and LAE	$ -	$ 121.0	$ 102.7	(100.0%)	17.8%
Loss ratio:					
Current year (excluding catastrophe losses)	- %	75.4%	75.4%		
Current year catastrophe losses	- %	- %	- %		
Prior years	- %	(1.5%)	(1.4%)		
Total net loss and LAE	- %	73.9%	74.0%		
Total					
Net loss and LAE:					
Current year (excluding catastrophe losses)	$ 556.4	$ 646.9	$ 618.9	(14.0%)	4.5%
Current year catastrophe losses	157.6	237.0	87.4	(33.5%)	171.2%
Prior years	(62.9)	(49.1)	(74.5)	28.1%	(34.1%)
Total net loss and LAE	$ 651.1	$ 834.8	$ 631.8	(22.0%)	32.1%
Loss ratio:					
Current year (excluding catastrophe losses)	53.6%	56.4%	54.8%		
Current year catastrophe losses	15.3%	20.7%	7.7%		
Prior years	(6.1%)	(4.3%)	(6.6%)		
Total net loss and LAE	62.8%	72.8%	55.9%		

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RSUI. The decrease in net loss and LAE in 2018 from 2017 primarily reflects significantly lower catastrophe losses and, to a lesser extent, higher favorable prior accident year loss reserve development, partially offset by the impact of an increase in net premiums earned. The increase in net loss and LAE in 2017 from 2016 primarily reflected higher catastrophe losses.

The catastrophe losses in 2018 include $55.1 million related to Hurricane Michael, $33.8 million from Hurricane Florence and $17.4 million related to wildfires in California, as well as losses related to flooding and severe weather in the Northeastern U.S. and California and typhoons in Japan. Catastrophe losses in 2017 included $97.6 million related to Hurricane Irma, $86.6 million related to Hurricane Harvey and $20.1 million related to Hurricane Maria. Catastrophe losses in 2017 also reflected losses related to flooding in California and severe weather primarily in the Southeastern and Midwestern U.S. Catastrophe losses in 2016 primarily reflected losses related to flooding and severe weather primarily in Texas in April and May, losses related to wildfires in Alberta, Canada in May, losses related to flooding and severe weather primarily in Louisiana and the Midwestern U.S. in the third quarter, losses related to wildfires in Tennessee in November and $26.8 million of losses related to Hurricane Matthew.

Net loss and LAE in 2018, 2017 and 2016 include (favorable) unfavorable prior accident year loss reserve development as presented in the table below:

	Year Ended December 31,		
	2018	2017	2016
	($ in millions)		
Casualty	$ (27.8)(1)	$ (38.9)(2)	$ (35.3)(3)
Property and other	(30.9)(4)	(4.3)(5)	(33.0)(6)
Total	$ (58.7)	$ (43.2)	$ (68.3)

(1) Primarily reflects favorable prior accident year loss reserve development in the umbrella/excess lines of business in the 2005 through 2012 accident years, partially offset by unfavorable prior accident year loss reserve development in the directors' and officers' liability lines of business in the 2009, 2012 and 2016 accident years.
(2) Primarily reflects favorable prior accident year loss reserve development in the umbrella/excess lines of business in the 2005 through 2011 accident years.
(3) Primarily reflects favorable prior accident year loss reserve development in the umbrella/excess, general liability and professional liability lines of business in the 2006 through 2012 accident years.
(4) Primarily reflects favorable prior accident year loss reserve development related to Hurricane Irma in the 2017 accident year and, to a lesser extent, Hurricane Matthew in the 2016 accident year, as well as various other losses not classified as catastrophes in recent accident years.
(5) Primarily reflects favorable catastrophe prior accident year loss reserve development in the 2016 accident year, partially offset by unfavorable prior accident year property loss reserve development in the binding authority lines of business primarily in the 2015 and 2016 accident years.
(6) Includes favorable prior accident year loss reserve development of ($20.6) million related to Super Storm Sandy in 2012 and various other smaller amounts primarily in the non-catastrophe property lines of business in recent accident years.

The favorable prior accident year loss reserve development in 2018, 2017 and 2016 reflects favorable loss emergence compared with loss emergence patterns assumed in earlier periods. The favorable prior accident year loss reserve development in 2018 did not impact assumptions used in estimating RSUI's loss and LAE liabilities for business earned in 2018.

CapSpecialty. The increase in net loss and LAE in 2018 from 2017 primarily reflects the impact of higher net premiums earned and higher 2018 accident year losses due primarily to an increase in net premiums earned for certain lines of business with a higher loss ratio, partially offset by lower catastrophe losses and an increase in favorable prior accident year loss reserve development. The increase in net loss and LAE in 2017 from 2016 primarily reflected the impact of higher net premiums earned, higher 2017 accident year losses and less favorable prior accident year loss reserve development in 2017.

Net loss and LAE in 2018, 2017 and 2016 include (favorable) unfavorable prior accident year loss reserve development as presented in the table below:

	Year Ended December 31,		
	2018	2017	2016
	($ in millions)		
Ongoing lines of business	$ (4.2)(1)	$ (3.4)(2)	$ (0.3)
Terminated Program(3)	-	-	(1.9)
Asbestos-related illness and environmental impairment liability	-	-	(2.0)
Total	$ (4.2)	$ (3.4)	$ (4.2)

(1) Primarily reflects favorable prior accident year loss reserve development in the surety lines of business in the 2016 and 2017 accident years.
(2) Primarily reflects favorable prior accident year loss reserve development in the casualty lines of business in the 2010, 2014, 2015 and 2016 accident years.
(3) Represents certain specialty lines of business written through a program administrator in connection with a terminated program in the 2010 and 2009 accident years and reflects (favorable) loss emergence compared with loss emergence patterns assumed in earlier periods for such business.

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The favorable prior accident year loss reserve development in 2018, 2017 and 2016 reflects favorable loss emergence compared with loss emergence patterns assumed in earlier periods. The favorable prior accident year loss reserve development in 2018 did not impact assumptions used in estimating CapSpecialty's loss and LAE liabilities for business earned in 2018.

PacificComp. The increase in net loss and LAE in 2017 from 2016 primarily reflected the impact of higher net premiums earned, partially offset by an increase in favorable prior accident year loss reserve development.

The favorable prior accident year loss reserve development in 2017 related primarily to the 2013 and prior accident years and reflected favorable loss emergence compared with loss emergence patterns assumed in earlier periods. The favorable prior accident year loss reserve development in 2016 related primarily to the 2012 and prior accident years and reflected favorable loss emergence compared with loss emergence patterns assumed in earlier periods.

Insurance Segment: Commissions, brokerage and other underwriting expenses. The following table presents commissions, brokerage and other underwriting expenses for the insurance segment:

	Year Ended December 31,			Percent Change	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
	($ in millions)				
RSUI					
Commissions, brokerage and other underwriting expenses	$ 211.9	$ 208.9	$ 212.3	1.4%	(1.6%)
Expense ratio	28.4%	28.9%	28.1%		
CapSpecialty					
Commissions, brokerage and other underwriting expenses	$ 123.1	$ 112.7	$ 107.3	9.2%	5.0%
Expense ratio	42.5%	43.2%	45.2%		
PacificComp					
Commissions, brokerage and other underwriting expenses	$ -	$ 42.9	$ 38.7	(100.0%)	10.9%
Expense ratio	-	26.2%	27.9%		
Total					
Commissions, brokerage and other underwriting expenses	$ 335.0	$ 364.5	$ 358.3	(8.1%)	1.7%
Expense ratio	32.3%	31.8%	31.7%		

RSUI. The increase in commissions, brokerage and other underwriting expenses in 2018 from 2017 primarily reflects the impact of higher wage and healthcare costs, partially offset by lower short-term incentive compensation expense accruals and slightly lower commission expense incurred. The decrease in commissions, brokerage and other underwriting expenses in 2017 from 2016 primarily reflected the impact of lower net premiums earned and the impact of losses arising from Hurricanes Irma, Harvey and Maria on short-term incentive compensation expense accruals.

As decreases in net premiums earned exceeded the decreases in commissions, brokerage and other underwriting expenses, RSUI's expense ratio increased in 2017 from 2016.

CapSpecialty. The increase in commissions, brokerage and other underwriting expenses in 2018 from 2017 primarily reflects the impact of higher net premiums earned and relatively stable overhead expenses. The increase also reflects one-time acquisition expenses arising from CapSpecialty's purchase of certain renewal rights associated with a small environmental block of business. The increase in commissions, brokerage and other underwriting expenses in 2017 from 2016 primarily reflected the impact of higher net premiums earned and relatively stable overhead expenses.

PacificComp. The increase in commissions, brokerage and other underwriting expenses in 2017 from 2016 primarily reflected the impact of higher net premiums earned and relatively stable overhead expenses.

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Insurance Segment: Underwriting profit. The following table presents our underwriting profit (loss) for the insurance segment:

	Year Ended December 31,			Percent Change	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
	($ in millions)				
RSUI					
Underwriting profit (loss)	$ 44.2	$ (57.1)	$ 138.4	(177.4%)	(141.3%)
Combined ratio	94.1%	107.9%	81.6%		
CapSpecialty					
Underwriting profit	$ 6.9	$ 4.3	$ 4.9	60.5%	(12.2%)
Combined ratio	97.7%	98.3%	97.9%		
PacificComp					
Underwriting loss	$ -	$ (0.2)	$ (2.6)	(100.0%)	(92.3%)
Combined ratio	- %	100.1%	101.9%		
Total					
Underwriting profit (loss)	$ 51.1	$ (53.0)	$ 140.7	(196.4%)	(137.7%)
Combined ratio	95.1%	104.6%	87.6%		

RSUI. The underwriting profit in 2018, compared with the underwriting loss in 2017, primarily reflects significantly lower catastrophe losses and, to a lesser extent, an increase in favorable prior accident year loss reserve development, all as discussed above. The underwriting loss in 2017, compared with the underwriting profit in 2016, primarily reflected the impact of significant catastrophe losses related to Hurricanes Irma, Harvey and Maria, as discussed above.

CapSpecialty. The increase in underwriting profit in 2018 from 2017 primarily reflects the impact of higher net premiums earned and, to a lesser extent, an increase in favorable prior accident year loss reserve development, all as discussed above. The slight decrease in underwriting profit in 2017 from 2016 primarily reflected the impact of higher 2017 accident year losses and less favorable prior accident year loss reserve development in 2017, partially offset by the impact of growing net premiums earned, all as discussed above.

PacificComp. PacificComp reported underwriting losses in 2017 and 2016 primarily as a result of its expenses relative to comparatively low premiums earned. The decrease in underwriting loss in 2017 from 2016 primarily reflected the impact of growing net premiums earned and, to a lesser extent, an increase in favorable prior accident year loss reserve development, all as discussed above.

Investment Results for the Reinsurance and Insurance Segments

The following table presents the investment results for our reinsurance and insurance segments:

	Year Ended December 31,			Percent Change	
	2018	2017	2016	2018 vs 2017	2017 vs 2016
	($ in millions)				
Net investment income	$ 480.9	$ 434.6	$ 433.1	10.7%	0.3%
Change in the fair value of equity securities	(184.2)	-	-	-	-
Net realized capital gains	31.6	85.7	159.9	(63.1%)	(46.4%)
Other than temporary impairment losses	(1.3)	(16.9)	(45.2)	(92.3%)	(62.6%)

Net Investment Income. The increase in net investment income in 2018 from 2017 primarily reflects higher dividend income primarily resulting from an increase in the size of our equity securities portfolio during the first three quarters of 2018 and, to a lesser extent, an increase in interest income primarily resulting from higher yields on short-term investments and floating-rate debt securities, partially offset by the impact of the sale of PacificComp.

The increase in net investment income in 2018 from 2017 also reflects higher income from AIHL's limited partnership interests in certain subsidiaries of Ares, partially offset by lower income from other partnerships. Partnership income in 2018 includes a

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$12.9 million increase in the carrying value of our equity investment in Ares. See Note 4(i) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information.

The slight increase in net investment income in 2017 from 2016 primarily related to higher interest income, partially offset by a decrease in income from other invested assets. The increase in interest income primarily reflected growth in funds withheld and commercial mortgage loan balances, higher yields on short term investments and floating-rate debt securities, as well as the fact that interest income in the fourth quarter of 2016 was reduced by approximately $7 million of adjustments made to more accurately reflect premium amortization associated with certain bonds. The decrease in income from other invested assets primarily reflected a $12.6 million charge on our equity investment in Ares. The charge on our equity investment in Ares reflected our share of a one-time payment recorded by Ares in early 2017 related to an acquisition by its affiliated entity. In connection with this acquisition, Ares agreed to make certain transaction support payments to the sellers of the acquired entity. Ares expects to receive future management fees derived from the assets under management of the acquired entity.

Change in the fair value of equity securities. In the first quarter of 2018, we adopted new investment accounting guidance which required changes in the fair value of equity securities, except those accounted for under the equity method, to be recognized in net earnings. In earlier periods, equity securities were considered to be AFS and were included in the analysis of OTTI. See Note 1(r) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information regarding our adoption of this new guidance.

The change in the fair value of equity securities in 2018 reflects depreciation in the value of our equity securities portfolio, primarily from our holdings in the energy, consumer, communications and materials sectors, partially offset by appreciation in the value of our equity holdings in the information technology sector.

Net Realized Capital Gains. The decrease in net realized capital gains in 2018 from 2017 primarily reflects the absence of net realized capital gains from equity securities in 2018 as a result of our adoption of the new investment accounting guidance discussed above, net realized capital losses taken in 2018 from the sale of debt securities, partially offset by a $45.7 million gain on AIHL's conversion of its limited partnership interests in certain subsidiaries of Ares into Ares common units. See Note 4(i) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information on AIHL's conversion.

The decrease in net realized capital gains in 2017 from 2016 primarily reflected lower gains for the equity and debt securities portfolios and a $7.9 million write-down of certain reinsurance segment assets, partially offset by gains on the sale of certain exchange-traded funds in 2017 and an $8.4 million pre-tax gain realized on the sale of PacificComp.

Other Than Temporary Impairment Losses. OTTI losses in 2018 reflect $1.3 million of unrealized losses on debt securities, primarily in the energy and industrial sectors, that were deemed to be other than temporary and, as such, were required to be charged against earnings. The determination that unrealized losses on debt securities were other than temporary was primarily due to the deterioration of creditworthiness of the issuer.

OTTI losses in 2017 reflected $16.9 million of unrealized losses that were deemed to be other than temporary and, as such, were required to be charged against earnings. Of the $16.9 million of OTTI losses, $15.1 million related to equity securities, primarily in the retail sector, and $1.8 million related to debt securities. The determination that unrealized losses on equity and debt securities were other than temporary was primarily due to the duration of the decline in the fair value of equity and debt securities relative to their costs.

OTTI losses in 2016 reflected $45.2 million of unrealized losses that were deemed to be other than temporary and, as such, were required to be charged against earnings. Of the $45.2 million of OTTI losses, $23.3 million related to equity securities, primarily in the retail, financial service, technology, chemical and entertainment sectors, and $21.9 million related to debt securities, primarily in the energy sector. The determination that unrealized losses on equity and debt securities were other than temporary was primarily due to the severity and duration of the decline in the fair value of equity and debt securities relative to their costs.

Upon the ultimate disposition of the securities for which OTTI losses have been recorded, a portion of the loss may be recoverable depending on market conditions at the time of disposition. After adjusting the cost basis of securities for the recognition of OTTI losses, the remaining gross unrealized investment losses for debt securities as of December 31, 2018 were deemed to be temporary, based on, among other factors: (i) the duration of time and the relative magnitude to which the fair values of these securities had been below cost were not indicative of an OTTI loss; (ii) the absence of compelling evidence that would cause us to call into question the financial condition or near-term business prospects of the issuers of the securities; and (iii) our ability and intent to hold the securities for a period of time sufficient to allow for any anticipated recovery.

See Note 4 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional detail on gross unrealized investment losses for debt securities as of December 31, 2018.

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Alleghany Capital Segment Results

The Alleghany Capital segment consists of: (i) industrial operations conducted through Bourn & Koch, Kentucky Trailer, W&W|AFCO Steel beginning April 28, 2017 (the date on which Alleghany Capital acquired approximately 80 percent of the equity thereof), and a 45 percent equity interest in Wilbert, beginning August 1, 2017 (the date on which Alleghany Capital acquired its equity interest therein); (ii) non-industrial operations conducted through IPS, Jazwares and Concord, beginning October 1, 2018 (the date on which Alleghany Capital acquired approximately 85 percent of the equity thereof); and (iii) corporate operations at the Alleghany Capital level.

The following tables present the results of the Alleghany Capital segment for 2018, 2017 and 2016:

Year Ended December 31, 2018	Industrial	Non-industrial	Corp. & other	Total
	($ in millions)			
Noninsurance revenue(1)	$ 917.1	$ 657.5	$ -	$ 1,574.6
Net investment income	4.7	0.1	(1.7)	3.1
Net realized capital gains	1.2	(0.3)	-	0.9
Total revenues	$ 923.0	$ 657.3	$ (1.7)	$ 1,578.6
Other operating expenses(1)	880.8	595.0	9.8	1,485.6
Amortization of intangible assets	9.8	14.6	-	24.4
Interest expense	7.4	2.9	0.2	10.5
Earnings (losses) before income taxes	$ 25.0	$ 44.8	$ (11.7)	$ 58.1
Operating earnings (losses) before income taxes(2)	$ 33.6	$ 59.7	$ (11.7)	$ 81.6
Add: net realized capital gains	1.2	(0.3)	-	0.9
Less: amortization of intangible assets	(9.8)	(14.6)	-	(24.4)
Earnings (losses) before income taxes	$ 25.0	$ 44.8	$ (11.7)	$ 58.1

Year Ended December 31, 2017	Industrial	Non-industrial	Corp. & other	Total
	($ in millions)			
Noninsurance revenue(1)	$ 393.7	$ 502.4	$ 0.8	$ 896.9
Net investment income	1.5	0.2	1.0	2.7
Net realized capital gains	1.5	0.6	20.9	23.0
Total revenues	$ 396.7	$ 503.2	$ 22.7	$ 922.6
Other operating expenses(1)	374.8	455.0	15.1	844.9
Amortization of intangible assets	4.8	16.1	-	20.9
Interest expense	2.5	1.5	-	4.0
Earnings before income taxes	$ 14.6	$ 30.6	$ 7.6	$ 52.8
Operating earnings (losses) before income taxes(2)	$ 17.9	$ 46.1	$ (13.3)	$ 50.7
Add: net realized capital gains	1.5	0.6	20.9	23.0
Less: amortization of intangible assets	(4.8)	(16.1)	-	(20.9)
Earnings before income taxes	$ 14.6	$ 30.6	$ 7.6	$ 52.8

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Year Ended December 31, 2016	Industrial	Non-industrial	Corp. & other	Total
		($ in millions)		
Noninsurance revenue(1)	$ 177.9	$ 500.4	$ (0.5)	$ 677.8
Net investment income	(0.1)	0.4	(2.6)	(2.3)
Net realized capital gains	-	(0.4)	13.2	12.8
Total revenues	$ 177.8	$ 500.4	$ 10.1	$ 688.3
Other operating expenses(1)	165.5	468.4	9.2	643.1
Amortization of intangible assets	0.3	21.8	-	22.1
Interest expense	1.4	0.4	0.1	1.9
Earnings before income taxes	$ 10.6	$ 9.8	$ 0.8	$ 21.2
Operating earnings (losses) before income taxes(2)	$ 10.9	$ 32.0	$ (12.4)	$ 30.5
Add: net realized capital gains	-	(0.4)	13.2	12.8
Less: amortization of intangible assets	(0.3)	(21.8)	-	(22.1)
Earnings before income taxes	$ 10.6	$ 9.8	$ 0.8	$ 21.2

(1) For industrial and non-industrial operations: (i) noninsurance revenue consists of the sale of manufactured goods and services; and (ii) other operating expenses consist of the cost of goods and services sold and selling, general and administrative expenses. Other operating expenses also include finders' fees, legal and accounting costs and other transaction-related expenses of $7.7 million, $7.2 million and $7.4 million for 2018, 2017 and 2016, respectively.

(2) Operating earnings before income taxes is a non-GAAP financial measure and does not replace earnings before income taxes determined in accordance with GAAP as a measure of profitability. See "Comment on Non-GAAP Financial Measures" herein for additional detail on the presentation of our results of operations. Operating earnings before income taxes represents noninsurance revenue and net investment income less other operating expenses and interest expense, and does not include: (i) amortization of intangible assets; (ii) change in the fair value of equity securities; (iii) net realized capital gains; (iv) OTTI impairment losses; and (v) income taxes.

The changes in Alleghany Capital's equity for 2018, 2017 and 2016 are presented in the table below:

	Industrial	Non-industrial	Corp. & other	Total
		($ in millions)		
Equity as of December 31, 2015	$ 107.0	$ 168.8	$ 16.4	$ 292.2
Earnings before income taxes	10.6	9.8	0.8	21.2
Income taxes(1)	(0.9)	0.8	(6.1)	(6.2)
Net earnings attributable to noncontrolling interest	(1.7)	(2.1)	-	(3.8)
Capital contributions (returns of capital) and other(2)	7.7	153.4	(23.2)	137.9
Equity as of December 31, 2016	122.7	330.7	(12.1)	441.3
Earnings before income taxes	14.6	30.6	7.6	52.8
Income taxes(1)	1.1	(0.3)	(10.8)	(10.0)
Net earnings attributable to noncontrolling interest	(2.3)	(8.1)	-	(10.4)
Capital contributions (returns of capital) and other(3)	227.5	(21.6)	26.5	232.4
Equity as of December 31, 2017	363.6	331.3	11.2	706.1
Earnings (losses) before income taxes	25.0	44.8	(11.7)	58.1
Income taxes(1)	(1.7)	(2.2)	(6.7)	(10.6)
Net earnings attributable to noncontrolling interest(4)	(3.2)	(11.9)	-	(15.1)
Capital contributions (returns of capital) and other(5)	78.8	81.3	(19.3)	140.8
Equity as of December 31, 2018	$ 462.5	$ 443.3	$ (26.5)	$ 879.3

(1) Federal income taxes for most Alleghany Capital subsidiaries are incurred at the Alleghany Capital corporate level. Estimated federal income tax (expense) benefit incurred at the Alleghany Capital corporate level attributable to industrial and non-industrial operations for 2018 were ($5.3) million and ($9.4) million, respectively, for 2017 were ($2.4) million and ($10.7) million, respectively, and for 2016 were ($3.7) million and ($3.4) million, respectively.

(2) Primarily reflects funding provided by Alleghany Capital for the purchase of 50 percent of Jazwares' outstanding equity on April 15, 2016 in addition to its pre-existing 30 percent ownership.

(3) Primarily reflects funding provided by Alleghany Capital for the acquisition of W&W|AFCO Steel and the investment in Wilbert.

(4) During 2018, the noncontrolling interests outstanding were approximately as follows: Bourn & Koch - 11 percent; Kentucky Trailer - 21 percent; W&W|AFCO Steel - 20 percent; IPS - 15 percent; Jazwares - 23 percent; and Concord - 15 percent.

(5) Primarily reflects funding provided by Alleghany Capital to W&W|AFCO Steel for the acquisition of Hirschfeld and funding provided by Alleghany to Alleghany Capital for the acquisition of Concord.

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Noninsurance revenue. The increase in noninsurance revenue in 2018 from 2017 primarily reflects an increase in industrial operations, due primarily to the acquisitions of Hirschfeld and W&W|AFCO Steel and, to a lesser extent, higher sales at Kentucky Trailer and Bourn & Koch. The increase in noninsurance revenue in 2018 from 2017 also reflects an increase in non-industrial operations due primarily to higher sales at Jazwares and IPS, as well as the acquisition of Concord. The increase in noninsurance revenue in 2017 from 2016 primarily reflected the acquisition of W&W|AFCO Steel.

Net investment income. The increase in net investment income in 2018 from 2017 and in 2017 from 2016 primarily reflects Alleghany Capital's earnings from its investment in Wilbert.

Net realized capital gains. Net realized capital gains in 2018 primarily reflect gains from the sale of certain investments and equipment, as well as certain foreign currency exchange rate impacts. Net realized capital gains in 2017 primarily reflect a $20.9 million capital gain due to a bulk settlement of certain contingent consideration obligations that were made by Alleghany Capital in connection with its acquisition of Jazwares' outstanding equity, or the "Jazwares Settlement Gain." Net realized capital gains in 2016 primarily reflected a gain of $13.2 million recognized by Alleghany Capital on April 15, 2016 in connection with its acquisition of an additional 50 percent equity ownership in Jazwares, when its pre-existing 30 percent equity ownership was remeasured at estimated fair value, or the "Jazwares Remeasurement Gain."

Other operating expenses. The increase in other operating expenses in 2018 from 2017 primarily reflects a significant increase in industrial operations, due primarily to the acquisitions of Hirschfeld and W&W|AFCO Steel and, to a lesser extent, higher costs related to higher sales at Kentucky Trailer and Bourn & Koch, as well as facility consolidation activities at Kentucky Trailer. With respect to non-industrial operations, the increase in other operating expenses in 2018 primarily reflects higher costs at Jazwares and IPS resulting from higher sales, as well as the acquisition of Concord. Higher costs at Jazwares also reflect increased marketing expenditures and the impact of certain Toys "R" Us Inc. liquidation-related charges.

Other operating expenses in 2018 and 2017 also reflect significant finders' fees, legal and accounting costs and other transaction-related expenses, primarily related to Alleghany Capital's acquisition of Concord in 2018, W&W|AFCO Steel's acquisition of Hirschfeld in 2018, Kentucky Trailer's acquisition of CEI in 2018 and Alleghany Capital's acquisition of W&W|AFCO Steel in 2017. Finders' fees, legal and accounting costs and other transaction-related expenses were $7.7 million, $7.2 million and $7.4 million for 2018, 2017 and 2016, respectively.

The increase in other revenue and other operating expenses in 2017 from 2016 primarily reflects the acquisition of W&W|AFCO Steel.

Amortization of intangible assets. The increase in amortization expense in 2018 from 2017 primarily reflects the W&W|AFCO Steel, Hirschfeld and Concord acquisitions. The decrease in amortization expenses in 2017 from 2016 primarily reflected a decrease in amortization expense at IPS, as certain of IPS's intangible assets were fully amortized as of December 31, 2016, partially offset by amortization of net intangible assets related to the acquisition of W&W|AFCO Steel.

Interest expense. The increase in interest expense in 2018 from 2017 primarily reflects borrowings at W&W|AFCO Steel and, to a lesser extent, Concord. The increase in interest expense in 2017 from 2016 reflected new or increased borrowings at Jazwares, IPS and Bourn & Koch and borrowings at W&W|AFCO Steel, as well as the impact of higher interest rates.

Earnings (losses) before income taxes. The increase in earnings before income taxes in 2018 from 2017 primarily reflects increased earnings in the non-industrial operations and the industrial operations, partially offset by the Jazwares Settlement Gain. The increase in non-industrial earnings before income taxes in 2018 primarily reflects the impact of increased sales at Jazwares, partially offset by increased marketing expenditures and the impact of certain Toys "R" Us Inc. liquidation-related charges, as discussed above. To a lesser extent, the increase in non-industrial earnings before income taxes in 2018 also reflects the impact of increased sales at IPS and the acquisition of Concord, all as discussed above. The increase in the industrial earnings before income taxes primarily reflects Alleghany Capital's earnings from its investment in Wilbert, as well as the impact of increased sales at Kentucky Trailer and Bourn & Koch, all as discussed above. The increase in earnings before income taxes from the acquisitions of W&W|AFCO Steel and Hirschfeld were largely offset by an increase in amortization expense.

The increase in earnings before income taxes in 2017 from 2016 primarily reflected the Jazwares Settlement Gain, partially offset by the Jazwares Remeasurement Gain, all as discussed above. Earnings before income taxes in 2017 also reflected higher margins of the industrial and non-industrial operations, the inclusion of W&W|AFCO Steel and our investment in Wilbert.

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Corporate Activities Results

The primary components of corporate activities are Alleghany Properties, SORC and activities at the Alleghany parent company. The following table presents the results for corporate activities.

	Year Ended December 31,		
	2018	2017	2016
		($ in millions)	
Net premiums earned	$ -	$ -	$ -
Net investment income	16.5	13.7	7.7
Change in the fair value of equity securities	(44.8)	-	-
Net realized capital gains	(35.7)	(1.5)	(109.5)
Other than temporary impairment losses	-	-	-
Noninsurance revenue	47.4	15.9	16.6
Total revenues	(16.6)	28.1	(85.2)
Net loss and loss adjustment expenses	-	-	-
Commissions, brokerage and other underwriting expenses	-	-	-
Other operating expenses	33.9	39.4	41.5
Corporate administration	17.6	45.3	42.0
Amortization of intangible assets	-	-	-
Interest expense	53.1	52.1	52.5
Losses before income taxes	$ (121.2)	$ (108.7)	$ (221.2)

Net investment income. The increase in net investment income in 2018 from 2017 primarily reflects higher dividend income resulting from an increase in the size of the equity security portfolio held at the Alleghany parent company-level during the first three quarters of 2018. The increase in net investment income in 2017 from 2016 primarily reflected higher income from new investments in other invested assets resulting from the purchase of certain non-marketable equity investments at the Alleghany parent company.

Change in the fair value of equity securities. In the first quarter of 2018, we adopted new investment accounting guidance which required changes in the fair value of equity securities, except those accounted for under the equity method, to be recognized in net earnings. See Note 1(r) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information regarding our adoption of this new guidance.

The change in the fair value of equity securities in 2018 reflects depreciation of the equity securities held at the Alleghany parent company-level, primarily from holdings in the energy sector.

Net realized capital losses. Net realized capital losses in 2018 primarily reflect a $35.4 million capital loss due to an impairment charge from the write-down of certain SORC assets arising from a decline in energy prices as of December 31, 2018. The net realized capital loss in 2017 primarily reflected a loss from the sale of a legacy oil field by SORC, partially offset by gains on the sale of certain exchange-traded funds. Net realized capital losses in 2016 primarily reflected a $98.8 million capital loss due to an impairment charge from the write-down of certain SORC assets.

The SORC assets that were written-down in 2016 related specifically to SORC's acquisition of a certain legacy oil field for the sole purpose of applying enhanced oil recovery techniques. After completing construction of its underground facility in 2014, SORC commenced its drilling program in 2015. The drilling program, however, was delayed by third-party equipment problems that were subsequently corrected, as well as a longer than expected trial-and-error process determining the optimum well completion technique for the reservoir and efforts to address a lack of vertical permeability in the reservoir formation. SORC engaged a third-party petroleum engineering firm to provide an assessment of its oil-recovery prospects and based on this assessment and other factors including oil prices, SORC wrote-down its legacy oil field assets to estimated fair value as of December 31, 2016. On December 29, 2017, SORC sold this legacy oil field and recorded a realized capital loss of $4.8 million.

Noninsurance revenue. The increase in noninsurance revenue in 2018 from 2017 primarily reflects increases in property sales at Alleghany Properties and, to a lesser extent, increases in oil sales at SORC. Noninsurance revenue includes the sale in September 2018 of 68 acres of land located in Sacramento, California for approximately $20 million. The decrease in other revenue in 2017 from 2016 primarily reflected lower real estate sales activity at Alleghany Properties.

Corporate administration. The decrease in corporate administration expense in 2018 from 2017 primarily reflects lower long-term incentive compensation expense accruals at Alleghany, driven by the impact of depreciation in the value of our debt and equity securities portfolios in 2018 compared with appreciation in the value of our equity and, to a lesser extent, debt securities portfolios in

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2017, partially offset by the impact of lower catastrophe losses in 2018. The increase in corporate administration expense in 2017 from 2016 primarily reflected higher long-term incentive compensation expense accruals at Alleghany, driven by the impact of appreciation of our equity and, to a lesser extent, debt securities portfolios, partially offset by losses arising from Hurricanes Irma, Harvey and Maria.

Interest expense. Interest expense in 2018, 2017 and 2016 was approximately the same.

Losses before income taxes. The increase in losses before income taxes in 2018 from 2017 primarily reflects depreciation in the value of equity securities held at the Alleghany parent company-level and the SORC impairment loss, partially offset by an increase in sales at Alleghany Properties and lower corporate administration expense, all as discussed above. The decrease in losses before income taxes in 2017 from 2016 primarily reflected a decrease in realized capital losses in 2017 and higher net investment income, partially offset by an increase in corporate administration, all as discussed above.

Reserve Review Process

Our reinsurance and insurance subsidiaries analyze, at least quarterly, liabilities for unpaid loss and LAE established in prior years and adjust their expected ultimate cost, where necessary, to reflect favorable or unfavorable development in loss experience and new information, including, for certain catastrophe events, revised industry estimates of the magnitude of a catastrophe. Adjustments to previously recorded liabilities for unpaid loss and LAE, both favorable and unfavorable, are reflected in our financial results in the periods in which these adjustments are made and are referred to as prior accident year loss reserve development. The following table presents the reserves established in connection with the loss and LAE of our reinsurance and insurance segments on a gross and net basis by line of business. These reserve amounts represent the accumulation of estimates of ultimate loss (including for IBNR) and LAE.

	As of December 31, 2018			As of December 31, 2017			As of December 31, 2016		
	Gross Loss and LAE Reserves	Reinsurance Recoverables on Unpaid Losses	Net Loss and LAE Reserves	Gross Loss and LAE Reserves	Reinsurance Recoverables on Unpaid Losses	Net Loss and LAE Reserves	Gross Loss and LAE Reserves	Reinsurance Recoverables on Unpaid Losses	Net Loss and LAE Reserves
					($ in millions)				
Reinsurance Segment									
Property	$ 2,102.5	$ (701.8)	$ 1,400.7	$ 1,758.0	$ (493.7)	$ 1,264.3	$ 952.7	$ (106.7)	$ 846.0
Casualty & other(1)	7,339.7	(261.9)	7,077.8	7,370.0	(251.0)	7,119.0	7,324.4	(226.0)	7,098.4
	9,442.2	(963.7)	8,478.5	9,128.0	(744.7)	8,383.3	8,277.1	(332.7)	7,944.4
Insurance Segment									
Property	509.5	(187.1)	322.4	545.9	(225.9)	320.0	362.2	(186.8)	175.4
Casualty(2)	2,181.6	(700.3)	1,481.3	2,078.6	(671.8)	1,406.8	2,083.1	(696.0)	1,387.1
Workers' Compensation	2.5	-	2.5	1.5	-	1.5	241.2	(1.8)	239.4
All other(3)	181.3	(73.1)	108.2	185.1	(75.5)	109.6	192.1	(87.4)	104.7
	2,874.9	(960.5)	1,914.4	2,811.1	(973.2)	1,837.9	2,878.6	(972.0)	1,906.6
Eliminations	(66.8)	66.8	-	(67.8)	67.8	-	(68.5)	68.5	-
Total	$ 12,250.3	$ (1,857.4)	$ 10,392.9	$ 11,871.3	$ (1,650.1)	$ 10,221.2	$11,087.2	$ (1,236.2)	$ 9,851.0

(1) Primarily consists of the following reinsurance lines of business: directors' and officers' liability; errors and omissions liability; general liability; medical malpractice; ocean marine and aviation; auto liability; accident and health; mortgage reinsurance; surety; asbestos-related illness and environmental impairment liability; and credit.
(2) Primarily consists of the following direct lines of business: umbrella/excess; directors' and officers' liability; professional liability; and general liability.
(3) Primarily consists of commercial multi-peril and surety lines of business, as well as loss and LAE reserves for terminated lines of business and loss reserves acquired in connection with prior acquisitions for which the sellers provided loss reserve guarantees.

Changes in Gross and Net Loss and LAE Reserves between December 31, 2018 and December 31, 2017. Gross and net loss and LAE reserves as of December 31, 2018 increased from December 31, 2017, primarily reflecting catastrophe losses in 2018, partially offset by payments on catastrophe losses incurred in 2017 and favorable prior accident year loss reserve development. The 2018 catastrophe losses, net of reinsurance, include $183.4 million related to Typhoon Jebi, $182.0 million related to wildfires in California, $135.2 million related to Hurricane Michael, $70.4 million related to Hurricane Florence and $33.7 million related to Typhoon Trami.

Changes in Gross and Net Loss and LAE Reserves between December 31, 2017 and December 31, 2016. Gross and net loss and LAE reserves, and reinsurance recoverables as of December 31, 2017 increased from December 31, 2016, primarily reflecting significant catastrophe losses, partially offset by the sale of PacificComp. Catastrophe losses in 2017, net of reinsurance, included

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$252.1 million related to Hurricane Irma, $217.7 million related to Hurricane Harvey and $216.8 million related to Hurricane Maria, all as discussed above.

Reinsurance Recoverables

Our reinsurance and insurance subsidiaries reinsure portions of the risks they underwrite in order to reduce the effect of individual or aggregate exposure to losses, manage capacity, protect capital resources, reduce volatility in specific lines of business, improve risk-adjusted portfolio returns and enable them to increase gross premiums writings and risk capacity without requiring additional capital. Our reinsurance and insurance subsidiaries purchase reinsurance and retrocessional coverages from highly-rated third-party reinsurers. If the assuming reinsurers are unable or unwilling to meet the obligations assumed under the applicable reinsurance agreements, our reinsurance and insurance subsidiaries would remain liable for such reinsurance portion not paid by these reinsurers. As such, funds, trust agreements and letters of credit are held to collateralize a portion of our reinsurance and insurance subsidiaries' reinsurance recoverables, and our reinsurance and insurance subsidiaries reinsure portions of the risks they underwrite or assume with multiple reinsurance programs.

As of December 31, 2018, our reinsurance and insurance subsidiaries had total reinsurance recoverables of $1,921.3 million, consisting of $1,857.4 million of ceded outstanding loss and LAE and $63.9 million of recoverables on paid losses. See Part I, Item 1, "Business — Reinsurance Protection" of this Form 10-K for additional information on the reinsurance purchased by our reinsurance and insurance subsidiaries.

The following table presents information regarding concentration of our reinsurance recoverables and the ratings profile of our reinsurers as of December 31, 2018:

Reinsurer(1)	Rating(2)	Amount ($ in millions)	Percentage
Syndicates at Lloyd's of London	A (Excellent)	$ 134.5	7.0%
PartnerRe Ltd	A (Excellent)	114.2	5.9%
Swiss Reinsurance Company	A+ (Superior)	112.9	5.9%
RenaissanceRe Holdings Ltd	A+ (Superior)	103.9	5.4%
Kane SAC Ltd, Rondout Segregated Account(3)	not rated	99.8	5.2%
Fairfax Financial Holdings Ltd	A (Excellent)	97.3	5.1%
W.R. Berkley Corporation	A+ (Superior)	89.6	4.7%
Kane SAC Ltd, Bowery Segregated Account(3)	not rated	88.9	4.6%
Liberty Mutual	A (Excellent)	85.0	4.4%
Chubb Corporation	A++ (Superior)	81.2	4.2%
All other reinsurers		914.0	47.6%
Total reinsurance recoverables(4)		$ 1,921.3	100.0%
Secured reinsurance recoverables(3)		$ 711.1	37.0%

(1) Reinsurance recoverables reflect amounts due from one or more reinsurance subsidiaries of the listed company.
(2) Represents the A.M. Best financial strength rating for the applicable reinsurance subsidiary or subsidiaries from which the reinsurance recoverable is due.
(3) Represents reinsurance recoverables secured by funds held, trust agreements or letters of credit.
(4) Approximately 70 percent of our reinsurance recoverables balance as of December 31, 2018 was due from reinsurers having an A.M. Best financial strength rating of A (Excellent) or higher, with a majority of the other reinsurance recoverables being secured by funds held, trust agreements or letters of credit.

We had no allowance for uncollectible reinsurance as of December 31, 2018.

Critical Accounting Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions about future events that directly affect our reported financial condition and operating performance. More specifically, these estimates and assumptions affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the date of the financial statements, as well as the reported amounts of revenues and expenses during the reporting period. We rely on historical experience and on various other assumptions that we believe to be reasonable under the circumstances to make judgments about the carrying value of assets and liabilities and reported revenues and expenses that are not readily apparent from other sources. Actual results may differ materially from reported results to the extent that estimates and assumptions prove to be inaccurate.

We believe our most critical accounting estimates are those with respect to the liability for unpaid loss and LAE reserves, fair value measurements of certain financial assets, OTTI losses on investments, goodwill and other intangible assets and reinsurance

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premium revenues, as they require management's most significant exercise of judgment on both a quantitative and qualitative basis. The accounting estimates that result require the use of assumptions about certain matters that are highly uncertain at the time of estimation. To the extent actual experience differs from the assumptions used, our financial condition, results of operations and cash flows would be affected, possibly materially.

