UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

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

For the fiscal year ended December 31, 2021

OR

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

For the transition period from to
Commission File No. 001-14428

RENAISSANCERE HOLDINGS LTD.
(Exact Name Of Registrant As Specified In Its Charter)

Bermuda	**98-0141974**
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification Number)

Renaissance House, 12 Crow Lane, Pembroke HM 19 Bermuda
(Address of Principal Executive Offices)

(441) 295-4513
(Registrant's telephone number)

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

Title of each class	Trading symbol	Name of each exchange on which registered
Common Shares, Par Value $1.00 per share	RNR	New York Stock Exchange
Depositary Shares, each representing a 1/1,000th interest in a Series F 5.750% Preference Share, Par Value $1.00 per share	RNR PRF	New York Stock Exchange
Depositary Shares, each representing a 1/1,000th interest in a Series G 4.20% Preference Share, Par Value $1.00 per share	RNR PRG	New York Stock Exchange

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

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

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 o No x

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 x No o

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 x No o

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, as defined in Rule 12b-2 of the Act. Large accelerated filer x, Accelerated filer o, Non-accelerated filer o, 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. o

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

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

The aggregate market value of Common Shares held by nonaffiliates of the registrant at June 30, 2021 was $7.1 billion based on the closing sale price of the Common Shares on the New York Stock Exchange on that date.

The number of Common Shares, par value US $1.00 per share, outstanding at February 2, 2022 was 43,982,413.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement for the 2022 Annual General Meeting of Shareholders are incorporated by reference into Part III of this report.

RENAISSANCERE HOLDINGS LTD.
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NOTE ON FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K for the year ended December 31, 2021, of RenaissanceRe Holdings Ltd. contains forward-looking statements within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act. Forward-looking statements are necessarily based on estimates and assumptions that are inherently subject to significant business, economic and competitive uncertainties and contingencies, many of which, with respect to future business decisions, are subject to change. These uncertainties and contingencies can affect actual results and could cause actual results to differ materially from those expressed in any forward-looking statements made by, or on behalf of, us. In particular, statements using words such as “may,” “should,” “estimate,” “expect,” “anticipate,” “intend,” “believe,” “predict,” “potential,” or words of similar import generally involve forward-looking statements. For example, we may include certain forward-looking statements in “Management’s Discussion and Analysis of Financial Condition and Results of Operations” with regard to trends in results, prices, volumes, operations, investment results, margins, combined ratios, fees, reserves, market conditions, risk management and exchange rates. This Form 10-K also contains forward-looking statements with respect to our business and industry, such as those relating to our strategy and management objectives, market standing and product volumes, competition and new entrants in our industry, industry capital, insured losses from loss events, government initiatives and regulatory matters affecting the reinsurance and insurance industries.

The inclusion of forward-looking statements in this report should not be considered as a representation by us or any other person that our current objectives or plans will be achieved. Numerous factors could cause our actual results to differ materially from those addressed by the forward-looking statements, including the following:

- our exposure to natural and non-natural catastrophic events and circumstances and the variance they may cause in our financial results;
- the effect of climate change on our business, including the trend towards increasingly frequent and severe climate events;
- the effectiveness of our claims and claim expense reserving process;
- the effect of emerging claims and coverage issues;
- the highly competitive nature of our industry, resulting in consolidation of competitors, customers and (re)insurance brokers, and our reliance on a small and decreasing number of brokers;
- the historically cyclical nature of the (re)insurance industries;
- collection on claimed retrocessional coverage, and new retrocessional reinsurance being available on acceptable terms;
- the ability of our ceding companies and delegated authority counterparties to accurately assess the risks they underwrite;
- our ability to maintain our financial strength ratings;
- the impact of large non-recurring contracts and reinstatement premiums on our financial results;
- our ability to attract and retain key executives and employees;
- the effect of cybersecurity risks, including technology breaches or failure;
- the performance of our investment portfolio and financial market volatility;
- the effects of inflation;
- our ability to successfully implement our business, strategies and initiatives, and the success of any of our strategic investments or acquisitions, including our ability to manage our operations as our product and geographical diversity increases;
- our exposure to credit loss from counterparties;
- our need to make many estimates and judgments in the preparation of our financial statements;
- our ability to effectively manage capital on behalf of investors in joint ventures or other entities we manage;

- changes to the accounting rules and regulatory systems applicable to our business, including changes in Bermuda laws or regulations or as a result of increased global regulation of the insurance and reinsurance industries;
- other political, regulatory or industry initiatives adversely impacting us;
- our ability to comply with covenants in our debt agreements;
- a contention by the IRS that any of our Bermuda subsidiaries are subject to taxation in the U.S.;
- the effects of possible future tax reform legislation and regulations, including changes to the tax treatment of our shareholders or investors in our joint ventures or other entities we manage;
- our ability to determine any impairments taken on our investments;
- the uncertainty of the continuing and future impact of the COVID-19 pandemic, including measures taken in response thereto and the effect of legislative, regulatory and judicial influences on our potential reinsurance, insurance and investment exposures, or other effects that it may have;
- foreign currency exchange rate fluctuations;
- our ability to raise capital if necessary;
- our ability to comply with applicable sanctions and foreign corrupt practices laws;
- our dependence on the ability of our operating subsidiaries to declare and pay dividends;
- aspects of our corporate structure that may discourage third-party takeovers and other transactions; and
- difficulties investors may have in serving process or enforcing judgments against us in the U.S.

As a consequence, our future financial condition and results may differ from those expressed in any forward-looking statements made by or on behalf of us. The factors listed above, which are discussed in more detail in “Part I, Item 1A. Risk Factors,” in this Form 10-K, should not be construed as exhaustive. Forward-looking statements speak only as of the date they are made, and we undertake no obligation to revise or update forward-looking statements to reflect new information, events or circumstances after the date hereof or to reflect the occurrence of unanticipated events.

PART I

ITEM 1. BUSINESS

In this Form 10-K, references to “RenaissanceRe” refer to RenaissanceRe Holdings Ltd. (the parent company) and references to “we,” “us,” “our” and the “Company” refer to RenaissanceRe Holdings Ltd. together with its subsidiaries, unless the context requires otherwise.

Defined terms used throughout this Form 10-K are included in the “Glossary of Defined Terms” at the end of “Part I, Item 1. Business” of this Form 10-K. We have also included a “Glossary of Selected Insurance and Reinsurance Terms” at the end of “Part I, Item 1. Business” of this Form 10-K.

All dollar amounts referred to in this Form 10-K are in U.S. dollars unless otherwise indicated.

Due to rounding, numbers presented in the tables included in this Form 10-K may not add up precisely to the totals provided.

OVERVIEW

RenaissanceRe is a global provider of reinsurance and insurance. We provide property, casualty and specialty reinsurance and certain insurance solutions to customers, principally through intermediaries. Established in 1993, we have offices in Bermuda, Australia, Ireland, Singapore, Switzerland, the U.K., and the U.S. To best serve our clients in the places they do business, we have operating subsidiaries, branches, joint ventures, managed funds and underwriting platforms around the world. Our operating subsidiaries include Renaissance Reinsurance, Renaissance Reinsurance U.S., RenaissanceRe Specialty U.S., RREAG, Renaissance Reinsurance of Europe and our Lloyd’s syndicate, Syndicate 1458. We write property and casualty and specialty reinsurance through our wholly-owned operating subsidiaries, joint ventures, managed funds and Syndicate 1458 and certain insurance products primarily through Syndicate 1458 and RenaissanceRe Specialty U.S. Syndicate 1458 provides us with access to Lloyd’s extensive distribution network and worldwide licenses, and also writes business through delegated authority arrangements. We also underwrite reinsurance on behalf of joint ventures, including DaVinci, Top Layer Re, Upsilon RFO and Vermeer. In addition, through Medici, we invest in various insurance-based investment instruments that have returns primarily tied to property catastrophe risk.

Our mission is to match desirable, well-structured risks with efficient sources of capital to achieve our vision of being the best underwriter. We believe that this will allow us to produce superior returns for our shareholders over the long term, and to protect communities and enable prosperity. We seek to accomplish these goals by being a trusted, long-term partner to our customers for assessing and managing risk, delivering responsive and innovative solutions, leveraging our core capabilities of risk assessment and information management, investing in these core capabilities in order to serve our customers across market cycles, and keeping our promises. Our strategy focuses on superior risk selection, superior customer relationships and superior capital management. We provide value to our customers and joint venture and managed fund partners in the form of financial security, innovative products, and responsive service. We are known as a leader in paying valid claims promptly. We principally measure our financial success through long-term growth in tangible book value per common share plus the change in accumulated dividends. We believe this metric is the most appropriate measure of our financial performance, and in respect of which we believe we have delivered superior performance over time. The principal drivers of our profit are underwriting income, investment income, and fee income generated by our third-party capital management business.

Our core products include property, casualty and specialty reinsurance, and certain insurance products principally distributed through intermediaries, with whom we have cultivated strong long-term relationships. We believe we have been one of the world’s leading providers of catastrophe reinsurance since our founding. In recent years, through the strategic execution of several initiatives, including organic growth and acquisitions, we have expanded and diversified our casualty and specialty platform and products, and believe we are a leader in certain casualty and specialty lines of business.

Our current business strategy focuses predominantly on writing reinsurance, although as we grow our casualty and specialty and other property lines of business, we are increasingly writing excess and surplus lines insurance through delegated authority arrangements. We also pursue a number of other opportunities, such as creating and managing our joint ventures and managed funds, executing customized reinsurance transactions to assume or cede risk, and managing certain strategic investments directed at classes of risk other than catastrophe reinsurance. From time to time we consider diversification into new ventures, either through organic growth, the formation of new joint ventures or managed funds, or the acquisition of, or the investment in, other companies or books of business of other companies.

We have determined our business consists of the following reportable segments: (1) Property, which is comprised of catastrophe and other property (re)insurance written on behalf of our operating subsidiaries, joint ventures and managed funds, and (2) Casualty and Specialty, which is comprised of casualty and specialty (re)insurance written on behalf of our operating subsidiaries, joint ventures and managed funds. The underwriting results of our operating subsidiaries and underwriting platforms are included in our Property and Casualty and Specialty segment results as appropriate.

A meaningful portion of the reinsurance and insurance we write provides protection from damages relating to natural and man-made catastrophes. Our results depend to a large extent on the frequency and severity of these catastrophic events, and the coverages we offer to customers that are affected by these events. We are exposed to significant losses from these catastrophic events and other exposures we cover, which primarily impact our Property segment, in both the property catastrophe and other property lines of business. Accordingly, we expect a significant degree of volatility in our financial results and our financial results may vary significantly from quarter-to-quarter and from year-to-year, based on the level of insured catastrophic losses occurring around the world. Our Casualty and Specialty business, which represents approximately half of our gross premiums written annually, is an efficient use of capital that is generally less correlated with our Property business. It allows us to bring additional capacity to our clients, across a wider range of product offerings, while continuing to be good stewards of our shareholders' capital.

We continually explore appropriate and efficient ways to address the risk needs of our clients and the impact of various regulatory and legislative changes on our operations. We have created, and manage, multiple capital vehicles across several jurisdictions and may create additional risk bearing vehicles or enter into additional jurisdictions in the future. In addition, our differentiated strategy and capabilities position us to pursue bespoke or large solutions for clients, which may be non-recurring. This, and other factors including the timing of contract inception, could result in significant volatility of premiums in both our Property and Casualty and Specialty segments. As our product and geographical diversity increases, we may be exposed to new risks, uncertainties and sources of volatility.