Unpaid Loss and LAE

Overview. The estimation of the liability for unpaid loss and LAE is inherently difficult and subjective, especially in view of changing legal and economic environments that impact the development of loss reserves, and therefore, quantitative techniques frequently have to be supplemented by subjective considerations and managerial judgment. In addition, trends that have affected development of liabilities in the past may not necessarily occur or affect liability development to the same degree in the future.

Each of our reinsurance and insurance subsidiaries establishes reserves on its balance sheet for unpaid loss and LAE related to its property and casualty reinsurance and insurance contracts. As of any balance sheet date, there are claims that have not been reported, and some claims may not be reported for many years after the date a loss occurs. As a result of this historical pattern, the liability for unpaid loss and LAE includes significant estimates for IBNR claims. Additionally, reported claims are in various stages of the settlement process. Each claim is settled individually based upon its merits, and certain claims may take years to settle, especially if legal action is involved. As a result, the liabilities for unpaid loss and LAE include significant judgments, assumptions and estimates made by management related to the actual ultimate losses that will arise from the claims. Due to the inherent uncertainties in the process of establishing these liabilities, the actual ultimate loss from a claim is likely to differ, perhaps materially, from the liability initially recorded.

As noted above, as of any balance sheet date, not all claims that have occurred have been reported to us, and if reported may not have been settled. The time period between the occurrence of a loss and the time it is settled is referred to as the "claim tail." In general, actuarial judgments for shorter-tailed lines of business normally have much less of an effect on the determination of the loss reserve amount than when those same judgments are made regarding longer-tailed lines of business. Reported losses for the shorter-tailed classes, such as property classes, generally reach the ultimate level of incurred losses in a relatively short period of time. Rather than having to rely on actuarial assumptions for many accident years, these assumptions are generally only relevant for the more recent accident years. Therefore, these assumptions tend to be less critical and the reserves calculated pursuant to these assumptions are subject to less variability for the shorter-tailed lines of business.

For short-tail lines, loss reserves primarily consist of reserves for reported claims. The process of recording quarterly and annual liabilities for unpaid loss and LAE for short-tail lines is primarily focused on maintaining an appropriate reserve level for reported claims and IBNR. Specifically, we assess the reserve adequacy of IBNR in light of such factors as the current levels of reserves for reported claims and expectations with respect to reporting lags, catastrophe events, historical data, legal developments, and economic conditions, including the effects of inflation.

Standard actuarial methodologies employed to estimate ultimate losses incorporate the inherent lag from the time claims occur to when they are reported to an insurer and, if applicable, to when an insurer reports the claims to a reinsurer. Certain actuarial methodologies may be more appropriate than others in instances where this lag may not be consistent from period to period. Consequently, additional actuarial judgment is employed in the selection of methodologies to best incorporate the potential impact of this situation.

Our insurance operating subsidiaries provide coverage on both a claims-made and occurrence basis. Claims-made policies generally require that claims occur and be reported during the coverage period of the policy. Occurrence policies allow claims which occur during a policy's coverage period to be reported after the coverage period, and as a result, these claims can have a very long claim tail, occasionally extending for decades. Casualty claims can have a very long claim tail, in certain situations extending for many years. In addition, casualty claims are more susceptible to litigation and the legal environment and can be significantly affected by changing contract interpretations, all of which contribute to extending the claim tail. For long-tail casualty lines of business, estimating the ultimate liabilities for unpaid loss and LAE is a more complex process and depends on a number of factors, including the line and volume of the business involved. For these reasons, our insurance operating subsidiaries will generally use actuarial projections in setting reserves for all casualty lines of business.

While the reserving process is difficult for insurance business, the inherent uncertainties of estimating loss reserves are even greater for reinsurance business, due primarily to the longer-tailed nature of most of the reinsurance business, the diversity of development patterns among different types of reinsurance contracts, the necessary reliance on the ceding companies for information regarding reported claims and differing reserving practices among ceding companies, which can be subject to change without notice. TransRe writes a significant amount of non-proportional assumed casualty reinsurance as well as proportional assumed reinsurance of excess liability business for classes such as medical malpractice, directors' and officers' liability, errors and omissions liability and general liability. Claims from such classes can exhibit greater volatility over time than most other classes due to their low frequency, high severity nature and loss cost trends that are more difficult to predict.

The estimation of unpaid loss and LAE for our reinsurance operations is principally based on reports and individual case estimates received from ceding companies. Data received from cedants is audited periodically by TransRe's claims and underwriting

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personnel, to help ensure that reported data is supported by proper documentation and conforms to contract terms, and is analyzed, as appropriate, by its underwriting and actuarial personnel. Such analysis often includes a detailed review of reported data to assess the underwriting results of assumed reinsurance and to explain any significant departures from expected performance. Over time, reported loss information is ultimately corroborated when the underlying claims are paid.

In addition, the estimation of unpaid loss and LAE, including IBNR, for our reinsurance operations also takes into account assumptions with respect to many factors that will affect ultimate loss costs but are not yet known. The process by which actual carried reserves are determined considers not only actuarial estimates but a myriad of other factors. Such factors, both internal and external, which contribute to the variability and unpredictability of loss costs, include trends related to jury awards, social trends, medical inflation, worldwide economic conditions, tort reforms, judicial interpretations of coverages, the regulatory environment, underlying policy pricing, terms and conditions and claims handling, among others. In addition, information gathered through underwriting and claims audits is also considered. We assess the reasonableness of our unpaid loss and LAE for our reinsurance operations using various actuarial methodologies, principally the paid development method, the reported loss development method and the Bornhuetter-Ferguson method as described below.

In conformity with GAAP, our reinsurance and insurance subsidiaries are not permitted to establish reserves for catastrophe losses that have not occurred. Therefore, losses related to a significant catastrophe, or accumulation of catastrophes, in any reporting period could have a material adverse effect on our results of operations and financial condition during that period.

We believe that the reserves for unpaid loss and LAE established by our reinsurance and insurance subsidiaries are adequate as of December 31, 2018; however, additional reserves, which could have a material impact upon our financial condition, results of operations and cash flows, may be necessary in the future.

Methodologies and Assumptions. Our reinsurance and insurance subsidiaries use a variety of techniques that employ significant judgments and assumptions to establish the liabilities for unpaid loss and LAE recorded at the balance sheet date. These techniques include detailed statistical analyses of past claims reporting, settlement activity, claims frequency, internal loss experience, changes in pricing or coverages and severity data when sufficient information exists to lend statistical credibility to the analyses. More subjective techniques are used when statistical data is insufficient or unavailable. These liabilities also reflect implicit or explicit assumptions regarding the potential effects of future inflation, court resolutions and judicial interpretations, reinsurance coverage, legislative changes and recent trends in such factors, as well as a number of actuarial assumptions that vary across our reinsurance and insurance subsidiaries and across lines of business. This data is analyzed by line of business, coverage, accident year or underwriting year and reinsurance contract type, as appropriate.

Our loss reserve review processes use actuarial methods that vary by operating subsidiary and line of business and produce point estimates for each class of business. The actuarial methods used include the following methods:

- *Reported Loss Development Method:* a reported loss development pattern is calculated based on historical loss development data, and this pattern is then used to project the latest evaluation of cumulative reported losses for each accident year or underwriting year, as appropriate, to ultimate levels;
- *Paid Development Method:* a paid loss development pattern is calculated based on historical paid loss development data, and this pattern is then used to project the latest evaluation of cumulative paid losses for each accident year or underwriting year, as appropriate, to ultimate levels;
- *Expected Loss Ratio Method:* expected loss ratios are applied to premiums earned, based on historical company experience, or historical insurance industry results when company experience is deemed not to be sufficient; and
- *Bornhuetter-Ferguson Method:* the results from the Expected Loss Ratio Method are essentially blended with either the Reported Loss Development Method or the Paid Development Method.

The primary actuarial assumptions used by our reinsurance and insurance subsidiaries include the following:

- *Expected loss ratios* represent management's expectation of losses, in relation to earned premium, at the time business is written, before any actual claims experience has emerged. This expectation is a significant determinant of the estimate of loss reserves for recently written business where there is little paid or incurred loss data to consider. Expected loss ratios are generally derived from historical loss ratios adjusted for the impact of rate changes, loss cost trends and known changes in the type of risks underwritten. For certain longer-tailed reinsurance business that are typically lower frequency, high severity classes, expected loss ratios are often used for the last several accident years or underwriting years, as appropriate.
- *Rate of loss cost inflation (or deflation)* represents management's expectation of the inflation associated with the costs we may incur in the future to settle claims. Expected loss cost inflation is particularly important for longer-tailed classes.
- *Reported and paid loss emergence patterns* represent management's expectation of how losses will be reported and ultimately paid in the future based on the historical emergence patterns of reported and paid losses and are derived from

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past experience of our subsidiaries, modified for current trends. These emergence patterns are used to project current reported or paid loss amounts to their ultimate settlement value.

In the absence of sufficiently credible internally-derived historical information, each of the above actuarial assumptions may also incorporate data from the insurance or reinsurance industries as a whole, or peer companies writing substantially similar coverages. Data from external sources may be used to set expectations, as well as assumptions regarding loss frequency or severity relative to an exposure unit or claim, among other actuarial parameters. Assumptions regarding the application or composition of peer group or industry reserving parameters require substantial judgment.

Loss Frequency and Severity. Loss frequency and severity are measures of loss activity that are considered in determining the key assumptions described above. Loss frequency is a measure of the number of claims per unit of insured exposure, and loss severity is a measure of the average size of claims. Factors affecting loss frequency include the effectiveness of loss controls and safety programs, changes in economic conditions or weather patterns. Factors affecting loss severity include changes in policy limits, retentions, rate of inflation and judicial interpretations. Another factor affecting estimates of loss frequency and severity is the loss reporting lag, which is the period of time between the occurrence of a loss and the date the loss is reported to our reinsurance or insurance operating subsidiary. The length of the loss reporting lag affects their ability to accurately predict loss frequency, which are more predictable for lines with short reporting lags, as well as the amount of reserves needed for IBNR. If the actual level of loss frequency and severity is higher or lower than expected, the ultimate losses will be different than management's estimates. A small percentage change in an estimate can result in a material effect on our reported earnings. The following table presents the impact of changes, which could be favorable or unfavorable, in frequency and severity on our loss estimates for claims occurring in 2018:

	Frequency		
Severity	1.0%	5.0%	10.0%
	($ in millions)		
1%	$ 77.4	$ 232.9	$ 427.3
5%	232.9	394.6	596.7
10%	427.3	596.7	808.4

Our net reserves for loss and LAE of $10.4 billion as of December 31, 2018 relate to multiple accident years. Therefore, the impact of changes in frequency or severity for more than one accident year could be higher or lower than the amounts reflected above. We believe the above analysis provides a reasonable benchmark for sensitivity, as we believe it is within historical variation for our reserves. Currently, none of the scenarios is believed to be more likely than the others. See Note 1(k) and Note 6 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information on our loss and LAE.

Prior Year Development. Our reinsurance and insurance subsidiaries continually evaluate the potential for changes, both favorable and unfavorable, in their estimates of loss and LAE liabilities and use the results of these evaluations to adjust both recorded liabilities and underwriting criteria. With respect to liabilities for unpaid loss and LAE established in prior years, these liabilities are periodically analyzed and their expected ultimate cost adjusted, where necessary, to reflect favorable or unfavorable development in loss experience and new information, including, for certain catastrophic events, revised industry estimates of the magnitude of a catastrophe. Adjustments to previously recorded liabilities for unpaid loss and LAE, both favorable and unfavorable, are reflected in our financial results in the periods in which these adjustments are made and are referred to as prior accident year loss reserve development. We adjusted our prior year loss and LAE reserve estimates during 2018, 2017 and 2016 based on current information that differed from previous assumptions made at the time such loss and LAE reserves were previously estimated. See Note 6(b) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for a table presenting the favorable and unfavorable prior accident year loss reserve development for 2018, 2017 and 2016.

Asbestos-Related Illness and Environmental Impairment Reserves. Loss and LAE include amounts for risks related to asbestos-related illness and environmental impairment. The reserves carried for such claims, including the IBNR portion, are based upon known facts and current law at the respective balance sheet dates. However, significant uncertainty exists in determining the amount of ultimate liability for asbestos-related illness and environmental impairment losses. This uncertainty is due to, among other reasons, inconsistent and changing court resolutions and judicial interpretations with respect to underlying policy intent and coverage and uncertainties as to the allocation of responsibility for resultant damages, among other reasons. Further, possible future changes in statutes, laws, regulations, theories of liability and other factors could have a material effect on these liabilities and, accordingly, future earnings. Although we are unable at this time to determine whether additional reserves, which could have a material adverse effect upon our results of operations, may be necessary in the future, we believe that our asbestos-related illness and environmental impairment reserves are adequate as of December 31, 2018. See Note 12(c) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" and pages 44 and 45 of this Form 10-K for additional information on loss and LAE reserves related to asbestos-related illness and environmental impairment.

Reinsurance. Our reinsurance and insurance subsidiaries reinsure portions of the risks they underwrite in order to reduce the effect of individual or aggregate exposure to losses, manage capacity, protect capital resources, reduce volatility in specific lines of

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business, improve risk-adjusted portfolio returns and enable them to increase gross premium writings and risk capacity without requiring additional capital. Our reinsurance and insurance subsidiaries purchase reinsurance and retrocessional coverages from highly-rated third-party reinsurers. If the assuming reinsurers are unable or unwilling to meet the obligations assumed under the applicable reinsurance agreements, our reinsurance and insurance subsidiaries would remain liable for such reinsurance portion not paid by these reinsurers. Recoverables recorded with respect to claims ceded to reinsurers under reinsurance contracts are predicated in large part on the estimates for unpaid losses and, therefore, are also subject to a significant degree of uncertainty. In addition to the factors cited above, reinsurance recoverables may prove uncollectible if a reinsurer is unable or unwilling to perform under a contract. Reinsurance purchased by our reinsurance and insurance subsidiaries does not relieve them of their obligations to their own policyholders or cedants. Additional information regarding the use of, and risks related to the use of reinsurance by our reinsurance and insurance subsidiaries can be found on pages 46, 47, 56 and 57 of this Form 10-K. Also see Note 1(f) and Note 5 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information on our reinsurance recoverables.

Fair Value Measurement of Certain Financial Assets

Fair value is defined as the price that would be received upon the sale of an asset or paid to transfer a liability in an orderly transaction between willing, able and knowledgeable market participants at the measurement date. Fair value measurements are not adjusted for transaction costs. In addition, a three-tiered hierarchy for inputs is used in management's determination of fair value of financial instruments that emphasizes the use of observable inputs over the use of unobservable inputs by requiring that the observable inputs be used when available. Observable inputs are market participant assumptions based on market data obtained from sources independent of the reporting entity. Unobservable inputs are the reporting entity's own assumptions about market participant assumptions based on the best information available under the circumstances. In assessing the appropriateness of using observable inputs in making our fair value determinations, we consider whether the market for a particular security is "active" or not based on all the relevant facts and circumstances. A market may be considered to be inactive if there are relatively few recent transactions or if there is a significant decrease in market volume. Furthermore, we consider whether observable transactions are "orderly" or not. We do not consider a transaction to be orderly if there is evidence of a forced liquidation or other distressed condition; as such, little or no weight is given to that transaction as an indicator of fair value.

A three-tiered hierarchy for inputs is used in management's determination of fair value of financial instruments that emphasizes the use of observable inputs over the use of unobservable inputs by requiring that the observable inputs be used when available. Assets classified as Level 3 principally include certain other asset-backed securities (primarily, collateralized loan obligations) and, to a lesser extent, U.S. and foreign corporate bonds (including privately issued securities), partnership investments, non-marketable equity investments, residential mortgage-backed securities, or "RMBS," and commercial mortgage-backed securities, or "CMBS." The valuation of Level 3 assets requires the greatest degree of judgment. These measurements may be made under circumstances in which there is little, if any, market activity for the asset. Our assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment. In making the assessment, we consider factors specific to the asset.

Mortgage-backed and asset-backed securities are initially valued at the transaction price. Subsequently, we use widely accepted valuation practices that produce a fair value measurement. The vast majority of fair values are determined using an income approach. The income approach primarily involves developing a discounted cash flow model using the future projected cash flows of the underlying collateral, as well as other inputs described below. A few Level 3 valuations are based entirely on non-binding broker quotes. These securities consist primarily of mortgage-backed and asset-backed securities where reliable pool and loan level collateral information cannot be reasonably obtained, and as such, an income approach is not feasible.

Since Level 3 valuations are based on techniques that use significant inputs that are unobservable with little or no market activity, the fair values under the market approach for Level 3 securities are less credible than under the income approach; however, the market approach, where feasible, is used to corroborate the fair values determined by the income approach. The market approach primarily relies on the securities' relationships to quoted transaction prices for similarly structured instruments. To the extent that transaction prices for similarly structured instruments are not available for a particular security, other market approaches are used to corroborate the fair values determined by the income approach, including option adjusted spread analyses.

Unobservable inputs, significant to the measurement and valuation of mortgage-backed and asset-backed securities, are generally used in the income approach, and include assumptions about prepayment speed and collateral performance, including default, delinquency and loss severity rates. Significant changes to any one of these inputs, or combination of inputs, could significantly change the fair value measurement for these securities.

The impact of prepayment speeds on fair value is dependent on a number of variables including whether the securities were purchased at a premium or discount. A decrease in interest rates generally increases the assumed rate of prepayments, and an increase in interest rates generally decreases the assumed speed of prepayments. Increased prepayments increase the yield on securities purchased at a discount and reduce the yield on securities purchased at a premium. In a decreasing prepayment environment, yields on securities purchased at a discount are reduced but are increased for securities purchased at a premium. Changes in default assumptions on underlying collateral are generally accompanied by directionally similar changes in other collateral performance factors, but generally result in a directionally opposite change in prepayment assumptions.

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Fair values for partnership and non-marketable equity investments are initially valued at the transaction price. Subsequently, fair value is based on the performance of the portfolio of investments or results of operations of the investee. Significant improvements or disruptions in the financial markets may result in directionally similar or opposite changes to the portfolio of the investee, depending on how management of the investee has correlated the portfolio of investments to the market. Also, any changes made by the investee to the investment strategy of the non-marketable equity investments could result in significant changes to fair value that have a positive or negative correlation to the performance observed in the equity markets. For those investments whose performance is based on the results of operations within a specific industry, significant events impacting that industry could materially impact fair value. Also, decisions and changes to strategy made by management of the investee could result in positive or negative outcomes, which could significantly impact the results of operations of the investee and subsequently fair value.

See Notes 1(b), 1(c), 3 and 4 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information on our investments and fair value.

Investment Impairment

The determination that an investment has incurred an OTTI loss in value requires the judgment of management and consideration of the fundamental condition of the issuer, its near-term business prospects and all the relevant facts and circumstances.

We hold our debt securities as AFS and as such, these securities are recorded at fair value. We continually monitor the difference between amortized cost and the estimated fair value of our debt investments, which involves uncertainty as to whether declines in value are temporary in nature. The analysis of a security's decline in value is performed in its functional currency. If the decline is deemed temporary, we record the decline as an unrealized loss in stockholders' equity. If the decline is deemed to be other than temporary, we write our amortized cost-basis down to the fair value of the security and record an OTTI loss on our statement of earnings. In addition, any portion of such decline related to a debt security that is believed to arise from factors other than credit is recorded as a component of other comprehensive income rather than charged against earnings.

Debt securities in an unrealized loss position are evaluated for OTTI if they meet any of the following criteria: (i) they are trading at a discount of at least 20 percent to amortized cost for an extended period of time (nine consecutive months or more); (ii) there has been a negative credit or news event with respect to the issuer that could indicate the existence of an OTTI; or (iii) we intend to sell or it is more likely than not that we will sell the debt security before recovery of its amortized cost basis.

If we intend to sell or it is more likely than not that we will sell a debt security before recovery of its amortized cost basis, the total amount of the unrealized loss position is recognized as an OTTI loss in earnings. To the extent that a debt security that is in an unrealized loss position is not impaired based on the preceding, we will consider a debt security to be impaired when we believe it to be probable that we will not be able to collect the entire amortized cost basis. For debt securities in an unrealized loss position as of the end of each quarter, we develop a best estimate of the present value of expected cash flows. If the results of the cash flow analysis indicate that we will not recover the full amount of its amortized cost basis in the debt security, we record an OTTI loss in earnings equal to the difference between the present value of expected cash flows and the amortized cost basis of the debt security. If applicable, the difference between the total unrealized loss position on the debt security and the OTTI loss recognized in earnings is the non-credit related portion, which is recorded as a component of other comprehensive income.

In developing the cash flow analyses for debt securities, we consider various factors for the different categories of debt securities. For municipal bonds, we take into account the taxing power of the issuer, source of revenue, credit risk and enhancements and pre-refunding. For mortgage and asset-backed securities, we discount our best estimate of future cash flows at an effective rate equal to the original effective yield of the security or, in the case of floating rate securities, at the current coupon. Our models include assumptions about prepayment speeds, default and delinquency rates, underlying collateral (if any), credit ratings, credit enhancements and other observable market data. For corporate bonds, we review business prospects, credit ratings and available information from asset managers and rating agencies for individual securities.

We may ultimately record a realized loss after having originally concluded that the decline in value was temporary. Risks and uncertainties are inherent in the methodology. Our methodology for assessing other than temporary declines in value contains inherent risks and uncertainties which could include, but are not limited to, incorrect assumptions about financial condition, liquidity or future prospects, inadequacy of any underlying collateral and unfavorable changes in economic conditions or social trends, interest rates or credit ratings.

See Note 1(b) and Note 4(f) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information on our investments and investment impairments.

Goodwill and Other Intangible Assets

Goodwill and other intangible assets, net of amortization, are recorded as a consequence of business acquisitions. Goodwill represents the excess, if any, of the amount paid to acquire subsidiaries and other businesses over the fair value of their net assets as of the date of acquisition. Other intangible assets are recorded at their fair value as of the acquisition date. A significant amount of judgment is needed to determine the fair value as of the date of acquisition of other intangible assets and the net assets acquired in a business acquisition. The determination of the fair value of other intangible assets and net assets often involves the use of valuation

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models and other estimates, which involve many assumptions and variables and are inherently subjective. The fair value estimates may include the use of financial projections and discount rates. Other intangible assets that are not deemed to have an indefinite useful life are amortized over their estimated useful lives. Goodwill and intangible assets that have an indefinite useful life are not subject to amortization.

Goodwill and other intangible assets deemed to have an indefinite useful life are tested annually in the fourth quarter of every year for impairment. Goodwill and other intangible assets are also tested whenever events and changes in circumstances suggest that the carrying amount may not be recoverable. A significant amount of judgment is required in performing goodwill and other intangible asset impairment tests. These tests may include estimating the fair value of our subsidiaries, which include Alleghany Capital's operating subsidiaries, and other intangible assets. The fair value estimates may include the use of financial projections and discount rates. If it is determined that an asset has been impaired, the asset is written down by the amount of the impairment, with a corresponding charge to net earnings. Subsequent reversal of any impairment charge is not permitted.

With respect to goodwill, a qualitative assessment is first made to determine whether it is necessary to perform quantitative testing. This initial assessment includes, among other factors, consideration of: (i) past, current and projected future earnings and equity; (ii) recent trends and market conditions; and (iii) valuation metrics involving similar companies that are publicly-traded and acquisitions of similar companies, if available. If this initial qualitative assessment indicates that the fair value of an operating subsidiary of ours may be less than its carrying amount, a second step is taken, involving a comparison between the estimated fair values of our operating subsidiary with its respective carrying amount including goodwill. Under GAAP, fair value refers to the amount for which the entire operating subsidiary may be bought or sold. The methods for estimating the fair value of an operating subsidiary values include asset and liability fair values and other valuation techniques, such as discounted cash flows and multiples of earnings or revenues. All of these methods involve significant estimates and assumptions. If the carrying value exceeds estimated fair value, there is an indication of potential impairment, and a third step is performed to measure the amount of impairment. The third step involves calculating an implied fair value of goodwill by measuring the excess of the estimated fair value of the operating subsidiary over the aggregate estimated fair value of the individual assets less liabilities. If the carrying value of goodwill exceeds the implied fair value of goodwill, an impairment charge is recorded for the excess.

Our consolidated balance sheet as of December 31, 2018 includes goodwill of $455.1 million related primarily to Concord, W&W|AFCO Steel, Jazwares, IPS, RSUI, CapSpecialty, Bourn & Koch and Kentucky Trailer, and intangible assets, net of amortization, of $553.1 million related primarily to TransRe, Concord, W&W|AFCO Steel, Jazwares, IPS, RSUI, CapSpecialty, Bourn & Koch and Kentucky Trailer. See Note 1(i) and Note 2 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information on our goodwill and other intangible assets.

Reinsurance Premium Revenues

We must make certain judgments in the determination of assumed reinsurance premiums written and earned. For pro rata contracts, premiums written and earned are generally based on reports received from ceding companies. For excess-of-loss contracts, premiums are generally recorded as written based on contract terms and are earned ratably over the periods the related coverages are provided. Unearned premiums and ceded unearned premiums represent the portion of gross premiums written and ceded premiums written, respectively, related to the unexpired periods of such coverages. The relationship between net premiums written and net premiums earned will, therefore, generally vary depending on the volume and inception dates of the business assumed and ceded and the mix of such business between pro rata and excess-of-loss reinsurance.

Premiums written and earned, along with related costs, for which data have not been reported by the ceding companies, are estimated based on historical patterns and other relevant factors. Such estimates of premiums earned are considered when establishing the IBNR portion of loss reserves. The differences between these estimates and actual data subsequently reported, which may be material as a result of the diversity of cedants and reporting practices and the inherent difficulty in estimating premium inflows, among other factors, are recorded in the period when actual data become available and such differences may materially affect our results of operations.

Other Accounting Estimates

In addition to the policies described above which contain critical accounting estimates, our other accounting policies are described in Note 1 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K. The accounting policies described in Note 1 require us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities that do not meet the level of materiality required for a determination that the accounting policy includes critical accounting estimates. On an ongoing basis, we evaluate our estimates, including those related to the value of deferred acquisition costs, incentive compensation, income taxes, pension benefits and contingencies and litigation. Our estimates are based on historical experience and on various other assumptions that are believed to be reasonable under the circumstances. Our actual results may differ from these estimates under different assumptions or conditions.

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Financial Condition

Parent Level

General. In general, we follow a policy of maintaining a relatively liquid financial condition at our unrestricted holding companies. This policy has permitted us to expand our operations through internal growth at our subsidiaries and through acquisitions of, or substantial investments in, operating companies. As of December 31, 2018, we held total marketable securities and cash of $1,122.3 million, compared with $1,383.4 million as of December 31, 2017. The decrease in 2018 primarily reflects depreciation in the value of our equity securities portfolio held at the holding company level, a special dividend on our common stock and repurchases of shares of our common stock, each as discussed below, as well as contributions to Alleghany Capital to fund the acquisitions of Concord and Hirschfeld, partially offset by the receipt of dividends from TransRe, RSUI and certain Alleghany Capital subsidiaries. The $1,122.3 million is comprised of $352.1 million at the Alleghany parent company, $714.4 million at AIHL and $55.8 million at the TransRe holding company. We also hold certain non-marketable investments at our unrestricted holding companies. We believe that we have and will have adequate internally generated funds, cash resources and unused credit facilities to provide for the currently foreseeable needs of our business, and we had no material commitments for capital expenditures as of December 31, 2018.

Stockholders' equity attributable to Alleghany stockholders was approximately $7.7 billion as of December 31, 2018, compared with approximately $8.5 billion as of December 31, 2017. The decrease in stockholders' equity in 2018 primarily reflects depreciation in the value of our debt securities portfolio due to an increase in interest rates and credit spreads in 2018, as well as a special dividend on our common stock and repurchases of our common stock, all as discussed below, partially offset by net earnings. As of December 31, 2018, we had 14,576,509 shares of our common stock outstanding, compared with 15,390,500 shares of our common stock outstanding as of December 31, 2017.

Sale of Subsidiary. On December 31, 2017, AIHL sold PacificComp to CopperPoint for total cash consideration of approximately $158 million, at which time: (i) approximately $442 million of PacificComp assets, consisting primarily of debt securities, and approximately $316 million of PacificComp liabilities, consisting primarily of loss and LAE reserves, were transferred; and (ii) AIHL recorded an after-tax gain of approximately $16 million, which included a tax benefit. In connection with the transaction, AIHL Re provides adverse development reinsurance coverage on PacificComp's pre-acquisition claims, subject to certain terms and conditions. AIHL Re's obligations, which are guaranteed by Alleghany, are subject to an aggregate limit of $150.0 million and a final commutation and settlement as of December 31, 2024.

Debt. On September 9, 2014, we completed a public offering of $300.0 million aggregate principal amount of our 4.90% senior notes due on September 15, 2044, or the "2044 Senior Notes." The 2044 Senior Notes are unsecured and unsubordinated general obligations of Alleghany. Interest on the 2044 Senior Notes is payable semi-annually on March 15 and September 15 of each year. The terms of the 2044 Senior Notes permit redemption prior to their maturity. The indenture under which the 2044 Senior Notes were issued contains covenants that impose conditions on our ability to create liens on, or engage in sales of, the capital stock of AIHL, TransRe or RSUI. The 2044 Senior Notes were issued at approximately 99.3 percent of par, resulting in proceeds after underwriting discount, commissions and other expenses of $294.3 million and an effective yield of approximately 5.0 percent.

On June 26, 2012, we completed a public offering of $400.0 million aggregate principal amount of our 4.95% senior notes due on June 27, 2022, or the "2022 Senior Notes." The 2022 Senior Notes are unsecured and unsubordinated general obligations of Alleghany. Interest on the 2022 Senior Notes is payable semi-annually on June 27 and December 27 of each year. The terms of the 2022 Senior Notes permit redemption prior to their maturity. The indenture under which the 2022 Senior Notes were issued contains covenants that impose conditions on our ability to create liens on, or engage in sales of, the capital stock of AIHL, TransRe or RSUI. The 2022 Senior Notes were issued at approximately 99.9 percent of par, resulting in proceeds after underwriting discount, commissions and other expenses of $396.0 million and an effective yield of approximately 5.05 percent.

On September 20, 2010, we completed a public offering of $300.0 million aggregate principal amount of our 5.625% senior notes due on September 15, 2020, or the "2020 Senior Notes." The 2020 Senior Notes are unsecured and unsubordinated general obligations of Alleghany. Interest on the 2020 Senior Notes is payable semi-annually on March 15 and September 15 of each year. The terms of the 2020 Senior Notes permit redemption prior to their maturity. The indenture under which the 2020 Senior Notes were issued contains covenants that impose conditions on our ability to create liens on, or engage in sales of, the capital stock of AIHL, TransRe or RSUI. The 2020 Senior Notes were issued at approximately 99.6 percent of par, resulting in proceeds after underwriting discount, commissions and other expenses of $298.9 million and an effective yield of approximately 5.67 percent.

On April 13, 2015, S&P upgraded Alleghany's issuer credit rating to BBB+ from BBB, on January 27, 2016, Moody's upgraded Alleghany's issuer credit ratings to Baa1 from Baa2 and on August 19, 2016, A.M. Best upgraded Alleghany's issuer credit rating to a- from bbb+.

Credit Agreement. On July 31, 2017, we entered into a five-year credit agreement, or the "Credit Agreement," with certain lenders party thereto, which provides for an unsecured revolving credit facility in an aggregate principal amount of up to $300.0 million. The credit facility is scheduled to expire on July 31, 2022, unless earlier terminated. Borrowings under the Credit Agreement will be available for working capital and general corporate purposes, including permitted acquisitions and repurchases of Common Stock. Borrowings under the Credit Agreement bear a floating rate of interest based in part on our credit rating, among other

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factors. The Credit Agreement contains representations, warranties and covenants customary for bank loan facilities of this nature. There were no borrowings under the Credit Agreement from inception through December 31, 2018.

The Credit Agreement contains representations, warranties and covenants customary for bank loan facilities of this nature and substantially similar to the Prior Credit Agreement. In this regard, the Credit Agreement requires Alleghany to, among other things, (x) maintain consolidated net worth of not less than the sum of (i) $5.3 billion plus (ii) 50% of the cumulative consolidated net income earned in each fiscal quarter thereafter (if positive) commencing with the fiscal quarter ending June 30, 2017 and (y) maintain a ratio of consolidated total indebtedness to consolidated capital as of the end of each fiscal quarter of not greater than 0.35 to 1.0. Additionally, the Credit Agreement contains various negative covenants with which Alleghany must comply, including, but not limited to, limitations respecting: the creation of liens on any property or asset; the incurrence of indebtedness; mergers, consolidations, liquidations and dissolutions; change of business; sales of assets; transactions with affiliates; and other provisions customary in similar types of agreements.

If an event of default occurs, then, to the extent permitted in the Credit Agreement, the lenders may direct the administrative agent to, or the administrative agent may, with the consent of lenders holding more than 50% of the aggregate outstanding principal amount of the loans, as applicable, terminate the commitments, accelerate the repayment of any outstanding loans and exercise all rights and remedies available to such lenders under the Credit Agreement and applicable law. In the case of an event of default that exists due to the occurrence of certain involuntary or voluntary bankruptcy, insolvency or reorganization events of Alleghany, the commitments will automatically terminate and the repayment of any outstanding loans shall be automatically accelerated.

The Credit Agreement replaced our previous four-year credit agreement, or the "Prior Credit Agreement," which provided for an unsecured revolving credit facility in an aggregate principal amount of up to $200.0 million. The Prior Credit Agreement was terminated on July 31, 2017 in advance of its scheduled October 15, 2017 expiration date. There were no borrowings under the Prior Credit Agreement in the seven months ended July 31, 2017.

Dividends from Subsidiaries. See Note 10(c) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for information on dividend restrictions and dividends received from our reinsurance and insurance subsidiaries.

Common Stock Repurchases. In July 2014, our Board of Directors authorized the repurchase of shares of our common stock at such times and at prices as management determines to be advisable, up to an aggregate of $350.0 million, or the "2014 Repurchase Program." In November 2015, our Board of Directors authorized the repurchase, upon the completion of the 2014 Repurchase Program, of additional shares of our common stock at such times and at prices as management determines to be advisable, up to an aggregate of $400.0 million, or the "2015 Repurchase Program." In June 2018, our Board of Directors authorized, upon the completion of the 2015 Repurchase Program, the repurchase of additional shares of our common stock at such times and at prices as management determines to be advisable, up to an aggregate of $400.0 million, or the "2018 Repurchase Program." In the first quarter of 2016, we completed the 2014 Repurchase Program and subsequent repurchases have been made pursuant to the 2015 Repurchase Program. In the fourth quarter of 2018, we completed the 2015 Repurchase Program and subsequent repurchases have been made pursuant to the 2018 Repurchase Program. As of December 31, 2018, we had $271.5 million remaining under our share repurchase authorization.

The following table presents the shares of our common stock that we repurchased in 2018, 2017 and 2016 pursuant to the 2014 Repurchase Program, the 2015 Repurchase Program and the 2018 Repurchase Program, as applicable:

	As of December 31,		
	2018	2017	2016
Shares repurchased	822,849	29,704	142,186
Cost of shares repurchased (in millions)	$ 491.6	$ 16.0	$ 68.3
Average price per share repurchased	$ 597.48	$ 540.25	$ 480.49

Dividends. From 1999 through 2011, we declared stock dividends in lieu of cash dividends every year. Our Board of Directors determined not to declare a dividend, cash or stock, for 2012 through 2017. In February 2018, our Board of Directors declared a special dividend of $10.00 per share for stockholders of record on March 5, 2018. On March 15, 2018, we paid dividends to stockholders totaling $154.0 million.

Capital Contributions. From time to time, we make capital contributions to our subsidiaries. In 2018, we made aggregate capital contributions of $144.1 million to Alleghany Capital to: (i) acquire approximately 85 percent of the equity in Concord for $68.6 million (excluding amounts for transaction-related expenses and estimates of future amounts payable); and (ii) to fund Alleghany Capital's portion of the acquisition of Hirschfeld by its subsidiary W&W|AFCO Steel for $75.5 million (excluding amounts for transaction-related expenses). In addition, in 2018 we contributed $14.1 million to SORC for purposes of ongoing operations.

In 2017, we made aggregate capital contributions of $236.2 million to Alleghany Capital to: (i) acquire approximately 80 percent of the equity in W&W|AFCO Steel for $163.9 million (excluding amounts for transaction-related expenses and estimates of future

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amounts payable); and (ii) acquire a 45 percent equity interest in Wilbert for $72.3 million. In addition, in 2017, we made a $4.0 million contribution to PacificComp prior to its sale on December 31, 2017, and we contributed $12.5 million to SORC for purposes of ongoing operations.

In 2016, we made capital contributions of $122.1 million to Alleghany Capital (excluding amounts for transaction-related expenses and estimates of future amounts payable) to acquire an additional 50 percent of Jazwares' outstanding equity. In addition, in 2016, we made capital contributions of $24.0 million to PacificComp to provide additional capital support and we contributed $25.3 million to SORC for purposes of ongoing operations. We expect that we will continue to make capital contributions to our subsidiaries from time to time in the future for similar or other purposes.

Contractual Obligations. We have certain obligations to make future payments under contracts and credit-related financial instruments and commitments. The following table presents certain long-term aggregate contractual obligations and credit-related financial commitments as of December 31, 2018:

Contractual Obligations	Total	Within 1 Year	More than 1 Year but Within 3 Years	More than 3 Year but Within 5 Years	More than 5 Years
			($ in millions)		
Loss and LAE	$ 12,250.3	$ 3,432.7	$ 3,745.5	$ 1,969.4	$ 3,102.7
Senior Notes(1) and other debt and related interest	2,747.2	96.8	524.7	680.5	1,445.2
Operating lease obligations	324.8	39.2	69.0	51.1	165.5
Investments(2)	55.8	15.0	20.4	20.4	-
Other long-term liabilities(3)	320.8	110.5	62.5	30.0	117.8
Total	$ 15,698.9	$ 3,694.2	$ 4,422.1	$ 2,751.4	$ 4,831.2

(1) "Senior Notes" refers to: (i) the Alleghany Senior Notes, consisting of the 2020 Senior Notes, the 2022 Senior Notes and the 2044 Senior Notes; and (ii) TransRe's 8.00% senior notes due on November 30, 2039. See Note 8 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information on the Senior Notes and other debt.
(2) Primarily reflect capital commitments to investment partnerships.
(3) Primarily reflect employee pension obligations, certain retired executive pension obligations and obligations under certain incentive compensation plans.

Our reinsurance and insurance subsidiaries have obligations to make certain payments for loss and LAE pursuant to insurance policies and reinsurance contracts they issue. These future payments are reflected as reserves on our consolidated financial statements. With respect to loss and LAE, there is typically no minimum contractual commitment associated with insurance policies and reinsurance contracts, and the timing and ultimate amount of actual claims related to these reserves is uncertain.

Investments in Certain Other Invested Assets. In December 2012, TransRe obtained an ownership interest in Pillar Capital Holdings Limited, or "Pillar Holdings," a Bermuda-based insurance asset manager focused on collateralized reinsurance and catastrophe insurance-linked securities. Additionally, TransRe invested $175.0 million and AIHL invested $25.0 million in limited partnership funds managed by Pillar Holdings, or the "Funds." The objective of the Funds is to create portfolios with attractive risk-reward characteristics and low correlation with other asset classes, using the extensive reinsurance and capital market experience of the principals of Pillar Holdings. We have concluded that both Pillar Holdings and the Funds, or collectively, the "Pillar Investments," represent variable interest entities and that we are not the primary beneficiary, as we do not have the ability to direct the activities that most significantly impact each entity's economic performance. Therefore, the Pillar Investments are not consolidated and are accounted for under the equity method of accounting. Our potential maximum loss in the Pillar Investments is limited to our cumulative net investment. As of December 31, 2018, our carrying value in the Pillar Investments, as determined under the equity method of accounting, was $193.6 million, which is net of returns of capital received from the Pillar Investments.