CORPORATE STRATEGY

Our mission is to match desirable, well-structured risks with efficient sources of capital to achieve our vision of being the best underwriter. We believe that this will allow us to produce superior returns for our shareholders over the long term, and to protect communities and enable prosperity. Our strategy for achieving these objectives, which is supported by our core values, our principles and our culture, is to operate an integrated system of what we believe are our three competitive advantages: *superior customer relationships*, *superior risk selection* and *superior capital management*. We believe all three competitive advantages are required to achieve our objectives, and we aim to seamlessly coordinate the delivery of these competitive advantages for the benefit of our shareholders, ceding insurers, brokers, investors in our joint ventures and managed funds, and other stakeholders.

Superior Customer Relationships. We aim to be a trusted long-term partner to our customers for assessing and managing risk and delivering responsive solutions. We believe our modeling and technical expertise, our risk management products, and our track record of keeping our promises have made us a provider of first choice in many lines of business to our customers worldwide. We seek to offer stable, predictable and consistent risk-based pricing and a prompt turnaround on claims.

Superior Risk Selection. We aim to build a portfolio of risks that produces an attractive risk-adjusted return on utilized capital. We develop a perspective of each risk using both our underwriters' expertise and sophisticated risk selection techniques, including computer models and databases such as REMS©. We pursue a disciplined approach to underwriting and seek to select only those risks that we believe will produce a portfolio with an attractive return, subject to prudent risk constraints. We manage our portfolio of risks dynamically, both within sub-portfolios and across the Company.

Superior Capital Management. We aim to write as much attractively priced business as is accessible to us and then manage our capital accordingly. We generally look to raise capital when we forecast increased demand in the market, at times by accessing capital through joint ventures or other structures, and return capital to our shareholders or joint venture investors when the demand for our coverages appears to decline and when we believe a return of capital would be beneficial to our shareholders or joint venture and managed fund investors. In using joint ventures and managed funds, we aim to leverage our access to business and our underwriting capabilities on an efficient capital base, develop fee income, generate profit commissions, diversify our portfolio, and provide attractive risk-adjusted returns to our capital providers. We also routinely evaluate and review potential joint venture and managed fund opportunities and strategic investments.

We believe we are well positioned to fulfill our objectives by virtue of the experience and skill of our management team, our integrated and flexible underwriting and operating platform, our significant financial strength, our strong relationships with brokers and customers, our commitment to superior service and our proprietary modeling technology. In particular, we believe our strategy, high performance culture, and commitment to our customers and joint venture and managed fund partners help us to differentiate ourselves by offering specialized services and products at times and in markets where capacity and alternatives may be limited.

SEGMENTS

Our reportable segments are defined as follows: (1) Property, which is comprised of catastrophe and other property (re)insurance written on behalf of our operating subsidiaries, joint ventures and managed funds; and (2) Casualty and Specialty, which is comprised of casualty and specialty (re)insurance written on behalf of our operating subsidiaries, joint ventures and managed funds. In addition to our two reportable segments, we have an Other category, which primarily includes our strategic investments, investments unit, corporate expenses, capital servicing costs, noncontrolling interests and certain expenses related to acquisitions and dispositions.

The following table shows gross premiums written allocated between our segments. Operating results relating to our segments are included in “Part II, Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations.”

Year ended December 31,	2021		2020		2019	
(in thousands, except percentages)	Gross Premiums Written	Percentage of Gross Premiums Written	Gross Premiums Written	Percentage of Gross Premiums Written	Gross Premiums Written	Percentage of Gross Premiums Written
Property	$ 3,958,724	50.5 %	$ 2,999,142	51.7 %	$ 2,430,985	50.6 %
Casualty and Specialty	3,875,074	49.5 %	2,807,023	48.3 %	2,376,765	49.4 %
Total gross premiums written	$ 7,833,798	100.0 %	$ 5,806,165	100.0 %	$ 4,807,750	100.0 %

We write proportional business as well as excess of loss business. In addition, Syndicate 1458 and RenaissanceRe Specialty U.S. write insurance business through delegated authority arrangements, which are included in our Property and Casualty and Specialty segments, as appropriate. Our relative mix of business between proportional business and excess of loss business has fluctuated in the past and will likely vary in the future. Proportional and delegated authority business typically have relatively higher premiums per unit of expected underwriting income, together with a higher acquisition expense ratio and combined ratio, than traditional excess of loss reinsurance, as these coverages tend to be exposed to relatively more attritional, and frequent, losses while being subject to less expected severity.

The following table shows gross premiums written allocated between excess of loss, proportional and delegated authority for each of our segments:

Year ended December 31, 2021		Property		Casualty and Specialty		Total
(in thousands)						
Excess of loss	$	2,485,999	$	663,749	$	3,149,748
Proportional		924,342		2,853,339		3,777,681
Delegated authority		548,383		357,986		906,369
Total gross premiums written	$	3,958,724	$	3,875,074	$	7,833,798
Year ended December 31, 2020						
(in thousands)						
Excess of loss	$	2,075,961	$	626,468	$	2,702,429
Proportional		656,653		1,925,884		2,582,537
Delegated authority		266,528		254,671		521,199
Total gross premiums written	$	2,999,142	$	2,807,023	$	5,806,165
Year ended December 31, 2019						
(in thousands)						
Excess of loss	$	1,758,787	$	508,515	$	2,267,302
Proportional		546,405		1,583,554		2,129,959
Delegated authority		125,793		284,696		410,489
Total gross premiums written	$	2,430,985	$	2,376,765	$	4,807,750

Property Segment

Our Property segment includes our catastrophe class of business, principally comprised of excess of loss reinsurance and excess of loss retrocessional reinsurance to insure insurance and reinsurance companies against natural and man-made catastrophes. It also includes our other property class of business, primarily comprised of proportional reinsurance, property per risk, property (re)insurance, binding facilities and regional U.S. multi-line reinsurance, certain of which have exposure to natural and man-made catastrophes. The following table shows gross premiums written in our Property segment allocated by class of business:

Year ended December 31,	2021			2020			2019		
(in thousands, except percentages)		Gross Premiums Written	Percentage of Gross Premiums Written		Gross Premiums Written	Percentage of Gross Premiums Written		Gross Premiums Written	Percentage of Gross Premiums Written
Catastrophe	$	2,235,736	56.5 %	$	1,886,785	62.9 %	$	1,595,472	65.6 %
Other property		1,722,988	43.5 %		1,112,357	37.1 %		835,513	34.4 %
Total Property segment gross premiums written	$	3,958,724	100.0 %	$	2,999,142	100.0 %	$	2,430,985	100.0 %

We write catastrophe reinsurance and insurance coverage protecting against large natural catastrophes, such as earthquakes, hurricanes, typhoons and tsunamis, as well as claims arising from other natural and man-made catastrophes such as winter storms, freezes, floods, fires, windstorms, tornadoes, explosions and acts of terrorism. We offer this coverage to insurance companies and other reinsurers primarily on an excess of loss basis. This means we begin paying when our customers' claims from a catastrophe exceed a certain retained amount. We also offer proportional coverages and other structures on a catastrophe-exposed basis and may increase these offerings on an absolute or relative basis in the future. Recently, as our other property class of business has become a larger percentage of our Property segment gross premiums written, proportional coverage and business written through delegated authority arrangements have become larger percentages of our Property segment.

As noted above, our excess of loss property contracts generally cover all natural perils, and our predominant exposure under such coverage is to property damage. However, other risks, including business interruption and other non-property losses, may also be covered under our property reinsurance contracts when arising from a covered peril.

We offer our coverages on a worldwide basis. Because of the wide range of possible catastrophic events to which we are exposed, including the size of such events and the potential for multiple events to occur in the same time period, our property business is volatile and our financial condition and results of operations reflect this volatility. To moderate the volatility of our risk portfolio, we may increase or decrease our presence in the property business based on market conditions and our assessment of risk-adjusted pricing adequacy. We frequently purchase reinsurance or other protection for our own account for a number of reasons, including to optimize the expected outcome of our underwriting portfolio, to manage capital requirements for regulated entities and to reduce the financial impact that a large catastrophe or a series of catastrophes could have on our results.

Casualty and Specialty Segment

We write casualty and specialty reinsurance and insurance covering primarily targeted classes of business where we believe we have a sound basis for underwriting and pricing the risk we assume. This business is predominantly reinsurance, however our book of insurance business has been increasing in recent periods, and may continue to do so. The following table shows gross premiums written in our Casualty and Specialty segment aggregated by class of business:

Year ended December 31,	2021		2020		2019	
(in thousands, except percentages)	Gross Premiums Written	Percentage of Gross Premiums Written	Gross Premiums Written	Percentage of Gross Premiums Written	Gross Premiums Written	Percentage of Gross Premiums Written
General casualty (1)	$ 1,258,536	32.5 %	$ 904,594	32.2 %	$ 807,901	34.0 %
Professional liability (2)	1,283,864	33.1 %	836,120	29.8 %	650,750	27.4 %
Financial lines (3)	498,946	12.9 %	514,192	18.3 %	457,000	19.2 %
Other (4)	833,728	21.5 %	552,117	19.7 %	461,114	19.4 %
Total Casualty and Specialty segment gross premiums written	$ 3,875,074	100.0 %	$ 2,807,023	100.0 %	$ 2,376,765	100.0 %

(1) Includes automobile liability, casualty clash, employer's liability, umbrella or excess casualty, workers' compensation and general liability.

(2) Includes directors and officers, medical malpractice, and professional indemnity.

(3) Includes financial guaranty, mortgage guaranty, political risk, surety and trade credit.

(4) Includes accident and health, agriculture, aviation, cyber, energy, marine, satellite and terrorism. Lines of business such as regional multi-line and whole account may have characteristics of various other classes of business, and are allocated accordingly.

In recent years, we have expanded our Casualty and Specialty segment operations through organic growth initiatives and acquisitions, and we plan to continue to expand these operations over time if market conditions are appropriate.

Our Casualty and Specialty segment gross premiums written may be subject to significant volatility as certain lines of business in this segment can be influenced by a small number of relatively large transactions. We seek to underwrite these lines using a disciplined underwriting approach and sophisticated analytical tools. We generally target lines of business where we believe we can adequately quantify the risks assumed and provide coverage where we believe our underwriting is robust and the market is attractive. We also seek to identify market dislocations and write new lines of business whose risk and return characteristics are estimated to exceed our hurdle rates. Furthermore, we also seek to manage the correlations of this business with our overall portfolio. We believe that our underwriting and analytical capabilities have positioned us well to manage our casualty and specialty business.

We offer our casualty and specialty reinsurance products principally on a proportional basis, and we also provide excess of loss coverage. These products frequently include tailored features such as limits or sub-limits which we believe help us manage our exposures. Any liability exceeding, or otherwise not subject to, such limits reverts to the cedant. Our Casualty and Specialty segment frequently provides coverage for relatively large limits or exposures, and thus we are subject to potential significant claims volatility.

Our Casualty and Specialty segment also offers certain casualty insurance products through Syndicate 1458, including general liability, medical malpractice and professional liability. Syndicate 1458 also writes business through delegated authority arrangements.

As a result of our financial strength, we have the ability to offer significant capacity and, for select risks, we have made available significant limits. We believe these capabilities, the strength of our casualty and specialty underwriting team, and our demonstrated ability and willingness to pay valid claims are competitive advantages of our casualty and specialty business. While we believe that these and other initiatives will support growth in our Casualty and Specialty segment, we intend to continue to apply our disciplined underwriting approach.