In July 2013, AIHL invested $250.0 million in Ares Management LLC, or "Ares," an asset manager, in exchange for a 6.25 percent equity stake in Ares, with an agreement to engage Ares to manage up to $1.0 billion in certain investment strategies. In May 2014, Ares completed an initial public offering of its common units. Upon completion of the initial public offering, Alleghany's equity investment in Ares converted into limited partnership interests in certain Ares subsidiaries that were convertible into Ares common units. On March 15, 2018, most of AIHL's limited partnership interests were converted into Ares common units. As a result of the conversion and with respect to the limited partnership interests that were converted into Ares common units, AIHL: (i) reclassified its converted interests from other invested assets to equity securities; (ii) increased its carrying value to $208.2 million to reflect the fair value of Ares common units; and (iii) recorded the $45.7 million increase in carrying value as a realized capital gain as of March 15, 2018. As a result of the conversion and with respect to the unconverted limited partnership interests, AIHL: (i) changed its accounting method from the equity method to fair value; (ii) increased its carrying value to $58.7 million to reflect the fair value of Ares limited partnership interests; and (iii) recorded the $12.9 million increase in carrying value as a component of net investment income as of March 15, 2018. On September 24, 2018, AIHL's remaining Ares limited partnership interests were

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converted into Ares common units and, as a result, AIHL reclassified the remaining $56.9 million of its converted interests from other invested assets to equity securities.

Investments in Commercial Mortgage Loans. As of December 31, 2018, the carrying value of our commercial mortgage loan portfolio was $676.5 million, representing the unpaid principal balance on the loans. As of December 31, 2018, there was no allowance for loan losses. The commercial mortgage loan portfolio consists primarily of first mortgages on commercial properties in major metropolitan areas in the U.S. The loans earn interest at fixed- and floating-rates, mature in two to ten years from loan origination and the principal amounts of the loans were no more than approximately two-thirds of the property's appraised value at the time the loans were made. The estimated fair value of the commercial mortgage loan portfolio approximated carrying value as of December 31, 2018.

Energy Holdings. As of December 31, 2018, we had holdings in energy sector businesses of $385.2 million, comprised of $288.9 million of debt securities, $8.3 million of equity securities and $88.0 million of our equity attributable to SORC.

Subsidiaries

Financial strength is also a high priority of our subsidiaries, whose assets stand behind their financial commitments to their customers and vendors. We believe that our subsidiaries have and will have adequate internally generated funds, cash resources and unused credit facilities to provide for the currently foreseeable needs of their businesses. Our subsidiaries had no material commitments for capital expenditures as of December 31, 2018.

The obligations and cash outflow of our reinsurance and insurance subsidiaries include claim settlements, commission expenses, administrative expenses, purchases of investments and interest and principal payments on TransRe's 8.00% senior notes due on November 30, 2039. In addition to premium collections, cash inflow is obtained from interest and dividend income, maturities and sales of investments and reinsurance recoveries. Because cash inflow from premiums is received in advance of cash outflow required to settle claims, our reinsurance and insurance operating units accumulate funds which they invest pending the need for liquidity. As the cash needs of a reinsurance or an insurance company can be unpredictable due to the uncertainty of the claims settlement process, the portfolios of our reinsurance and insurance subsidiaries consist primarily of debt securities and short-term investments to ensure the availability of funds and maintain a sufficient amount of liquid securities.

Included in Alleghany Capital is debt associated with its operating subsidiaries, which totaled $284.5 million as of December 31, 2018. The $284.5 million includes:

- $105.9 million of borrowings by W&W|AFCO Steel under its available credit facility and term loans (including borrowings incurred and assumed from its acquisition of Hirschfeld);
- $66.6 million of term loans at Kentucky Trailer primarily related to borrowings to finance small acquisitions, its December 28, 2018 acquisition of a controlling interest in CEI and borrowings under its available credit facility;
- $56.3 million of borrowings by Jazwares under its available credit facility;
- $33.7 million of term loans at Concord primarily related to borrowings to finance Alleghany Capital's acquisition of Concord;
- $13.8 million of term loans at Bourn & Koch primarily related to borrowings to finance its acquisition of DTI in 2016; and
- $8.2 million of borrowings by IPS under its available credit facility.

None of these liabilities are guaranteed by Alleghany or Alleghany Capital.

With respect to corporate activities, SORC has relied on Alleghany almost entirely to support its operations. From its formation in 2011 through December 31, 2018, we have invested $267.7 million in SORC.

Consolidated Investment Holdings

Investment Strategy and Holdings. Our investment strategy seeks to preserve principal and maintain liquidity while trying to maximize our risk-adjusted, after-tax rate of return. Our investment decisions are guided mainly by the nature and timing of expected liability payouts, management's forecast of cash flows and the possibility of unexpected cash demands, for example, to satisfy claims due to catastrophe losses. Our consolidated investment portfolio currently consists mainly of highly rated and liquid debt and equity securities listed on national securities exchanges. The overall credit quality of the debt securities portfolio is measured using the lowest rating of S&P, Moody's or Fitch. In this regard, the overall weighted-average credit quality rating of our debt securities portfolio as of December 31, 2018 and 2017 was AA-. Although a portion of our debt securities, which consist predominantly of municipal bonds,

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are insured by third-party financial guaranty insurance companies, the impact of such insurance was not significant to the debt securities credit quality rating as of December 31, 2018. The following table presents the ratings of our debt securities as of December 31, 2018:

	Ratings as of December 31, 2018					
	AAA / Aaa	AA / Aa	A	BBB / Baa	Below BBB / Baa or Not Rated(1)	Total
	($ in millions)					
U.S. Government obligations	$ -	$1,022.4	$ -	$ -	$ -	$ 1,022.4
Municipal bonds	161.3	1,472.2	485.9	94.5	0.8	2,214.7
Foreign government obligations	465.9	286.0	187.1	8.9	-	947.9
U.S. corporate bonds	11.5	96.8	863.1	987.0	426.9	2,385.3
Foreign corporate bonds	272.3	163.6	516.9	344.2	56.3	1,353.3
Mortgage and asset-backed securities:						
RMBS	15.0	1,321.2	-	45.3	6.4	1,387.9
CMBS	154.8	319.3	58.3	0.9	-	533.3
Other asset-backed securities	779.4	366.8	365.8	441.0	26.2	1,979.2
Total debt securities	$1,860.2	$5,048.3	$2,477.1	$1,921.8	$ 516.6	$11,824.0
Percentage of debt securities	15.7%	42.7%	20.9%	16.3%	4.4%	100.0%

(1) Consists of $167.8 million of securities rated BB / Ba, $205.3 million of securities rated B, $34.7 million of securities rated CCC, $0.4 million of securities rated CC, $3.3 million of securities rated below CC and $105.1 million of not rated securities.

Our debt securities portfolio has been designed to enable management to react to investment opportunities created by changing interest rates, prepayments, tax and credit considerations or other factors, or to circumstances that could result in a mismatch between the desired duration of debt securities and the duration of liabilities, and, as such, is classified as AFS.

Effective duration measures a portfolio's sensitivity to changes in interest rates. In this regard, as of December 31, 2018 and 2017, our debt securities portfolio had an effective duration of approximately 4.2 years and 4.4 years, respectively. As of December 31, 2018, approximately $3.0 billion, or 25.2 percent, of our debt securities portfolio represented securities with maturities of five years or less. See Note 4(b) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional detail on the contractual maturities of our consolidated debt securities portfolio. We may increase the proportion of our debt securities portfolio held in securities with maturities of more than five years should the yields of these securities provide, in our judgment, sufficient compensation for their increased risk. We do not believe that this strategy would reduce our ability to meet ongoing claim payments or to respond to significant catastrophe losses.

In the event paid losses accelerate beyond the ability of our reinsurance and insurance subsidiaries to fund these paid losses related to current cash balances, current operating cash flow, dividend and interest receipts and security maturities, we would need to liquidate a portion of our investment portfolio, make capital contributions to our reinsurance and insurance subsidiaries, and/or arrange for financing. Strains on liquidity could result from: (i) the occurrence of several significant catastrophe events in a relatively short period of time; (ii) the sale of investments into a depressed marketplace to fund these paid losses; (iii) the uncollectibility of reinsurance recoverables on these paid losses; (iv) the significant decrease in the value of collateral supporting reinsurance recoverables; or (v) a significant reduction in our net premium collections.

We may, from time to time, make significant investments in the common stock of a public company, subject to limitations imposed by applicable regulations.

On a consolidated basis, our invested assets decreased to approximately $17.5 billion as of December 31, 2018 from approximately $18.8 billion as of December 31, 2017, primarily reflecting depreciation in the value of our debt securities portfolio due to an increase in interest rates and credit spreads in 2018, contributions to Alleghany Capital to fund the acquisitions of Concord and Hirschfeld, repurchases of shares of our common stock and depreciation of our equity securities portfolio, all as discussed above. The special dividend on our common stock was funded by the proceeds from the sale of PacificComp.

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Fair Value. The following table presents the carrying values and estimated fair values of our consolidated financial instruments as of December 31, 2018 and 2017:

	December 31, 2018		December 31, 2017	
	Carrying Value	Fair Value	Carrying Value	Fair Value
	($ in millions)			
Assets				
Investments (excluding equity method investments and loans)(1)	$ 16,291.3	$ 16,291.3	$ 17,406.5	$ 17,406.5
Liabilities				
Senior Notes and other debt(2)	$ 1,669.0	$ 1,795.5	$ 1,484.9	$ 1,614.6

(1) This table includes debt and equity securities, as well as partnership and non-marketable equity investments carried at fair value that are included in other invested assets. This table excludes investments accounted for using the equity method and commercial mortgage loans that are carried at unpaid principal balance. The fair value of short-term investments approximates amortized cost. The fair value of all other categories of investments is discussed below.

(2) See Note 8 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information on the Senior Notes and other debt.

Fair value is defined as the price that would be received upon the sale of an asset or paid to transfer a liability in an orderly transaction between willing, able and knowledgeable market participants at the measurement date. Fair value measurements are not adjusted for transaction costs. In addition, a three-tiered hierarchy for inputs is used in management's determination of fair value of financial instruments that emphasizes the use of observable inputs over the use of unobservable inputs by requiring that the observable inputs be used when available. Observable inputs are market participant assumptions based on market data obtained from sources independent of the reporting entity. Unobservable inputs are the reporting entity's own assumptions about market participant assumptions based on the best information available under the circumstances. In assessing the appropriateness of using observable inputs in making our fair value determinations, we consider whether the market for a particular security is "active" or not based on all the relevant facts and circumstances. A market may be considered to be inactive if there are relatively few recent transactions or if there is a significant decrease in market volume. Furthermore, we consider whether observable transactions are "orderly" or not. We do not consider a transaction to be orderly if there is evidence of a forced liquidation or other distressed condition; as such, little or no weight is given to that transaction as an indicator of fair value.

Although we are responsible for the determination of the fair value of our financial assets and the supporting methodologies and assumptions, we employ third-party valuation service providers to gather, analyze and interpret market information and derive fair values based upon relevant methodologies and assumptions for individual instruments. When those providers are unable to obtain sufficient market observable information upon which to estimate the fair value for a particular security, fair value is determined either by requesting a quote, which is generally non-binding, from brokers who are knowledgeable about these securities or by employing widely accepted valuation models.

Valuation service providers typically obtain data about market transactions and other key valuation model inputs from multiple sources and, through the use of widely accepted valuation models, provide a single fair value measurement for individual securities for which a fair value has been requested under the terms of service agreements. The inputs used by the valuation service providers include, but are not limited to, market prices from recently completed transactions and transactions of comparable securities, interest rate yield curves, credit spreads, currency rates and other market observable information, as applicable. The valuation models take into account, among other things, market observable information as of the measurement date as well as the specific attributes of the security being valued including its term, interest rate, credit rating, industry sector and, when applicable, collateral quality and other issue or issuer specific information. When market transactions or other market observable data is limited, the extent to which judgment is applied in determining fair value is greatly increased.

The three-tiered hierarchy used in management's determination of fair value is broken down into three levels based on the reliability and observability of inputs as follows:

- Level 1: Valuations are based on unadjusted quoted prices in active markets that we have the ability to access for identical, unrestricted assets and do not involve any meaningful degree of judgment. An active market is defined as a market where transactions for the financial instrument occur with sufficient frequency and volume to provide pricing information on an ongoing basis. Our Level 1 assets include publicly traded common stocks and mutual funds (which are included on the balance sheet in equity securities) where our valuations are based on quoted market prices.

- Level 2: Valuations are based on direct and indirect observable inputs other than quoted market prices included in Level 1. Level 2 inputs include quoted prices for similar assets in active markets and inputs other than quoted prices that are observable for the asset, such as the terms of the security and market-based inputs. Terms of the security include coupon, maturity date and any special provisions that may, for example, enable the investor, at its election, to redeem the security prior to its scheduled maturity date (such provisions may apply to all debt securities except U.S. Government obligations). Market-based inputs include interest rates and yield curves that are observable at commonly quoted intervals and current credit rating(s) of the security. Market-based inputs may also include credit spreads of all

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debt securities except U.S. Government obligations, and currency rates for certain foreign government obligations and foreign corporate bonds denominated in foreign currencies. Fair values are determined using a market approach that relies on the securities' relationships to quoted prices for similar assets in active markets, as well as the other inputs described above. In determining the fair values for the vast majority of CMBS and other asset-backed securities, as well as a small portion of RMBS, an income approach is used to corroborate and further support the fair values determined by the market approach. The income approach primarily involves developing a discounted cash flow model using the future projected cash flows of the underlying collateral, and the terms of the security. Level 2 assets generally include short-term investments and most debt securities. Our Level 2 liabilities consist of the Senior Notes.

- Level 3: Valuations are based on techniques that use significant inputs that are unobservable. The valuation of Level 3 assets requires the greatest degree of judgment. These measurements may be made under circumstances in which there is little, if any, market activity for the asset. Our assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment. In making the assessment, we consider factors specific to the asset. In certain cases, the inputs used to measure fair value may fall into different levels of the fair value hierarchy. In such cases, the level in the fair value hierarchy within which the fair value measurement is classified is determined based on the lowest level input that is significant to the fair value measurement in its entirety Assets classified as Level 3 principally include other asset-backed securities (primarily, collateralized loan obligations) and, to a lesser extent, U.S. and foreign corporate bonds (including privately issued securities), partnership investments, non-marketable equity investments, RMBS, CMBS and commercial mortgage loans.

  Mortgage-backed and asset-backed securities are initially valued at the transaction price. Subsequently, we use widely accepted valuation practices that produce a fair value measurement. The vast majority of fair values are determined using an income approach. The income approach primarily involves developing a discounted cash flow model using the future projected cash flows of the underlying collateral, as well as other inputs described below. A few Level 3 valuations are based entirely on non-binding broker quotes. These securities consist primarily of mortgage-backed and asset-backed securities where reliable pool and loan level collateral information cannot be reasonably obtained, and as such, an income approach is not feasible.

  Since Level 3 valuations are based on techniques that use significant inputs that are unobservable with little or no market activity, the fair values under the market approach for Level 3 securities are less credible than under the income approach; however, the market approach, where feasible, is used to corroborate the fair values determined by the income approach. The market approach primarily relies on the securities' relationships to quoted transaction prices for similarly structured instruments. To the extent that transaction prices for similarly structured instruments are not available for a particular security, other market approaches are used to corroborate the fair values determined by the income approach, including option adjusted spread analyses.

  Unobservable inputs, significant to the measurement and valuation of mortgage-backed and asset-backed securities, are generally used in the income approach, and include assumptions about prepayment speed and collateral performance, including default, delinquency and loss severity rates. Significant changes to any one of these inputs, or combination of inputs, could significantly change the fair value measurement for these securities.

  The impact of prepayment speeds on fair value is dependent on a number of variables including whether the securities were purchased at a premium or discount. A decrease in interest rates generally increases the assumed rate of prepayments, and an increase in interest rates generally decreases the assumed speed of prepayments. Increased prepayments increase the yield on securities purchased at a discount and reduce the yield on securities purchased at a premium. In a decreasing prepayment environment, yields on securities purchased at a discount are reduced but are increased for securities purchased at a premium. Changes in default assumptions on underlying collateral are generally accompanied by directionally similar changes in other collateral performance factors, but generally result in a directionally opposite change in prepayment assumptions.

  Our Level 3 liabilities consist of the debt of Alleghany Capital's operating subsidiaries.

We employ specific control processes to determine the reasonableness of the fair values of our financial assets and liabilities. Our processes are designed to ensure that the values received or internally estimated are accurately recorded and that the data inputs and the valuation techniques used are appropriate, consistently applied and that the assumptions are reasonable and consistent with the objective of determining fair value. We assess the reasonableness of individual security values received from valuation service providers through various analytical techniques. In addition, we validate the reasonableness of fair values by comparing information obtained from our valuation service providers to other third-party valuation sources for selected securities. We also validate prices obtained from brokers for selected securities through reviews by those who have relevant expertise and who are independent of those charged with executing investing transactions.

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In addition to such procedures, we review the reasonableness of our classification of securities within the three-tiered hierarchy to ensure that the classification is consistent with GAAP.

The following tables present the estimated fair values of our financial instruments measured at fair value and the level of the fair value hierarchy of inputs used as of December 31, 2018 and 2017:

	Level 1	Level 2	Level 3	Total
		($ in millions)		
As of December 31, 2018				
Equity securities:				
Common stock	$ 3,563.9	$ 3.5	$ -	$ 3,567.4
Preferred stock	-	-	5.4	5.4
Total equity securities	3,563.9	3.5	5.4	3,572.8
Debt securities:				
U.S. Government obligations	-	1,022.4	-	1,022.4
Municipal bonds	-	2,214.7	-	2,214.7
Foreign government obligations	-	947.9	-	947.9
U.S. corporate bonds	-	1,959.6	425.7	2,385.3
Foreign corporate bonds	-	1,226.4	126.9	1,353.3
Mortgage and asset-backed securities:				
RMBS(1)	-	1,387.9	-	1,387.9
CMBS	-	533.3	-	533.3
Other asset-backed securities(2)	-	712.3	1,266.9	1,979.2
Total debt securities	-	10,004.5	1,819.5	11,824.0
Short-term investments	-	893.8	-	893.8
Other invested assets(3)	-	-	0.7	0.7
Total investments (excluding equity method investments and loans)	$ 3,563.9	$ 10,901.8	$ 1,825.6	$ 16,291.3
Senior Notes and other debt	$ -	$ 1,510.5	$ 285.0	$ 1,795.5

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	Level 1	Level 2	Level 3	Total
		($ in millions)		
As of December 31, 2017				
Equity securities:				
Common stock	$ 4,090.7	$ 3.8	$ -	$ 4,094.5
Preferred stock	-	3.1	1.9	5.0
Total equity securities	4,090.7	6.9	1.9	4,099.5
Debt securities:				
U.S. Government obligations	-	948.0	-	948.0
Municipal bonds	-	3,682.1	-	3,682.1
Foreign government obligations	-	1,006.6	-	1,006.6
U.S. corporate bonds	-	2,173.0	260.0	2,433.0
Foreign corporate bonds	-	1,424.6	75.2	1,499.8
Mortgage and asset-backed securities:				
RMBS(1)	-	833.8	161.8	995.6
CMBS	-	550.1	1.6	551.7
Other asset-backed securities(2)	-	503.3	1,101.3	1,604.6
Total debt securities	-	11,121.5	1,599.9	12,721.4
Short-term investments	-	578.1	-	578.1
Other invested assets(3)	-	-	7.5	7.5
Total investments (excluding equity method investments and loans)	$ 4,090.7	$ 11,706.5	$ 1,609.3	$ 17,406.5
Senior Notes and other debt	$ -	$ 1,513.6	$ 101.0	$ 1,614.6

(1) Primarily includes government agency pass-through securities guaranteed by a government agency or government sponsored enterprise, among other types of RMBS.
(2) Includes $1,266.9 million and $1,101.3 million of collateralized loan obligations as of December 31, 2018 and 2017, respectively.
(3) Includes partnership and non-marketable equity investments accounted for at fair value, and excludes investments accounted for using the equity method.

Municipal Bonds. The following table provides the fair value of our municipal bonds as of December 31, 2018, categorized by state and revenue source. Special revenue bonds are debt securities for which the payment of principal and interest is available solely from the cash flows of the related projects. As issuers of revenue bonds do not have the ability to draw from tax revenues or levy taxes to fund obligations, revenue bonds may carry a greater risk of default than general obligation bonds.

	Special Revenue										
State	Education	Hospital	Housing	Lease Revenue	Special Tax	Transit	Utilities	All Other Sources	Total Special Revenue	Total General Obligation	Total Fair Value
						($ in millions)					
New York	$ 9.7	$ -	$ -	$ -	$ 101.8	$ 76.2	$ 26.2	$ 7.4	$ 221.3	$ 9.2	$ 230.5
Texas	12.3	-	0.2	4.3	5.7	38.1	60.5	2.3	123.4	52.2	175.6
Massachusetts	8.5	40.7	-	2.3	1.3	19.1	55.4	-	127.3	40.5	167.8
Washington	15.4	5.4	6.6	-	23.5	24.4	19.0	0.3	94.6	68.8	163.4
California	2.4	1.4	8.1	-	-	30.5	1.1	14.4	57.9	36.7	94.6
Colorado	-	-	1.7	-	6.9	10.9	27.9	2.2	49.6	41.2	90.8
Florida	42.9	0.6	0.1	-	2.1	-	18.7	3.1	67.5	14.8	82.3
Pennsylvania	23.4	14.9	-	10.0	-	6.6	6.1	-	61.0	17.2	78.2
Indiana	-	0.3	3.7	-	11.0	30.5	8.5	10.7	64.7	7.7	72.4
District of Columbia	5.5	-	-	-	24.4	17.9	15.1	-	62.9	6.6	69.5
All other states	118.5	90.5	25.8	48.4	56.9	55.1	99.0	123.6	617.8	127.0	744.8
Total	$ 238.6	$ 153.8	$ 46.2	$ 65.0	$ 233.6	$ 309.3	$ 337.5	$ 164.0	$ 1,548.0	$ 421.9	1,969.9
Total advanced refunded / escrowed maturity funds											244.8
Total municipal bonds											$ 2,214.7

Catastrophe Exposure

The business of our reinsurance and insurance subsidiaries exposes them to losses related to various catastrophe events. In a catastrophe event, losses related to many insureds across multiple lines of business may result directly or indirectly from such single occurrence. Our reinsurance and insurance subsidiaries take certain measures to mitigate the impact of catastrophe events through various means including considering catastrophe risks in their underwriting and pricing decisions, purchasing reinsurance, monitoring and modeling accumulated exposures and managing exposure in key geographic zones and product lines that are prone to catastrophe events.

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Natural disasters such as hurricanes, other windstorms, earthquakes and other catastrophes have the potential to materially and adversely affect our operating results. Other risks, such as an outbreak of a pandemic disease, a major terrorist event, the bankruptcy of a major company or a marine and/or aviation disaster, could also have a material adverse effect on our business and operating results.

We evaluate catastrophe events and assess the probability of occurrence and magnitude through the use of industry recognized models and other techniques. We supplement these models by judgmentally interpreting and adjusting when appropriate the modeled output and by periodically monitoring the exposure risks of our operations. There is no single standard methodology to project possible losses related to catastrophe exposures. Further, there are no industry standard assumptions used in projecting these losses, and the form and quality of the data obtained, including data obtained from insureds and ceding companies, and used in these models are not uniformly compatible with the data requirements of all models. Therefore, the use of different methodologies and assumptions could materially change the projected losses. Finally, these modeled losses may not be comparable with estimates made by other companies.

Although the analytical tools used to estimate catastrophe exposure are useful in both pricing and monitoring catastrophe risk, the estimates derived by use of these techniques are inherently uncertain and do not reflect our maximum exposures to these events. Although the models are frequently updated, these projections are nevertheless inherently imprecise. It is highly likely that our losses will vary, perhaps materially, from these estimates.

Projections of potential catastrophe losses are typically expressed in terms of the probable maximum loss, or "PML." The PMLs shown are Occurrence Exceedance Probability, or "OEP," losses, which reflect losses that may occur in any single event due to the defined peril in the indicated region. These modeled losses are estimated based upon contracts in force at January 1, 2019 for TransRe and December 1, 2018 for RSUI. Modeled results also reflect losses arising from certain of our invested assets that have specific catastrophe exposures. In any given year, we may experience losses from multiple events and may also experience events that impact multiple geographies, and therefore, we may experience losses significantly larger than the OEP PMLs shown in any given year.

The following is an overview of such modeled PMLs from property, engineering, marine and energy exposures and the associated natural perils that we deem most significant. The estimated amount of these modeled losses are presented for both a 100 year return period (having a likelihood of being exceeded in any single year of 1.0 percent) and a 250 year return period (having a likelihood of being exceeded in any single year of 0.4 percent). These modeled losses are presented in two ways: (i) gross catastrophe losses; and (ii) after-tax net catastrophe costs (that is, gross losses, net of reinsurance, net reinstatement premiums and taxes). The reduction for reinsurance assumes that all reinsurers fulfill their obligations in accordance with contract terms.

	100 Year Return Period		250 Year Return Period	
	Gross Loss (before tax)	Net Loss (after tax)	Gross Loss (before tax)	Net Loss (after tax)
	($ in billions)			
Florida, Wind	$ 1.4	$ 0.5	$ 2.1	$ 0.6
California, Earthquake	1.1	0.4	2.0	0.6
Gulf Coast, Wind	0.8	0.3	1.5	0.5
Northeast U.S., Wind	0.8	0.3	1.6	0.5
Japan, Earthquake	0.6	0.2	0.9	0.3
Europe, Wind	0.6	0.2	0.8	0.2
Japan, Wind	0.6	0.2	0.7	0.2

"Florida, Wind" and "California, Earthquake" have the highest modeled after-tax net catastrophe costs for a 100 and 250 year return period, respectively. These costs would represent approximately 6 percent and 8 percent, respectively, of stockholders' equity attributable to Alleghany as of December 31, 2018, compared with approximately 6 percent and 8 percent, respectively, as of December 31, 2017. If multiple severe catastrophe events occur in any one year, or a single catastrophe event affects more than one geographic area, the potential economic cost to us could be materially higher than any one of the amounts shown above.

There is much uncertainty and imprecision in the compilation of these estimates at many stages in the process. Moreover, the makeup of our in-force business is constantly changing as new business is added and existing contracts terminate or expire, including contracts for reinsurance coverage purchased by us. In addition, these estimates take into account what we believe to be the most likely accumulation of territories, but there can be no assurance that we have captured every possible scenario in our analysis. As a result of these factors, among others, there can be no assurance that we will not experience after-tax net catastrophe costs from individual events that will exceed these estimates by a material amount. There also can be no assurance that we will not experience catastrophe events more frequently than the modeled probabilities would suggest. In any given year, catastrophe events could have a material adverse effect on our financial condition, results of operations, cash flows and liquidity.

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Recent Accounting Standards

Recently Adopted

In February 2018, the FASB issued guidance on certain tax effects caused by the Tax Act. The Tax Act, among other things, reduced the U.S. corporate federal income tax rate from 35.0 percent to 21.0 percent, effective January 1, 2018, for the 2018 tax year. Under such circumstances, GAAP requires that the value of deferred tax assets and liabilities be reduced through tax expense. The new guidance provides an option to reclassify any stranded tax amounts that remain in accumulated other comprehensive income to retained earnings, either retrospectively or at the beginning of the period in which the adoption is elected. This guidance became effective in the first quarter of 2018 for public entities, with early adoption permitted in 2017. We adopted this new guidance in the first quarter of 2018 and have elected to reclassify stranded tax amounts that remain in accumulated other comprehensive income, in the amount of approximately $135 million, to retained earnings as of January 1, 2018. See Note 10(b) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements & Supplementary Data" of this Form 10-K for additional information on accumulated other comprehensive income. See Note 9 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for additional information on the Tax Act and its impact on us.

In March 2017, the FASB issued guidance that reduces the amortization period for the premium on certain purchased callable debt securities to the earliest call date. The guidance applies specifically to noncontingent call features that are callable at a predetermined and fixed price and date. The accounting for purchased callable debt securities held at a discount is not affected. This guidance is effective in the first quarter of 2019 for public entities with early adoption permitted. We adopted this guidance in the fourth quarter of 2017 and recorded a cumulative effect reduction of approximately $13 million directly to opening 2017 retained earnings and an offsetting increase in opening 2017 accumulated other comprehensive income. The implementation did not have a material impact on our results of operations and financial condition. See Note 10(b) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements & Supplementary Data" of this Form 10-K for further information on accumulated other comprehensive income.

In January 2016, the FASB issued guidance that changes the recognition and measurement of certain financial instruments. This guidance requires investments in equity securities (except those accounted for under the equity method of accounting, but including partnership investments not accounted for under the equity method) to be measured at fair value with changes in fair value recognized in net earnings. For equity securities that do not have readily determinable fair values, measurement may be at cost, adjusted for any impairment and changes resulting from observable price changes for a similar investment of the same issuer. This guidance also changes the presentation and disclosure of financial instruments by: (i) requiring that financial instrument disclosures of fair value use the exit price notion; (ii) requiring separate presentation of financial assets and financial liabilities by measurement category and form, either on the balance sheet or the accompanying notes to the financial statements; (iii) requiring separate presentation in other comprehensive income for the portion of the change in a liability's fair value resulting from instrument-specific credit risk when an election has been made to measure the liability at fair value; and (iv) eliminating the requirement to disclose the methods and significant assumptions used to estimate the fair value for financial instruments measured at amortized cost on the balance sheet. This guidance is effective for fiscal years beginning after December 15, 2017 for public entities, including interim periods within those fiscal years. Except for the change in presentation for instrument-specific credit risk, this guidance does not permit early adoption. We adopted this guidance in the first quarter of 2018. As of January 1, 2018, approximately $736 million of net unrealized gains of equity securities, net of deferred taxes, were reclassified from accumulated other comprehensive income to retained earnings. Subsequently, all changes in unrealized gains or losses of equity securities, net of deferred taxes, were presented in the Consolidated Statements of Earnings rather than the Consolidated Statements of Comprehensive Income, under the caption "change in the fair value of equity securities." Results arising from partnership investments, whether accounted for under the equity method or at fair value, continue to be reported as a component of net investment income. The implementation did not have a material impact on our financial condition. See Note 4 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements & Supplementary Data" of this Form 10-K for further information on Alleghany's equity securities, and Note 10(b) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements & Supplementary Data" of this Form 10-K for further information on accumulated other comprehensive income.

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In May 2015, the FASB issued guidance that requires disclosures related to short-duration insurance contracts. The guidance applies to property and casualty insurance and reinsurance entities, among others, and requires the following annual disclosure related to the liability for loss and LAE: (i) net incurred and paid claims development information by accident year for up to ten years; (ii) a reconciliation of incurred and paid claims development information to the aggregate carrying amount of the liability for loss and LAE; (iii) liabilities for IBNR by accident year and in total; (iv) a description of reserving methodologies (as well as any changes to those methodologies); (v) quantitative information about claim frequency by accident year; and (vi) the average annual percentage payout of incurred claims by age and by accident year. In addition, the guidance also requires insurance entities to disclose for annual and interim reporting periods a roll-forward of the liability for loss and LAE. This guidance was effective for annual periods beginning after December 15, 2015, and interim periods within annual periods beginning after December 15, 2016, with early adoption permitted. We adopted this guidance as of December 31, 2016 and the implementation did not have an impact on our results of operations and financial condition. See Note 1(k) and Note 6 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K, for the new disclosures.

In May 2014, the FASB, together with the International Accounting Standards Board, issued guidance on the recognition of revenue from contracts with customers. Under this guidance, revenue is recognized as the transfer of goods and services to customers takes place and in amounts that reflect the payment or payments that are expected to be received from the customers for those goods and services. This guidance also requires new disclosures about revenue. Revenues related to insurance and reinsurance contracts and revenues from investments are not impacted by this guidance, whereas noninsurance revenues arising from the sale of manufactured goods and services are generally included within the scope of this guidance. This guidance, and all related amendments, became effective in the first quarter of 2018 for public entities, with early adoption permitted in 2017. We adopted this guidance in the first quarter of 2018 using the modified retrospective transition approach and the implementation did not have a material impact on our results of operations and financial condition. See Note 13 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements & Supplementary Data" of this Form 10-K for further information on Alleghany's noninsurance revenues.

Future Application of Accounting Standards

In February 2016, the FASB issued guidance on leases. Under this guidance, a lessee is required to recognize lease liabilities and corresponding right-of-use assets for leases with terms of more than one year, whereas under current guidance, a lessee is only required to recognize assets and liabilities for those leases qualifying as capital leases. This guidance also requires new disclosures about the amount, timing and uncertainty of cash flows arising from leases. The accounting by lessors is to remain largely unchanged. This guidance is effective in the first quarter of 2019 for public entities, with early adoption permitted. A modified retrospective transition approach is required for all leases in existence as of, or entered into after, the beginning of the earliest comparative period presented in the financial statements. We will adopt this guidance in the first quarter of 2019. As of January 1, 2019, we estimate that the adoption of this guidance will result in recognition of an additional right-of-use asset of approximately $0.2 billion and a corresponding lease liability of $0.2 billion. See Note 12(b) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for further information on Alleghany's leases.

In June 2016, the FASB issued guidance on credit losses. Under this guidance, a company is required to measure all expected credit losses on loans, reinsurance recoverables and other financial assets accounted for at cost or amortized cost, as applicable. Estimates of expected credit losses are to be based on historical experience, current conditions and reasonable and supportable forecasts. Credit losses for securities accounted for on an AFS basis are to be measured in a manner similar to GAAP as currently applied and cannot exceed the amount by which the fair value is less than the amortized cost. Credit losses for all financial assets are to be recorded through an allowance for credit losses. Subsequent reversals in credit loss estimates are permitted and are to be recognized in earnings. This guidance also requires new disclosures about the significant estimates and judgments used in estimating credit losses, as well as the credit quality of financial assets. This guidance is effective in the first quarter of 2020 for public entities, with early adoption permitted. We will adopt this guidance in the first quarter of 2020 and do not currently believe that the implementation will have a material impact on our results of operations and financial condition. See Note 4 and 5(b) to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for further information on Alleghany's investments and reinsurance recoverables, respectively.

In January 2017, the FASB issued guidance that simplifies the subsequent measurement of goodwill. Under this guidance, if an initial qualitative assessment indicates that the fair value of an operating subsidiary may be less than its carrying amount, an impairment charge is recognized for the amount by which the carrying amount of the operating subsidiary exceeds its estimated fair value. Any resulting impairment loss recognized cannot exceed the total amount of goodwill associated with the operating subsidiary. This guidance is effective in the first quarter of 2020 for public entities, with early adoption permitted. We will adopt this guidance in the first quarter of 2020 and do not currently believe that the implementation will have a material impact on our results of operations and financial condition. See Note 2 to Notes to Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K for further information on our goodwill.

In August 2017, the FASB issued guidance that simplifies the requirements to achieve hedge accounting, better reflects the economic results of hedging in the financial statements and improves the alignment between hedge accounting and a company's risk management activities. This guidance is effective in the first quarter of 2019 for public entities, with early adoption permitted. We will adopt this guidance in the first quarter of 2019 and do not currently believe that the implementation will have a material impact on our results of operations and financial condition.

In August 2018, the FASB issued guidance that changes the financial statement disclosure requirements for measuring fair value. With respect to financial instruments classified as "Level 3" in the fair value disclosure hierarchy, the guidance requires certain additional disclosures for public entities related to amounts included in other comprehensive income and significant unobservable inputs used in the valuation, while removing disclosure requirements related to an entity's overall valuation processes. The guidance also removes certain disclosure requirements related to transfers between financial instruments classified as "Level 1" and "Level 2" and provides clarification on certain other existing disclosure requirements. This guidance is effective for interim and annual periods beginning after December 15, 2019, with early adoption permitted with respect to any eliminated or modified disclosures. We will adopt this guidance in the first quarter of 2020 and we do not currently believe that the implementation will have a material impact on our results of operations and financial condition.

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Item 7A. Quantitative and Qualitative Disclosures about Market Risk.

Market risk is the risk of loss from adverse changes in market prices and rates. The primary market risk related to our debt securities is the risk of loss associated with adverse changes in interest rates. We hold our debt securities as AFS. Any changes in the fair value in these securities, net of tax, would be recorded as a component of other comprehensive income. However, if a decline in fair value relative to cost is believed to be other than temporary, a loss is generally recorded on our statement of earnings. We also invest in equity securities which are subject to fluctuations in market value. In addition, significant portions of our assets (principally investments) and liabilities (principally loss and LAE reserves and unearned premiums) are exposed to changes in foreign currency exchange rates. The net change in the carrying value of assets and liabilities denominated in foreign currencies is generally recorded as a component of other comprehensive income.

The sensitivity analyses presented below provide only a limited, point-in-time view of the market risk of our financial instruments. The actual impact of changes in market interest rates, equity market prices and foreign currency exchange rates may differ significantly from those shown in these sensitivity analyses. The sensitivity analyses are further limited because they do not consider any actions we could take in response to actual and/or anticipated changes in equity market prices, market interest rates or foreign currency exchange rates. In addition, these sensitivity analyses do not provide weight to risks related to market issues such as liquidity and the credit worthiness of investments.

Interest Rate Risk

The primary market risk for our debt securities is interest rate risk at the time of refinancing. We monitor the interest rate environment to evaluate reinvestment and refinancing opportunities. We generally do not use derivatives to manage market and interest rate risks. The table below presents a sensitivity analysis as of December 31, 2018 of our (i) consolidated debt securities and (ii) Senior Notes and other debt, which are sensitive to changes in interest rates. Sensitivity analysis is defined as the measurement of potential change in future earnings, fair values or cash flows of market sensitive instruments resulting from one or more selected hypothetical changes in interest rates over a selected time period. In the sensitivity analysis model below, we use a +/- 300 basis point range of change in interest rates to measure the hypothetical change in fair value of the financial instruments included in the analysis. The change in fair value is determined by calculating hypothetical December 31, 2018 ending prices based on yields adjusted to reflect a +/- 300 basis point range of change in interest rates, comparing these hypothetical ending prices to actual ending prices, and multiplying the difference by the par outstanding. The selected hypothetical changes in interest rates do not reflect what could be the potential best or worst case scenarios.

	-300	-200	-100	0	100	200	300
				($ in millions)			
Assets:							
Debt securities, fair value	$ 13,174.3	$ 12,807.8	$ 12,317.1	$ 11,824.0	$ 11,333.3	$ 10,862.7	$ 10,419.3
Estimated change in fair value	1,350.3	983.8	493.1	-	(490.7)	(961.3)	(1,404.7)
Liabilities:							
Senior Notes and other debt, fair value	$ 2,239.6	$ 2,065.9	$ 1,919.5	$ 1,795.5	$ 1,689.4	$ 1,598.4	$ 1,519.8
Estimated change in fair value	444.1	270.4	124.0	-	(106.1)	(197.1)	(275.7)

Equity Risk

Our equity securities are subject to fluctuations in market value. The table below presents our equity market price risk and reflects the effect of a hypothetical increase or decrease in market prices as of December 31, 2018 on the estimated fair value of our consolidated equity portfolio. The selected hypothetical price changes do not reflect what could be the potential best or worst case scenarios.

As of December 31, 2018 ($ in millions)			
Estimated Fair Value	Hypothetical Price Change	Estimated Fair Value After Hypothetical Change in Price	Hypothetical Percentage Increase (Decrease) in Stockholders' Equity
$ 3,572.8	20% Increase	$ 4,287.4	7.3%
	20% Decrease	2,858.2	(7.3%)

In addition to debt and equity securities, we invest in several partnerships which are subject to fluctuations in market value. Our partnership investments are included in other invested assets and are accounted for at fair value or using the equity method, and had a carrying value of $372.2 million as of December 31, 2018.

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Foreign Currency Exchange Rate Risk

Foreign currency exchange rate risk is the potential change in value arising from changes in foreign currency exchange rates. Our reinsurance operations located in foreign countries maintain some or all of their capital in their local currency and conduct business in their local currency, as well as the currencies of the other countries in which they operate. To mitigate this risk, we maintain investments denominated in certain foreign currencies in which the claims payments will be made. As of December 31, 2018, the largest foreign currency net liability exposure for these foreign operations was the Japanese Yen and the largest foreign currency net asset exposures for these foreign operations were the Euro and the Canadian Dollar. The table below presents our foreign currency exchange rate risk and shows the effect of a hypothetical increase or decrease in foreign currency exchange rates against the U.S. Dollar as of December 31, 2018 on the estimated net carrying value of our foreign currency denominated assets, net of our foreign currency denominated liabilities. The selected hypothetical changes do not reflect what could be the potential best or worst case scenarios.

As of December 31, 2018 ($ in millions)			
Estimated Fair Value	Hypothetical Price Change	Estimated Fair Value After Hypothetical Change in Price	Hypothetical Percentage Increase (Decrease) in Stockholders' Equity
$ (62.1)(1)	20% Increase	$ (74.5)	(0.1%)
	20% Decrease	(49.7)	0.1%

(1) Brackets denote a net liability position as of December 31, 2018.

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Item 8. Financial Statements and Supplementary Data.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of
Alleghany Corporation:

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Alleghany Corporation and subsidiaries (the "Company") as of December 31, 2018 and 2017, and the related consolidated statements of earnings and comprehensive income, changes in stockholders' equity and cash flows for each of the three years in the period ended December 31, 2018, and the related notes and the financial statement schedules listed in the Index at Item 15(a)(2) (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of Alleghany Corporation and subsidiaries at December 31, 2018 and 2017, and the consolidated results of their operations and their cash flows for each of the three years in the period ended December 31, 2018, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 20, 2019 expressed an unqualified opinion thereon.

Basis for Opinion

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

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

Adoption of New Accounting Standard

As discussed in Note 1(r) to the consolidated financial statements, the Company changed its method for accounting for the recognition and measurement of certain financial instruments in 2018.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2012.

New York, New York
February 20, 2019

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ALLEGHANY CORPORATION AND SUBSIDIARIES
Consolidated Balance Sheets

	December 31, 2018	December 31, 2017
	($ in thousands, except share amounts)	
Assets		
Investments:		
Securities at fair value:		
Equity securities (cost: 2018 – $2,904,496; 2017 – $3,170,673)	$ 3,572,790	$ 4,099,467
Debt securities (amortized cost: 2018 – $11,895,850; 2017 – $12,536,772)	11,823,968	12,721,399
Short-term investments	893,776	578,054
	16,290,534	17,398,920
Commercial mortgage loans	676,532	658,364
Other invested assets	555,972	743,358
Total investments	17,523,038	18,800,642
Cash	1,038,763	838,375
Accrued investment income	91,913	105,877
Premium balances receivable	842,642	797,346
Reinsurance recoverables	1,921,278	1,746,488
Ceded unearned premiums	221,232	190,252
Deferred acquisition costs	464,546	453,346
Property and equipment at cost, net of accumulated depreciation and amortization	195,243	125,337
Goodwill	455,142	334,905
Intangible assets, net of amortization	553,136	459,037
Current taxes receivable	116,637	31,085
Net deferred tax assets	164,890	136,489
Funds held under reinsurance agreements	744,057	706,042
Other assets	1,012,379	659,096
Total assets	$ 25,344,896	$ 25,384,317
Liabilities, Redeemable Noncontrolling Interests and Stockholders' Equity		
Loss and loss adjustment expenses	$ 12,250,294	$ 11,871,250
Unearned premiums	2,267,078	2,182,294
Senior Notes and other debt	1,669,039	1,484,897
Reinsurance payable	168,667	156,376
Other liabilities	1,127,346	1,068,907
Total liabilities	17,482,424	16,763,724
Redeemable noncontrolling interests	169,762	106,530
Common stock (shares authorized: 2018 and 2017 – 22,000,000; shares issued: 2018 and 2017 – 17,459,961)	17,460	17,460
Contributed capital	3,612,830	3,612,109
Accumulated other comprehensive (loss) income	(202,003)	618,118
Treasury stock, at cost (2018 – 2,883,452 shares; 2017 – 2,069,461 shares)	(1,312,939)	(824,906)
Retained earnings	5,577,362	5,091,282
Total stockholders' equity attributable to Alleghany stockholders	7,692,710	8,514,063
Total liabilities, redeemable noncontrolling interests and stockholders' equity	$ 25,344,896	$ 25,384,317

See accompanying Notes to Consolidated Financial Statements.

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ALLEGHANY CORPORATION AND SUBSIDIARIES
Consolidated Statements of Earnings and Comprehensive Income

	Year Ended December 31, 2018	2017	2016
	($ in thousands, except per share amounts)		
Revenues			
Net premiums earned	$ 4,976,190	$ 4,954,990	$ 4,975,777
Net investment income	500,534	451,016	438,455
Change in the fair value of equity securities	(228,994)	-	-
Net realized capital gains	(3,241)	107,222	63,205
Other than temporary impairment losses	(1,328)	(16,871)	(45,165)
Noninsurance revenue	1,643,999	928,298	698,747
Total revenues	6,887,160	6,424,655	6,131,019
Costs and Expenses			
Net loss and loss adjustment expenses	3,520,431	3,620,197	2,917,166
Commissions, brokerage and other underwriting expenses	1,617,333	1,651,177	1,657,251
Other operating expenses	1,579,309	967,104	765,226
Corporate administration	15,732	46,998	42,960
Amortization of intangible assets	24,039	19,419	19,012
Interest expense	90,724	83,070	81,599
Total costs and expenses	6,847,568	6,387,965	5,483,214
Earnings before income taxes	39,592	36,690	647,805
Income taxes	(15,062)	(63,802)	187,141
Net earnings	54,654	100,492	460,664
Net earnings attributable to noncontrolling interest	15,115	10,359	3,743
Net earnings attributable to Alleghany stockholders	$ 39,539	$ 90,133	$ 456,921
Net earnings	$ 54,654	$ 100,492	$ 460,664
Other comprehensive income (loss):			
Change in unrealized gains (losses), net of deferred taxes of ($56,498), $280,526 and $36,468 for 2018, 2017 and 2016, respectively	(212,539)	520,976	67,726
Less: reclassification for net realized capital gains and other than temporary impairments, net of taxes of $3,125, ($25,806) and ($36,281) for 2018, 2017 and 2016, respectively	11,757	(47,925)	(67,380)
Change in unrealized currency translation adjustment, net of deferred taxes of ($5,822), $14,344 and ($3,889) for 2018, 2017 and 2016, respectively	(21,902)	26,639	(7,223)
Retirement plans	3,071	(3,755)	(112)
Comprehensive income (loss)	(164,959)	596,427	453,675
Comprehensive income attributable to noncontrolling interests	15,115	10,359	3,743
Comprehensive income (loss) attributable to Alleghany stockholders	$ (180,074)	$ 586,068	$ 449,932
Basic earnings per share attributable to Alleghany stockholders	$ 2.62	$ 5.85	$ 29.60
Diluted earnings per share attributable to Alleghany stockholders	2.62	5.85	29.59

See accompanying Notes to Consolidated Financial Statements.

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ALLEGHANY CORPORATION AND SUBSIDIARIES
Consolidated Statements of Changes in Stockholders' Equity

	Three Years Ended December 31, 2018						
	Common Stock	Contributed Capital	Accumulated Other Comprehensive Income	Treasury Stock	Retained Earnings	Total Stockholders' Equity Attributable to Alleghany Stockholders	Redeemable Non-controlling Interest
	($ in thousands, except share amounts)						
Balance as of December 31, 2015							
(17,459,961 shares of common stock issued; 1,915,884 in treasury)	$ 17,460	$ 3,611,631	$ 116,273	$ (747,784)	$ 4,557,127	$ 7,554,707	$ 25,719
Add (deduct):							
Net earnings	-	-	-	-	456,921	456,921	3,743
Other comprehensive income (loss), net of tax:							
Retirement plans	-	-	(112)	-	-	(112)	-
Change in unrealized appreciation of investments, net	-	-	346	-	-	346	-
Change in unrealized currency translation adjustment, net	-	-	(7,223)	-	-	(7,223)	-
Comprehensive (loss) income	-	-	(6,989)	-	456,921	449,932	3,743
Dividends paid	-	-	-	-	-	-	-
Treasury stock repurchase	-	-	-	(68,320)	-	(68,320)	-
Other, net	-	362	-	3,264	-	3,626	45,258
Balance as of December 31, 2016							
(17,459,961 shares of common stock issued; 2,049,797 in treasury)	17,460	3,611,993	109,284	(812,840)	5,014,048	7,939,945	74,720
Add (deduct):							
Cumulative effect of adoption of new accounting pronouncements	-	-	12,899	-	(12,899)	-	-
Net earnings	-	-	-	-	90,133	90,133	10,359
Other comprehensive income (loss), net of tax:							
Retirement plans	-	-	(3,755)	-	-	(3,755)	-
Change in unrealized appreciation of investments, net	-	-	473,051	-	-	473,051	-
Change in unrealized currency translation adjustment, net	-	-	26,639	-	-	26,639	-
Comprehensive income	-	-	495,935	-	90,133	586,068	10,359
Dividends paid	-	-	-	-	-	-	-
Treasury stock repurchase	-	-	-	(16,048)	-	(16,048)	-
Other, net	-	116	-	3,982	-	4,098	21,451
Balance as of December 31, 2017							
(17,459,961 shares of common stock issued; 2,069,461 in treasury)	17,460	3,612,109	618,118	(824,906)	5,091,282	8,514,063	106,530
Add (deduct):							
Cumulative effect of adoption of new accounting pronouncements:							
Reclassification of net unrealized gains on equity securities, net of tax	-	-	(735,558)	-	735,558	-	-
Reclassification of stranded taxes	-	-	135,050		(135,050)	-	-
Total cumulative effect of adoption of new accounting pronouncements	-	-	(600,508)	-	600,508	-	-
Net earnings	-	-	-	-	39,539	39,539	15,115
Other comprehensive income (loss), net of tax:							
Retirement plans	-	-	3,071	-	-	3,071	-
Change in unrealized appreciation of investments, net	-	-	(200,782)	-	-	(200,782)	-
Change in unrealized currency translation adjustment, net	-	-	(21,902)	-	-	(21,902)	-
Comprehensive income	-	-	(219,613)	-	39,539	(180,074)	15,115
Dividends paid	-	-	-	-	(153,967)	(153,967)	-
Treasury stock repurchase	-	-	-	(491,633)	-	(491,633)	-
Other, net	-	721	-	3,600	-	4,321	48,117
Balance as of December 31, 2018							
(17,459,961 shares of common stock issued; 2,883,452 in treasury)	$ 17,460	$ 3,612,830	$ (202,003)	$ (1,312,939)	$ 5,577,362	$ 7,692,710	$ 169,762

See accompanying Notes to Consolidated Financial Statements.

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ALLEGHANY CORPORATION AND SUBSIDIARIES
Consolidated Statements of Cash Flows

	Year Ended December 31, 2018	2017	2016
	($ in thousands)		
Cash flows from operating activities			
Net earnings	$ 54,654	$ 100,492	$ 460,664
Adjustments to reconcile net earnings to net cash provided by (used in) operating activities:			
Depreciation and amortization	127,374	135,029	160,469
Change in the fair value of equity securities	228,994	-	-
Net realized capital (gains) losses	3,241	(107,222)	(63,205)
Other than temporary impairment losses	1,328	16,871	45,165
(Increase) decrease in reinsurance recoverables, net of reinsurance payable	(162,499)	(408,552)	(909)
(Increase) decrease in premium balances receivable	(45,296)	(53,654)	8,411
(Increase) decrease in ceded unearned premiums	(30,980)	10,771	(10,655)
(Increase) decrease in deferred acquisition costs	(11,200)	(4,712)	(29,186)
(Increase) decrease in funds held under reinsurance agreements	(38,015)	(114,440)	(357,053)
Increase (decrease) in unearned premiums	84,784	6,796	99,437
Increase (decrease) in loss and loss adjustment expenses	379,044	784,051	287,957
Change in unrealized foreign currency exchange rate losses (gains)	84,089	(143,878)	155,230
Other, net	(273,095)	224,183	36,602
Net adjustments	347,769	345,243	332,263
Net cash provided by (used in) operating activities	402,423	445,735	792,927
Cash flows from investing activities			
Purchases of debt securities	(4,716,070)	(5,805,364)	(5,960,516)
Purchases of equity securities	(1,041,887)	(4,574,415)	(2,093,644)
Sales of debt securities	3,647,156	3,986,259	4,895,282
Maturities and redemptions of debt securities	1,526,060	1,943,263	1,512,879
Sales of equity securities	1,609,647	4,315,408	2,067,095
Net (purchases) sales of short-term investments	(316,366)	145,237	(442,784)
Net (purchases) sales and maturities of commercial mortgage loans	(18,168)	(63,486)	(416,931)
(Purchases) sales of property and equipment	(23,286)	6,775	(24,005)
Purchases of affiliates and subsidiaries, net of cash acquired	(235,176)	(244,311)	(180,242)
Sale of subsidiaries	-	158,192	-
Other, net	(86,478)	(22,678)	(29,861)
Net cash provided by (used in) investing activities	345,432	(155,120)	(672,727)
Cash flows from financing activities			
Treasury stock acquisitions	(491,633)	(16,048)	(68,320)
Increase (decrease) in other debt	104,404	(28,924)	56,913
Cash dividends paid	(153,967)	-	-
Other, net	4,512	(19,400)	(6,007)
Net cash provided by (used in) financing activities	(536,684)	(64,372)	(17,414)
Effect of foreign exchange rate changes on cash	(10,783)	18,041	16,038
Net increase (decrease) in cash	200,388	244,284	118,824
Cash at beginning of period	838,375	594,091	475,267
Cash at end of period	$ 1,038,763	$ 838,375	$ 594,091
Supplemental disclosures of cash flow information			
Cash paid during period for:			
Interest paid	$ 88,345	$ 83,171	$ 80,817
Income taxes paid (refund received)	39,677	8,863	83,023

See accompanying Notes to Consolidated Financial Statements.

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ALLEGHANY CORPORATION AND SUBSIDIARIES
Notes to Consolidated Financial Statements

1. Summary of Significant Accounting Principles

(a) Principles of Financial Statement Presentation

Alleghany Corporation ("Alleghany"), a Delaware corporation, owns and manages certain operating subsidiaries and investments, anchored by a core position in property and casualty reinsurance and insurance. Through its wholly-owned subsidiary Transatlantic Holdings, Inc. ("TransRe"), Alleghany is engaged in the property and casualty reinsurance business. TransRe has been a subsidiary of Alleghany since March 2012. Through its wholly-owned subsidiary Alleghany Insurance Holdings LLC ("AIHL"), Alleghany is engaged in the property and casualty insurance business. AIHL's insurance operations are principally conducted by its subsidiaries RSUI Group, Inc. ("RSUI") and CapSpecialty, Inc. ("CapSpecialty"). RSUI has been a subsidiary of AIHL since July 2003 and CapSpecialty has been a subsidiary of AIHL since January 2002. AIHL Re LLC ("AIHL Re"), a captive reinsurance company which provides reinsurance to Alleghany's current and former insurance operating subsidiaries and affiliates, has been a subsidiary of Alleghany since its formation in May 2006.

Prior to December 31, 2017, AIHL's insurance operations also included Pacific Compensation Corporation ("PacificComp"). On December 31, 2017, AIHL sold PacificComp to CopperPoint Mutual Insurance Company ("CopperPoint") for total cash consideration of approximately $158 million, at which time: (i) approximately $442 million of PacificComp assets, consisting primarily of debt securities, and approximately $316 million of PacificComp liabilities, consisting primarily of loss and loss adjustment expenses ("LAE") reserves, were transferred to CopperPoint; and (ii) AIHL recorded an after-tax gain of approximately $16 million, which included a tax benefit. In connection with the transaction, AIHL Re provides adverse development reinsurance coverage on PacificComp's pre-acquisition claims, subject to certain terms and conditions. AIHL Re's obligations, which are guaranteed by Alleghany, are subject to an aggregate limit of $150.0 million and a final commutation and settlement as of December 31, 2024.

Although Alleghany's primary sources of revenues and earnings are its reinsurance and insurance operations and investments, Alleghany also generates revenues and earnings from a diverse portfolio of middle market businesses that are owned and managed primarily through its wholly-owned subsidiary Alleghany Capital Corporation ("Alleghany Capital"). Alleghany Capital's businesses include:

- Bourn & Koch, Inc. ("Bourn & Koch"), a manufacturer/remanufacturer of specialty machine tools and supplier of replacement parts, accessories and services for a variety of cutting technologies, headquartered in Rockford, Illinois;
- R.C. Tway Company, LLC ("Kentucky Trailer"), a manufacturer of custom trailers and truck bodies for the moving and storage industry and other markets, headquartered in Louisville, Kentucky;
- IPS-Integrated Project Services, LLC ("IPS"), a technical service provider focused on the global pharmaceutical and biotechnology industries, headquartered in Blue Bell, Pennsylvania;
- Jazwares, LLC (together with its affiliates, "Jazwares"), a global toy, entertainment and musical instrument company, headquartered in Sunrise, Florida;
- WWSC Holdings, LLC ("W&W|AFCO Steel"), a structural steel fabricator and erector, headquartered in Oklahoma City, Oklahoma;
- a 45 percent equity interest in Wilbert Funeral Services, Inc. ("Wilbert"), a provider of products and services for the funeral and cemetery industries and precast concrete markets, headquartered in Overland Park, Kansas; and
- CHECO Holdings, LLC ("Concord"), a hotel management and development company, headquartered in Raleigh, North Carolina.

In July 2014, Alleghany Capital acquired a 30 percent equity interest in Jazwares. On April 15, 2016, Alleghany Capital acquired a controlling interest in Jazwares and, beginning on that date, the results of Jazwares have been included in Alleghany's consolidated results. Prior to April 15, 2016, Jazwares was accounted for under the equity method of accounting. The results of W&W|AFCO Steel have been included in Alleghany's consolidated results beginning with its acquisition by Alleghany Capital on April 28, 2017. On February 7, 2018, W&W|AFCO Steel acquired Hirschfeld Holdings, LP ("Hirschfeld"). The results of Concord have been included in Alleghany's consolidated results beginning with its acquisition by Alleghany Capital on October 1, 2018.

Wilbert is accounted for under the equity method of accounting and is included in other invested assets. The results of Wilbert have been included in Alleghany's consolidated results beginning with its acquisition by Alleghany Capital on August 1, 2017.

In addition, Alleghany owns certain other holding-company investments. Alleghany's wholly-owned subsidiary, Stranded Oil Resources Corporation ("SORC"), is an exploration and production company focused on enhanced oil recovery, headquartered in Golden, Colorado. Alleghany's wholly-owned subsidiary, Alleghany Properties Holdings LLC ("Alleghany Properties"), owns and manages certain properties in the Sacramento, California region. Alleghany's public equity investments are managed primarily through Alleghany's wholly-owned subsidiary Roundwood Asset Management LLC.

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Unless the context otherwise requires, references to "Alleghany" include Alleghany together with its subsidiaries.

The accompanying consolidated financial statements include the results of Alleghany and its wholly-owned and majority-owned subsidiaries and have been prepared in accordance with accounting principles generally accepted in the U.S. ("GAAP"). All material inter-company balances and transactions have been eliminated in consolidation.

The portion of stockholders' equity, net earnings and comprehensive income that is not attributable to Alleghany stockholders is presented on the Consolidated Balance Sheets, the Consolidated Statements of Earnings and Comprehensive Income and the Consolidated Statements of Changes in Stockholders' Equity as noncontrolling interests. In addition, Alleghany accretes the redeemable noncontrolling interests up to its future estimated redemption value over the period from the date of issuance to the earliest redemption date, and such accretion is also included as noncontrolling interests. Because all noncontrolling interests have the option to sell their ownership interests to Alleghany in the future (generally through 2024), the portion of stockholders' equity that is not attributable to Alleghany stockholders is presented on the Consolidated Balance Sheets and the Consolidated Statements of Changes in Stockholders' Equity as redeemable noncontrolling interests for all periods presented. During 2018, the noncontrolling interests outstanding were approximately as follows: Bourn & Koch - 11 percent; Kentucky Trailer - 21 percent; IPS - 15 percent; Jazwares - 23 percent; and W&W|AFCO Steel - 20 percent. Concord had 15 percent noncontrolling interests outstanding from its October 1, 2018 acquisition date through December 31, 2018.

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions. These estimates and assumptions affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities as of the date of the financial statements, as well as the reported amounts of revenues and expenses during the reporting period. Alleghany relies on historical experience and on various other assumptions that it believes to be reasonable under the circumstances to make judgments about the carrying value of assets and liabilities and reported revenues and expenses that are not readily apparent from other sources. Actual results may differ materially from those reported results to the extent that those estimates and assumptions prove to be inaccurate. Changes in estimates are reflected in the Consolidated Statements of Earnings and Comprehensive Income in the period in which the changes are made.

(b) Investments

Investments consist of debt securities, equity securities, short-term investments, commercial mortgage loans and other invested assets. Alleghany considers all of its marketable debt securities and short-term investments as available-for-sale ("AFS"). Debt securities consist of securities with an initial fixed maturity of more than one year. Debt securities typically take the form of bonds and redeemable preferred stock. Equity securities generally consist of securities that represent ownership interests in an enterprise. Equity securities typically take the form of common stock or perpetual preferred stock. Mutual funds and exchange-traded securities are also classified as equity securities, including those that invest mostly in debt securities. Commencing January 1, 2018, all marketable equity securities are measured at fair value with changes in fair value recognized in net earnings, and prior to that date, were considered AFS. Short-term investments include commercial paper, certificates of deposit, money market instruments and any fixed maturity investment with an initial maturity of one year or less.

AFS securities are recorded at fair value. Unrealized gains and losses during the year, net of the related tax effect, for AFS securities, as well as partnership investments that Alleghany accounts for as AFS, are excluded from earnings and reflected in comprehensive income, and the cumulative effect is reported as a separate component of stockholders' equity until realized. If a decline in fair value is deemed to be other than temporary, the investment is written down to its fair value and the amount of the write-down is recorded as an other than temporary impairment ("OTTI") loss on the statement of earnings. In addition, any portion of such decline related to debt securities that is believed to arise from factors other than credit is recorded as a component of other comprehensive income rather than against earnings.

Commercial mortgage loans are carried at unpaid principal balance, less allowance for loan losses. The allowance for loan losses is a valuation allowance for incurred credit losses when management believes the uncollectibility of a loan balance is probable. Subsequent recoveries, if any, are credited to the allowance. Interest income on loans is accrued as earned.

Other invested assets include invested assets not identified above, primarily related to: (i) equity investments in operating companies where Alleghany has significant influence (an aggregate common stock position held at or above 20 percent is presumed to convey significant influence); (ii) partnership investments (including hedge funds and private equity funds); and (iii) non-marketable equity investments. Equity investments in operating companies where Alleghany has significant influence are accounted for using the equity method. Partnership investments are accounted for at fair value, with changes in fair value recognized in net earnings, or using the equity method where Alleghany has significant influence. Non-marketable equity investments are accounted for at fair value, with changes in fair value recognized in net earnings.

Net realized gains and losses on investments are determined in accordance with the specific identification method.

Net investment income consists primarily of: (i) interest income from debt securities, short-term investments, commercial mortgage loans, funds withheld by cedants and cash, including any premium amortization or discount accretion; (ii) dividend income from equity securities; and (iii) investment income from other invested assets, which includes results arising from partnership investments, whether accounted for under the equity method or at fair value. Interest income is accrued when earned.

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Premiums and discounts arising from the purchase of certain debt securities are treated as a yield adjustment over the estimated useful life of the securities, adjusted for anticipated prepayments using the retrospective interest method. Under this method, the effective yield on a security is estimated. Such estimates are based on the prepayment terms of the security, past actual cash flows and assumptions as to future expected cash flow. The future expected cash flow assumptions consider various prepayment assumptions based on historical experience, as well as current market conditions. Periodically, the effective yield is re-estimated to reflect actual prepayments and updated future expected cash flow assumptions. Upon a re-estimation, a security's book value is restated at the most recently calculated effective yield, assuming that yield had been in effect since the security was purchased. This treatment results in an increase or decrease to net investment income (accretion of premium or amortization of discount) at the new measurement date. With respect to callable debt securities purchased at a premium to par value, the amortization period for that premium is the earliest call date.

See Note 4 for additional information regarding investments.

(c) Fair value

Fair value is defined as the price that would be received upon the sale of an asset or paid to transfer a liability in an orderly transaction between willing, able and knowledgeable market participants at the measurement date. Fair value measurements are not adjusted for transaction costs. In addition, a three-tiered hierarchy for inputs is used in management's determination of fair value of financial instruments that emphasizes the use of observable inputs over the use of unobservable inputs by requiring that the observable inputs be used when available. Observable inputs are market participant assumptions based on market data obtained from sources independent of the reporting entity. Unobservable inputs are the reporting entity's own assumptions about market participant assumptions based on the best information available under the circumstances. In assessing the appropriateness of using observable inputs in making its fair value determinations, Alleghany considers whether the market for a particular security is "active" or not based on all the relevant facts and circumstances. A market may be considered to be inactive if there are relatively few recent transactions or if there is a significant decrease in market volume. Furthermore, Alleghany considers whether observable transactions are "orderly" or not. Alleghany does not consider a transaction to be orderly if there is evidence of a forced liquidation or other distressed condition; as such, little or no weight is given to that transaction as an indicator of fair value.

Although Alleghany is responsible for the determination of the fair value of its financial assets and the supporting methodologies and assumptions, it employs third-party valuation service providers to gather, analyze and interpret market information and derive fair values based upon relevant methodologies and assumptions for individual instruments. When those providers are unable to obtain sufficient market observable information upon which to estimate the fair value for a particular security, fair value is determined either by requesting a quote, which is generally non-binding, from brokers who are knowledgeable about these securities or by employing widely accepted valuation models.

Valuation service providers typically obtain data about market transactions and other key valuation model inputs from multiple sources and, through the use of widely accepted valuation models, provide a single fair value measurement for individual securities for which a fair value has been requested under the terms of service agreements. The inputs used by the valuation service providers include, but are not limited to, market prices from recently completed transactions and transactions of comparable securities, interest rate yield curves, credit spreads, currency rates and other market observable information, as applicable. The valuation models take into account, among other things, market observable information as of the measurement date as well as the specific attributes of the security being valued including its term, interest rate, credit rating, industry sector and, when applicable, collateral quality and other issue or issuer specific information. When market transactions or other market observable data is limited, the extent to which judgment is applied in determining fair value is greatly increased.

The three-tiered hierarchy used in management's determination of fair value is broken down into three levels based on the reliability and observability of inputs as follows:

- Level 1: Valuations are based on unadjusted quoted prices in active markets that Alleghany has the ability to access for identical, unrestricted assets and do not involve any meaningful degree of judgment. An active market is defined as a market where transactions for the financial instrument occur with sufficient frequency and volume to provide pricing information on an ongoing basis. Alleghany's Level 1 assets include publicly traded common stocks and mutual funds (which are included on the balance sheet in equity securities) where Alleghany's valuations are based on quoted market prices.
- Level 2: Valuations are based on direct and indirect observable inputs other than quoted market prices included in Level 1. Level 2 inputs include quoted prices for similar assets in active markets and inputs other than quoted prices that are observable for the asset, such as the terms of the security and market-based inputs. Terms of the security include coupon, maturity date and any special provisions that may, for example, enable the investor, at its election, to redeem the security prior to its scheduled maturity date (such provisions may apply to all debt securities except U.S. Government obligations). Market-based inputs include interest rates and yield curves that are observable at commonly quoted intervals and current credit rating(s) of the security. Market-based inputs may also include credit spreads of all debt securities except U.S. Government obligations, and currency rates for certain foreign government obligations and foreign

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corporate bonds denominated in foreign currencies. Fair values are determined using a market approach that relies on the securities' relationships to quoted prices for similar assets in active markets, as well as the other inputs described above. In determining the fair values for the vast majority of commercial mortgage-backed securities ("CMBS") and other asset- backed securities, as well as a small portion of residential mortgage-backed securities ("RMBS"), an income approach is used to corroborate and further support the fair values determined by the market approach. The income approach primarily involves developing a discounted cash flow model using the future projected cash flows of the underlying collateral, and the terms of the security. Level 2 assets generally include short-term investments and most debt securities. Alleghany's Level 2 liabilities consist of the Senior Notes, as defined in Note 1(n).

- Level 3: Valuations are based on techniques that use significant inputs that are unobservable. The valuation of Level 3 assets requires the greatest degree of judgment. These measurements may be made under circumstances in which there is little, if any, market activity for the asset. Alleghany's assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment. In making the assessment, Alleghany considers factors specific to the asset. In certain cases, the inputs used to measure fair value may fall into different levels of the fair value hierarchy. In such cases, the level in the fair value hierarchy within which the fair value measurement is classified is determined based on the lowest level input that is significant to the fair value measurement in its entirety. Assets classified as Level 3 principally include other asset-backed securities (primarily, collateralized loan obligations) and, to a lesser extent, U.S. and foreign corporate bonds (including privately issued securities), partnership investments, non-marketable equity investments, RMBS, CMBS and commercial mortgage loans.

  Mortgage-backed and asset-backed securities are initially valued at the transaction price. Subsequently, Alleghany uses widely accepted valuation practices that produce a fair value measurement. The vast majority of fair values are determined using an income approach. The income approach primarily involves developing a discounted cash flow model using the future projected cash flows of the underlying collateral, as well as other inputs described below. A few Level 3 valuations are based entirely on non-binding broker quotes. These securities consist primarily of mortgage-backed and asset-backed securities where reliable pool and loan level collateral information cannot be reasonably obtained, and as such, an income approach is not feasible.

  Since Level 3 valuations are based on techniques that use significant inputs that are unobservable with little or no market activity, the fair values under the market approach for Level 3 securities are less credible than under the income approach; however, the market approach, where feasible, is used to corroborate the fair values determined by the income approach. The market approach primarily relies on the securities' relationships to quoted transaction prices for similarly structured instruments. To the extent that transaction prices for similarly structured instruments are not available for a particular security, other market approaches are used to corroborate the fair values determined by the income approach, including option adjusted spread analyses.

  Unobservable inputs, significant to the measurement and valuation of mortgage-backed and asset-backed securities, are generally used in the income approach, and include assumptions about prepayment speed and collateral performance, including default, delinquency and loss severity rates. Significant changes to any one of these inputs, or combination of inputs, could significantly change the fair value measurement for these securities.

  The impact of prepayment speeds on fair value is dependent on a number of variables including whether the securities were purchased at a premium or discount. A decrease in interest rates generally increases the assumed rate of prepayments, and an increase in interest rates generally decreases the assumed speed of prepayments. Increased prepayments increase the yield on securities purchased at a discount and reduce the yield on securities purchased at a premium. In a decreasing prepayment environment, yields on securities purchased at a discount are reduced but are increased for securities purchased at a premium. Changes in default assumptions on underlying collateral are generally accompanied by directionally similar changes in other collateral performance factors, but generally result in a directionally opposite change in prepayment assumptions.

  Alleghany's Level 3 liabilities consist of the debt of Alleghany Capital's operating subsidiaries.

Alleghany employs specific control processes to determine the reasonableness of the fair values of its financial assets and liabilities. Alleghany's processes are designed to ensure that the values received or internally estimated are accurately recorded and that the data inputs and the valuation techniques used are appropriate, consistently applied and that the assumptions are reasonable and consistent with the objective of determining fair value. Alleghany assesses the reasonableness of individual security values received from valuation service providers through various analytical techniques. In addition, Alleghany validates the reasonableness of fair values by comparing information obtained from Alleghany's valuation service providers to other third-party valuation sources for selected securities. Alleghany also validates prices obtained from brokers for selected securities through reviews by those who have relevant expertise and who are independent of those charged with executing investing transactions.

In addition to such procedures, Alleghany reviews the reasonableness of its classification of securities within the three-tiered hierarchy to ensure that the classification is consistent with GAAP.

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See Note 3 for additional information regarding fair value.

(d) Cash

Cash includes all deposit balances with a bank that are available for immediate withdrawal, whether interest-bearing or non-interest bearing.

(e) Premiums and Unearned Premiums

Premiums are recognized as revenue on a pro rata basis over the term of an insurance policy. Assumed reinsurance premiums written and earned are based on reports received from ceding companies for pro rata treaty contracts and are generally recorded as written based on contract terms for excess-of-loss treaty contracts. Premiums are earned ratably over the terms of the related coverages.

Unearned premiums and ceded unearned premiums represent the portion of gross premiums written and ceded premiums written, respectively, related to the unexpired periods of such coverages. Assumed reinsurance premiums written and earned, along with related costs, for which data has not been reported by the ceding companies, are estimated based on historical patterns and other relevant factors. These estimates may change when actual data for such estimated items becomes available.

Premium balances receivable are reported net of an allowance for estimated uncollectible premium amounts. Such allowance is based upon an ongoing review of amounts outstanding, length of collection periods, the creditworthiness of the insured and other relevant factors. Amounts deemed to be uncollectible are written off against the allowance.

(f) Reinsurance Ceded

Reinsurance is used to mitigate the exposure to losses, manage capacity and protect capital resources. Reinsuring loss exposures does not relieve a ceding entity from its obligations to policyholders and cedants. Reinsurance recoverables (including amounts related to incurred but not reported ("IBNR") claims) and ceded unearned premiums are reported as assets. To minimize exposure to losses related to a reinsurer's inability to pay, the financial condition of such reinsurer is evaluated initially upon placement of the reinsurance and periodically thereafter. In addition to considering the financial condition of a reinsurer, the collectability of the reinsurance recoverables is evaluated (and where appropriate, whether an allowance for estimated uncollectible reinsurance recoverables is to be established) based upon a number of other factors. Such factors include the amounts outstanding, length of collection periods, disputes, any collateral or letters of credit held and other relevant factors. To the extent that an allowance for uncollectible reinsurance recoverable is established, amounts deemed to be uncollectible are written off against the allowance for estimated uncollectible reinsurance recoverables. Alleghany currently has no allowance for uncollectible reinsurance recoverables.

Ceded premiums written are recorded in accordance with the applicable terms of the various reinsurance contracts and ceded premiums earned are charged against revenue over the period of the various reinsurance contracts. This also generally applies to reinstatement premiums paid to a reinsurer, which arise when contractually-specified ceded loss triggers have been breached. Ceded commissions reduce commissions, brokerage and other underwriting expenses and ceded losses incurred reduce net loss and LAE incurred over the applicable periods of the various reinsurance contracts with third-party reinsurers. If premiums or commissions are subject to adjustment (for example, retrospectively-rated or experience-rated), the estimated ultimate premium or commission is recognized over the period of the contract.

Amounts recoverable from reinsurers are estimated in a manner consistent with the claim liability associated with the reinsured business and consistent with the terms of the underlying reinsurance contract.

See Note 5 for additional information on reinsurance ceded and reinsurance recoverables.

(g) Deferred Acquisition Costs

Acquisition costs related to unearned premiums that vary with, and are directly related to, the production of such premiums are deferred. Furthermore, such deferred costs: (i) represent only incremental, direct costs associated with the successful acquisition of a new or renewal insurance or reinsurance contract; (ii) are essential to the contract transaction; (iii) would not have been incurred had the contract transaction not occurred; and (iv) are related directly to the acquisition activities involving underwriting, policy issuance and processing. Acquisition costs principally relate to commissions. To a lesser extent, acquisition costs can include premium taxes and certain qualifying underwriting expenses. For insurance policies written, acquisition costs are generally incurred directly and include commissions, premium taxes and certain qualifying underwriting expenses. For reinsurance contracts written, acquisition costs are generally incurred through brokerage commissions and indirectly through ceding commissions, which are deferred. Deferred acquisition costs are amortized to expense as the related premiums are earned, generally over a period of one year. Deferred acquisition costs are reviewed at least annually to determine their recoverability from future income, including investment income. If any such costs are determined not to be recoverable they are charged to expense.

Anticipated net loss and LAE and estimated remaining costs of servicing the contracts are considered when evaluating recoverability of deferred acquisition costs.

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(h) Property and Equipment

Property and equipment is carried at cost, net of accumulated depreciation and amortization. Depreciation of buildings and equipment is principally calculated using the straight-line method over the estimated useful life of the respective assets. Estimated useful lives for such assets range from three to 20 years. Amortization of leasehold improvements is principally calculated using the straight-line method over the estimated useful life of the leasehold improvement or the life of the lease, whichever is less. Rental expense on operating leases is recorded on a straight-line basis over the term of the lease, regardless of the timing of actual lease payments.

(i) Goodwill and Other Intangible Assets

Goodwill and other intangible assets, net of amortization, are recorded as a consequence of business acquisitions. Goodwill represents the excess, if any, of the amount paid to acquire subsidiaries and other businesses over the fair value of their net assets as of the date of acquisition. Other intangible assets are recorded at their fair value as of the acquisition date. A significant amount of judgment is needed to determine the fair value as of the date of acquisition of other intangible assets and the net assets acquired in a business acquisition. The determination of the fair value of other intangible assets and net assets often involves the use of valuation models and other estimates, which involve many assumptions and variables and are inherently subjective. The fair value estimates may include the use of financial projections and discount rates. Other intangible assets that are not deemed to have an indefinite useful life are amortized over their estimated useful lives. Goodwill and intangible assets that have an indefinite useful life are not subject to amortization.

Goodwill and other intangible assets deemed to have an indefinite useful life are tested annually for impairment in the fourth quarter. Goodwill and other intangible assets are also tested whenever events and changes in circumstances suggest that the carrying amount may not be recoverable. A significant amount of judgment is required in performing goodwill and other intangible asset impairment tests. These tests may include estimating the fair value of Alleghany's operating subsidiaries, which include Alleghany Capital's operating subsidiaries, and other intangible assets. The fair value estimates may include the use of financial projections and discount rates. If it is determined that an asset has been impaired, the asset is written down by the amount of the impairment, with a corresponding charge to net earnings. Subsequent reversal of any impairment charge is not permitted.

With respect to goodwill, a qualitative assessment is first made to determine whether it is necessary to perform quantitative testing. This initial assessment includes, among other factors, consideration of: (i) past, current and projected future earnings and equity; (ii) recent trends and market conditions; and (iii) valuation metrics involving similar companies that are publicly-traded and acquisitions of similar companies, if available. If this initial qualitative assessment indicates that the fair value of an operating subsidiary may be less than its carrying amount, a second step is taken, involving a comparison between the estimated fair value of the operating subsidiary with its respective carrying amount including goodwill. Under GAAP, fair value refers to the amount for which the entire operating subsidiary may be bought or sold. The methods for estimating the fair value of an operating subsidiary values include asset and liability fair values and other valuation techniques, such as discounted cash flows and multiples of earnings or revenues. All of these methods involve significant estimates and assumptions. If the carrying value exceeds estimated fair value, there is an indication of potential impairment, and a third step is performed to measure the amount of impairment. The third step involves calculating an implied fair value of goodwill by measuring the excess of the estimated fair value of the operating subsidiary over the aggregate estimated fair value of the individual assets less liabilities. If the carrying value of goodwill exceeds the implied fair value of goodwill, an impairment charge is recorded for the excess.

See Note 2 for additional information on goodwill and other intangible assets.

(j) Income Taxes

Alleghany files a consolidated federal income tax return with its subsidiaries. Alleghany's consolidated federal income tax return includes as part of its taxable income all items of income of non-U.S. subsidiaries that are subject to current U.S. income tax, currently pursuant to provisions of the Internal Revenue Code. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amount of existing assets and liabilities and their respective tax bases and operating loss and tax credit carry-forwards. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date. Current tax liabilities or assets are recognized for the estimated taxes payable or refundable on tax returns for the current year.

A valuation allowance is provided when it is more likely than not that some portion of the deferred tax assets will not be realized. This determination is based upon a review of all available information, both positive and negative, including Alleghany's earnings history, the timing, character and amount of future earnings potential, the reversal of taxable temporary differences and the tax planning strategies available.

See Note 9 for additional information on income taxes.

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(k) Loss Reserves

The reserves for loss and LAE represent management's best estimate of the ultimate cost of all reported and unreported losses incurred through the balance sheet date.

The reserves for loss and LAE include but are not limited to: (i) reports and individual case estimates received from ceding companies with respect to assumed reinsurance business; (ii) the accumulation of individual estimates for claims reported with respect to direct insurance business; (iii) estimates for IBNR claims based on past experience, modified for current trends and industry data; and (iv) estimates of expenses for investigating and settling claims based on past experience. The methods used to determine such estimates and to establish the resulting reserves are continually reviewed and updated. Any adjustments are reflected in current income. Net loss and LAE consist of the estimated ultimate cost of settling claims incurred within the reporting period (net of related reinsurance recoverable), including IBNR claims, plus changes in estimates of prior period losses.

The estimation of the liability for unpaid loss and LAE is inherently difficult and subjective, especially in view of changing legal and economic environments that impact the development of loss reserves, and therefore, quantitative techniques frequently have to be supplemented by subjective considerations and managerial judgment. In addition, trends that have affected development of liabilities in the past may not necessarily occur or affect liability development to the same degree in the future.

While the reserving process is difficult for the insurance business, the inherent uncertainties of estimating loss reserves are even greater for the reinsurance business, due primarily to the longer-term nature of most of the business, the diversity of development patterns among different types of reinsurance contracts, the necessary reliance on the ceding companies for information regarding reported claims and differing reserving practices among ceding companies, which may change without notice. TransRe writes a significant amount of non-proportional assumed casualty reinsurance as well as proportional assumed reinsurance of excess liability business. Claims from such classes can exhibit greater volatility over time than most other classes due to their low frequency, high severity nature and loss cost trends that are more difficult to predict. Net loss and LAE also include amounts for risks related to asbestos-related illness and environmental impairment.