Other

Our Other category primarily includes the results of: (1) our share of strategic investments in certain markets we believe offer attractive risk-adjusted returns or where we believe our investment adds value, and where, rather than assuming exclusive management responsibilities ourselves, we partner with other market participants; (2) our investment unit which manages and invests the funds generated by our consolidated operations; and (3) corporate expenses, certain expenses related to acquisitions and dispositions, capital servicing costs and noncontrolling interests.

Geographic Breakdown

Our exposures are generally diversified across geographic zones, but are also a function of market conditions and opportunities. Our largest exposure has historically been to the U.S. and Caribbean market, which represented 50.8% of our gross premiums written for the year ended December 31, 2021. A significant amount of our U.S. and Caribbean premium provides coverage against windstorms (mainly U.S. Atlantic hurricanes), earthquakes and other natural and man-made catastrophes.

The following table sets forth the amounts and percentages of our gross premiums written allocated to the territory of coverage exposure:

Year ended December 31,	2021		2020		2019	
(in thousands, except percentages)	Gross Premiums Written	Percentage of Gross Premiums Written	Gross Premiums Written	Percentage of Gross Premiums Written	Gross Premiums Written	Percentage of Gross Premiums Written
Property Segment						
U.S. and Caribbean	$ 2,257,088	28.8 %	$ 1,683,538	29.0 %	$ 1,368,205	28.4 %
Worldwide	1,188,737	15.2 %	889,917	15.3 %	643,744	13.4 %
Europe	253,678	3.2 %	189,587	3.3 %	182,544	3.8 %
Japan	114,981	1.5 %	102,228	1.8 %	90,328	1.9 %
Worldwide (excluding U.S.) (1)	34,742	0.4 %	62,058	1.1 %	79,393	1.7 %
Australia and New Zealand	69,188	0.9 %	40,243	0.7 %	32,203	0.7 %
Other	40,310	0.5 %	31,571	0.5 %	34,568	0.7 %
Total Property Segment	3,958,724	50.5 %	2,999,142	51.7 %	2,430,985	50.6 %
Casualty and Specialty Segment						
Worldwide	1,746,450	22.3 %	1,315,386	22.6 %	935,626	19.5 %
U.S. and Caribbean	1,721,663	22.0 %	1,248,981	21.5 %	1,071,170	22.3 %
Europe	217,721	2.8 %	121,369	2.1 %	227,178	4.7 %
Worldwide (excluding U.S.) (1)	108,376	1.4 %	56,225	1.0 %	25,291	0.5 %
Australia and New Zealand	29,001	0.4 %	12,429	0.2 %	34,053	0.7 %
Other	51,863	0.6 %	52,633	0.9 %	83,447	1.7 %
Total Casualty and Specialty Segment	3,875,074	49.5 %	2,807,023	48.3 %	2,376,765	49.4 %
Total gross premiums written	$ 7,833,798	100.0 %	$ 5,806,165	100.0 %	$ 4,807,750	100.0 %

(1) The category “Worldwide (excluding U.S.)” consists of contracts that cover more than one geographic region (other than the U.S.).

CAPITAL PARTNERS AND STRATEGIC INVESTMENTS

We pursue a number of other opportunities, including creating and managing our joint ventures and managed funds, executing structured reinsurance transactions to assume or cede risk and managing certain strategic investments.

Managed Joint Ventures and Managed Funds

We actively manage a number of joint ventures and managed funds which provide us with an additional presence in the market, enhance our client relationships and generate fee income and profit commissions. These joint ventures and managed funds allow us to leverage our access to business and our underwriting capabilities on a larger capital base. Currently, our principal joint ventures and managed funds include DaVinci, Top Layer Re, Medici, Upsilon RFO, Upsilon Fund and Vermeer.

DaVinci

DaVinci was established in 2001 and principally writes property catastrophe reinsurance and certain casualty and specialty reinsurance lines of business on a global basis. In accordance with DaVinci’s underwriting guidelines, we principally seek to construct for DaVinci a portfolio of short-tail reinsurance risks written primarily alongside Renaissance Reinsurance and certain other operating subsidiaries. From time to time, Renaissance Reinsurance or certain other operating subsidiaries write business for, and then cede it to, DaVinci. Third-party investors subscribe for the majority of the shares of DaVinciRe, DaVinci’s holding company. RUM, a wholly owned subsidiary of RenaissanceRe, acts as the exclusive underwriting manager for DaVinciRe in return for a management fee and a performance fee. Our noncontrolling economic ownership in DaVinciRe was 28.7% at December 31, 2021 (2020 - 21.4%).

Top Layer Re

Top Layer Re was established in 1999 and writes high excess non-U.S. property catastrophe reinsurance. Top Layer Re is owned 50% by State Farm and 50% by Renaissance Reinsurance. State Farm provides $3.9 billion of stop loss reinsurance coverage to Top Layer Re. Top Layer Re is managed by RUM in return for a management fee.

Medici

Medici is an exempted fund that was incorporated in Bermuda in 2009. Medici’s objective is to invest substantially all of its assets in various insurance-based investment instruments that have returns primarily correlated to property catastrophe risk. Third-party investors subscribe for the majority of the participating, non-voting common shares of Medici. RFM, a wholly owned subsidiary of RenaissanceRe, acts as the exclusive investment fund manager of Medici in return for a management fee. Our economic ownership in Medici was 14.7% at December 31, 2021 (2020 - 15.7%).

Upsilon RFO

In 2013, we formed a managed fund, Upsilon RFO, an exempted company incorporated in Bermuda and registered as a collateralized insurer, principally to provide additional capacity to the worldwide aggregate and per-occurrence primary and retrocessional property catastrophe excess of loss market. Upsilon RFO enhances our efforts to match desirable reinsurance risk with efficient capital through a strategic capital structure. Original business is written directly by Upsilon RFO under fully-collateralized reinsurance contracts capitalized through the sale of non-voting shares to us and Upsilon Fund, or, to a lesser extent, is written directly by Renaissance Reinsurance and then ceded to Upsilon RFO. As a segregated accounts company, Upsilon RFO is permitted to establish segregated accounts to invest in and hold identified pools of assets and liabilities. Each pool of assets and liabilities in each segregated account is ring-fenced from any claims from the creditors of Upsilon RFO’s general account and from the creditors of other segregated accounts within Upsilon RFO.

Upsilon Fund

We incorporated Upsilon Fund, an exempted company incorporated in Bermuda and registered as a segregated accounts company, in 2014. Upsilon Fund is registered as a Class A Professional fund and was formed to provide a fund structure through which third-party investors can invest in property reinsurance risk managed by us. Third-party investors purchase redeemable, non-voting preference shares linked to specific segregated accounts of Upsilon Fund and own 100% of these shares. Upsilon Fund is managed by RFM in return for a management fee and a performance fee. Currently, Upsilon Fund is invested in specific segregated accounts of Upsilon RFO.

Vermeer

In 2018, we formed Vermeer, an exempted company incorporated in Bermuda and registered as a Class 3B insurer, with PGGM, a Dutch pension fund manager. Vermeer provides capacity focused on risk remote layers in the U.S. property catastrophe market. Vermeer is managed by RUM in return for a management fee. We maintain majority voting control of Vermeer, while Stichting Pensioenfonds Zorg en Welzijn, a pension fund represented by PGGM, retains economic benefits.

Strategic Investments

We also pursue strategic investments where, rather than assuming exclusive management responsibilities ourselves, we partner with other market participants. These investments may be directed at classes of risk other than catastrophe reinsurance, and at times may also be directed at non-insurance risks, such as Insurtech opportunities. We find these investments attractive because of their expected returns, and because they provide us with diversification benefits and information and exposure to other aspects of the market. For example, we have a minority shareholding in Catalina Holdings (Bermuda) Ltd, a long-term consolidator in the non-life insurance/reinsurance run-off sector, which is accounted for at fair value and is included in other investments. Other examples of strategic investments include our investments in the Tower Hill Companies, which are accounted for under the equity method of accounting. We also have investments in Essent Group Ltd. and Trupanion Inc., which are accounted for at fair value and are included in equity investments trading.

The carrying value of these investments on our consolidated balance sheet, individually or in the aggregate, may differ significantly from the realized value we may ultimately attain. For example, we believe that our investments in the Tower Hill Companies, which are recorded under the equity method of accounting in our consolidated financial statements in accordance with GAAP, would attract a significantly higher valuation than what is currently recognized in our consolidated financial statements. However, under GAAP, we are prohibited from recording these investments at fair value. In addition, there is no liquid market for these investments.

Other Transactions

From time to time, we pursue other customized reinsurance and financing transactions. For example, we have participated in, and continuously analyze, other attractive opportunities in the market for insurance-linked securities and derivatives. We believe our products contain a number of customized features designed to fit the needs of our partners, as well as our risk management objectives.

NEW BUSINESS

From time to time we consider diversification into new ventures, either through organic growth, the formation of new joint ventures and managed funds, or the acquisition of, or investment in, other companies or books of business of other companies. This potential diversification includes opportunities to write targeted, additional classes of risk-exposed business, both directly for our own account and through new joint venture opportunities. We also regularly evaluate potential strategic opportunities we believe might utilize our skills, capabilities, proprietary technology and relationships to support possible expansion into further risk-related coverages, services and products. Generally, we focus on underwriting or trading risks where we believe reasonably sufficient data is available and our analytical abilities provide us with a competitive advantage.

We regularly review potential strategic transactions that might improve our portfolio of business, enhance or focus our strategies, expand our distribution or capabilities, or provide other benefits. In evaluating potential new ventures or investments, we generally seek an attractive estimated return on equity, the ability to develop or capitalize on a competitive advantage, and opportunities which we believe will not detract from our core operations. We believe that our ability to attract investment and operational opportunities is supported by our strong reputation and financial resources, and by the capabilities and track record of our Capital Partners and Strategic Investments teams.

COMPETITION

The markets in which we operate are highly competitive. Our competitors include independent reinsurance and insurance companies, subsidiaries, divisions and/or affiliates of globally recognized insurance companies, reinsurance divisions of certain insurance companies, domestic and international underwriting operations, such as managing general agents, as well as a range of other entities offering risk transfer protection on a collateralized or other non-traditional basis. As our business and the (re)insurance industry continue to evolve, we expect our competitors to evolve as well, and we may face competition from other non-traditional participants, such as technology or Insurtech companies, among others.

We believe that our principal competitors include traditional insurance and reinsurance companies such as Allied World Assurance Company, AG, Arch Capital Group Ltd., Argo Group, Ark Insurance Holdings Ltd., Aspen Insurance Holdings Limited, AXA XL, Axis Capital Holdings Limited, Chubb Limited, Conduit Holdings Limited, Convex Re Limited, Core Specialty Insurance Holdings, Inc., Everest Re Group, Ltd., Greenlight Reinsurance Ltd., Hamilton Re Ltd., James River Insurance Company, LGT Capital Partners Ltd., Odyssey Re Holdings Corp., PartnerRe Ltd., SiriusPoint Reinsurance Ltd., Sompo International, Transatlantic Reinsurance Company (a part of Alleghany Corporation), Validus Reinsurance Ltd. (a part of American International Group Inc.) and Watford Re Ltd. (a part of Arch Capital Group Ltd.).