Each of Alleghany's reinsurance and insurance subsidiaries establishes reserves on its balance sheet for unpaid loss and LAE related to its property and casualty reinsurance and insurance contracts. As of any balance sheet date, there are claims that have not yet been reported, and some claims may not be reported for many years after the date a loss occurs. As a result of this historical pattern, the liability for unpaid loss and LAE includes significant estimates for IBNR claims. Additionally, reported claims are in various stages of the settlement process. Each claim is settled individually based upon its merits, and certain claims may take years to settle, especially if legal action is involved. As a result, the liabilities for unpaid loss and LAE include significant judgments, assumptions and estimates made by management related to the actual ultimate losses that will arise from the claims.

As noted above, as of any balance sheet date, not all claims that have occurred have been reported to Alleghany, and if reported may not have been settled. The time period between the occurrence of a loss and the time it is settled is referred to as the "claim tail." Reported losses for the shorter-tailed classes, such as property, generally reach the ultimate level of incurred losses in a relatively short period of time and as such, are only relevant for the more recent accident years.

Casualty claims can have a very long claim tail, in certain situations extending for many years. In addition, casualty claims are more susceptible to litigation and the legal environment and can be significantly affected by changing contract interpretations, all of which contribute to extending the claim tail. For long-tail casualty lines of business, estimating the ultimate liabilities for unpaid loss and LAE is a more complex process and depends on a number of factors, including the line and volume of the business involved.

Alleghany's loss reserve review processes use actuarial methods that vary by operating subsidiary and line of business and produce point estimates for each class of business. The actuarial methods used include the following methods:

- *Reported Loss Development Method:* a reported loss development pattern is calculated based on historical loss development data, and this pattern is then used to project the latest evaluation of cumulative reported losses for each accident year or underwriting year, as appropriate, to ultimate levels;
- *Paid Development Method:* a paid loss development pattern is calculated based on historical paid loss development data, and this pattern is then used to project the latest evaluation of cumulative paid losses for each accident year or underwriting year, as appropriate, to ultimate levels;
- *Expected Loss Ratio Method:* expected loss ratios are applied to premiums earned, based on historical company experience, or historical insurance industry results when company experience is deemed not to be sufficient; and
- *Bornhuetter-Ferguson Method:* the results from the Expected Loss Ratio Method are essentially blended with either the Reported Loss Development Method or the Paid Development Method.

See Note 6 and Note 12(c) for additional information on loss reserves.

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(l) Earnings Per Share of Common Stock Attributable to Alleghany Stockholders

Basic earnings per share of common stock is based on the average number of shares of outstanding common stock, par value $1.00 per share, of Alleghany ("Common Stock") during the period, retroactively adjusted for stock dividends, where applicable. Diluted earnings per share of Common Stock are based on those shares used to calculate basic earnings per share of Common Stock plus the dilutive effect of stock-based compensation awards, retroactively adjusted for stock dividends, where applicable.

See Note 11 for additional information on earnings per share.

(m) Stock-Based Compensation Plans

The cost resulting from all stock-based compensation transactions is recognized in the financial statements, with fair value as the measurement objective in accounting for stock-based compensation arrangements. The fair value-based measurement method applies in accounting for stock-based compensation transactions with employees. Non-employee directors are treated as employees for accounting purposes.

See Note 14 for information on Alleghany's long-term compensation plans, which include stock-based compensation plans.

(n) Senior Notes and Other Debt

Debt consists of senior notes issued by Alleghany (the "Alleghany Senior Notes"), senior notes issued by TransRe (the "TransRe Senior Notes," and together with the Alleghany Senior Notes, the "Senior Notes") and other debt. The Senior Notes and other debt are carried at unpaid principal balance, including any unamortized premium or discount and any unamortized debt issuance costs.

See Note 8 for additional information on the Senior Notes and other debt.

(o) Currency Translation

Assets and liabilities denominated in foreign currencies are translated into U.S. dollars at period-end exchange rates. Income and expense accounts are translated at average exchange rates for the year. The resulting unrealized currency translation gain or loss for functional currencies is recorded, net of tax, in accumulated other comprehensive income, a component of stockholders' equity.

Transaction gains and losses on assets and liabilities denominated in foreign currencies are recorded as a component of net realized capital gains during the period in which they occur.

(p) Noninsurance Revenue and Other Operating Expenses

Noninsurance revenues and related operating expenses arising from the sale of manufactured goods and services are generally recognized as the transfer of goods and services to customers takes place. Payment terms for products and services vary by the type of product or service offered. Noninsurance revenues reflect the payment or payments that are expected to be received from the customers for those goods and services. Noninsurance revenues and related operating expenses from manufactured products are generally recognized at the time title transfers to the customer, which typically occurs at the point of shipment or delivery to the customer, depending on the terms of the sales arrangement. For certain products, partial payment in the form of a deposit is required before the products are delivered to the customer and such deposits are recorded as a component of other liabilities. Noninsurance revenues and related operating expenses from services are generally recognized as the services are performed. Services provided pursuant to a contract are recognized either over the contract period or upon completion of the elements specified in the contract, depending on the terms of the contract.

(q) Reclassification

Certain prior year amounts have been reclassified to conform to the 2018 presentation of the financial statements.

(r) Recent Accounting Standards

Recently Adopted

In February 2018, the Financial Accounting Standards Board ("FASB") issued guidance on certain tax effects caused by the Tax Cuts and Jobs Act of 2017 (the "Tax Act"). The Tax Act, among other things, reduced the U.S. corporate federal income tax rate from 35.0 percent to 21.0 percent, effective January 1, 2018, for the 2018 tax year. Under such circumstances, GAAP requires that the value of deferred tax assets and liabilities be reduced through tax expense. The new guidance provides an option to reclassify any stranded tax amounts that remain in accumulated other comprehensive income to retained earnings, either retrospectively or at the beginning of the period in which the adoption is elected. This guidance became effective in the first quarter of 2018 for public entities, with early adoption permitted in 2017. Alleghany adopted this new guidance in the first quarter of 2018 and has elected to reclassify stranded tax amounts that remain in accumulated other comprehensive income, in the amount of approximately $135 million, to retained earnings as of January 1, 2018. See Note 10(b) for additional information on accumulated other comprehensive income. See Note 9 for additional information on the Tax Act and its impact on Alleghany.

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In March 2017, the FASB issued guidance that reduces the amortization period for the premium on certain purchased callable debt securities to the earliest call date. The guidance applies specifically to noncontingent call features that are callable at a predetermined and fixed price and date. The accounting for purchased callable debt securities held at a discount is not affected. This guidance is effective in the first quarter of 2019 for public entities with early adoption permitted. Alleghany adopted this guidance in the fourth quarter of 2017 and recorded a cumulative effect reduction of approximately $13 million directly to opening 2017 retained earnings and an offsetting increase in opening 2017 accumulated other comprehensive income. The implementation did not have a material impact on Alleghany's results of operations and financial condition. See Note 10(b) for further information on accumulated other comprehensive income.

In January 2016, the FASB issued guidance that changes the recognition and measurement of certain financial instruments. This guidance requires investments in equity securities (except those accounted for under the equity method of accounting, but including partnership investments not accounted for under the equity method) to be measured at fair value with changes in fair value recognized in net earnings. For equity securities that do not have readily determinable fair values, measurement may be at cost, adjusted for any impairment and changes resulting from observable price changes for a similar investment of the same issuer. This guidance also changes the presentation and disclosure of financial instruments by: (i) requiring that financial instrument disclosures of fair value use the exit price notion; (ii) requiring separate presentation of financial assets and financial liabilities by measurement category and form, either on the balance sheet or the accompanying notes to the financial statements; (iii) requiring separate presentation in other comprehensive income for the portion of the change in a liability's fair value resulting from instrument-specific credit risk when an election has been made to measure the liability at fair value; and (iv) eliminating the requirement to disclose the methods and significant assumptions used to estimate the fair value for financial instruments measured at amortized cost on the balance sheet. This guidance is effective for fiscal years beginning after December 15, 2017 for public entities, including interim periods within those fiscal years. Except for the change in presentation for instrument-specific credit risk, this guidance does not permit early adoption. Alleghany adopted this guidance in the first quarter of 2018. As of January 1, 2018, approximately $736 million of net unrealized gains of equity securities, net of deferred taxes, were reclassified from accumulated other comprehensive income to retained earnings. Subsequently, all changes in unrealized gains or losses of equity securities, net of deferred taxes, were presented in the Consolidated Statements of Earnings rather than the Consolidated Statements of Comprehensive Income, under the caption "change in the fair value of equity securities." Results arising from partnership investments, whether accounted for under the equity method or at fair value, continue to be reported as a component of net investment income. The implementation did not have a material impact on Alleghany's financial condition. See Note 4 for further information on Alleghany's equity securities, and Note 10(b) for further information on accumulated other comprehensive income.

In May 2015, the FASB issued guidance that requires disclosures related to short-duration insurance contracts. The guidance applies to property and casualty insurance and reinsurance entities, among others, and requires the following annual disclosure related to the liability for loss and LAE: (i) net incurred and paid claims development information by accident year for up to ten years; (ii) a reconciliation of incurred and paid claims development information to the aggregate carrying amount of the liability for loss and LAE; (iii) liabilities for IBNR by accident year and in total; (iv) a description of reserving methodologies (as well as any changes to those methodologies); (v) quantitative information about claim frequency by accident year; and (vi) the average annual percentage payout of incurred claims by age and by accident year. In addition, the guidance also requires insurance entities to disclose for annual and interim reporting periods a roll-forward of the liability for loss and LAE. This guidance was effective for annual periods beginning after December 15, 2015, and interim periods within annual periods beginning after December 15, 2016, with early adoption permitted. Alleghany adopted this guidance as of December 31, 2016 and the implementation did not have an impact on Alleghany's results of operations and financial condition. See Note 1(k) and Note 6 for the new disclosures.

In May 2014, the FASB, together with the International Accounting Standards Board, issued guidance on the recognition of revenue from contracts with customers. Under this guidance, revenue is recognized as the transfer of goods and services to customers takes place and in amounts that reflect the payment or payments that are expected to be received from the customers for those goods and services. This guidance also requires new disclosures about revenue. Revenues related to insurance and reinsurance contracts and revenues from investments are not impacted by this guidance, whereas noninsurance revenues arising from the sale of manufactured goods and services is generally included within the scope of this guidance. This guidance, and all related amendments, became effective in the first quarter of 2018 for public entities, with early adoption permitted in 2017. Alleghany adopted this guidance in the first quarter of 2018 using the modified retrospective transition approach and the implementation did not have a material impact on Alleghany's results of operations and financial condition. See Note 13 for further information on Alleghany's noninsurance revenues.

Future Application of Accounting Standards

In February 2016, the FASB issued guidance on leases. Under this guidance, a lessee is required to recognize lease liabilities and corresponding right-of-use assets for leases with terms of more than one year, whereas under current guidance, a lessee is only required to recognize assets and liabilities for those leases qualifying as capital leases. This guidance also requires new disclosures about the amount, timing and uncertainty of cash flows arising from leases. The accounting by lessors is to remain largely unchanged. This guidance is effective in the first quarter of 2019 for public entities, with early adoption permitted. A modified retrospective transition approach is required for all leases in existence as of, or entered into after, the beginning of the earliest comparative period presented in the financial statements. Alleghany will adopt this guidance in the first quarter of 2019. As of January 1, 2019, Alleghany

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estimates that the adoption of this guidance will result in recognition of an additional right-of-use asset of approximately $0.2 billion and a corresponding lease liability of $0.2 billion. See Note 12(b) for further information on Alleghany's leases.

In June 2016, the FASB issued guidance on credit losses. Under this guidance, a company is required to measure all expected credit losses on loans, reinsurance recoverables and other financial assets accounted for at cost or amortized cost, as applicable. Estimates of expected credit losses are to be based on historical experience, current conditions and reasonable and supportable forecasts. Credit losses for securities accounted for on an AFS basis are to be measured in a manner similar to GAAP as currently applied and cannot exceed the amount by which the fair value is less than the amortized cost. Credit losses for all financial assets are to be recorded through an allowance for credit losses. Subsequent reversals in credit loss estimates are permitted and are to be recognized in earnings. This guidance also requires new disclosures about the significant estimates and judgments used in estimating credit losses, as well as the credit quality of financial assets. This guidance is effective in the first quarter of 2020 for public entities, with early adoption permitted. Alleghany will adopt this guidance in the first quarter of 2020 and does not currently believe that the implementation will have a material impact on its results of operations and financial condition. See Note 4 and 5(b) for further information on Alleghany's investments and reinsurance recoverables, respectively.

In January 2017, the FASB issued guidance that simplifies the subsequent measurement of goodwill. Under this guidance, if an initial qualitative assessment indicates that the fair value of an operating subsidiary may be less than its carrying amount, an impairment charge is recognized for the amount by which the carrying amount of the operating subsidiary exceeds its estimated fair value. Any resulting impairment loss recognized cannot exceed the total amount of goodwill associated with the operating subsidiary. This guidance is effective in the first quarter of 2020 for public entities, with early adoption permitted. Alleghany will adopt this guidance in the first quarter of 2020 and does not currently believe that the implementation will have a material impact on its results of operations and financial condition. See Note 2 for further information on Alleghany's goodwill.

In August 2017, the FASB issued guidance that simplifies the requirements to achieve hedge accounting, better reflects the economic results of hedging in the financial statements and improves the alignment between hedge accounting and a company's risk management activities. This guidance is effective in the first quarter of 2019 for public entities, with early adoption permitted. Alleghany will adopt this guidance in the first quarter of 2019 and does not currently believe that the implementation will have a material impact on its results of operations and financial condition.

In August 2018, the FASB issued guidance that changes the financial statement disclosure requirements for measuring fair value. With respect to financial instruments classified as "Level 3" in the fair value disclosure hierarchy, the guidance requires certain additional disclosures for public entities related to amounts included in other comprehensive income and significant unobservable inputs used in the valuation, while removing disclosure requirements related to an entity's overall valuation processes. The guidance also removes certain disclosure requirements related to transfers between financial instruments classified as "Level 1" and "Level 2" and provides clarification on certain other existing disclosure requirements. This guidance is effective for interim and annual periods beginning after December 15, 2019, with early adoption permitted with respect to any eliminated or modified disclosures. Alleghany will adopt this guidance in the first quarter of 2020 and does not currently believe that the implementation will have a material impact on its results of operations and financial condition.

2. Goodwill and Intangible Assets

On October 1, 2018, Alleghany Capital acquired approximately 85 percent of the equity in Concord for $136.6 million, consisting of $68.6 million in cash paid on October 1, 2018, $38.2 million of potential contingent consideration based on future profitability and $29.8 million of incremental debt. In connection with the acquisition, Alleghany recorded $83.0 million of goodwill and $70.8 million of finite-lived intangible assets related primarily to customer relationships.

On February 7, 2018, W&W|AFCO Steel acquired the outstanding equity of Hirschfeld, a fabricator of steel bridges and structural steel for stadiums, airports and other large commercial and industrial projects, for $109.1 million, consisting of $94.4 million in cash and $14.7 million of incremental debt. The $94.4 million paid by W&W|AFCO Steel was funded by capital contributions from Alleghany and noncontrolling interests of $75.5 million and $18.9 million, respectively. In connection with the acquisition, Alleghany completed the process of determining the fair value of acquired assets and liabilities in the fourth quarter of 2018, and recorded $3.0 million of goodwill and $9.4 million of finite-lived intangible assets related primarily to customer relationships.

On April 28, 2017, Alleghany Capital acquired approximately 80 percent of the equity in W&W|AFCO Steel for $164.5 million, consisting of $163.9 million in cash paid on May 1, 2017 and $0.6 million of estimated purchase price adjustments. In connection with the acquisition, Alleghany recorded $41.1 million, $25.3 million and $70.0 million of goodwill, indefinite-lived intangible assets and finite-lived intangible assets, respectively. Indefinite-lived intangible assets relate to trade name and finite-lived intangible assets relate to customer relationships.

On April 15, 2016, Alleghany Capital acquired an additional 50 percent of Jazwares' outstanding equity for $162.8 million, bringing its equity ownership interest to 80 percent and, as of that date, the results of Jazwares have been included in Alleghany's consolidated results. Prior to April 15, 2016, Jazwares was accounted for under the equity method of accounting. The $162.8 million purchase price includes $122.1 million in cash paid on April 18, 2016 and $40.7 million of potential contingent consideration based on

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future profitability, which was subsequently settled, effective December 31, 2017, for $20.9 million less. The $20.9 million was recorded as a realized gain in 2017. In connection with the acquisition, $130.0 million, $52.4 million and $89.7 million of goodwill, indefinite-lived intangible assets and finite-lived intangible assets, respectively, were recorded. Indefinite-lived intangible assets related to trade name and finite-lived intangible assets related to license agreements, customer relationships and owned content.

In addition to W&W|AFCO Steel's acquisition of Hirschfeld, several other subsidiaries of Alleghany Capital have made smaller acquisitions for the three years ended December 31, 2018, including:

- Acquisitions made by Kentucky Trailer in 2014, 2015 and 2018, including the acquisition of a controlling interest in a manufacturer of aluminum feed transportation equipment based in Cedar Rapids, Iowa on December 28, 2018;
- Acquisitions made by Jazwares in 2016 and 2018; and
- An acquisition made by Bourn & Koch in 2016.

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The following table presents the amount of goodwill and intangible assets, net of accumulated amortization expense, reported on Alleghany's consolidated balance sheets as of December 31, 2018 and 2017:

	December 31, 2018			December 31, 2017		
	Gross Carrying Value	Accumulated Amortization	Net Carrying Value(1)	Gross Carrying Value	Accumulated Amortization	Net Carrying Value(1)
	($ in millions)					
Insurance Segment(2) - Goodwill	$ 49.0	$ -	$ 49.0	$ 49.0	$ -	$ 49.0
Insurance Segment - Intangible assets:						
Agency relationships	18.4	11.4	7.0	17.9	10.6	7.3
State insurance licenses	25.1	-	25.1	25.1	-	25.1
Trade name	35.5	-	35.5	35.5	-	35.5
Brokerage and reinsurance relationships	33.8	33.8	-	33.8	32.7	1.1
Renewal rights	25.1	24.1	1.0	24.2	24.1	0.1
Other	4.1	4.1	-	4.1	4.1	-
Total insurance segment intangibles	142.0	73.4	68.6	140.6	71.5	69.1
Total insurance segment goodwill and other intangibles	$ 191.0	$ 73.4	$ 117.6	$ 189.6	$ 71.5	$ 118.1
Reinsurance Segment(2) - Goodwill	$ 8.8	$ -	$ 8.8	$ 8.8	$ -	$ 8.8
Reinsurance Segment - Intangible assets:						
Value of business in-force	291.4	291.4	-	291.4	291.4	-
Loss and LAE reserves	(98.8)	(82.6)	(16.2)	(98.8)	(78.6)	(20.2)
State and foreign insurance licenses	19.0	-	19.0	19.0	-	19.0
Trade name	50.0	-	50.0	50.0	-	50.0
Renewal rights	51.5	26.0	25.5	44.0	21.8	22.2
Leases	(28.1)	(19.5)	(8.6)	(28.1)	(16.7)	(11.4)
Other	14.6	10.0	4.6	15.1	10.2	4.9
Total reinsurance segment intangibles	299.6	225.3	74.3	292.6	228.1	64.5
Total reinsurance segment goodwill and other intangibles	$ 308.4	$ 225.3	$ 83.1	$ 301.4	$ 228.1	$ 73.3
Alleghany Capital(2)(3) - Goodwill	$ 397.3	$ -	$ 397.3	$ 277.1	$ -	$ 277.1
Alleghany Capital(3) - Intangible assets:						
Trade name	176.9	0.1	176.8	151.9	-	151.9
License agreements	68.2	22.6	45.6	66.2	14.1	52.1
Customer relationships	215.1	27.7	187.4	133.2	20.5	112.7
Other	21.2	20.8	0.4	20.8	12.1	8.7
Total Alleghany Capital intangibles	481.4	71.2	410.2	372.1	46.7	325.4
Total Alleghany Capital goodwill and other intangibles	$ 878.7	$ 71.2	$ 807.5	$ 649.2	$ 46.7	$ 602.5
Alleghany consolidated:						
Goodwill	$ 455.1	$ -	$ 455.1	$ 334.9	$ -	$ 334.9
Intangible assets	923.0	369.9	553.1	805.3	346.3	459.0
Goodwill and other intangibles assets	$ 1,378.1	$ 369.9	$ 1,008.2	$ 1,140.2	$ 346.3	$ 793.9

(1) Goodwill and intangible assets have been reduced by amounts written-down in prior periods, as applicable.
(2) See Note 13 for additional information on Alleghany's segments of business.
(3) Primarily represents goodwill and other intangible assets related to the acquisition of: (i) Concord on October 1, 2018; (ii) Hirschfeld by W&W|AFCO Steel on February 8, 2018; (iii) W&W|AFCO Steel on April 28, 2017; (iv) Jazwares on April 15, 2016; (v) IPS on October 31, 2015; (vi) Bourn & Koch on April 26, 2012; and (vii) a controlling interest in Kentucky Trailer on August 30, 2013. Also reflects minor acquisitions made by Jazwares in 2016 and 2018, Bourn & Koch in 2016, and Kentucky Trailer in 2015, 2014 and 2018.

In most instances, trade names and state and foreign insurance licenses have an indefinite useful life. The economic useful lives of significant intangible assets in the reinsurance and insurance segments are as follows: agency relationships — 15 years; brokerage and reinsurance relationships — 15 years; renewal rights — between 3 and 14 years; loss and LAE reserves — 15 years; and leases — 10 years. The economic useful life of license agreements is 8 years and of customer relationships is between 5 and 10 years.

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3. Fair Value of Financial Instruments

The following table presents the carrying value and estimated fair value of Alleghany's consolidated financial instruments as of December 31, 2018 and 2017:

	December 31, 2018		December 31, 2017	
	Carrying Value	Fair Value	Carrying Value	Fair Value
	($ in millions)			
Assets				
Investments (excluding equity method investments and loans)(1)	$ 16,291.3	$ 16,291.3	$ 17,406.5	$ 17,406.5
Liabilities				
Senior Notes and other debt(2)	$ 1,669.0	$ 1,795.5	$ 1,484.9	$ 1,614.6

(1) This table includes debt and equity securities, as well as partnership and non-marketable equity investments carried at fair value that are included in other invested assets. This table excludes investments accounted for using the equity method and commercial mortgage loans that are carried at unpaid principal balance. The fair value of short-term investments approximates amortized cost. The fair value of all other categories of investments is discussed below.

(2) See Note 8 for additional information on the Senior Notes and other debt.

The following tables present Alleghany's financial instruments measured at fair value and the level of the fair value hierarchy of inputs used as of December 31, 2018 and 2017:

	Level 1	Level 2	Level 3	Total
	($ in millions)			
As of December 31, 2018				
Equity securities:				
Common stock	$ 3,563.9	$ 3.5	$ -	$ 3,567.4
Preferred stock	-	-	5.4	5.4
Total equity securities	3,563.9	3.5	5.4	3,572.8
Debt securities:				
U.S. Government obligations	-	1,022.4	-	1,022.4
Municipal bonds	-	2,214.7	-	2,214.7
Foreign government obligations	-	947.9	-	947.9
U.S. corporate bonds	-	1,959.6	425.7	2,385.3
Foreign corporate bonds	-	1,226.4	126.9	1,353.3
Mortgage and asset-backed securities:				
RMBS(1)	-	1,387.9	-	1,387.9
CMBS	-	533.3	-	533.3
Other asset-backed securities(2)	-	712.3	1,266.9	1,979.2
Total debt securities	-	10,004.5	1,819.5	11,824.0
Short-term investments	-	893.8	-	893.8
Other invested assets(3)	-	-	0.7	0.7
Total investments (excluding equity method investments and loans)	$ 3,563.9	$ 10,901.8	$ 1,825.6	$ 16,291.3
Senior Notes and other debt	$ -	$ 1,510.5	$ 285.0	$ 1,795.5

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	Level 1	Level 2	Level 3	Total
		($ in millions)		
As of December 31, 2017				
Equity securities:				
Common stock	$ 4,090.7	$ 3.8	$ -	$ 4,094.5
Preferred stock	-	3.1	1.9	5.0
Total equity securities	4,090.7	6.9	1.9	4,099.5
Debt securities:				
U.S. Government obligations	-	948.0	-	948.0
Municipal bonds	-	3,682.1	-	3,682.1
Foreign government obligations	-	1,006.6	-	1,006.6
U.S. corporate bonds	-	2,173.0	260.0	2,433.0
Foreign corporate bonds	-	1,424.6	75.2	1,499.8
Mortgage and asset-backed securities:				
RMBS(1)	-	833.8	161.8	995.6
CMBS	-	550.1	1.6	551.7
Other asset-backed securities(2)	-	503.3	1,101.3	1,604.6
Total debt securities	-	11,121.5	1,599.9	12,721.4
Short-term investments	-	578.1	-	578.1
Other invested assets(3)	-	-	7.5	7.5
Total investments (excluding equity method investments and loans)	$ 4,090.7	$ 11,706.5	$ 1,609.3	$ 17,406.5
Senior Notes and other debt	$ -	$ 1,513.6	$ 101.0	$ 1,614.6

(1) Primarily includes government agency pass-through securities guaranteed by a government agency or government sponsored enterprise, among other types of RMBS.
(2) Includes $1,266.9 million and $1,101.3 million of collateralized loan obligations as of December 31, 2018 and 2017, respectively.
(3) Includes partnership and non-marketable equity investments accounted for at fair value, and excludes investments accounted for using the equity method.

As further described in Note 4(i), on March 15, 2018, most of AIHL's limited partnership interests in certain subsidiaries of Ares Management LLC ("Ares") were converted into Ares common units. As a result of the conversion, as of March 15, 2018, $208.2 million of Ares common units, classified as equity securities, was transferred into Level 1, and $58.7 million of Ares limited partnership interests, classified as other invested assets, was transferred into Level 3. On September 24, 2018, AIHL's remaining $56.9 million of Ares limited partnership interests were converted into Ares common units and, as a result, was transferred from Level 3 other invested assets into Level 1 common stocks.

Other than the $56.9 million of Ares-related other invested assets transferred out of Level 3, in 2018, Alleghany transferred out of Level 3 an additional $164.7 million of financial instruments, principally due to an increase in observable inputs related to the valuation of such assets. Specifically, during 2018, there was a decrease in the weight given to non-binding broker quotes, and as such, there was a corresponding increase in quoted prices for similar assets in active markets. Of the $164.7 million of transfers, $150.6 million related to RMBS, $11.0 million related to other asset-backed securities and $3.1 million related to several other types of securities.

In addition to the $58.7 million of Ares-related other invested assets transferred into Level 3, in 2018, Alleghany transferred into Level 3 $6.3 million of financial instruments, principally due to a decrease in observable inputs related to the valuation of such assets and, specifically, a decrease in broker quotes. Of the $6.3 million of transfers, $4.3 million related to preferred stock, $1.9 million related to corporate bonds and $0.1 million related to other invested assets. There were no other material transfers between Levels 1, 2 or 3 in 2018.

In 2017, Alleghany transferred $77.8 million of financial instruments out of Level 3 principally due to an increase in observable inputs related to the valuation of such assets and, specifically, an increase in broker quotes. Of the $77.8 million of transfers, $36.2 million related to other asset-backed securities, $21.3 million related to U.S. corporate bonds and $20.3 million related to several other types of securities.

In 2017, Alleghany transferred $5.5 million of financial instruments into Level 3 principally due to a decrease in observable inputs related to the valuation of such assets and, specifically, a decrease in broker quotes. Of the $5.5 million of transfers, $3.8 million related to U.S. corporate bonds, $1.4 million related to common stock and $0.3 million related to foreign corporate bonds. There were no other material transfers between Levels 1, 2 or 3 in 2017.

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The following tables present reconciliations of the changes during 2018 and 2017 in Level 3 assets measured at fair value:

Year Ended December 31, 2018	Preferred Stock	Debt Securities: U.S. Corporate Bonds	Debt Securities: Foreign Corporate Bonds	Debt Securities: Mortgage and asset-backed: RMBS	Debt Securities: Mortgage and asset-backed: CMBS	Debt Securities: Mortgage and asset-backed: Other Asset-backed Securities	Other Invested Assets(1)	Total
	($ in millions)							
Balance as of January 1, 2018	$ 1.9	$ 260.0	$ 75.2	$ 161.8	$ 1.6	$ 1,101.3	$ 7.5	$ 1,609.3
Net realized/unrealized gains (losses) included in:								
Net earnings(2)	-	(0.9)	(0.1)	(0.3)	-	1.6	1.2	1.5
Other comprehensive income (loss)	(2.7)	(11.5)	(2.9)	(5.3)	-	(42.3)	(4.2)	(68.9)
Purchases	2.0	182.3	58.9	-	-	846.3	-	1,089.5
Sales	(0.1)	-	-	-	-	(65.0)	(5.7)	(70.8)
Issuances	-	-	-	-	-	-	-	-
Settlements	-	(4.8)	(4.0)	(5.6)	-	(564.0)	-	(578.4)
Transfers into Level 3	4.3	1.9	-	-	-	-	58.8	65.0
Transfers out of Level 3	-	(1.3)	(0.2)	(150.6)	(1.6)	(11.0)	(56.9)	(221.6)
Balance as of December 31, 2018	$ 5.4	$ 425.7	$ 126.9	$ -	$ -	$ 1,266.9	$ 0.7	$ 1,825.6

Year Ended December 31, 2017	Equity Securities: Common Stock	Equity Securities: Preferred Stock	Debt Securities: Foreign Government Obligations	Debt Securities: U.S. Corporate Bonds	Debt Securities: Foreign Corporate Bonds	Debt Securities: Mortgage and asset-backed: RMBS	Debt Securities: Mortgage and asset-backed: CMBS	Debt Securities: Mortgage and asset-backed: Other Asset-backed Securities	Other Invested Assets(1)	Total
	($ in millions)									
Balance as of January 1, 2017	$ 4.3	$ -	$ -	$ 72.9	$ 0.4	$ 5.9	$ 4.3	$ 903.8	$ 28.1	$ 1,019.7
Net realized/unrealized gains (losses) included in:										
Net earnings(2)	0.1	(0.2)	-	(0.6)	(1.5)	0.3	-	4.0	10.2	12.3
Other comprehensive income	-	0.2	-	2.6	0.4	1.2	0.1	16.8	(9.3)	12.0
Purchases	-	5.6	4.8	252.3	79.3	161.1	11.2	906.9	-	1,421.2
Sales	(2.6)	(0.6)	-	(41.2)	(0.6)	-	(11.8)	(114.4)	(21.5)	(192.7)
Issuances	-	-	-	-	-	-	-	-	-	-
Settlements	-	-	-	(8.5)	(0.9)	(1.4)	(0.5)	(579.6)	-	(590.9)
Transfers into Level 3	1.4	-	-	3.8	0.3	-	-	-	-	5.5
Transfers out of Level 3	(3.2)	(3.1)	(4.8)	(21.3)	(2.2)	(5.3)	(1.7)	(36.2)	-	(77.8)
Balance as of December 31, 2017	$ -	$ 1.9	$ -	$ 260.0	$ 75.2	$ 161.8	$ 1.6	$ 1,101.3	$ 7.5	$ 1,609.3

(1) Includes partnership and non-marketable equity investments accounted for at fair value.
(2) There were no OTTI losses recorded in net earnings related to Level 3 instruments still held as of December 31, 2018 and 2017.

Net unrealized losses related to Level 3 assets as of December 31, 2018 and 2017 were not material.

The increase in Senior Notes and other debt included in Level 3 for 2018 primarily reflects increased borrowings at W&W|AFCO Steel from its acquisition of Hirschfeld, increased borrowings at Kentucky Trailer from its December 28, 2018 acquisition of a controlling interest in a manufacturer of aluminum feed transportation equipment based in Cedar Rapids, Iowa, and Alleghany Capital's acquisition of Concord.

See Note 1(c) for Alleghany's accounting policy on fair value.

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4. Investments

(a) Unrealized Gains and Losses

The following tables present the amortized cost or cost and the fair value of AFS securities as of December 31, 2018 and 2017:

	Amortized Cost or Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
	($ in millions)			
As of December 31, 2018				
Debt securities:				
U.S. Government obligations	$ 1,042.4	$ 2.4	$ (22.4)	$ 1,022.4
Municipal bonds	2,177.5	44.4	(7.2)	2,214.7
Foreign government obligations	939.0	12.3	(3.4)	947.9
U.S. corporate bonds	2,431.4	13.2	(59.3)	2,385.3
Foreign corporate bonds	1,363.0	9.1	(18.8)	1,353.3
Mortgage and asset-backed securities:				
RMBS	1,392.4	10.3	(14.8)	1,387.9
CMBS	536.9	2.8	(6.4)	533.3
Other asset-backed securities(1)	2,013.3	4.4	(38.5)	1,979.2
Total debt securities	11,895.9	98.9	(170.8)	11,824.0
Short-term investments	893.8	-	-	893.8
Total investments	$ 12,789.7	$ 98.9	$ (170.8)	$ 12,717.8

	Amortized Cost or Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
	($ in millions)			
As of December 31, 2017				
Equity securities:				
Common stock	$ 3,165.8	$ 932.5	$ (3.8)	$ 4,094.5
Preferred stock	4.9	0.1	-	5.0
Total equity securities	3,170.7	932.6	(3.8)	4,099.5
Debt securities:				
U.S. Government obligations	963.9	1.7	(17.6)	948.0
Municipal bonds	3,578.9	109.8	(6.6)	3,682.1
Foreign government obligations	1,000.1	11.2	(4.7)	1,006.6
U.S. corporate bonds	2,381.1	61.6	(9.7)	2,433.0
Foreign corporate bonds	1,481.8	24.5	(6.5)	1,499.8
Mortgage and asset-backed securities:				
RMBS	993.9	6.3	(4.6)	995.6
CMBS	545.0	9.0	(2.3)	551.7
Other asset-backed securities(1)	1,592.1	13.8	(1.3)	1,604.6
Total debt securities	12,536.8	237.9	(53.3)	12,721.4
Short-term investments	578.1	-	-	578.1
Total investments	$ 16,285.6	$ 1,170.5	$ (57.1)	$ 17,399.0

(1) Includes $1,266.9 million and $1,101.3 million of collateralized loan obligations as of December 31, 2018 and 2017, respectively.

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(b) Contractual Maturity

The following table presents the amortized cost or cost and estimated fair value of debt securities by contractual maturity as of December 31, 2018. Expected maturities will differ from contractual maturities because borrowers may have the right to call or prepay obligations with or without call or prepayment penalties.

	Amortized Cost or Cost	Fair Value
	($ in millions)	
As of December 31, 2018		
Short-term investments due in one year or less	$ 893.8	$ 893.8
Mortgage and asset-backed securities(1)	3,942.6	3,900.4
Debt securities with maturity dates:		
One year or less	169.1	168.5
Over one through five years	2,824.1	2,811.8
Over five through ten years	2,992.9	2,969.4
Over ten years	1,967.2	1,973.9
Total debt securities	$ 11,895.9	$ 11,824.0

(1) Mortgage and asset-backed securities by their nature do not generally have single maturity dates.

(c) Net Investment Income

The following table presents net investment income for 2018, 2017 and 2016:

	Year Ended December 31,		
	2018	2017	2016
		($ in millions)	
Interest income	$ 420.8	$ 412.1	$ 385.7
Dividend income	78.5	47.4	50.3
Investment expenses	(31.5)	(28.1)	(26.3)
Pillar Investments(1)	(6.5)	(1.7)	15.8
Limited partnership interests in certain subsidiaries of Ares(1)	20.2	3.3	11.5
Other investment results	19.0	18.0	1.5
Total	$ 500.5	$ 451.0	$ 438.5

(1) See Note 4(i) for discussion of the Pillar Investments, as defined therein, and limited partnership interests in certain subsidiaries of Ares.

As of December 31, 2018, non-income producing invested assets were insignificant.

(d) Change in the Fair Value of Equity Securities

In the first quarter of 2018, Alleghany adopted new investment accounting guidance, which requires changes in the fair value of equity securities, except those accounted for under the equity method, to be recognized in net earnings. In earlier periods, equity securities were considered to be AFS and were included in the analysis of OTTI. See Note 1(r) for additional information regarding Alleghany's adoption of this new guidance.

The following table presents increases in the fair value of equity securities for 2018:

	Year Ended December 31, 2018
	($ in millions)
Change in the fair value of equity securities sold during the period	$ (175.6)
Change in the fair value of equity securities held at the end of the period	(53.4)
Change in the fair value of equity securities	$ (229.0)

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(e) Realized Gains and Losses

The proceeds from sales of debt and equity securities were $5.3 billion, $8.3 billion and $7.0 billion for 2018, 2017 and 2016, respectively.

Realized capital gains and losses for 2018 primarily reflect a $45.7 million gain on AIHL's conversion of its limited partnership interests in certain subsidiaries of Ares into Ares common units. See Note 4(i) for additional information on this conversion. Realized capital gains and losses for 2018 also reflect net realized capital losses taken in 2018 from the sale of debt securities and a $35.4 million capital loss due to an impairment charge from the write-down of certain SORC assets arising from a decline in energy prices as of December 31, 2018. Realized capital gains and losses for 2017 primarily reflected sales of certain exchange-traded funds, sales of certain equity securities resulting from a partial restructuring of the equity portfolio, an $8.4 million pre-tax gain realized on the sale of PacificComp on December 31, 2017, a $20.9 million realized gain on a bulk settlement of certain contingent consideration liabilities by Alleghany Capital, a $4.8 million loss realized on the from the sale of a SORC legacy oil field on December 29, 2017 and a $7.9 million write-down of certain reinsurance segment assets. Realized capital gains and losses in 2016 primarily reflected sales of equity and debt securities, a gain of $13.2 million on April 15, 2016 in connection with Alleghany Capital's acquisition of an additional 50 percent equity ownership in Jazwares, when its pre-existing 30 percent equity ownership was remeasured at estimated fair value, and a $98.8 million capital loss incurred by Alleghany Capital due to an impairment charge from the write-down of certain SORC assets.

The SORC assets that were written-down in 2016 related specifically to SORC's acquisition of a certain legacy oil field for the sole purpose of applying enhanced oil recovery techniques. After completing construction of its underground facility in 2014, SORC commenced its drilling program in 2015. The drilling program, however, was delayed by third-party equipment problems that have since been corrected as well as a longer than expected trial-and-error process determining the optimum well completion technique for the reservoir, and efforts to address a lack of vertical permeability in the reservoir formation. SORC engaged a third-party petroleum engineering firm to provide an assessment of its oil-recovery prospects and based on this assessment and other factors including oil prices, SORC wrote-down its legacy oil field assets to estimated fair value as of December 31, 2016.

The following table presents the amounts of gross realized capital gains and gross realized capital losses for 2018, 2017 and 2016:

	Year Ended December 31,		
	2018	2017	2016
		($ in millions)	
Gross realized capital gains	$ 86.9	$ 236.7	$ 344.7
Gross realized capital losses	(90.1)	(129.5)	(281.5)
Net realized capital gains	$ (3.2)	$ 107.2	$ 63.2

Gross realized loss amounts exclude OTTI losses, as discussed below.

(f) OTTI losses

Alleghany holds its debt securities as AFS and, as such, these securities are recorded at fair value. Alleghany continually monitors the difference between amortized cost and the estimated fair value of its debt investments, which involves uncertainty as to whether declines in value are temporary in nature. The analysis of a security's decline in value is performed in its functional currency. If the decline is deemed temporary, Alleghany records the decline as an unrealized loss in stockholders' equity. If the decline is deemed to be other than temporary, Alleghany writes its amortized cost-basis down to the fair value of the security and records an OTTI loss on its statement of earnings. In addition, any portion of such decline related to a debt security that is believed to arise from factors other than credit is recorded as a component of other comprehensive income rather than charged against earnings.

Debt securities in an unrealized loss position are evaluated for OTTI if they meet any of the following criteria: (i) they are trading at a discount of at least 20 percent to amortized cost for an extended period of time (nine consecutive months or more); (ii) there has been a negative credit or news event with respect to the issuer that could indicate the existence of an OTTI; or (iii) Alleghany intends to sell, or it is more likely than not that Alleghany will sell, the debt security before recovery of its amortized cost basis.

If Alleghany intends to sell, or it is more likely than not that Alleghany will sell, a debt security before recovery of its amortized cost basis, the total amount of the unrealized loss position is recognized as an OTTI loss in earnings. To the extent that a debt security that is in an unrealized loss position is not impaired based on the preceding, Alleghany will consider a debt security to be impaired when it believes it to be probable that Alleghany will not be able to collect the entire amortized cost basis. For debt securities in an unrealized loss position as of the end of each quarter, Alleghany develops a best estimate of the present value of expected cash flows. If the results of the cash flow analysis indicate that Alleghany will not recover the full amount of its amortized cost basis in the debt security, Alleghany records an OTTI loss in earnings equal to the difference between the present value of expected cash flows and the amortized cost basis of the debt security. If applicable, the difference between the total unrealized loss position on the debt security and the OTTI loss recognized

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in earnings is the non-credit related portion, which is recorded as a component of other comprehensive income.

In developing the cash flow analyses for debt securities, Alleghany considers various factors for the different categories of debt securities. For municipal bonds, Alleghany takes into account the taxing power of the issuer, source of revenue, credit risk and enhancements and pre-refunding. For mortgage and asset-backed securities, Alleghany discounts its best estimate of future cash flows at an effective rate equal to the original effective yield of the security or, in the case of floating rate securities, at the current coupon. Alleghany's models include assumptions about prepayment speeds, default and delinquency rates, underlying collateral (if any), credit ratings, credit enhancements and other observable market data. For corporate bonds, Alleghany reviews business prospects, credit ratings and available information from asset managers and rating agencies for individual securities.

OTTI losses in 2018 reflect $1.3 million of unrealized losses on debt securities, primarily in the energy and industrial sectors, that were deemed to be other than temporary and, as such, were required to be charged against earnings. The determination that unrealized losses on debt securities were other than temporary was primarily due to the deterioration of creditworthiness of the issuer.

OTTI losses in 2017 reflected $16.9 million of unrealized losses that were deemed to be other than temporary and, as such, were required to be charged against earnings. Of the $16.9 million of OTTI losses, $15.1 million related to equity securities, primarily in the retail sector, and $1.8 million related to debt securities. The determination that unrealized losses on equity and debt securities were other than temporary was primarily due to the duration of the decline in the fair value of equity and debt securities relative to their costs.

OTTI losses in 2016 reflected $45.2 million of unrealized losses that were deemed to be other than temporary and, as such, were required to be charged against earnings. Of the $45.2 million of OTTI losses, $23.3 million related to equity securities, primarily in the retail, financial service, technology, chemical and entertainment sectors, and $21.9 million related to debt securities, primarily in the energy sector. The determination that unrealized losses on equity and debt securities were other than temporary was primarily due to the severity and duration of the decline in the fair value of equity and debt securities relative to their costs.

Upon the ultimate disposition of the securities for which OTTI losses have been recorded, a portion of the loss may be recoverable depending on market conditions at the time of disposition. After adjusting the amortized cost basis of securities for the recognition of OTTI losses, the remaining gross unrealized investment losses for debt securities as of December 31, 2018 were deemed to be temporary, based on, among other factors: (i) the duration of time and the relative magnitude to which the fair value of these investments had been below cost were not indicative of an OTTI loss; (ii) the absence of compelling evidence that would cause Alleghany to call into question the financial condition or near-term business prospects of the issuer of the security; and (iii) Alleghany's ability and intent to hold the security for a period of time sufficient to allow for any anticipated recovery.

Alleghany may ultimately record a realized loss after having originally concluded that the decline in value was temporary. Risks and uncertainties are inherent in the methodology. Alleghany's methodology for assessing other than temporary declines in value contains inherent risks and uncertainties which could include, but are not limited to, incorrect assumptions about financial condition, liquidity or future prospects, inadequacy of any underlying collateral and unfavorable changes in economic conditions or social trends, interest rates or credit ratings.

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(g) Aging of Gross Unrealized Losses

The following tables present gross unrealized losses and related fair values for Alleghany's AFS securities, grouped by duration of time in a continuous unrealized loss position, as of December 31, 2018 and 2017:

	Less Than 12 Months		12 Months or More		Total	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
			($ in millions)			
As of December 31, 2018						
Debt securities:						
U.S. Government obligations	$ 78.5	$ 0.9	$ 690.5	$ 21.5	$ 769.0	$ 22.4
Municipal bonds	312.4	2.5	202.5	4.7	514.9	7.2
Foreign government obligations	60.7	0.1	186.7	3.3	247.4	3.4
U.S. corporate bonds	1,187.9	39.4	379.7	19.9	1,567.6	59.3
Foreign corporate bonds	501.5	9.7	349.1	9.1	850.6	18.8
Mortgage and asset-backed securities:						
RMBS	397.7	6.4	225.9	8.4	623.6	14.8
CMBS	199.1	1.3	109.5	5.1	308.6	6.4
Other asset-backed securities	1,442.8	36.7	121.6	1.8	1,564.4	38.5
Total temporarily impaired securities	$ 4,180.6	$ 97.0	$ 2,265.5	$ 73.8	$ 6,446.1	$ 170.8

	Less Than 12 Months		12 Months or More		Total	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
			($ in millions)			
As of December 31, 2017						
Equity securities:						
Common stock	$ 145.7	$ 3.8	$ -	$ -	$ 145.7	$ 3.8
Preferred stock	-	-	-	-	-	-
Total equity securities	145.7	3.8	-	-	145.7	3.8
Debt securities:						
U.S. Government obligations	447.8	4.4	416.6	13.2	864.4	17.6
Municipal bonds	240.0	1.5	267.3	5.1	507.3	6.6
Foreign government obligations	321.9	2.7	72.2	2.0	394.1	4.7
U.S. corporate bonds	568.8	6.1	207.3	3.6	776.1	9.7
Foreign corporate bonds	417.4	3.0	159.4	3.5	576.8	6.5
Mortgage and asset-backed securities:						
RMBS	284.2	1.6	131.5	3.0	415.7	4.6
CMBS	112.2	0.5	34.7	1.8	146.9	2.3
Other asset-backed securities	211.1	0.9	65.7	0.4	276.8	1.3
Total debt securities	2,603.4	20.7	1,354.7	32.6	3,958.1	53.3
Total temporarily impaired securities	$ 2,749.1	$ 24.5	$ 1,354.7	$ 32.6	$ 4,103.8	$ 57.1

As of December 31, 2018, Alleghany held a total of 2,226 debt securities that were in an unrealized loss position, of which 850 securities were in an unrealized loss position continuously for 12 months or more. The unrealized losses associated with these debt securities consisted of losses related primarily to U.S. Government obligations, U.S. corporate bonds, foreign corporate bonds and RMBS.

As of December 31, 2018, the vast majority of Alleghany's debt securities were rated investment grade, with 4.4 percent of debt securities having issuer credit ratings that were below investment grade or not rated, compared with 5.3 percent as of December 31, 2017.

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(h) Statutory Deposits

Investments with fair values of approximately $2.0 billion as of December 31, 2018, the substantial majority of which were debt securities and equity securities, were deposited with governmental authorities as required by law.

(i) Investments in Certain Other Invested Assets

In December 2012, TransRe obtained an ownership interest in Pillar Capital Holdings Limited ("Pillar Holdings"), a Bermuda- based insurance asset manager focused on collateralized reinsurance and catastrophe insurance-linked securities. Additionally, TransRe invested $175.0 million and AIHL invested $25.0 million in limited partnership funds managed by Pillar Holdings (the "Funds"). The objective of the Funds is to create portfolios with attractive risk-reward characteristics and low correlation with other asset classes, using the extensive reinsurance and capital market experience of the principals of Pillar Holdings. Alleghany has concluded that both Pillar Holdings and the Funds (collectively, the "Pillar Investments") represent variable interest entities and that Alleghany is not the primary beneficiary, as it does not have the ability to direct the activities that most significantly impact each entity's economic performance. Therefore, the Pillar Investments are not consolidated and are accounted for under the equity method of accounting. Alleghany's potential maximum loss in the Pillar Investments is limited to its cumulative net investment. As of December 31, 2018, Alleghany's carrying value in the Pillar Investments, as determined under the equity method of accounting, was $193.6 million, which is net of returns of capital received from the Pillar Investments.

In July 2013, AIHL invested $250.0 million in Ares, an asset manager, in exchange for a 6.25 percent equity stake in Ares, with an agreement to engage Ares to manage up to $1.0 billion in certain investment strategies. In May 2014, Ares completed an initial public offering of its common units. Upon completion of the initial public offering, Alleghany's equity investment in Ares converted into limited partnership interests in certain Ares subsidiaries that were convertible into Ares common units. On March 15, 2018, most of AIHL's limited partnership interests were converted into Ares common units. As a result of the conversion and with respect to the limited partnership interests that were converted into Ares common units, AIHL: (i) reclassified its converted interests from other invested assets to equity securities; (ii) increased its carrying value to $208.2 million to reflect the fair value of Ares common units; and (iii) recorded the $45.7 million increase in carrying value as a realized capital gain as of March 15, 2018. As a result of the conversion and with respect to the unconverted limited partnership interests, AIHL: (i) changed its accounting method from the equity method to fair value; (ii) increased its carrying value to $58.7 million to reflect the fair value of Ares limited partnership interests; and (iii) recorded the $12.9 million increase in carrying value as a component of net investment income as of March 15, 2018. On September 24, 2018, AIHL's remaining Ares limited partnership interests were converted into Ares common units and, as a result, AIHL reclassified the remaining $56.9 million of its converted interests from other invested assets to equity securities.

(j) Investments in Commercial Mortgage Loans

As of December 31, 2018, the carrying value of Alleghany's commercial mortgage loan portfolio was $676.5 million, representing the unpaid principal balance on the loans. As of December 31, 2018, there was no allowance for loan losses. The commercial mortgage loan portfolio consists primarily of first mortgages on commercial properties in major metropolitan areas in the U.S. The loans earn interest at fixed- and floating-rates, mature in two to ten years from loan origination and the principal amounts of the loans were no more than approximately two-thirds of the property's appraised value at the time the loans were made. The estimated fair value of the commercial mortgage loan portfolio approximated carrying value as of December 31, 2018.

5. Reinsurance Ceded

(a) Overview

Alleghany's reinsurance and insurance subsidiaries reinsure portions of the risks they underwrite in order to reduce the effect of individual or aggregate exposure to losses, manage capacity, protect capital resources, reduce volatility in specific lines of business, improve risk-adjusted portfolio returns and enable them to increase gross premium writings and risk capacity without requiring additional capital. Alleghany's reinsurance and insurance subsidiaries purchase reinsurance and retrocessional coverages from highly-rated third-party reinsurers. If the assuming reinsurers are unable or unwilling to meet the obligations assumed under the applicable reinsurance agreements, Alleghany's reinsurance and insurance subsidiaries would remain liable for such reinsurance portion not paid by these reinsurers. As such, funds, trust agreements and letters of credit are held to collateralize a portion of Alleghany's reinsurance recoverables and Alleghany's reinsurance and insurance subsidiaries reinsure portions of the risks they underwrite or assume with multiple reinsurance programs.

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(b) Reinsurance Recoverables

Amounts recoverable from reinsurers are recognized in a manner consistent with the claims liabilities associated with the reinsurance placement and presented on the balance sheet as reinsurance recoverables. Such balances as of December 31, 2018 and 2017 are presented in the table below:

	As of December 31, 2018	2017
	($ in millions)	
Reinsurance recoverables on paid losses	$ 63.9	$ 96.4
Ceded outstanding loss and LAE	1,857.4	1,650.1
Total	$ 1,921.3	$ 1,746.5

The following table presents information regarding concentration of Alleghany's reinsurance recoverables and the ratings profile of its reinsurers as of December 31, 2018:

Reinsurer(1)	Rating(2)	Amount	Percentage
		($ in millions)	
Syndicates at Lloyd's of London	A (Excellent)	$ 134.5	7.0%
PartnerRe Ltd	A (Excellent)	114.2	5.9%
Swiss Reinsurance Company	A+ (Superior)	112.9	5.9%
RenaissanceRe Holdings Ltd	A+ (Superior)	103.9	5.4%
Kane SAC Ltd, Rondout Segregated Account(3)	not rated	99.8	5.2%
Fairfax Financial Holdings Ltd	A (Excellent)	97.3	5.1%
W.R. Berkley Corporation	A+ (Superior)	89.6	4.7%
Kane SAC Ltd, Bowery Segregated Account(3)	not rated	88.9	4.6%
Liberty Mutual	A (Excellent)	85.0	4.4%
Chubb Corporation	A++ (Superior)	81.2	4.2%
All other reinsurers		914.0	47.6%
Total reinsurance recoverables(4)		$ 1,921.3	100.0%
Secured reinsurance recoverables(3)		$ 711.1	37.0%

(1) Reinsurance recoverables reflect amounts due from one or more reinsurance subsidiaries of the listed company.
(2) Represents the A.M. Best Company, Inc. financial strength rating for the applicable reinsurance subsidiary or subsidiaries from which the reinsurance recoverable is due.
(3) Represents reinsurance recoverables secured by funds held, trust agreements or letters of credit.
(4) Approximately 70 percent of Alleghany's reinsurance recoverables balance as of December 31, 2018 was due from reinsurers having an A.M. Best Company, Inc. financial strength rating of A (Excellent) or higher, with a majority of the other reinsurance recoverables being secured by funds held, trust agreements or letters of credit.

Alleghany had no allowance for uncollectible reinsurance as of December 31, 2018 and 2017.

Reinsured loss and LAE ceded included in Alleghany's consolidated statements of earnings were $628.2 million, $777.4 million and $325.8 million for 2018, 2017 and 2016, respectively.

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(c) Premiums Written and Earned

The following table presents property and casualty premiums written and earned for 2018, 2017 and 2016:

	Year Ended December 31,		
	2018	2017	2016
	($ in millions)		
Gross premiums written – direct	$ 1,537.8	$ 1,528.7	$ 1,490.3
Gross premiums written – assumed	4,357.8	4,168.2	4,276.8
Ceded premiums written	(847.2)	(731.0)	(675.3)
Net premiums written	$ 5,048.4	$ 4,965.9	$ 5,091.8
Gross premiums earned – direct	$ 1,935.3	$ 1,932.0	$ 1,871.1
Gross premiums earned – assumed	3,881.4	3,790.3	3,833.9
Ceded premiums earned	(840.5)	(767.3)	(729.2)
Net premiums earned	$ 4,976.2	$ 4,955.0	$ 4,975.8

(d) Significant Reinsurance Contracts

Alleghany's reinsurance and insurance subsidiaries reinsure portions of the risks they underwrite or assume with multiple reinsurance programs. A summary of the more significant programs follows.

TransRe enters into retrocession arrangements, including property catastrophe retrocession arrangements, in order to reduce the effect of individual or aggregate exposure to losses, reduce volatility in specific lines of business, improve risk-adjusted portfolio returns and increase gross premium writings and risk capacity without requiring additional capital.

RSUI reinsures its property lines of business through a program consisting of surplus share treaties, facultative placements, per risk and catastrophe excess-of-loss treaties. RSUI's catastrophe reinsurance program and property per risk reinsurance program run on an annual basis from May 1 to the following April 30 and portions expired on April 30, 2018. Both programs were renewed on May 1, 2018 with substantially similar terms as the expired programs.

(e) Significant Intercompany Reinsurance Contracts

In the third quarter of 2015, AIHL Re and CapSpecialty entered into an intercompany reinsurance contract, effective July 1, 2015, pursuant to which AIHL Re provides CapSpecialty with coverage primarily for adverse development on certain net loss and allocated LAE in excess of its carried reserves at June 30, 2015. AIHL Re's commitments are intended to cover the statutory collateral requirements at CapSpecialty, if and when necessary, and AIHL Re's obligations are subject to an aggregate limit of $50.0 million. In connection with such intercompany reinsurance agreement, Alleghany and AIHL Re entered into a contract whereby Alleghany will guarantee the recoverable balances owed to CapSpecialty from AIHL Re up to $50.0 million. The above agreements had no impact on Alleghany's consolidated results of operations and financial condition.

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6. Liability for Loss and LAE

(a) Liability Rollforward

The following table presents the activity in the liability for loss and LAE in 2018, 2017 and 2016:

	Year Ended December 31,		
	2018	2017	2016
		($ in millions)	
Reserves as of January 1	$ 11,871.3	$ 11,087.2	$ 10,799.2
Less: reinsurance recoverables(1)	1,650.1	1,236.2	1,169.3
Net reserves as of January 1	10,221.2	9,851.0	9,629.9
Other adjustments	0.9	(293.7)(2)	2.4
Incurred loss and LAE, net of reinsurance, related to:			
Current year	3,849.4	3,918.8	3,285.2
Prior years	(329.0)	(298.6)	(368.0)
Total incurred loss and LAE, net of reinsurance	3,520.4	3,620.2	2,917.2
Paid loss and LAE, net of reinsurance, related to:(3)			
Current year	838.9	853.2	734.3
Prior years	2,419.0	2,225.2	1,866.5
Total paid loss and LAE, net of reinsurance	3,257.9	3,078.4	2,600.8
Foreign currency exchange rate effect	(91.7)	122.1	(97.7)
Net reserves as of December 31	10,392.9	10,221.2	9,851.0
Reinsurance recoverables as of December 31(1)	1,857.4	1,650.1	1,236.2
Reserves as of December 31	$ 12,250.3	$ 11,871.3	$ 11,087.2

(1) Reinsurance recoverables in this table include only ceded loss and LAE reserves.
(2) Primarily represents the impact on net reserves arising from the sale of PacificComp.
(3) Includes paid loss and LAE, net of reinsurance, related to commutations.

Gross loss and LAE reserves as of December 31, 2018 increased from December 31, 2017, primarily reflecting catastrophe losses in 2018, partially offset by payments on catastrophe losses incurred in 2017 and favorable prior accident year loss reserve development. The 2018 catastrophe losses, net of reinsurance, include $183.4 million related to Typhoon Jebi, $182.0 million related to wildfires in California, $135.2 million related to Hurricane Michael, $70.4 million related to Hurricane Florence and $33.7 million related to Typhoon Trami.

Gross loss and LAE reserves and reinsurance recoverables as of December 31, 2017 increased from December 31, 2016, primarily reflecting significant catastrophe losses, partially offset by the sale of PacificComp. Catastrophe losses in 2017, net of reinsurance, included $252.1 million related to Hurricane Irma, $217.7 million related to Hurricane Harvey and $216.8 million related to Hurricane Maria.

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(b) Liability Development

The following table presents the (favorable) unfavorable prior accident year loss reserve development for 2018, 2017 and 2016:

	Year Ended December 31,		
	2018	2017	2016
		($ in millions)	
Reinsurance Segment			
Property:			
Catastrophe events	$ (20.2)(1)	$ (22.2)(2)	$ (14.2)(3)
Non-catastrophe	(64.7)(4)	(72.3)(5)	(91.5)(6)
Total property	(84.9)	(94.5)	(105.7)
Casualty & other:			
Malpractice Treaties(7)	(3.4)	(5.0)	(10.8)
Ogden rate impact(8)	-	24.4	-
Other	(177.8)(9)	(174.4)(10)	(177.0)(11)
Total casualty & other	(181.2)	(155.0)	(187.8)
Total Reinsurance Segment	(266.1)	(249.5)	(293.5)
Insurance Segment			
RSUI:			
Casualty	(27.8)(12)	(38.9)(13)	(35.3)(14)
Property and other	(30.9)(15)	(4.3)(16)	(33.0)(17)
Total RSUI	(58.7)	(43.2)	(68.3)
CapSpecialty:			
Ongoing lines of business	(4.2)(18)	(3.4)(19)	(0.3)
Terminated Program(20)	-	-	(1.9)
Asbestos-related illness and environmental impairment liability	-	-	(2.0)
Total CapSpecialty	(4.2)	(3.4)	(4.2)
PacificComp	-	(2.5)(21)	(2.0)(22)
Total incurred related to prior years	$ (329.0)	$ (298.6)	$ (368.0)

(1) Primarily reflects favorable prior accident year loss reserve development related to Hurricane Harvey in the 2017 accident year and catastrophes in the 2016 accident year, partially offset by unfavorable prior accident year loss reserve development related to Hurricanes Maria and Irma in the 2017 accident year.
(2) Reflects favorable prior accident year loss reserve development related to several catastrophes primarily in the 2016 accident year.
(3) Reflects favorable prior accident year loss reserve development related to several catastrophes in the 2010 through 2015 accident years.
(4) Primarily reflects favorable prior accident year loss reserve development in the 2015 and 2016 accident years, partially offset by unfavorable prior accident year loss reserve development in the 2017 accident year.
(5) Reflects favorable prior accident year loss reserve development primarily in the 2011 through 2016 accident years.
(6) Reflects favorable prior accident year loss reserve development primarily in the 2011 through 2015 accident years.
(7) Represents certain malpractice treaties pursuant to which the increased underwriting profits created by the favorable prior accident year loss reserve development are largely retained by the cedants. As a result, the favorable prior accident year loss reserve development is largely offset by an increase in profit commission expense incurred when such favorable prior accident year loss reserve development occurs.
(8) Represents unfavorable prior accident year loss reserve development related to the U.K. Ministry of Justice's reduction in the discount rate used to calculate lump-sum bodily injury payouts in personal injury insurance claims in the U.K to negative 0.75 percent as of March 20, 2017 from 2.50 percent.
(9) Primarily reflects favorable prior accident year loss reserve development in the longer-tailed casualty lines of business in the 2002 through 2010 accident years and in the shorter-tailed casualty lines of business (specifically, ocean marine, automobile liability and accident and health) in the 2017 accident year, partially offset by unfavorable prior accident year loss reserve development in the professional liability lines of business in the 2015 accident year.
(10) Primarily reflects favorable prior accident year loss reserve development in: (i) longer-tailed professional liability and general liability lines of business in the 2003 through 2012 accident years; and (ii) shorter-tailed casualty lines of business in the 2010 through 2014 accident years; partially offset by unfavorable prior accident year loss reserve development in shorter-tailed casualty lines of business in the 2015 and 2016 accident years.
(11) Generally reflects favorable prior accident year loss reserve development reserves in a variety of casualty & other lines of business primarily in the 2003 through 2015 accident years.
(12) Primarily reflects favorable prior accident year loss reserve development in the umbrella/excess lines of business in the 2005 through 2012 accident years, partially offset by unfavorable prior accident year loss reserve development in the directors' and officers' liability lines of business in the 2009, 2012 and 2016 accident years.
(13) Primarily reflects favorable prior accident year loss reserve development in the umbrella/excess lines of business in the 2005 through 2011 accident years.

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(14) Primarily reflects favorable prior accident year loss reserve development in the umbrella/excess, general liability and professional liability lines of business in the 2006 through 2012 accident years.
(15) Primarily reflects favorable prior accident year loss reserve development related to Hurricane Irma in the 2017 accident year and, to a lesser extent, Hurricane Matthew in the 2016 accident year, as well as various other losses not classified as catastrophes in recent accident years.
(16) Primarily reflects favorable catastrophe prior accident year loss reserve development in the 2016 accident year, partially offset by unfavorable prior accident year property loss reserve development in the binding authority lines of business primarily in the 2015 and 2016 accident years.
(17) Includes favorable prior accident year loss reserve development of ($20.6) million related to Super Storm Sandy in 2012 and various other smaller amounts primarily in the non-catastrophe property lines of business in recent accident years.
(18) Primarily reflects favorable prior accident year loss reserve development in the surety lines of business in the 2016 and 2017 accident years.
(19) Primarily reflects favorable prior accident year loss reserve development in the casualty lines of business in the 2010, 2014, 2015 and 2016 accident years.
(20) Represents certain specialty lines of business written through a program administrator in connection with a terminated program in the 2010 and 2009 accident years and reflects (favorable) loss emergence compared with loss emergence patterns assumed in earlier periods for such business.
(21) Primarily reflects favorable prior accident year loss reserve development in the 2013 and prior accident years.
(22) Primarily reflects favorable prior accident year loss reserve development in the 2012 and prior accident years.

(c) Information on Incurred and Paid Loss and LAE Development

The following is information about incurred and paid loss and LAE development, net of reinsurance. The information for 2009 through 2017 is unaudited and is provided as supplementary information. Information is also included for the portion of unpaid loss and LAE, net of reinsurance recoverables, that relate to IBNR and, for the insurance segment, the cumulative number of reported insurance claims. For the reinsurance segment, reported insurance claim information is generally not received from the cedants, and such information is therefore impracticable to disclose.

Reinsurance Segment - Property

	Incurred Loss and LAE, Net of Reinsurance										As of December 31, 2018
	Year Ended December 31,										
Accident Year	2009 (unaudited)	2010 (unaudited)	2011 (unaudited)	2012 (unaudited)	2013 (unaudited)	2014 (unaudited)	2015 (unaudited)	2016 (unaudited)	2017 (unaudited)	2018	IBNR
						($ in millions)					
2009	$ 489.3	$ 377.4	$ 359.7	$ 358.0	$ 357.1	$ 357.6	$ 355.9	$ 353.7	$ 353.6	$ 352.6	$ -
2010		615.6	527.1	528.0	540.4	581.2	606.0	609.9	613.0	605.3	16.6
2011			1,351.2	1,342.3	1,269.4	1,240.7	1,235.2	1,217.1	1,210.9	1,209.6	1.3
2012				697.2	579.1	530.3	495.6	478.1	469.4	462.5	7.0
2013					501.2	470.6	444.6	422.1	406.8	403.6	7.0
2014						496.4	464.8	451.3	435.2	429.8	12.8
2015							368.8	332.0	320.6	306.3	15.2
2016								684.1	647.2	596.7	32.7
2017									1,174.6	1,179.5	76.3
2018										1,152.7	538.4
Total incurred loss and LAE for the 2009 through 2018 accident years										$ 6,698.6	

	Paid Loss and LAE, Net of Reinsurance									
	Year Ended December 31,									
Accident Year	2009 (unaudited)	2010 (unaudited)	2011 (unaudited)	2012 (unaudited)	2013 (unaudited)	2014 (unaudited)	2015 (unaudited)	2016 (unaudited)	2017 (unaudited)	2018
						($ in millions)				
2009	$ 114.7	$ 251.7	$ 310.9	$ 332.4	$ 340.6	$ 345.5	$ 347.9	$ 345.7	$ 347.1	$ 345.8
2010		169.3	349.0	418.9	472.3	513.5	540.1	563.7	571.5	575.1
2011			407.8	796.4	1,014.3	1,129.2	1,171.0	1,187.2	1,195.0	1,199.7
2012				90.3	268.9	377.8	416.7	438.0	448.0	451.2
2013					113.1	277.4	361.0	389.8	396.7	399.7
2014						109.4	297.6	360.0	382.9	394.0
2015							96.0	217.7	278.3	303.1
2016								210.5	429.8	504.8
2017									324.5	818.5
2018										309.5
Cumulative paid loss and LAE for the 2009 through 2018 accident years										$ 5,301.4
Total incurred loss and LAE for the 2009 through 2018 accident years										$ 6,698.6
Cumulative paid loss and LAE for the 2009 through 2018 accident years										5,301.4
Unpaid loss and LAE, net of reinsurance recoverables, for accident years prior to 2009										3.5
Unpaid loss and LAE, net of reinsurance recoverables, as of December 31, 2018										$ 1,400.7

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Reinsurance Segment - Casualty & other – Longer-Tailed Lines of Business(1)

Accident Year	Incurred Loss and LAE, Net of Reinsurance — Year Ended December 31, 2009 (unaudited)	2010 (unaudited)	2011 (unaudited)	2012 (unaudited)	2013 (unaudited)	2014 (unaudited)	2015 (unaudited)	2016 (unaudited)	2017 (unaudited)	2018	As of December 31, 2018 IBNR
	($ in millions)										
2009	$ 1,059.8	$ 1,074.7	$ 1,091.0	$ 1,101.9	$ 1,094.9	$ 1,107.8	$ 1,129.4	$ 1,123.4	$ 1,119.8	$ 1,108.1	$ 90.4
2010		1,098.6	1,101.9	1,090.7	1,063.5	1,015.5	999.3	977.6	962.9	959.7	133.4
2011			996.0	1,009.6	994.6	974.6	959.1	949.9	942.6	925.5	152.4
2012				877.5	877.5	875.9	860.8	833.1	829.8	832.4	168.5
2013					798.6	802.2	799.2	777.5	776.7	783.0	234.3
2014						801.8	791.1	794.3	793.9	790.3	273.8
2015							794.8	799.0	797.0	793.7	321.9
2016								776.7	776.8	787.4	399.5
2017									764.4	765.7	543.0
2018										727.3	650.8
Total incurred loss and LAE for the 2009 through 2018 accident years										$ 8,473.1	

Accident Year	Paid Loss and LAE, Net of Reinsurance — Year Ended December 31, 2009 (unaudited)	2010 (unaudited)	2011 (unaudited)	2012 (unaudited)	2013 (unaudited)	2014 (unaudited)	2015 (unaudited)	2016 (unaudited)	2017 (unaudited)	2018
	($ in millions)									
2009	$ 24.8	$ 105.0	$ 221.2	$ 366.7	$ 493.3	$ 621.8	$ 749.2	$ 814.4	$ 859.8	$ 904.1
2010		33.8	108.4	208.5	322.3	438.7	573.9	644.3	688.9	735.8
2011			29.6	89.4	206.4	373.4	501.8	595.1	663.0	709.1
2012				46.9	106.8	201.1	316.6	435.7	521.3	587.0
2013					22.2	85.1	176.6	296.4	378.0	452.7
2014						29.8	107.5	229.6	342.9	444.7
2015							32.2	100.4	205.0	325.8
2016								34.8	121.8	242.9
2017									34.0	110.6
2018										33.0
Cumulative paid loss and LAE for the 2009 through 2018 accident years										$ 4,545.7
Total incurred loss and LAE for the 2009 through 2018 accident years										$ 8,473.1
Cumulative paid loss and LAE for the 2009 through 2018 accident years										4,545.7
Unpaid loss and LAE, net of reinsurance recoverables, for accident years prior to 2009										755.2
Unpaid loss and LAE, net of reinsurance recoverables, as of December 31, 2018										$ 4,682.6

(1) Represents the following reinsurance lines of business: directors' and officers' liability; errors and omissions liability; general liability; and medical malpractice.

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Reinsurance Segment - Casualty & other – Shorter-Tailed Lines of Business(1)

Accident Year	Incurred Loss and LAE, Net of Reinsurance — Year Ended December 31, 2009 (unaudited)	2010 (unaudited)	2011 (unaudited)	2012 (unaudited)	2013 (unaudited)	2014 (unaudited)	2015 (unaudited)	2016 (unaudited)	2017 (unaudited)	2018	As of December 31, 2018 IBNR
	($ in millions)										
2009	$ 1,169.1	$ 1,114.0	$ 1,086.5	$ 1,066.8	$ 1,071.0	$ 1,063.8	$ 1,064.1	$ 1,062.7	$ 1,062.9	$ 1,069.9	$ 10.2
2010		1,024.5	1,007.0	985.9	978.3	967.2	954.0	950.3	943.4	927.7	13.7
2011			1,031.2	1,023.6	1,007.6	992.8	973.0	963.7	959.8	976.0	24.7
2012				1,022.3	1,059.9	1,056.8	1,005.5	983.9	958.9	948.4	30.8
2013					850.8	868.8	838.4	823.4	804.1	790.3	44.0
2014						850.4	833.0	808.8	784.3	772.4	63.9
2015							763.4	768.6	784.0	798.4	73.5
2016								1,118.0	1,124.4	1,111.6	139.5
2017									1,095.9	1,046.3	491.5
2018										1,255.4	627.7
Total incurred loss and LAE for the 2009 through 2018 accident years										$ 9,696.4	

Accident Year	Paid Loss and LAE, Net of Reinsurance — Year Ended December 31, 2009 (unaudited)	2010 (unaudited)	2011 (unaudited)	2012 (unaudited)	2013 (unaudited)	2014 (unaudited)	2015 (unaudited)	2016 (unaudited)	2017 (unaudited)	2018
	($ in millions)									
2009	$ 457.2	$ 745.2	$ 868.6	$ 918.7	$ 951.9	$ 975.5	$ 1,000.0	$ 1,014.3	$ 1,021.9	$ 1,028.3
2010		404.9	671.3	776.5	832.7	866.7	884.8	897.5	903.7	909.6
2011			376.5	606.4	752.7	820.9	858.8	880.2	894.5	906.1
2012				354.8	614.5	740.0	792.7	828.3	846.5	860.2
2013					265.4	523.5	613.3	663.0	685.5	704.9
2014						251.2	421.1	523.3	572.9	604.6
2015							218.5	409.1	518.7	577.7
2016								367.2	685.6	828.7
2017									342.8	639.1
2018										397.9
Cumulative paid loss and LAE for the 2009 through 2018 accident years										$ 7,457.1
Total incurred loss and LAE for the 2009 through 2018 accident years										$ 9,696.4
Cumulative paid loss and LAE for the 2009 through 2018 accident years										7,457.1
Unpaid loss and LAE, net of reinsurance recoverables, for accident years prior to 2009										155.9
Unpaid loss and LAE, net of reinsurance recoverables, as of December 31, 2018										$ 2,395.2

(1) Primarily represents the following reinsurance lines of business: ocean marine and aviation; auto liability; accident and health; mortgage reinsurance; surety; and credit.

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Insurance Segment - RSUI - Property

Accident Year	Incurred Loss and LAE, Net of Reinsurance, Year Ended December 31, 2009 (unaudited)	2010 (unaudited)	2011 (unaudited)	2012 (unaudited)	2013 (unaudited)	2014 (unaudited)	2015 (unaudited)	2016 (unaudited)	2017 (unaudited)	2018	As of December 31, 2018 IBNR	Cumulative Number of Reported Claims(1)
	($ in millions, except reported claims)											
2009	$ 78.3	$ 63.1	$ 60.1	$ 62.5	$ 63.1	$ 63.7	$ 64.5	$ 64.7	$ 65.0	$ 64.9	$ 0.7	1,315
2010		110.2	101.7	101.8	105.7	104.2	109.8	109.9	109.6	101.7	0.8	1,630
2011			168.8	162.0	160.5	159.9	159.0	159.3	159.3	159.9	1.0	2,205
2012				270.9	262.5	258.6	256.1	235.1	236.1	235.5	8.2	2,310
2013					157.3	157.2	150.4	152.1	152.4	152.5	2.1	2,393
2014						170.7	166.2	155.9	153.7	153.8	2.7	3,090
2015							140.5	136.1	142.6	141.3	4.6	3,001
2016								181.4	170.5	172.9	7.7	3,346
2017									330.7	306.5	35.5	2,627
2018										259.9	106.8	2,686
Total incurred loss and LAE for the 2009 through 2018 accident years										$ 1,748.9		

Accident Year	Paid Loss and LAE, Net of Reinsurance, Year Ended December 31, 2009 (unaudited)	2010 (unaudited)	2011 (unaudited)	2012 (unaudited)	2013 (unaudited)	2014 (unaudited)	2015 (unaudited)	2016 (unaudited)	2017 (unaudited)	2018
	($ in millions)									
2009	$ 36.6	$ 51.0	$ 54.3	$ 58.9	$ 61.4	$ 61.9	$ 63.3	$ 63.6	$ 63.9	$ 64.0
2010		53.0	83.6	92.4	98.6	100.6	101.1	101.5	101.3	100.8
2011			61.0	118.4	144.0	154.3	156.1	157.2	157.6	158.6
2012				62.0	157.5	181.9	193.5	202.4	216.2	216.7
2013					72.7	118.7	134.0	141.1	144.0	148.7
2014						93.2	133.8	145.0	148.8	150.3
2015							70.8	106.9	120.0	129.8
2016								72.0	127.1	147.1
2017									88.6	213.3
2018										62.3
Cumulative paid loss and LAE for the 2009 through 2018 accident years										$ 1,391.6

Total incurred loss and LAE for the 2009 through 2018 accident years	$ 1,748.9
Cumulative paid loss and LAE for the 2009 through 2018 accident years	1,391.6
Unpaid loss and LAE, net of reinsurance recoverables, for accident years prior to 2009	2.6
Unpaid loss and LAE, net of reinsurance recoverables, as of December 31, 2018	$ 359.9

(1) Represents claims reported by insured claimants.

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Insurance Segment - RSUI - Casualty

Accident Year	Incurred Loss and LAE, Net of Reinsurance, Year Ended December 31, 2009 (unaudited)	2010 (unaudited)	2011 (unaudited)	2012 (unaudited)	2013 (unaudited)	2014 (unaudited)	2015 (unaudited)	2016 (unaudited)	2017 (unaudited)	2018	As of December 31, 2018 IBNR	Cumulative Number of Reported Claims(1)
	($ in millions, except reported claims)											
2009	$ 230.1	$ 233.7	$ 234.4	$ 236.3	$ 236.3	$ 232.2	$ 221.8	$ 212.0	$ 199.4	$ 201.0	$ 16.8	6,884
2010		204.1	204.1	204.1	203.4	194.6	178.6	177.0	171.0	168.0	10.5	6,908
2011			205.9	205.9	208.3	212.1	211.6	206.8	202.0	189.7	27.1	7,516
2012				226.3	226.3	230.3	242.8	238.9	233.8	231.9	46.9	7,623
2013					264.8	264.8	277.6	280.1	279.0	273.5	62.4	8,677
2014						292.0	322.7	321.1	322.4	320.3	82.8	10,173
2015							300.2	300.2	304.2	302.2	125.5	9,255
2016								290.7	293.7	301.3	125.6	8,698
2017									282.5	286.4	175.9	8,273
2018										290.0	246.6	7,529
Total incurred loss and LAE for the 2009 through 2018 accident years										$ 2,564.3		

Accident Year	Paid Loss and LAE, Net of Reinsurance, Year Ended December 31, 2009 (unaudited)	2010 (unaudited)	2011 (unaudited)	2012 (unaudited)	2013 (unaudited)	2014 (unaudited)	2015 (unaudited)	2016 (unaudited)	2017 (unaudited)	2018
	($ in millions)									
2009	$ 7.2	$ 38.0	$ 73.2	$ 101.9	$ 136.9	$ 149.5	$ 157.5	$ 166.4	$ 174.1	$ 183.2
2010		4.7	30.9	70.1	90.1	122.6	128.6	132.9	149.2	152.3
2011			6.5	31.9	66.7	100.3	118.4	138.5	150.0	153.6
2012				6.8	38.4	96.0	125.5	144.0	159.3	166.7
2013					10.1	50.0	103.4	146.2	176.6	191.3
2014						13.0	69.5	130.1	179.1	206.5
2015							9.0	47.3	96.6	129.2
2016								13.7	69.2	123.6
2017									9.4	63.6
2018										13.0
Cumulative paid loss and LAE for the 2009 through 2018 accident years										$ 1,383.0
Total incurred loss and LAE for the 2009 through 2018 accident years										$ 2,564.3
Cumulative paid loss and LAE for the 2009 through 2018 accident years										1,383.0
Unpaid loss and LAE, net of reinsurance recoverables, for accident years prior to 2009										65.6
Unpaid loss and LAE, net of reinsurance recoverables, as of December 31, 2018										$ 1,246.9

(1) Represents claims reported by insured claimants.