Our principal competitors also include third-party capital managers such as Aeolus Re Ltd., AlphaCat Managers (a part of American International Group Inc.), Credit Suisse Insurance Linked Strategies, Fermat Capital Management, LLC, Elementum Advisors, LLC, Hudson Structured Capital Management, Leadenhall Capital Partners, LGT Capital Partners Ltd., Nephila Capital Ltd. (a part of Markel Corporation), Pillar Capital Management Limited and Securis Investment Partners LLC.

We also compete with certain Lloyd’s syndicates active in the London market, such as those managed by Beazley PLC, Hiscox Ltd., and Lancashire Holdings, as well as with several other industry participants, such as American International Group, Berkshire Hathaway Inc., the D. E. Shaw Group, Hannover Re AG, Ironshore Inc., Munich Reinsurance Company and Swiss Re Ltd.

Hedge funds, pension funds and endowments, investment banks, insurance exchanges and other capital market participants may also be active in the reinsurance market and the market for related risk, either through the formation of reinsurance companies (such as Aeolus Re Ltd., Fidelis Insurance Holdings Limited, Greenlight Reinsurance Ltd., Hamilton Re Ltd., and SiriusPoint Reinsurance Ltd.) or through the use of financial products, such as catastrophe bonds and other insurance-linked securities.

The tax policies of the countries where our customers operate, as well as government sponsored or backed insurance companies and catastrophe funds may also affect demand for reinsurance, sometimes significantly. Moreover, government-backed entities may represent competition for the coverages we provide, either directly or by competing for the business of our customers, thereby reducing the potential amount of third-party private protection our clients may need or desire.

RISK MANAGEMENT

Underwriting Risk Management

Our primary underwriting goal is to construct a portfolio of reinsurance and insurance contracts and other financial risks that maximizes our return on shareholders’ equity, subject to prudent risk constraints, and to generate long-term growth in tangible book value per common share plus the change in accumulated dividends. We assess each new (re)insurance contract on the basis of the expected incremental return relative to the incremental contribution to portfolio risk.

We have developed a proprietary pricing and exposure management system, REMS©, which has analytic and modeling capabilities that help us to assess the risk and return of each incremental (re)insurance contract in relation to our overall portfolio of (re)insurance contracts. We believe that REMS© is a robust underwriting and risk management system that has been successfully integrated into our business processes and culture. In conjunction with pricing models that we run outside of REMS©, the REMS© framework encompasses and facilitates risk capture, analysis, correlation, portfolio aggregation and capital allocation within a single system for all of our natural and non-natural hazards (re)insurance contracts. We continue to invest in and improve REMS©, incorporating our underwriting and modeling experience and adding proprietary software and industry data. We continually strive to improve our analytical techniques for both natural and non-natural hazard models in REMS©. Through organic and inorganic growth over the last ten years, we have developed our casualty and specialty modeling tools and capabilities in line with our business needs. We believe that the expertise and tools added throughout this period are state of the art and have been fully embedded in our underwriting processes.

We generally utilize a multiple model/method approach when evaluating a proposed transaction, combining both probabilistic and deterministic techniques. We combine the analyses generated by REMS© with other information and other model inputs available to us, including our own knowledge of the client submitting the proposed program, to assess the premium offered against the risk of loss and the cost of utilized capital which the program presents. The underlying risk models integrated into our underwriting and REMS© framework are a combination of internally constructed and commercially available models. We use commercially available models to assist with validating and stress testing our base model and REMS© results.

Before we bind a (re)insurance risk, exposure data, historical loss information and other risk data is gathered from customers. Using a combination of proprietary software, underwriting experience, actuarial techniques and engineering expertise, the exposure data is reviewed and augmented, as we deem appropriate. We use this data as primary inputs into the REMS© modeling system as a base to create risk distributions to represent the risk being evaluated. We believe that the REMS© modeling system helps us to analyze each policy on a consistent basis, assisting our determination of what we believe to be an appropriate price to charge for each policy based upon the risk to be assumed. In part, through the process described above and the utilization of REMS©, we seek to compare our estimate of the expected returns in respect of a contract with the amount of capital we notionally allocate to the contract based on our estimate of its marginal impact on our portfolio of risks. A key advantage of our REMS© framework is our ability to include additional perils, risks and geographic areas that may not be captured in commercially available natural hazards risk models. For instance, we believe that we are able to incorporate the risk of an increase in the frequency and severity of natural catastrophes due to climate change in our models more comprehensively than commercially available models.

We periodically review the estimates and assumptions that are reflected in REMS© and our other tools, driven either by new hazard science and understanding or by experience of loss events. For example, the movement in cedant loss estimates seen across the market in the months following Hurricane Irma prompted us to perform, in conjunction with several partner companies, a detailed review of the nature of the claims made as a result of that and subsequent events. We have reviewed the prevalence of “assignment of benefits” activity in underlying claims, as well as the impact of loss adjusting expenses and the costs associated with any litigation (often called social inflation), and this process has informed a change in our view of reinsurance risk based on observed behavioral norms. We continually monitor frequency and severity trends for our casualty lines of business, in particular emerging trends toward higher levels of social inflation. Where appropriate, we are able to shift our business mix away from classes and industry sectors that are particularly sensitive to higher social inflation trends. More generally our team of scientists at RenaissanceRe Risk Sciences Inc. have been tracking the impact of climate change and expanding urban development on both tornado/hail and wildfire risk over the last several years. The recent history of California wildfire events, and particularly the extreme outbreaks during 2017 and 2018, are being used to validate, and where necessary inform, our representation of this risk.

Our underwriters use the combination of our risk assessment and underwriting process, REMS© and other tools in their pricing decisions, which we believe provides them with several competitive advantages. These include the ability to:

- simulate a range of potential outcomes that adequately represents the risk to an individual contract;
- analyze the incremental impact of an individual reinsurance contract on our overall portfolio;
- better assess the underlying exposures associated with assumed retrocessional business;
- price contracts within a short time frame;
- capture various classes of risk, including catastrophe and other insurance risks;

- assess risk across multiple entities (including our various joint ventures and managed funds) and across different components of our capital structure; and
- provide consistent pricing information.