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Insurance Segment - CapSpecialty(1)

Accident Year	Incurred Loss and LAE, Net of Reinsurance — Year Ended December 31, 2009 (unaudited)	2010 (unaudited)	2011 (unaudited)	2012 (unaudited)	2013 (unaudited)	2014 (unaudited)	2015 (unaudited)	2016 (unaudited)	2017 (unaudited)	2018	As of December 31, 2018 — IBNR	Cumulative Number of Reported Claims(2)
	($ in millions, except reported claims)											
2009	$ 92.2	$ 93.3	$ 90.4	$ 95.7	$ 98.8	$ 99.0	$ 97.9	$ 98.0	$ 97.9	$ 97.8	$ 0.3	8,542
2010		93.2	110.8	117.9	134.8	134.5	129.8	129.5	127.7	127.2	1.8	8,211
2011			74.0	71.2	74.4	76.9	79.4	78.4	78.2	77.7	0.7	5,688
2012				72.7	71.8	66.2	69.3	69.7	68.7	68.8	0.7	5,262
2013					78.7	81.4	85.2	84.4	87.2	88.6	1.8	5,158
2014						102.8	102.7	101.0	100.2	98.6	4.6	5,896
2015							111.0	111.8	109.2	109.7	8.3	5,456
2016								129.4	132.4	132.7	23.5	5,993
2017									147.3	143.7	47.5	6,046
2018										164.1	99.3	5,428
Total incurred loss and LAE for the 2009 through 2018 accident years										$ 1,108.9		

Accident Year	Paid Loss and LAE, Net of Reinsurance — Year Ended December 31, 2009 (unaudited)	2010 (unaudited)	2011 (unaudited)	2012 (unaudited)	2013 (unaudited)	2014 (unaudited)	2015 (unaudited)	2016 (unaudited)	2017 (unaudited)	2018
	($ in millions)									
2009	$ 27.7	$ 50.1	$ 62.5	$ 78.2	$ 87.2	$ 92.7	$ 94.4	$ 95.7	$ 96.4	$ 96.5
2010		22.0	56.2	78.4	98.1	111.0	119.2	121.6	123.9	124.4
2011			16.3	31.9	44.7	57.7	67.3	69.8	73.8	75.7
2012				18.6	38.6	46.9	57.2	63.3	65.0	66.5
2013					23.4	48.0	62.0	69.6	78.6	84.5
2014						34.0	56.3	71.9	83.1	89.8
2015							30.9	57.4	73.5	88.8
2016								30.3	64.0	86.6
2017									30.1	65.6
2018										31.7
Cumulative paid loss and LAE for the 2009 through 2018 accident years										$ 810.1
Total incurred loss and LAE for the 2009 through 2018 accident years										$ 1,108.9
Cumulative paid loss and LAE for the 2009 through 2018 accident years										810.1
Unpaid loss and LAE, net of reinsurance recoverables, for accident years prior to 2009										8.8
Unpaid loss and LAE, net of reinsurance recoverables, as of December 31, 2018										$ 307.6

(1) The vast majority of the CapSpecialty's loss and LAE reserves relate to its casualty lines of business.
(2) Represents claims reported by insured claimants.

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Loss and LAE Reserve Summary and Reconciliation to Consolidated Balance Sheet

	Unpaid loss and LAE as of December 31, 2018(1)		
	Gross Loss and LAE Reserves	Reinsurance Recoverables on Unpaid Losses	Net Loss and LAE Reserves
		($ in millions)	
Reinsurance Segment:			
Property	$ 2,102.5	$ (701.8)	$ 1,400.7
Casualty & other - Longer-Tailed Lines of Business	4,771.0	(88.4)	4,682.6
Casualty & other - Shorter-Tailed Lines of Business	2,568.7	(173.5)	2,395.2
	9,442.2	(963.7)	8,478.5
Insurance Segment:			
RSUI - Property	547.0	(187.1)	359.9
RSUI - Casualty	1,990.8	(743.9)	1,246.9
RSUI	2,537.8	(931.0)	1,606.8
CapSpecialty	337.1	(29.5)	307.6
	2,874.9	(960.5)	1,914.4
Eliminations	(66.8)	66.8	-
Total	$ 12,250.3	$ (1,857.4)	$ 10,392.9

(1) Includes unallocated LAE, which aggregate to 1.1 percent of gross loss and LAE reserves as of December 31, 2018. Net loss and LAE reserves by component are shown in the preceding tables, and consolidated gross loss and LAE reserves is presented in the Consolidated Balance Sheets.

(d) Supplementary Information on Historical Loss and LAE Duration (Unaudited)

The following table presents supplemental information about average historical loss and LAE duration, net of reinsurance, as of December 31, 2018.

	Average Annual Percentage Payout of Loss and LAE Incurred, Net of Reinsurance As of December 31, 2018									
Years	1	2	3	4	5	6	7	8	9	10
Reinsurance Segment:										
Property	28.8%	38.0%	17.2%	7.6%	3.6%	2.0%	1.5%	0.4%	0.5%	-0.4%
Casualty & other - Longer-Tailed Lines of Business	3.9%	8.5%	12.6%	14.5%	12.5%	11.1%	8.5%	5.2%	4.5%	4.0%
Casualty & other - Shorter-Tailed Lines of Business	35.3%	26.9%	12.8%	6.2%	3.6%	2.1%	1.6%	1.1%	0.7%	0.6%
Insurance Segment:										
RSUI - Property	42.5%	31.5%	9.8%	5.5%	2.3%	2.2%	0.7%	0.3%	0.0%	0.2%
RSUI - Casualty	3.6%	15.6%	19.6%	14.0%	12.3%	6.5%	4.0%	5.3%	2.8%	4.5%
CapSpecialty	23.9%	24.9%	15.5%	13.9%	9.6%	5.2%	2.6%	1.8%	0.6%	0.1%

7. Credit Agreements

On July 31, 2017, Alleghany entered into a five-year credit agreement (the "Credit Agreement") with certain lenders party thereto, which provides for an unsecured revolving credit facility in an aggregate principal amount of up to $300.0 million. The credit facility is scheduled to expire on July 31, 2022, unless earlier terminated. Borrowings under the Credit Agreement will be available for working capital and general corporate purposes, including permitted acquisitions and repurchases of Common Stock. Borrowings under the Credit Agreement bear a floating rate of interest based in part on Alleghany's credit rating, among other factors. The Credit Agreement contains representations, warranties and covenants customary for bank loan facilities of this nature.

The Credit Agreement replaced Alleghany's previous four-year credit agreement (the "Prior Credit Agreement"), which provided for an unsecured revolving credit facility in an aggregate principal amount of up to $200.0 million. The Prior Credit Agreement was terminated on July 31, 2017 in advance of its scheduled October 15, 2017 expiration date.

There were no borrowings under the Credit Agreement in 2018 and 2017 and there were no outstanding borrowings under the Credit Agreement as of December 31, 2018. There were no borrowings under the Prior Credit Agreement in 2017 or 2016.

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In addition to the Credit Agreement, several of Alleghany Capital's subsidiaries have credit agreements with third-party financial institutions. Any borrowings under such agreements are not guaranteed by Alleghany or Alleghany Capital. See Note 8(c) for information on the borrowings arising from these credit agreements.

8. Debt

(a) Alleghany Senior Notes

On September 9, 2014, Alleghany completed a public offering of $300.0 million aggregate principal amount of its 4.90% senior notes due on September 15, 2044 (the "2044 Senior Notes"). The 2044 Senior Notes are unsecured and unsubordinated general obligations of Alleghany. Interest on the 2044 Senior Notes is payable semi-annually on March 15 and September 15 of each year. The terms of the 2044 Senior Notes permit redemption prior to their maturity. The indenture under which the 2044 Senior Notes were issued contains covenants that impose conditions on Alleghany's ability to create liens on, or engage in sales of, the capital stock of AIHL, TransRe or RSUI. The 2044 Senior Notes were issued at approximately 99.3 percent of par, resulting in proceeds after underwriting discount, commissions and other expenses of $294.3 million and an effective yield of approximately 5.0 percent.

On June 26, 2012, Alleghany completed a public offering of $400.0 million aggregate principal amount of its 4.95% senior notes due on June 27, 2022 (the "2022 Senior Notes"). The 2022 Senior Notes are unsecured and unsubordinated general obligations of Alleghany. Interest on the 2022 Senior Notes is payable semi-annually on June 27 and December 27 of each year. The terms of the 2022 Senior Notes permit redemption prior to their maturity. The indenture under which the 2022 Senior Notes were issued contains covenants that impose conditions on Alleghany's ability to create liens on, or engage in sales of, the capital stock of AIHL, TransRe or RSUI. The 2022 Senior Notes were issued at approximately 99.9 percent of par, resulting in proceeds after underwriting discount, commissions and other expenses of $396.0 million and an effective yield of approximately 5.05 percent.

On September 20, 2010, Alleghany completed a public offering of $300.0 million aggregate principal amount of its 5.625% senior notes due on September 15, 2020 (the "2020 Senior Notes"). The 2020 Senior Notes are unsecured and unsubordinated general obligations of Alleghany. Interest on the 2020 Senior Notes is payable semi-annually on March 15 and September 15 of each year. The terms of the 2020 Senior Notes permit redemption prior to their maturity. The indenture under which the 2020 Senior Notes were issued contains covenants that impose conditions on Alleghany's ability to create liens on, or engage in sales of, the capital stock of AIHL or RSUI. The 2020 Senior Notes were issued at approximately 99.6 percent of par, resulting in proceeds after underwriting discount, commissions and other expenses of $298.9 million and an effective yield of approximately 5.67 percent.

(b) TransRe Senior Notes

On November 23, 2009, TransRe completed a public offering of $350.0 million aggregate principal amount of its 8.00% senior notes due on November 30, 2039 (the "2039 Senior Notes"). The 2039 Senior Notes are unsecured and unsubordinated general obligations of TransRe and are not guaranteed by Alleghany. Interest on the 2039 Senior Notes is payable semi-annually. The terms of the 2039 Senior Notes permit redemption prior to their maturity. The indentures under which the 2039 Senior Notes were issued contain covenants that impose conditions on TransRe's ability to create liens on, or engage in sales of, the capital stock of certain of its subsidiaries, including Transatlantic Reinsurance Company, TransRe Zurich Ltd. or Fair American Insurance and Reinsurance Company.

(c) Alleghany Capital Operating Subsidiaries

The debt associated with Alleghany Capital's operating subsidiaries totaled $284.5 million and $101.0 million as of December 31, 2018 and 2017, respectively. As of December 31, 2018, the $284.5 million includes:

- $105.9 million of borrowings by W&W|AFCO Steel under its available credit facility and term loans (including borrowings incurred and assumed from its acquisition of Hirschfeld);
- $66.6 million of term loans at Kentucky Trailer primarily related to borrowings to finance small acquisitions, its December 28, 2018 acquisition of a controlling interest in a manufacturer of aluminum feed transportation equipment and borrowings under its available credit facility;
- $56.3 million of borrowings by Jazwares under its available credit facility;
- $33.7 million of term loans at Concord primarily related to borrowings to finance Alleghany Capital's acquisition of Concord;
- $13.8 million of term loans at Bourn & Koch primarily related to borrowings to finance an acquisition from 2016; and
- $8.2 million of borrowings by IPS under its available credit facility.

None of these liabilities are guaranteed by Alleghany or Alleghany Capital.

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9. Income Taxes

The following table presents income tax expense (benefit) for 2018, 2017 and 2016:

	Federal	State	Foreign	Total
	($ in millions)			
Year ended December 31, 2018				
Current	$ (83.3)	$ 5.6	$ 32.0	$ (45.7)
Deferred	29.9	0.9	(0.1)	30.7
	$ (53.4)	$ 6.5	$ 31.9	$ (15.0)
Year ended December 31, 2017				
Current	$ (41.3)	$ 2.7	$ 41.0	$ 2.4
Deferred	(66.6)	0.6	(0.2)	(66.2)
	$ (107.9)	$ 3.3	$ 40.8	$ (63.8)
Year ended December 31, 2016				
Current	$ 49.4	$ 4.9	$ 23.4	$ 77.7
Deferred	109.6	0.3	(0.5)	109.4
	$ 159.0	$ 5.2	$ 22.9	$ 187.1

Earnings (losses) before income taxes from domestic operations were ($46.4) million, ($132.7) million and $407.7 million in 2018, 2017 and 2016, respectively. Earnings before income taxes from foreign operations were $86.0 million, $169.4 million and $240.1 million in 2018, 2017 and 2016, respectively. Foreign tax expense was primarily attributable to the U.K., Canada and Germany.

The following table presents the difference between the federal income tax rate and the effective income tax rate:

	Year Ended December 31,		
	2018	2017	2016
Federal income tax rate	21.0 %	35.0 %	35.0 %
Foreign tax credits	(0.3)	(6.4)	(0.6)
Income subject to dividends-received deduction	(18.3)	(25.5)	(1.6)
Tax-exempt interest	(36.0)	(94.1)	(6.5)
State taxes, net of federal tax benefit	13.8	6.5	0.6
Prior period adjustment	(0.1)	(3.3)	2.4
Tax benefit from sale of subsidiary	-	(54.1)	-
Other, net	(18.1)	(32.0)	(0.4)
Effective tax rate	(38.0) %	(173.9) %	28.9 %

The Tax Act was signed into law on December 22, 2017. Among other provisions, the Tax Act reduced the corporate federal income tax rate from 35.0 percent to 21.0 percent, effective January 1, 2018, for the 2018 tax year. As a result, the value of Alleghany's deferred tax assets and liabilities as of December 31, 2017 was reduced. Alleghany has reflected the impact of the Tax Act in its financial statements. The net impact of this reduction to Alleghany's consolidated 2017 tax expense was not material.

The decrease in the effective tax rate in 2018 from 2017 primarily reflects the decrease in the U.S. corporate federal income tax rate due to the Tax Act, as well as new limitations on certain deductions as a result of the Tax Act and a tax benefit associated with the sale of PacificComp.

The effective tax rate in 2017 compared with 2016 primarily reflected income tax benefits from taxable losses arising from Hurricanes Irma, Harvey and Maria in 2017 and, to a lesser extent, a tax benefit associated with the sale of PacificComp, as well as prior period income tax expense adjustments in 2016, which included $16.1 million of out-of-period reductions to current and deferred TransRe tax assets recorded in 2016 that related primarily to periods prior to Alleghany's merger with TransRe in 2012.

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The following table presents the tax effects of temporary differences that give rise to the deferred tax assets and deferred tax liabilities as of December 31, 2018 and 2017:

	As of December 31, 2018	2017
	($ in millions)	
Deferred tax assets:		
Loss and LAE reserves	$ 122.9	$ 114.2
Minimum tax credit carry forward	68.8	137.2
Compensation accruals	88.1	97.4
Unearned premiums	85.9	84.2
OTTI losses	5.4	9.6
State net operating loss carry forward	23.5	18.3
Other	89.8	73.7
Gross deferred tax assets before valuation allowance	484.4	534.6
Valuation allowance	(23.5)	(18.3)
Gross deferred tax assets	460.9	516.3
Deferred tax liabilities:		
Net unrealized gains on investments	127.2	227.5
Deferred acquisition costs	101.1	98.7
Purchase accounting adjustments	11.3	13.5
Other	56.4	40.1
Gross deferred tax liabilities	296.0	379.8
Net deferred tax assets	$ 164.9	$ 136.5

A valuation allowance is provided against deferred tax assets when, in the opinion of management, it is more likely than not that a portion of the deferred tax asset will not be realized. As of December 31, 2018 and 2017, Alleghany recognized $23.5 million and $18.3 million, respectively, of deferred tax assets for certain state net operating and capital loss carryovers, and a valuation allowance of $23.5 million and $18.3 million, respectively, has been established against these deferred tax assets as Alleghany does not currently anticipate it will generate sufficient income in these states to absorb such loss carryovers.

Alleghany's income tax return is currently under examination by the Internal Revenue Service for the 2016 tax year. The following table presents the tax years of Alleghany and TransRe tax returns that remain subject to examination by major tax jurisdictions as of December 31, 2018.

Major Tax Jurisdiction	Open Tax Years
Australia	2014 - 2017
Canada	2014 - 2017
France	2009, 2010 and 2017
Germany	2013 - 2017
Hong Kong	2014 - 2017
Japan	2010 - 2017
Singapore	2014 - 2018
Switzerland	2016 - 2017
U.K.	2016 - 2017
U.S.	2015 - 2017

Alleghany believes that, as of December 31, 2018, it had no material uncertain tax positions. Interest and penalties related to unrecognized tax expenses (benefits) are recognized in income tax expense, when applicable. There were no material liabilities for interest or penalties accrued as of December 31, 2018.

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10. Stockholders' Equity

(a) Common Stock Repurchases

In July 2014, the Alleghany Board of Directors authorized the repurchase of shares of Common Stock at such times and at prices as management determines to be advisable, up to an aggregate of $350.0 million (the "2014 Repurchase Program"). In November 2015, the Alleghany Board of Directors authorized the repurchase, upon the completion of the 2014 Repurchase Program, of additional shares of Common Stock at such times and at prices as management determines to be advisable, up to an aggregate of $400.0 million (the "2015 Repurchase Program"). In June 2018, the Alleghany Board of Directors authorized, upon the completion of the 2015 Repurchase Program, the repurchase of additional shares of Common Stock at such times and at prices as management determines to be advisable, up to an aggregate of $400.0 million (the "2018 Repurchase Program"). In the first quarter of 2016, Alleghany completed the 2014 Repurchase Program and subsequent repurchases have been made pursuant to the 2015 Repurchase Program. In the fourth quarter of 2018, Alleghany completed the 2015 Repurchase Program and subsequent repurchases have been made pursuant to the 2018 Repurchase Program. As of December 31, 2018, Alleghany had $271.5 million remaining under its share repurchase authorization.

The following table presents the shares of Common Stock that Alleghany repurchased pursuant to the 2014 Repurchase Program, the 2015 Repurchase Program and the 2018 Repurchase Program, as applicable:

	As of December 31,		
	2018	2017	2016
Shares repurchased	822,849	29,704	142,186
Cost of shares repurchased (in millions)	$ 491.6	$ 16.0	$ 68.3
Average price per share repurchased	$ 597.48	$ 540.25	$ 480.49

(b) Accumulated Other Comprehensive Income (Loss)

The following table presents a reconciliation of the changes during 2018 and 2017 in accumulated other comprehensive income attributable to Alleghany stockholders:

	Unrealized Appreciation of Investments	Unrealized Currency Translation Adjustment	Retirement Plans	Total
	($ in millions)			
Balance as of January 1, 2018	$ 718.2	$ (84.6)	$ (15.5)	$ 618.1
Cumulative effect of adoption of new accounting pronouncements(1):				
Reclassification of net unrealized gains on equity securities, net of tax	(735.6)	-	-	(735.6)
Reclassification of stranded taxes	156.6	(18.2)	(3.3)	135.1
Total	(579.0)	(18.2)	(3.3)	(600.5)
Other comprehensive income (loss), net of tax:				
Other comprehensive income (loss) before reclassifications	(212.5)	(21.9)	3.1	(231.3)
Reclassifications from accumulated other comprehensive income	11.7	-	-	11.7
Total	(200.8)	(21.9)	3.1	(219.6)
Balance as of December 31, 2018	$ (61.6)	$ (124.7)	$ (15.7)	$ (202.0)

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	Unrealized Appreciation of Investments	Unrealized Currency Translation Adjustment	Retirement Plans	Total
	($ in millions)			
Balance as of January 1, 2017	$ 232.2	$ (111.2)	$ (11.7)	$ 109.3
Cumulative effect of adoption of new accounting pronouncements(1)	12.9	-	-	12.9
Other comprehensive income (loss), net of tax:				
Other comprehensive income (loss) before reclassifications	521.0	26.6	(3.8)	543.8
Reclassifications from accumulated other comprehensive income	(47.9)	-	-	(47.9)
Total	473.1	26.6	(3.8)	495.9
Balance as of December 31, 2017	$ 718.2	$ (84.6)	$ (15.5)	$ 618.1

(1) See Note 1(r) for additional information regarding Alleghany's adoption of new investment accounting guidance and new guidance on certain tax effects caused by the Tax Act.

The following table presents reclassifications out of accumulated other comprehensive income attributable to Alleghany stockholders during 2018 and 2017:

Accumulated Other Comprehensive Income Component	Line in Consolidated Statement of Earnings	Year Ended December 31, 2018	2017
		($ in millions)	
Unrealized appreciation of investments:	Net realized capital gains(1)	$ 13.5	$ (90.6)
	Other than temporary impairment losses	1.3	16.9
	Income taxes	(3.1)	25.8
Total reclassifications:	Net earnings	$ 11.7	$ (47.9)

(1) For 2018, excludes a $45.7 million pre-tax gain from AIHL's conversion of its limited partnership interests in certain subsidiaries of Ares into Ares common units, and a $35.4 million capital loss due to an impairment charge from the write-down of certain SORC assets arising from a decline in energy prices as of December 31, 2018. See Note 4(i) for additional information. For 2017, excludes an $8.4 million pre-tax gain from the sale of PacificComp, a $20.9 million realized gain on bulk settlement of certain contingent liabilities by Alleghany Capital, a ($4.8) million loss realized from the sale of a SORC legacy oil field on December 29, 2017 and a ($7.9) million write-down of certain Reinsurance Segment assets.

(c) Regulations and Dividend Restrictions

As of December 31, 2018, approximately $6.0 billion of Alleghany's total equity of $7.7 billion was unavailable for dividends or advances to Alleghany from its subsidiaries. The remaining $1.7 billion was available for dividends or advances to Alleghany from its subsidiaries, or was retained at the Alleghany parent level and, as such, was available to pay dividends to Alleghany's stockholders as of December 31, 2018.

The ability of Alleghany's reinsurance and insurance subsidiaries to pay dividends or other distributions is subject to the laws and regulations applicable to each subsidiary, as well as each subsidiary's need to maintain capital requirements adequate to maintain its operations and financial strength ratings issued by independent rating agencies.

In the U.S., Alleghany's reinsurance and insurance subsidiaries are subject to insurance laws and regulations that restrict the amount and timing of dividends they may pay without the prior approval of regulatory authorities. Under the insurance holding company laws and regulations, Alleghany's reinsurance and insurance subsidiaries may not pay an "extraordinary" dividend or distribution without the approval of state insurance regulators. In general, an "extraordinary" dividend or distribution is defined as a dividend or distribution that, together with other dividends and distributions made within the preceding 12 months, exceeds the lesser (or, in some jurisdictions, the greater) of (i) 10 percent of the statutory surplus of the reinsurer or insurer as of the end of the prior calendar year (or, in certain states, as of the end of the prior quarter) and (ii) the net income during the prior calendar year (or, in certain states, the adjusted statutory net investment income). In addition, certain states where Alleghany's reinsurance and insurance subsidiaries are domiciled prohibit a domestic insurance company from paying dividends except out of earned surplus.

TransRe's operations are also regulated in various foreign jurisdictions with respect to currency, amount and type of security deposits, amount and type of reserves and amount and type of local investment. Regulations governing constitution of technical reserves and remittance balances in some countries may hinder remittance of profits and repatriation of assets. International operations and assets held abroad may also be adversely affected by political and other developments in foreign countries, including possible tax changes, nationalization and changes in regulatory policy, as well as by consequences of hostilities and unrest. The risks of such occurrences and their overall effect upon TransRe vary from country to country and cannot easily be predicted.

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The following table presents the dividends paid to Alleghany by its reinsurance and insurance subsidiaries in 2018, 2017 and 2016:

	As of December 31,		
	2018	2017(1)	2016
	($ in millions)		
TransRe(2)	$ 300.0	$ 225.0	$ 375.0
RSUI	100.0	75.0	100.0
Total	$ 400.0	$ 300.0	$ 475.0

(1) Dividends to Alleghany were reduced as a consequence of significant TransRe and RSUI catastrophe losses in the third quarter of 2017.
(2) In 2018, 2017 and 2016, TRC paid dividends of $280.0 million, $270.0 million and $350.0 million, respectively, to the TransRe holding company.

As of December 31, 2018, a maximum amount of $64.9 million was available for dividends by TRC without prior approval of the applicable regulatory authorities.

The statutory net income of Alleghany's reinsurance and insurance subsidiaries was $263.6 million and $144.4 million for the years ended December 31, 2018 and 2017, respectively. As of December 31, 2018 and 2017, the combined statutory capital and surplus of Alleghany's reinsurance and insurance subsidiaries was $6.5 billion and $6.9 billion, respectively. As of December 31, 2018, the amount of statutory capital and surplus necessary to satisfy regulatory requirements was not significant in relation to the actual statutory capital and surplus of Alleghany's reinsurance and insurance companies in the U.S.

(d) Special Dividend

In February 2018, the Alleghany Board of Directors declared a special dividend of $10.00 per share for stockholders of record on March 5, 2018. On March 15, 2018, Alleghany paid dividends to stockholders totaling $154.0 million.

11. Earnings Per Share of Common Stock

The following table presents a reconciliation of the earnings and share data used in the basic and diluted (losses) earnings per share computations for 2018, 2017 and 2016:

	Year Ended December 31,		
	2018	2017	2016
	($ in millions, except share amounts)		
Net earnings available to Alleghany stockholders	$ 39.5	$ 90.1	$ 456.9
Effect of dilutive securities	-	-	-
Income available to common stockholders for diluted earnings per share	$ 39.5	$ 90.1	$ 456.9
Weighted average common shares outstanding applicable to basic earnings per share	15,062,567	15,410,034	15,436,286
Effect of dilutive securities	-	-	6,363
Adjusted weighted average common shares outstanding applicable to diluted earnings per share	15,062,567	15,410,034	15,442,649
Contingently issuable shares(1)	23,947	78,345	68,429

(1) Contingently issuable shares were potentially available in the periods presented, but were not included in the diluted earnings per share computations because the impact was anti-dilutive to the earnings per share calculation.

12. Commitments and Contingencies

(a) Legal Proceedings

Certain of Alleghany's subsidiaries are parties to pending litigation and claims in connection with the ordinary course of their businesses. Each such subsidiary makes provisions for estimated losses to be incurred in such litigation and claims, including legal costs. In the opinion of management, such provisions are adequate, and management does not believe that any pending litigation will have a material adverse effect on Alleghany's consolidated results of operations, financial position or cash flows.

(b) Leases

Alleghany and its subsidiaries lease certain facilities, furniture and equipment under long-term lease agreements. In addition, certain land, office space and equipment are leased under non-cancelable operating leases that expire at various dates through 2038. Rent expense was $38.8 million, $37.0 million and $37.5 million in 2018, 2017 and 2016, respectively. The following table presents

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the aggregate minimum payments under operating leases with initial or remaining terms of more than one year as of December 31, 2018:

Year	Aggregate Minimum Lease Payments
	($ in millions)
2019	$ 39.2
2020	36.1
2021	32.9
2022	26.2
2023	24.9
2024 and thereafter	165.5

(c) Asbestos-Related Illness and Environmental Impairment Exposure

Loss and LAE include amounts for risks related to asbestos-related illness and environmental impairment. The following table presents such gross and net reserves as of December 31, 2018 and 2017:

	December 31, 2018		December 31, 2017	
	Gross	Net	Gross	Net
	($ in millions)			
TransRe	$ 128.1	$ 124.6	$ 152.4	$ 148.0
CapSpecialty	5.6	5.6	6.0	6.0
Total	$ 133.7	$ 130.2	$ 158.4	$ 154.0

The reserves carried for such claims, including the IBNR portion, are based upon known facts and current law at the respective balance sheet dates. However, significant uncertainty exists in determining the amount of ultimate liability for asbestos-related illness and environmental impairment losses. This uncertainty is due to, among other reasons, inconsistent and changing court resolutions and judicial interpretations with respect to underlying policy intent and coverage and uncertainties as to the allocation of responsibility for resultant damages, among other reasons. Further, possible future changes in statutes, laws, regulations, theories of liability and other factors could have a material effect on these liabilities and, accordingly, future earnings.

(d) Energy Holdings

As of December 31, 2018, Alleghany had holdings in energy sector businesses of $385.2 million, comprised of $288.9 million of debt securities, $8.3 million of equity securities and $88.0 million of Alleghany's equity attributable to SORC.

13. Segments of Business

(a) Overview

Alleghany's segments are reported in a manner consistent with the way management evaluates the business. As such, Alleghany classifies its business into three reportable segments – reinsurance, insurance and Alleghany Capital. Alleghany determined that Alleghany Capital qualified as a reportable segment in the first quarter of 2018, reflecting the increased significance of Alleghany Capital's business to Alleghany and corporate activities.

Reinsurance and insurance underwriting activities are evaluated separately from investment and other activities. Segment accounting policies are described in Note 1.

The reinsurance segment consists of property and casualty reinsurance operations conducted by TransRe's reinsurance operating subsidiaries and is further reported through two major product lines – property and casualty & other. TransRe provides property and casualty reinsurance to insurers and other reinsurers through brokers and on a direct basis to ceding companies. TransRe also writes a modest amount of property and casualty insurance business, which is included in the reinsurance segment. A significant portion of the premiums earned by TransRe's operations are generated by offices located in Canada, Europe, Asia, Australia, Africa and those serving Latin America and the Caribbean. Although the majority of the premiums earned by these offices typically relate to the regions where they are located, a significant portion may be derived from other regions of the world, including the U.S. In addition, although a significant portion of the assets and liabilities of these foreign offices generally relate to the countries where ceding companies and reinsurers are located, most investments are located in the country of domicile of these offices.

The insurance segment consists of property and casualty insurance operations conducted in the U.S. by AIHL through its insurance operating subsidiaries RSUI, CapSpecialty and, prior to its sale on December 31, 2017, PacificComp. RSUI also writes a modest amount of assumed reinsurance business, which is included in the insurance segment.

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The Alleghany Capital segment consists of industrial operations, non-industrial operations and corporate operations at the Alleghany Capital level. Industrial operations are conducted through Bourn & Koch, Kentucky Trailer, W&W|AFCO Steel beginning April 28, 2017 (the date on which Alleghany Capital acquired approximately 80 percent of the equity thereof), and a 45 percent equity interest in Wilbert, beginning August 1, 2017 (the date on which Alleghany Capital acquired its equity interest therein). Non-industrial operations are conducted through IPS, Jazwares and Concord beginning October 1, 2018 (the date Alleghany Capital acquired approximately 85 percent of the equity thereof).

Corporate activities are not classified as a segment. The primary components of corporate activities are Alleghany Properties, SORC and activities at the Alleghany parent company.

In addition, corporate activities include interest expense associated with the senior notes issued by Alleghany, whereas interest expense associated with senior notes issued by TransRe is included in "Total Segments" and interest expense associated with other debt is included in Alleghany Capital. Information related to the senior notes and other debt can be found in Note 8.

(b) Results

The following tables present segment results for Alleghany's three reportable segments and for corporate activities for 2018, 2017 and 2016:

Year Ended December 31, 2018	Reinsurance Segment			Insurance Segment							
	Property	Casualty & other(1)	Total	RSUI	Cap Specialty	Total	Subtotal	Alleghany Capital	Total Segments	Corporate Activities(2)	Consolidated
						($ in millions)					
Gross premiums written	$ 1,532.7	$ 2,918.3	$ 4,451.0	$ 1,142.0	$ 328.8	$ 1,470.8	$ 5,921.8	$ -	$ 5,921.8	$ (26.2)	$ 5,895.6
Net premiums written	1,169.4	2,799.7	3,969.1	773.3	306.0	1,079.3	5,048.4	-	5,048.4	-	5,048.4
Net premiums earned	1,177.3	2,761.7	3,939.0	747.3	289.9	1,037.2	4,976.2	-	4,976.2	-	4,976.2
Net loss and LAE	1,067.8	1,801.5	2,869.3	491.2	159.9	651.1	3,520.4	-	3,520.4	-	3,520.4
Commissions, brokerage and other underwriting expenses(3)	384.9	897.4	1,282.3	211.9	123.1	335.0	1,617.3	-	1,617.3	-	1,617.3
Underwriting (loss) profit(4)	$ (275.4)	$ 62.8	$ (212.6)	$ 44.2	$ 6.9	$ 51.1	(161.5)	-	(161.5)	-	(161.5)
Net investment income							480.9	3.1	484.0	16.5	500.5
Change in the fair value of equity securities							(184.2)	-	(184.2)	(44.8)	(229.0)
Net realized capital gains							31.6	0.9	32.5	(35.7)	(3.2)
Other than temporary impairment losses							(1.3)	-	(1.3)	-	(1.3)
Noninsurance revenue							22.0	1,574.6	1,596.6	47.4	1,644.0
Other operating expenses							59.8	1,485.6	1,545.4	33.9	1,579.3
Corporate administration							(1.7)	-	(1.7)	17.6	15.9
Amortization of intangible assets							(0.4)	24.4	24.0	-	24.0
Interest expense							27.1	10.5	37.6	53.1	90.7
Earnings (losses) before income taxes							$ 102.7	$ 58.1	$ 160.8	$ (121.2)	$ 39.6

Year Ended December 31, 2017	Reinsurance Segment			Insurance Segment							
	Property	Casualty & other(1)	Total	RSUI	Cap Specialty	Pacific Comp	Total	Subtotal	Alleghany Capital	Total Segments	Corporate Activities(2)	Consolidated
							($ in millions)					
Gross premiums written	$ 1,557.8	$ 2,652.8	$ 4,210.6	$ 1,056.8	$ 290.2	$ 162.6	$ 1,509.6	$ 5,720.2	$ -	$ 5,720.2	$ (23.3)	$ 5,696.9
Net premiums written	1,233.1	2,577.0	3,810.1	724.4	271.2	160.2	1,155.8	4,965.9	-	4,965.9	-	4,965.9
Net premiums earned	1,181.9	2,626.8	3,808.7	721.7	260.9	163.7	1,146.3	4,955.0	-	4,955.0	-	4,955.0
Net loss and LAE	1,080.1	1,705.3	2,785.4	569.9	143.9	121.0	834.8	3,620.2	-	3,620.2	-	3,620.2
Commissions, brokerage and other underwriting expenses(3)	383.4	903.3	1,286.7	208.9	112.7	42.9	364.5	1,651.2	-	1,651.2	-	1,651.2
Underwriting (loss) profit(4)	$ (281.6)	$ 18.2	$ (263.4)	$ (57.1)	$ 4.3	$ (0.2)	$ (53.0)	(316.4)	-	(316.4)	-	(316.4)
Net investment income								434.6	2.7	437.3	13.7	451.0
Change in the fair value of equity securities								-	-	-	-	-
Net realized capital gains								85.7	23.0	108.7	(1.5)	107.2
Other than temporary impairment losses								(16.9)	-	(16.9)	-	(16.9)
Noninsurance revenue								15.5	896.9	912.4	15.9	928.3
Other operating expenses								82.8	844.9	927.7	39.4	967.1
Corporate administration								1.7	-	1.7	45.3	47.0
Amortization of intangible assets								(1.5)	20.9	19.4	-	19.4
Interest expense								26.9	4.0	30.9	52.1	83.0
Earnings (losses) before income taxes								$ 92.6	$ 52.8	$ 145.4	$ (108.7)	$ 36.7

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Year Ended December 31, 2016	Reinsurance Segment			Insurance Segment								
	Property	Casualty & other(1)	Total	RSUI	Cap Specialty	Pacific Comp	Total	Subtotal	Alleghany Capital	Total Segments	Corporate Activities(2)	Consolidated
						($ in millions)						
Gross premiums written	$1,515.5	$ 2,814.8	$4,330.3	$1,056.4	$ 266.5	$139.8	$1,462.7	$5,793.0	$ -	$5,793.0	$ (25.9)	$ 5,767.1
Net premiums written	1,237.2	2,732.2	3,969.4	734.1	250.0	138.3	1,122.4	5,091.8	-	5,091.8	-	5,091.8
Net premiums earned	1,168.0	2,677.0	3,845.0	754.5	237.5	138.8	1,130.8	4,975.8	-	4,975.8	-	4,975.8
Net loss and LAE	578.4	1,707.0	2,285.4	403.8	125.3	102.7	631.8	2,917.2	-	2,917.2	-	2,917.2
Commissions, brokerage and other underwriting expenses(3)	376.2	922.8	1,299.0	212.3	107.3	38.7	358.3	1,657.3	-	1,657.3	-	1,657.3
Underwriting profit (loss)(4)	$ 213.4	$ 47.2	$ 260.6	$ 138.4	$ 4.9	$ (2.6)	$ 140.7	401.3	-	401.3	-	401.3
Net investment income								433.1	(2.3)	430.8	7.7	438.5
Change in the fair value of equity securities								-	-	-	-	-
Net realized capital gains								159.9	12.8	172.7	(109.5)	63.2
Other than temporary impairment losses								(45.2)	-	(45.2)	-	(45.2)
Noninsurance revenue								4.4	677.8	682.2	16.6	698.8
Other operating expenses								80.6	643.1	723.7	41.5	765.2
Corporate administration								1.0	-	1.0	42.0	43.0
Amortization of intangible assets								(3.1)	22.1	19.0	-	19.0
Interest expense								27.2	1.9	29.1	52.5	81.6
Earnings (losses) before income taxes								$ 847.8	$ 21.2	$ 869.0	$ (221.2)	$ 647.8

(1) Primarily consists of the following assumed reinsurance lines of business: directors' and officers' liability; errors and omissions liability; general liability; medical malpractice; ocean marine and aviation; auto liability; accident and health; mortgage reinsurance; surety; and credit.
(2) Includes elimination of minor reinsurance activity between segments.
(3) Includes amortization associated with deferred acquisition costs of $1,271.4 million, $1,261.7 million and $1,253.2 million for the years ended December 31, 2018, 2017 and 2016, respectively.
(4) Underwriting profit represents net premiums earned less net loss and LAE and commissions, brokerage and other underwriting expenses, all as determined in accordance with GAAP, and does not include net investment income, change in the fair value of equity securities, net realized capital gains, OTTI losses, noninsurance revenue, other operating expenses, corporate administration, amortization of intangible assets or interest expense. Underwriting profit does not replace earnings before income taxes determined in accordance with GAAP as a measure of profitability. Rather, Alleghany believes that underwriting profit enhances the understanding of its reinsurance and insurance segments' operating results by highlighting net earnings attributable to their underwriting performance. Earnings before income taxes (a GAAP measure) may show a profit despite an underlying underwriting loss. Where underwriting losses persist over extended periods, a reinsurance or an insurance company's ability to continue as an ongoing concern may be at risk. Therefore, Alleghany views underwriting profit as an important measure in the overall evaluation of performance.

(c) Foreign operations

Information associated with Alleghany's foreign operations in its reinsurance segment (representing the vast majority of Alleghany's foreign operations), is as follows:

- Foreign gross premiums written in 2018, 2017 and 2016 were approximately $1.6 billion, $1.5 billion and $1.5 billion, respectively.
- Foreign net premiums earned in 2018, 2017 and 2016 were each approximately $1.4 billion. The foreign country in which Alleghany generates the largest amount of premium revenues is the U.K. Net premiums earned by operations in the U.K. in 2018, 2017 and 2016 were $583.8 million, $612.1 million and $622.3 million, respectively.

(d) Identifiable assets and equity

The following table presents identifiable assets, the portion of identifiable assets related to cash and invested assets, and equity attributable to Alleghany, for Alleghany's reportable segments and for corporate activities as of December 31, 2018:

	Identifiable Assets	Invested Assets and Cash	Equity Attributable to Alleghany
		($ in millions)	
Reinsurance segment	$ 16,502.9	$ 12,967.9	$ 4,723.5
Insurance segment	6,701.6	5,105.0	2,696.4
Subtotal	23,204.5	18,072.9	7,419.9
Alleghany Capital	1,731.7	133.0	879.3
Total segments	24,936.2	18,205.9	8,299.2
Corporate activities	408.7	356.0	(606.5)
Consolidated	$ 25,344.9	$ 18,561.9	$ 7,692.7

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(e) Alleghany Capital Noninsurance Revenue

For Alleghany Capital's industrial and non-industrial operations, noninsurance revenue consists of the sale of manufactured goods and services. The following table presents noninsurance revenue for the Alleghany Capital segment for 2018, 2017 and 2016:

	Year Ended December 31,		
	2018	2017	2016
	($ in millions)		
Industrial(1)	$ 917.1	$ 393.7	$ 177.9
Non-Industrial(2)	657.5	502.4	500.4
Corporate & other	-	0.8	(0.5)
Alleghany Capital	$ 1,574.6	$ 896.9	$ 677.8

(1) For 2018, the vast majority of noninsurance revenues were recognized as goods and services transferred to customers over time. For 2017 and 2016, approximately 72 percent and 44 percent, respectively, of noninsurance revenues that were recognized as services were transferred to customers over time, with the remainder recognized as goods transferred at a point in time. See Note 1(r) additional information regarding Alleghany's adoption of new revenue recognition accounting guidance effective in the first quarter of 2018.

(2) For 2018, 2017 and 2016, approximately 63 percent, 66 percent and 74 percent, respectively, of noninsurance revenues were recognized as services transferred to customers over time, with the remainder recognized as goods transferred at a point in time. See Note 1(r) for additional information on Alleghany's adoption of new revenue recognition accounting guidance effective in the first quarter of 2018.

(f) Concentration

Significant portions of the reinsurance segment's gross premiums written are produced by a limited number of brokers. Gross premiums written produced by the reinsurance segment's three largest brokers were approximately 26 percent, 18 percent and 15 percent in 2018, 24 percent, 19 percent, and 16 percent in 2017 and 25 percent, 20 percent and 16 percent in 2016.

A large whole account quota share treaty entered into in the fourth quarter of 2015 accounted for approximately 17 percent in 2018, 19 percent in 2017 and 20 percent in 2016 of gross premiums written in the reinsurance segment.

14. Long-Term Compensation Plans

(a) Parent Company-Level

As of December 31, 2018, Alleghany had long-term compensation plans for parent company-level employees and directors. Parent company-level, long-term compensation awards to current employees do not include stock options but consist only of restricted stock awards, including restricted stock units and performance share awards. Parent company-level, long-term compensation awards to non-employee directors consist of annual grants of restricted shares and restricted stock units of Common Stock.

Amounts recognized as compensation expense in the consolidated statements of earnings and comprehensive income with respect to long-term compensation awards under plans for parent company-level employees and non-employee directors were ($12.0) million, $17.1 million and $17.1 million in 2018, 2017 and 2016, respectively. The negative expense for 2018 reflects a reversal of certain long-term incentive compensation expense accruals, driven primarily by the impacts of depreciation in the value of Alleghany's consolidated debt and equity securities portfolio, as well as significant catastrophe losses incurred at Alleghany's reinsurance and insurance subsidiaries in 2018. The amount of related income tax (expenses) benefit in the consolidated statements of earnings and comprehensive income with respect to these plans was ($2.5) million, $3.6 million and $6.0 million in 2018, 2017 and 2016, respectively. In 2018, 2017 and 2016, $4.3 million, $7.1 million and $5.7 million of Common Stock at fair market value, respectively, and $17.1 million, $19.3 million and $14.4 million of cash, respectively, was paid by Alleghany under these plans for parent company-level employees and non-employee directors. As noted above, as of December 31, 2018 and 2017, all outstanding awards were accounted for under the fair-value-based method of accounting.

The following is a summary of the parent company-level, long-term compensation plans.

Director Restricted Stock Plan

The annual grant to each non-employee director consists of either restricted shares or restricted stock units of Common Stock, at the director's election. Awards granted to non-employee directors were not material to Alleghany's results of operations, financial condition or cash flows for the three years ended December 31, 2018.

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Alleghany Long-Term Incentive Plans

Awards under Alleghany's long-term compensation plans may include, but are not limited to, cash and/or shares of Common Stock, rights to receive cash and/or shares of Common Stock and options to purchase shares of Common Stock, including options intended to qualify as incentive stock options under the Internal Revenue Code, and options not intended to so qualify.

The following types of awards were outstanding as of December 31, 2018:

- Performance Share Awards — Participants are entitled, at the end of a four-year award period, to a maximum amount equal to the value of one and one-half shares of Common Stock for each performance share issued to them based on market value on the payment date. Payouts are made provided defined levels of performance are achieved. Expenses are recorded based on changes in the fair value of the awards. The fair value is calculated based primarily on the value of Common Stock as of the balance sheet date, the degree to which performance targets have been achieved and the time elapsed with respect to each award period.
- Restricted Share Awards — From time to time, Alleghany has awarded to certain management employees restricted shares or restricted stock units of Common Stock. These awards entitle the participants to a specified maximum amount equal to the value of one share of Common Stock for each restricted share or restricted stock unit issued to them based on the market value on the grant date, subject to certain conditions. The expense is recognized ratably over the performance period, which can be extended under certain circumstances.

(b) TransRe Book Value Unit Plan and Mid-Term Incentive Plan

TransRe has a Book Value Unit Plan and a Mid-Term Incentive Plan (collectively, the "TransRe Plans") for the purpose of providing incentives to key employees of TransRe. Under the TransRe Plans, book value units ("BVUs") and mid-term incentive plan ("MTIP") awards are issued. BVUs and MTIP awards may only be settled in cash. The fair value of each BVU is calculated as the stockholder's equity of TransRe, adjusted for certain capital transactions, divided by the adjusted number of BVUs outstanding. BVUs have vesting dates of up to approximately the fourth anniversary of the date of grant. The fair value of MTIP awards is calculated based on underwriting results compared to specified targets. MTIP awards have vesting dates of approximately the second or third anniversary of the date of grant. The BVUs and MTIP awards contain certain restrictions, related to, among other things, forfeiture in the event of termination of employment and transferability. In 2018, 2017 and 2016, TransRe recorded $35.6 million, $46.6 million and $50.7 million, respectively, in compensation expense and a deferred tax benefit of $7.5 million, $9.8 million and $17.7 million, respectively, related to the TransRe Plans.

(c) RSUI Restricted Share Plan

RSUI has a Restricted Stock Unit Plan (the "RSUI Plan") for the purpose of providing equity-like incentives to key employees of RSUI. Under the RSUI Plan, restricted stock units ("units") are issued. Additional units, defined as the "Deferred Equity Pool," were issued in 2018, 2017 and 2016 and may be created in the future if certain financial performance measures are met. Units may only be settled in cash. The fair value of each unit is calculated as the stockholder's equity of RSUI, adjusted for certain capital transactions and accumulated compensation expense recognized under the RSUI Plan, divided by the sum of RSUI common stock outstanding and the original units available under the RSUI Plan. The units vest on the fourth anniversary of the date of grant and contain certain restrictions, related to, among other things, forfeiture in the event of termination of employment and transferability. In 2018, 2017 and 2016, RSUI recorded $11.7 million, $26.3 million and $25.4 million, respectively, in compensation expense related to the RSUI Plan. During the same periods, a deferred tax benefit of $2.4 million, $5.5 million and $8.9 million, respectively, related to the compensation expense were recorded.

(d) Other Subsidiary Plans

Long-term incentive plans exist at certain other subsidiaries for the purpose of providing equity-like incentives to key employees. The awards under such plans were not material to Alleghany's results of operations, financial condition or cash flows for the three years ended December 31, 2018.

15. Employee Retirement Benefit Plans

(a) Overview

Alleghany and certain of its subsidiaries provide a variety of retirement benefits. Alleghany provides supplemental retirement benefits through deferred compensation programs and profit sharing plans for certain of its parent company-level officers and employees. In addition, Alleghany's subsidiaries sponsor both qualified, defined contribution retirement plans for substantially all employees, including executives, and non-qualified plans only for executives, some of which provide for voluntary salary reduction contributions by employees and matching contributions by each respective subsidiary, subject to specified limitations.

Alleghany has endorsement split-dollar life insurance policies for its parent company-level officers that are effective during employment, as well as retirement. Premiums are paid by Alleghany and death benefits are split between Alleghany and the beneficiaries of the officers. Death benefits for current employees that inure to the beneficiaries are generally equal to four times the

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annual salary at the time of an officer's death. After retirement, death benefits that inure to the beneficiaries are generally equal to the annual salary of the officer as of the date of retirement.

In addition, Alleghany, TransRe and W&W|AFCO Steel have defined benefit pensions plans for certain of their employees, as further described below.

These employee retirement plans are not material to Alleghany's results of operations, financial condition or cash flows for the three years ended December 31, 2018.

(b) Parent Company-Level

Alleghany has an unfunded, noncontributory defined benefit pension plan for parent company-level executives, which was frozen as of December 31, 2013, and a funded, noncontributory defined benefit pension plan for parent company-level employees. The projected benefit obligations of the defined benefit pension plans as of December 31, 2018 and 2017 was $32.3 million and $34.1 million, respectively, and the related fair value of plan assets was $3.3 million and $3.4 million, respectively.

(c) TransRe

TransRe has an unfunded, noncontributory defined benefit plan and a funded noncontributory defined benefit plan for certain of its employees in the U.S. Benefits under TransRe's defined benefit plans were frozen as of December 31, 2009. As of December 31, 2018 and 2017, the projected benefit obligation was $65.5 million and $71.8 million, respectively, and the related fair value of plan assets was $49.1 million and $52.4 million, respectively.

(d) W&W|AFCO Steel

W&W|AFCO Steel has a funded noncontributory defined benefit plan for certain of its employees. Benefits under W&W|AFCO Steel's defined benefit plans were frozen as of April 1, 2003. During 2018, W&W|AFCO Steel initiated a plan termination, whereby the obligations related to plan participants currently receiving benefits were annuitized through the purchase of annuity contracts from a third-party life insurance company, and certain other employees were offered lump sum distributions. As of December 31, 2018 and 2017, the projected benefit obligation was $10.0 million and $23.2 million, respectively, and the related fair value of plan assets was $11.7 million and $14.0 million, respectively.

16. Quarterly Results of Operations (unaudited)

Selected quarterly financial data for 2018 and 2017 are presented below:

	Quarter Ended			
	March 31	June 30	September 30	December 31
	($ in millions, except per share data)			
2018				
Revenues	$ 1,585.0	$ 1,897.7	$ 2,177.4	$ 1,227.1
Net earnings (losses)(1)	171.6	295.1	284.9	(712.1)
Basic earnings (losses) per share of Common Stock(1)(2)	11.15	19.44	19.07	(48.30)
2017				
Revenues	$ 1,532.4	$ 1,553.9	$ 1,667.5	$ 1,670.8
Net earnings (losses)(1)	149.2	101.8	(314.2)	153.3
Basic earnings (losses) per share of Common Stock(1)(2)	9.68	6.60	(20.38)	9.96

(1) Attributable to Alleghany stockholders.
(2) Earnings per share by quarter may not equal the amount for the full year due to the timing of repurchases of Common Stock, as well as rounding.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Stockholders and the Board of Directors of
Alleghany Corporation:

Opinion on Internal Control over Financial Reporting
We have audited Alleghany Corporation and subsidiaries' internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Alleghany Corporation and subsidiaries' (the "Company") maintained, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of Alleghany Corporation and subsidiaries as of December 31, 2018 and 2017, and the related consolidated statements of earnings and comprehensive income, changes in stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2018 and the related notes and the financial statement schedules listed in the Index at Item 15(a)(2) of the Company and our report dated February 20, 2019 expressed an unqualified opinion thereon.

Basis for Opinion
The Company's management is responsible for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

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

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

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

/s/ Ernst & Young LLP

New York, New York
February 20, 2019

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

None.

Item 9A. Controls and Procedures.

Disclosure Controls and Procedures

We carried out an evaluation, under the supervision and with the participation of our management, including our chief executive officer, or "CEO," and our chief financial officer, or "CFO," of the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this Form 10-K pursuant to Rule 13a-15(e) or 15d-15(e) promulgated under the Exchange Act. Based on that evaluation, our management, including our CEO and CFO, concluded that our disclosure controls and procedures were effective as of that date to provide reasonable assurance that information required to be disclosed by us in reports that we file or submit under the Exchange Act is (i) recorded, processed, summarized, and timely reported as specified in the SEC's rules and forms and (ii) accumulated and communicated to our management, including our CEO and CFO, as appropriate to allow for timely decisions regarding required disclosure. Our disclosure controls and procedures were designed to provide such assurance; however, we note that the design of any system of controls is based in part upon certain assumptions about the likelihood of future events, and we cannot assure you that any design will succeed in achieving its stated goals under all potential future conditions, regardless of how remote.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Our internal control system was designed to provide reasonable assurance to our management and Board of Directors regarding the preparation and fair presentation of financial statements for external purposes.

We carried out an evaluation, under the supervision and with the participation of our management, including our CEO and CFO, of the effectiveness of our internal control over financial reporting based on the framework in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework). Based on that evaluation, our management, including our CEO and CFO, concluded that, as of December 31, 2018, our internal control over financial reporting was effective. Our independent registered public accounting firm that audited the consolidated financial statements included in this Form 10-K, Ernst & Young LLP, has issued an attestation report on the effectiveness of our internal control over financial reporting which appears in Part II, Item 8, "Financial Statements and Supplementary Data" on page 172 of this Form 10-K. We note that all internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation.

Changes in Internal Control Over Financial Reporting

No changes occurred during the quarter ended December 31, 2018 in our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information.

None.

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PART III

Item 10. Directors, Executive Officers and Corporate Governance.

The information required by this Item 10 is included under the captions "Corporate Governance — Board Composition," "Corporate Governance — Committees of the Board of Directors," "Corporate Governance — Codes of Ethics," "Securities Ownership of Directors and Executive Officers — Section 16(a) Beneficial Ownership Reporting Compliance," "Proposal 1. Election of Directors," and "Executive Officers" in our Proxy Statement related to our Annual Meeting of Stockholders to be held on April 26, 2019, or our "2019 Proxy Statement," which information is incorporated herein by reference.

Item 11. Executive Compensation.

The information required by this Item 11 is included under the captions "Proposal 1. Election of Directors — Compensation of Directors," "Compensation Committee Report," "Compensation Discussion and Analysis," and "Executive Compensation" in our 2019 Proxy Statement, which information is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The information required by this Item 12 is included under the captions "Principal Stockholders" and "Securities Ownership of Directors and Executive Officers" in our 2019 Proxy Statement, which information is incorporated herein by reference.

EQUITY COMPENSATION PLAN INFORMATION

The following table summarizes information, as of December 31, 2018, related to Alleghany's equity compensation plans under which its equity securities are authorized for issuance:

Plan Category	(a) Number of Securities to be Issued Upon Exercise of Outstanding Options, Warrants and Rights	(b) Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights	(c) Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a))
Equity compensation plans approved by security holders(1)	169,852(2)	$ 313.74(3)	413,073(4)
Equity compensation plans not approved by security holders	-	-	-
Total	169,852	$ 313.74	413,073

(1) These equity compensation plans consist of: (a) the 2005 Directors' Stock Plan (the "2005 Directors' Plan"); (b) the 2010 Directors' Stock Plan (the "2010 Directors' Plan"); (c) the 2015 Directors' Stock Plan (the "2015 Directors' Plan"); (d) the 2007 Long-Term Incentive Plan (the "2007 LTIP"); (e) the 2012 Long-Term Incentive Plan (the "2012 LTIP") and (f) the 2017 Long-Term Incentive Plan (the "2017 LTIP"). The 2005 Directors' Plan expired on December 31, 2009, the 2010 Directors' Plan expired on April 23, 2015, and the 2012 LTIP expired on April 28, 2017.

(2) This amount includes: (a) 520 outstanding stock options issued to directors under the 2005 Directors' Plan; (b) 7,540 outstanding stock options issued to directors under the 2010 Directors' Plan; (c) 130 outstanding stock options issued to directors under the 2015 Directors' Plan; (d) 1,592 outstanding restricted stock units issued to directors under the 2005 Directors' Plan; (e) 4,959 outstanding restricted stock units issued to directors under the 2010 Directors' Plan; (f) 6,320 outstanding restricted stock units issued under the 2015 Directors' Plan; (g) 98,188 outstanding performance shares awarded under the 2012 LTIP assuming payouts at maximum; (h) 35,595 outstanding performance shares awarded under the 2017 LTIP assuming payouts at maximum; (i) 10,645 outstanding restricted stock units issued under the 2012 LTIP; and (j) 902 outstanding restricted stock units awarded under the 2012 LTIP as a matching grant (the "Matching Grant Restricted Stock Units"); (k) 3,461 outstanding restricted stock units issued under the 2017 LTIP. Restricted stock units granted to directors pursuant to the 2005 Directors' Plan, the 2010 Directors' Plan and the 2015 Directors' Plan (the "Director Restricted Stock Units") are paid out in common stock, with one share of common stock being paid for each Director Restricted Stock Unit. Matching Grant Restricted Stock Units are paid out in cash and/or common stock, at the discretion of the Compensation Committee of our Board of Directors, with one share of common stock or, if payment is made in cash, the market value of one share of common stock on the payment date, being paid for each Matching Grant Restricted Stock Unit. Performance shares outstanding under the 2007 LTIP, 2012 LTIP and 2017 LTIP are paid, at the end of a four-year award period, in a maximum amount equal to one and one-half shares of common stock for each performance share, depending upon the level of performance achieved. Payments in respect of performance shares are made based upon the market value of common stock on the payment date. Recipients of performance shares are permitted to elect to receive payment for performance shares in cash and/or common stock, subject to certain limitations. Since there is no exercise price for restricted stock units or for performance shares, they are not taken into account in calculating the weighted-average exercise price in column (b).

(3) The weighted-average exercise price is based upon the weighted-average exercise price of the outstanding director stock options issued under the 2005 Directors' Plan and the 2010 Directors' Plan.

(4) This amount does not include: (a) 188,227 shares of common stock that remained available for issuance under the 2007 LTIP upon its expiration on April 27, 2012; (b) 27,485 shares of common stock that remained available for issuance under the 2005 Directors' Plan upon its expiration on December 31, 2009; (c) 30,444 shares of common stock that remained available for issuance under the 2010 Directors' Plan upon its expiration on April 23, 2015; and (d) 421,807 shares of common stock that remained available for issuance under the 2012 LTIP upon its expiration on April 28, 2017, since no further awards of common stock may be made under such plans.

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Item 13. Certain Relationships and Related Transactions, and Director Independence.

The information required by this Item 13 is included under the captions "Corporate Governance — Director Independence," and "Corporate Governance — Related Party Transactions" in our 2019 Proxy Statement, which information is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services.

The information required by this Item 14 is included under the caption "Proposal 2. Ratification of Selection of Independent Registered Public Accounting Firm for Fiscal 2019" in our 2019 Proxy Statement, which information is incorporated herein by reference.

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PART IV

Item 15. Exhibits and Financial Statement Schedules.

(a) 1. Financial Statements.

Our consolidated financial statements, together with the reports thereon of Ernst & Young LLP, our independent registered public accounting firm for the years ended December 31, 2018, 2017 and 2016, are set forth on pages 122 through 172 of this Form 10-K.

2. Financial Statement Schedules.

The Index to Financial Statements Schedules and the schedules related to our consolidated financial statements for the years ended December 31, 2018, 2017 and 2016, are set forth on pages 181 through 190 of this Form 10-K.

3. Exhibits.

See the Exhibit Index beginning on page 177 of this Form 10-K for a description of the exhibits filed as part of, or incorporated by reference in, this Form 10-K.

Item 16. Form 10-K Summary.

None.

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EXHIBIT INDEX

Exhibit Number	Description
3.01	Restated Certificate of Incorporation of Alleghany, as amended by Amendment accepted and received for filing by the Secretary of State of the State of Delaware on June 23, 1988, filed as Exhibit 3.1 to Alleghany's Registration Statement on Form S-3 (No. 333-134996) filed on June 14, 2006, is incorporated herein by reference.
3.02	By-laws of Alleghany, as amended December 18, 2007, filed as Exhibit 3.2 to Alleghany's Current Report on Form 8-K filed on December 20, 2007, is incorporated herein by reference.
3.03	Certificate of Elimination of 5.75% Mandatory Convertible Preferred Stock of Alleghany filed as Exhibit 3.1 to Alleghany's Current Report on Form 8-K filed on July 22, 2009, is incorporated herein by reference.
4.01†	Specimen certificates representing shares of common stock, par value $1.00 per share, of Alleghany, filed as Exhibit 4.1 to Alleghany's Quarterly Report on Form 10-Q for the quarter ended June 30, 2006, is incorporated herein by reference.
4.02	Indenture, dated as of September 20, 2010, by and between Alleghany and The Bank of New York Mellon, as Trustee, filed as Exhibit 4.1 to Alleghany's Current Report on Form 8-K filed on September 20, 2010, is incorporated herein by reference.
4.03	First Supplemental Indenture, dated as of September 20, 2010, by and between Alleghany and The Bank of New York Mellon, as Trustee, including the form of the Senior Notes attached as Exhibit A thereto, filed as Exhibit 4.2 to Alleghany's Current Report on Form 8-K filed on September 20, 2010, is incorporated herein by reference.
4.04	Second Supplemental Indenture, dated as of June 26, 2012, by and between Alleghany and The Bank of New York Mellon, as Trustee, including the form of the Senior Notes attached as Exhibit A thereto, filed as Exhibit 4.1 to Alleghany's Current Report on Form 8-K filed on June 26, 2012, is incorporated herein by reference.
4.05	Third Supplemental Indenture, dated as of September 9, 2014, by and between Alleghany Corporation and the Bank of New York Mellon, as Trustee, including the form of the Senior Notes attached as Exhibit A thereto, filed as Exhibit 4.1 to Alleghany's Current Report on Form 8-K filed on September 9, 2014, is incorporated herein by reference.
*10.01	Alleghany 2015 Management Incentive Plan, filed as Exhibit 10.2 to Alleghany's Current Report on Form 8-K filed on April 24, 2015, is incorporated herein by reference.
*10.02	Alleghany Officers and Highly Compensated Employees Deferred Compensation Plan, as amended and restated as of December 31, 2014, filed as Exhibit 10.03 to Alleghany's Annual Report on Form 10-K for the year ended December 31, 2015, is incorporated herein by reference.
*10.03	Alleghany 2007 Long-Term Incentive Plan, adopted and effective April 27, 2007, as amended, filed as Exhibit 10.3 to Alleghany's Current Report on Form 8-K filed on December 18, 2008, is incorporated herein by reference.
*10.04(a)	Alleghany 2012 Long-Term Incentive Plan, adopted and effective April 27, 2012, filed as an appendix to Alleghany's Definitive Proxy Statement dated March 16, 2012, is incorporated herein by reference.
*10.04(b)	Form of Performance Share Award Agreement under the 2012 Long-Term Incentive Plan, filed as Exhibit 10.06(b) to Alleghany's Annual Report on Form 10-K for the year ended December 31, 2012, is incorporated herein by reference.
*10.04(c)	Form of Restricted Stock Unit Award Agreement under the 2012 Long-Term Incentive Plan, filed as Exhibit 10.06(c) to Alleghany's Annual Report on Form 10-K for the year ended December 31, 2012, is incorporated herein by reference.
*10.05(a)	Alleghany 2017 Long-Term Incentive Plan, adopted and effective April 28, 2017, filed as an appendix to Alleghany's Definitive Proxy Statement dated March 17, 2017, is incorporated herein by reference.
*10.05(b)	Form of Performance Share Award Agreement under the 2017 Long-Term Incentive Plan, filed as Exhibit 10.05(b) to Alleghany's Annual Report on Form 10-K for the year ended December 31, 2017, is incorporated by reference.
*10.05(c)	Form of Restricted Stock Unit Award Agreement under the 2017 Long-Term Incentive Plan, filed as Exhibit 10.05(c) to Alleghany's Annual Report on Form 10-K for the year ended December 31, 2017, is incorporated by reference.

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Exhibit Number	Description
*10.06	Alleghany Retirement Plan, as amended, effective December 31, 2015, filed as Exhibit 10.06 to Alleghany's Annual Report on Form 10-K for the year ended December 31, 2015, is incorporated herein by reference.
*10.07	Description of Alleghany Group Long Term Disability Plan effective July 1, 1995, filed as Exhibit 10.10 to Alleghany's Annual Report on Form 10-K for the year ended December 31, 1995, is incorporated herein by reference.
*10.08	Alleghany Non-Employee Directors' Retirement Plan, as amended, effective December 19, 2006, filed as Exhibit 10.1 to Alleghany's Current Report on Form 8-K filed on December 22, 2006, is incorporated herein by reference.
*10.09(a)	Alleghany 2005 Directors' Stock Plan, as amended as of December 31, 2008, filed as Exhibit 10.12(a) to Alleghany's Annual Report on Form 10-K for the year ended December 31, 2008, is incorporated herein by reference.
*10.09(b)	Form of Option Agreement under the Alleghany 2005 Directors' Stock Plan, as amended as of December 16, 2008, filed as Exhibit 10.12(b) to Alleghany's Annual Report on Form 10-K for the year ended December 31, 2008, is incorporated herein by reference.
*10.09(c)	Amended and Restated Stock Unit Supplement to the Alleghany 2005 Directors' Stock Plan, as amended as of December 16, 2008, filed as Exhibit 10.12(c) to Alleghany's Annual Report on Form 10-K for the year ended December 31, 2008, is incorporated herein by reference.
*10.10	Alleghany Amended and Restated 2010 Directors' Stock Plan, filed as Exhibit 10.1 to Alleghany's Quarterly Report on Form 10-Q for the quarter ended March 31, 2013, is incorporated herein by reference.
*10.11	Alleghany 2015 Directors' Stock Plan, filed as Exhibit 10.1 to Alleghany's Current Report on Form 8-K filed on April 24, 2015, is incorporated herein by reference.
*10.12(a)	Employment Agreement, dated October 7, 2002, between Alleghany and Weston M. Hicks, filed as Exhibit 10.1 to Alleghany's Quarterly Report on Form 10-Q for the quarter ended September 30, 2002, is incorporated herein by reference.
*10.12(b)	Restricted Stock Unit Matching Grant Agreement, dated October 7, 2002, between Alleghany and Weston M. Hicks, filed as Exhibit 10.3 to Alleghany's Quarterly Report on Form 10-Q for the quarter ended September 30, 2002, is incorporated herein by reference.
*10.12(c)	Letter Agreement, dated April 15, 2008, between Alleghany and Weston M. Hicks, filed as Exhibit 10.1 to Alleghany's Current Report on Form 8-K filed on April 21, 2008, is incorporated herein by reference.
*10.13(a)	Letter Agreement, dated as of November 20, 2011, by and between Alleghany and Joseph P. Brandon, filed as Exhibit 10.2 to Alleghany's Quarterly Report on Form 10-Q for the quarter ended March 31, 2012, is incorporated herein by reference.
*10.13(b)	Restricted Stock Unit Matching Grant Agreement, dated as of March 6, 2012, between Alleghany and Joseph P. Brandon, filed as Exhibit 10.3 to Alleghany's Quarterly Report on Form 10-Q for the quarter ended March 31, 2012, is incorporated herein by reference.
*10.13(c)	Success Shares Award Agreement, dated as of March 6, 2012, between Alleghany and Joseph P. Brandon, filed as Exhibit 10.4 to Alleghany's Quarterly Report on Form 10-Q for the quarter ended March 31, 2012, is incorporated herein by reference.
*10.14	Letter Agreement, dated as of February 21, 2013, between Alleghany Corporation and Roger B. Gorham, filed as Exhibit 10.1 to Alleghany's Current Report on Form 8-K filed on February 26, 2013, is incorporated herein by reference.
10.15(a)	Credit Agreement, dated as of July 31, 2017, among the Company, the lenders which are signatories thereto and U.S. Bank National Association, as administrative agent for the Lenders (the "Credit Agreement"), filed as Exhibit 10.1(a) to Alleghany's Current Report on Form 8-K filed on August 1, 2017, is incorporated herein by reference.
10.15(b)	List of Contents of Exhibits and Schedules to the Credit Agreement, filed as Exhibit 10.1(b) to Alleghany's Current Report on Form 8-K filed on August 1, 2017, is incorporated herein by reference. Alleghany agrees to furnish supplementally a copy of any omitted exhibit or schedule to the Securities and Exchange Commission upon request.

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Exhibit Number	Description
21	List of subsidiaries of Alleghany.
23.1	Consent of Ernst & Young LLP, independent registered public accounting firm, to the incorporation by reference of its reports relating to the financial statements, the related schedules of Alleghany and subsidiaries and its attestation report.
31.1	Certification of the Chief Executive Officer of the Company pursuant to Rule 13a-14(a) or Rule 15(d)-14(a) of the Exchange Act.
31.2	Certification of the Chief Financial Officer of the Company pursuant to Rule 13a-14(a) or Rule 15(d)-14(a) of the Exchange Act.
32.1	Certification of the Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. This exhibit shall not be deemed "filed" as a part of this Form 10-K.
32.2	Certification of the Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002. This exhibit shall not be deemed "filed" as a part of this Form 10-K.
101.1	Interactive Data Files formatted in XBRL (Extensible Business Reporting Language): (i) Consolidated Balance Sheets as of December 31, 2018 and 2017; (ii) Consolidated Statements of Earnings and Comprehensive Income for the years ended December 31, 2018, 2017 and 2016; (iii) Consolidated Statements of Changes in Stockholders' Equity for the years ended December 31, 2018, 2017 and 2016; (iv) Consolidated Statements of Cash Flows for the years ended December 31, 2018, 2017 and 2016; and (v) Notes to Consolidated Financial Statements.

* Management contract or a compensatory plan or arrangement.

† Pursuant to Item 601(b)(4)(iii) of Regulation S-K, certain instruments defining the rights of holders of long-term debt securities of Alleghany and its consolidated subsidiaries are not filed because the total amount of securities authorized under such instruments does not exceed 10 percent of the total assets of Alleghany and its subsidiaries on a consolidated basis. A copy of such instruments will be furnished to the Securities and Exchange Commission upon request.

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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.

ALLEGHANY CORPORATION

(Registrant)

Date: February 20, 2019 By: /s/ WESTON M. HICKS
Weston M. Hicks
President

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.

Date: February 20, 2019 By: /s/ JERRY G. BORRELLI
Jerry G. Borrelli
Vice President (principal accounting officer)

Date: February 20, 2019 By: /s/ KAREN BRENNER
Karen Brenner
Director

Date: February 20, 2019 By: /s/ IAN H. CHIPPENDALE
Ian H. Chippendale
Director

Date: February 20, 2019 By: /s/ JOHN G. FOOS
John G. Foos
Director

Date: February 20, 2019 By: /s/ WESTON M. HICKS
Weston M. Hicks
President and Director (principal executive officer)

Date: February 20, 2019 By: /s/ JEFFERSON W. KIRBY
Jefferson W. Kirby
Chairman of the Board and Director

Date: February 20, 2019 By: /s/ WILLIAM K. LAVIN
William K. Lavin
Director

Date: February 20, 2019 By: /s/ PHILLIP M. MARTINEAU
Phillip M. Martineau
Director

Date: February 20, 2019 By: /s/ JOHN L. SENNOTT, JR.
John L. Sennott, Jr.
Senior Vice President (principal financial officer)

Date: February 20, 2019 By: /s/ LAUREN M. TYLER
Lauren M. Tyler
Director

Date: February 20, 2019 By: /s/ RAYMOND L.M. WONG
Raymond L.M. Wong
Director

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Alleghany Corporation and Subsidiaries

Index to Financial Statement Schedules

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Schedule I – Summary of Investments – Other Than Investments in Related Parties
ALLEGHANY CORPORATION AND SUBSIDIARIES
December 31, 2018

Type of Investment	Cost or Amortized Cost	Fair Value	Amount at which shown in the Balance Sheet
		($ in millions)	
Fixed maturities:			
Bonds:			
U.S. Government obligations	$ 1,042.4	$ 1,022.4	$ 1,022.4
Municipal bonds	2,177.5	2,214.7	2,214.7
Foreign government obligations	939.0	947.9	947.9
U.S. corporate bonds	2,431.4	2,385.3	2,385.3
Foreign corporate bonds	1,363.0	1,353.3	1,353.3
Mortgage and asset-backed securities:			
RMBS	1,392.4	1,387.9	1,387.9
CMBS	536.9	533.3	533.3
Other asset-backed securities	2,013.3	1,979.2	1,979.2
Fixed maturities	11,895.9	11,824.0	11,824.0
Equity securities:			
Common stocks:			
Public utilities	-	-	-
Banks, trust and insurance companies	346.0	493.7	493.7
Industrial, miscellaneous and all other	2,551.0	3,073.7	3,073.7
Nonredeemable preferred stocks	7.5	5.4	5.4
Equity securities	2,904.5	3,572.8	3,572.8
Commercial mortgage loans	676.5	676.5	676.5
Other invested assets	556.0	556.0	556.0
Short-term investments	893.8	893.8	893.8
Total investments	$ 16,926.7	$ 17,523.1	$ 17,523.1

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Schedule II – Condensed Financial Information of Registrant
Condensed Balance Sheets
ALLEGHANY CORPORATION
December 31, 2018 and 2017

	2018	2017
	($ in thousands)	
Assets		
Equity securities (cost: 2018 – $47,546; 2017 – $397,906)	$ 64,121	$ 438,355
Debt securities (amortized cost: 2018 – $90; 2017 – $26,236)	90	26,572
Short-term investments	287,573	91,590
Other invested assets	79,266	76,953
Cash	331	21,280
Property and equipment at cost, net of accumulated depreciation and amortization	4,588	5,101
Other assets	8,303	5,518
Net deferred tax assets	13,956	14,454
Investment in subsidiaries	8,491,404	9,119,885
Total assets	$ 8,949,632	$ 9,799,708
Liabilities, Redeemable Noncontrolling Interests and Stockholders' Equity		
Senior notes	$ 993,286	$ 992,331
Other liabilities	87,489	119,852
Current taxes payable	6,385	66,932
Total liabilities	1,087,160	1,179,115
Redeemable noncontrolling interests	169,762	106,530
Stockholders' equity attributable to Alleghany stockholders	7,692,710	8,514,063
Total liabilities, redeemable noncontrolling interests and stockholders' equity	$ 8,949,632	$ 9,799,708

See accompanying Notes to Condensed Financial Statements

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Condensed Statements of Earnings
ALLEGHANY CORPORATION
Year ended December 31,

	2018	2017	2016
		($ in thousands)	
Revenues			
Net investment income	$ 16,548	$ 13,659	$ 7,688
Change in the fair value of equity securities	(44,780)	-	-
Net realized capital gains	(265)	3,326	(10,674)
Other than temporary impairment losses	-	-	-
Noninsurance revenue	64	683	159
Total revenues	(28,433)	17,668	(2,827)
Costs and Expenses			
Interest expense	53,121	52,103	52,470
Corporate administration	17,565	45,308	42,035
Total costs and expenses	70,686	97,411	94,505
Operating (losses)	(99,119)	(79,743)	(97,332)
Equity in earnings of consolidated subsidiaries	138,711	116,433	745,137
Earnings before income taxes	39,592	36,690	647,805
Income taxes	(15,062)	(63,802)	187,141
Net earnings	54,654	100,492	460,664
Net earnings attributable to noncontrolling interest	15,115	10,359	3,743
Net earnings attributable to Alleghany stockholders	$ 39,539	$ 90,133	$ 456,921

See accompanying Notes to Condensed Financial Statements

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Condensed Statements of Cash Flows
ALLEGHANY CORPORATION
Year ended December 31,

	2018	2017	2016
		($ in thousands)	
Cash flows from operating activities			
Net earnings	$ 54,654	$ 100,492	$ 460,664
Adjustments to reconcile net earnings to net cash provided by (used in) operating activities:			
Equity in undistributed net (earnings) losses of consolidated subsidiaries	(130,050)	(154,577)	(524,201)
Depreciation and amortization	1,750	1,916	2,035
Change in the fair value of equity securities	44,780	-	-
Net realized capital (gains) losses	265	(3,326)	10,674
Other than temporary impairment losses	-	-	-
Increase (decrease) in other liabilities and taxes payable	(84,803)	25,040	14,677
Net adjustments	(168,058)	(130,947)	(496,815)
Net cash (used in) provided by operating activities	(113,404)	(30,455)	(36,151)
Cash flows from investing activities			
Purchases of equity securities	(31,125)	(1,427,194)	(132,129)
Purchases of debt securities	(3,418)	-	-
Sales of debt securities	29,189	4,909	-
Maturities and redemptions of debt securities	53	73	73
Sales of equity securities	360,579	1,213,974	166,634
Net (purchase) sale of short-term investments	(195,983)	143,920	(152,375)
Purchases of property and equipment	-	(76)	(5,779)
Other, net	(4,926)	(35,182)	(37,600)
Net cash (used in) provided by investing activities	154,369	(99,576)	(161,176)
Treasury stock acquisitions	(491,633)	(16,048)	(68,320)
Cash dividends paid	(153,967)	-	-
Capital contributions to consolidated subsidiaries	(175,653)	(245,000)	(163,732)
Distributions from consolidated subsidiaries	751,471	405,000	434,900
Other, net	7,868	1,220	(1,859)
Net cash provided by (used in) financing activities	(61,914)	145,172	200,989
Net (decrease) increase in cash	(20,949)	15,141	3,662
Cash at beginning of period	21,280	6,139	2,477
Cash at end of period	$ 331	$ 21,280	$ 6,139
Supplemental disclosures of cash flow information			
Cash paid during the period for:			
Interest paid	$ 51,375	$ 51,375	$ 51,375
Income taxes paid (refunds received)	(8,338)	8,140	37,220

See accompanying Notes to Condensed Financial Statements

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Notes to Condensed Financial Statements
ALLEGHANY CORPORATION

1. Investment in Consolidated Subsidiaries. Reference is made to Note 1 to the Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K.

2. Adoption of New Accounting Guidance. Reference is made to Note 1 to the Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K.

3. Income Taxes. Reference is made to Note 9 to the Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K.

4. Commitments and Contingencies. Reference is made to Note 12 to the Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K.

5. Stockholders' Equity. Reference is made to Note 10 to the Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K with respect to stockholders' equity and surplus available for dividend payments to Alleghany from its subsidiaries.

6. Senior Notes. Reference is made to Note 8 to the Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K.

7. Credit Agreement. Reference is made to Note 7 to the Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K.

8. Long-Term Compensation Plans. Reference is made to Note 14 to the Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K.

9. Employee Retirement Benefit Plans. Reference is made to Note 15 to the Consolidated Financial Statements set forth in Part II, Item 8, "Financial Statements and Supplementary Data" of this Form 10-K.

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Schedule III – Supplemental Insurance Information
ALLEGHANY CORPORATION AND SUBSIDIARIES

		At December 31,				For the Year Ended December 31,					
Year	Line of Business	Deferred Policy Acquisition Cost	Future Policy Benefits, Losses, Claims and Loss Expenses	Unearned Premiums	Other Policy Claims and Benefits Payable	Premium Revenue	Net Investment Income	Benefits, Claims, Losses and Settlement Expenses	Amortization of Deferred Policy Acquisition Costs	Other Operating Expenses	Premiums Written
		($ in millions)									
2018	Property and Casualty Insurance	$ 464.5	$ 12,250.3	$ 2,267.1	$ -	$ 4,976.2	$ 480.9	$ 3,520.4	$ 1,271.4	$ 345.9	$ 5,048.4
2017	Property and Casualty Insurance	$ 453.3	$ 11,871.3	$ 2,182.3	$ -	$ 4,955.0	$ 434.6	$ 3,620.2	$ 1,261.7	$ 389.5	$ 4,965.9
2016	Property and Casualty Insurance	$ 448.6	$ 11,087.2	$ 2,175.5	$ -	$ 4,975.8	$ 433.1	$ 2,917.2	$ 1,253.2	$ 404.1	$ 5,091.8

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Schedule IV – Reinsurance
ALLEGHANY CORPORATION AND SUBSIDIARIES
Year ended December 31,

Year	Line of Business	Gross Amount	Ceded to Other Companies	Assumed from Other Companies	Net Amount	Percentage of Amount Assumed to Net
		($ in millions)				
2018	Property and casualty	$ 1,935.3	$ 840.5	$ 3,881.4	$ 4,976.2	78.0%
2017	Property and casualty	$ 1,932.0	$ 767.3	$ 3,790.3	$ 4,955.0	76.5%
2016	Property and casualty	$ 1,871.1	$ 729.2	$ 3,833.9	$ 4,975.8	77.1%

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Schedule V – Valuation and Qualifying Accounts
ALLEGHANY CORPORATION AND SUBSIDIARIES

Year	Description	Balance at January 1,	Charged to Costs and Expenses	Charged to Other Accounts	Deductions	Balance at December 31,
				($ in millions)		
2018	Allowance for uncollectible reinsurance recoverables	$ -	$ -	$ -	$ -	$ -
	Allowance for uncollectible premiums receivable	$ 0.5	$ 0.7	$ -	$ 0.8	$ 0.4
2017	Allowance for uncollectible reinsurance recoverables	$ -	$ -	$ -	$ -	$ -
	Allowance for uncollectible premiums receivable	$ 1.0	$ 0.8	$ -	$ 1.3	$ 0.5
2016	Allowance for uncollectible reinsurance recoverables	$ -	$ -	$ -	$ -	$ -
	Allowance for uncollectible premiums receivable	$ 0.8	$ 1.2	$ -	$ 1.0	$ 1.0

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SCHEDULE VI – Supplemental Information Concerning Insurance Operations
ALLEGHANY CORPORATION AND SUBSIDIARIES

		At December 31,				For the Year Ended December 31,						
								Claims and Claim Adjustment Expenses Incurred Related to				
Year	Line of Business	Deferred Policy Acquisition Cost	Reserves for Unpaid Claims and Claim Adjustment Expenses	Discount if Any Deducted, in Reserves for Unpaid Claims and Claim Adjustment Expenses	Unearned Premiums	Earned Premiums	Net Investment Income	Current Year	Prior Year	Amortization of Deferred Policy Acquisition Costs	Paid Claims and Claim Adjustment Expenses	Premiums Written
							($ in millions)					
2018	Property and Casualty Insurance	$ 464.5	$ 12,250.3	$ -	$ 2,267.1	$ 4,976.2	$ 480.9	$ 3,849.4	$ (329.0)	$ 1,271.4	$ 3,257.9	$ 5,048.4
2017	Property and Casualty Insurance	$ 453.3	$ 11,871.3	$ -	$ 2,182.3	$ 4,955.0	$ 434.6	$ 3,918.8	$ (298.6)	$ 1,261.7	$ 3,078.4	$ 4,965.9
2016	Property and Casualty Insurance	$ 448.6	$ 11,087.2	$ -	$ 2,175.5	$ 4,975.8	$ 433.1	$ 3,285.2	$ (368.0)	$ 1,253.2	$ 2,600.8	$ 5,091.8