As part of our risk management process, we also use REMS© to assist us, as a retrocedant, with the purchase of reinsurance coverage for our own account.

Our underwriting and risk management process, in conjunction with REMS©, quantifies and manages our exposure to claims from single events and the exposure to losses from a series of events. As part of our pricing and underwriting process, we also assess a variety of other factors, including:

- the reputation of the proposed cedant and the likelihood of establishing a long-term relationship with the cedant;
- the geographic area in which the cedant does business and its market share;
- historical loss data for the cedant and, where available, for the industry as a whole in the relevant regions and lines of business, in order to compare the cedant’s historical catastrophe loss experience to industry averages;
- the cedant’s pricing strategies; and
- the perceived financial strength of the cedant and factors such as the cedant’s historical record of making premium payments in full and on a timely basis.

In order to estimate the risk profile of each line of non-natural hazard reinsurance (*i.e.*, our casualty and specialty lines of business), we establish probability distributions and assess the correlations with the rest of our portfolio. In lines with catastrophe risk, such as excess workers’ compensation and terrorism, we seek to directly leverage our skill in modeling property reinsurance risks, and aim to appropriately estimate and manage the correlations between these casualty and specialty lines and our property reinsurance portfolio. For other classes of business, in which we believe we have little or no natural catastrophe exposure, and therefore less correlation with our property reinsurance coverages, we derive probability distributions from a variety of underlying information sources, including recent historical experience, and the application of judgment as appropriate. The nature of some of these businesses lends itself less to the analysis we use for our property reinsurance coverages, reflecting both the nature of available exposure information, and the impact of human factors such as tort exposure. We produce probability distributions to represent our estimates of the related underlying risks which our products cover, which we believe helps us to make consistent underwriting decisions and to manage our total risk portfolio.

In addition, we also produce, utilize, and report on models which measure our utilization of capital in light of regulatory capital considerations and constraints. Our position in respect of these regulatory capital models is reviewed by our risk management professional staff and periodically reported to and reviewed by senior underwriting personnel and executive management with responsibility for our regulated operating entities.

Enterprise Risk Management

We believe that high-quality and effective ERM is best achieved when it is a shared cultural value throughout the organization and consider ERM to be a key process which is the responsibility of every individual within the Company. We have developed and utilize tools and processes we believe support a culture of risk management and create a robust framework of ERM within our organization. We believe that our ERM processes and practices help us to identify potential events that may affect us, quantify, evaluate and manage the risks to which we are exposed, and provide reasonable assurance regarding the achievement of our objectives. We also believe that effective ERM assists our efforts to minimize the likelihood of suffering financial outcomes in excess of the ranges which we have estimated in respect of specific investments, underwriting decisions, or other operating or business activities, although we do not believe this risk can be eliminated. In particular, we utilize our risk management tools to support our efforts to monitor our capital and liquidity positions, on a consolidated basis and for each of our major operating subsidiaries, and to allocate an appropriate amount of capital to support the risks we have assumed in the aggregate and for each of our major operating subsidiaries.

Our Board of Directors is responsible for overseeing enterprise-wide risk management and is actively involved in the monitoring of risks that could affect us. The members of the Board have regular, direct access to the senior executives and other officers responsible for identifying and monitoring our risks and coordinating our ERM, including our Group Chief Risk Officer, Chief Financial Officer, and Group General Counsel, each of whom reports directly to our Chief Executive Officer, as well as other senior personnel such as our Chief Investment Officer, Chief Compliance Officer, Chief Accounting Officer, Global Corporate Controller and Head of Internal Audit. The Board also receives regular reports from the Controls and Compliance Committee described below.

Our ERM framework operates via a three lines of defense model. The first line of defense consists of individual functions that deliberately assume risks on our behalf and own and manage risk within the Company on a day-to-day and business operational basis. The second line of defense is responsible for risk oversight and also supports the first line to understand and manage risk. A dedicated risk team led by the Group Chief Risk Officer is responsible for this second line and reports to the Board of Director’s Investment and Risk Management Committee and the Chief Executive Officer. The third line of defense, our Internal Audit team, reports to the Audit Committee of the Board of Directors and provides independent, objective assurance as to the assessment of the adequacy and effectiveness of our internal control systems and also coordinates risk-based audits and compliance reviews and other specific initiatives to evaluate and address risk within targeted areas of our business.

The principal risk areas that make up our ERM framework are assumed risk (including reserve risk), business environment risk and operational risk:

- *Assumed Risk.* We define assumed risk as activities where we deliberately take risk against our capital base, including underwriting risks and other quantifiable risks such as credit risk and market risk as they relate to investments, ceded reinsurance credit risk and strategic investment risk, each of which can be analyzed in substantial part through quantitative tools and techniques. Of these, we believe underwriting risk to be the most material to us. In order to understand, monitor, quantify and proactively assess underwriting risk, we seek to develop and deploy appropriate tools to estimate the comparable expected returns on potential business opportunities and the impact that such incremental business could have on our overall risk profile. We use the tools and methods described above in “Underwriting” to seek to achieve these objectives. Embedded within our consideration of assumed risk is our management of our aggregate, consolidated risk profile. In part through the utilization of REMS© and our other systems and procedures, we analyze our in-force aggregate assumed risk portfolio on a daily basis. We believe this capability helps us to manage our aggregate exposures and to rigorously analyze and evaluate individual proposed transactions in the context of our in-force portfolio. This aggregation process captures line of business, segment and corporate risk profiles, calculates internal and external capital tests and explicitly models ceded reinsurance. Generally, additional data is added quarterly to our aggregate risk framework to reflect updated or new information or estimates relating to matters such as interest rate risk, credit risk, capital adequacy and liquidity. This information is used in day-to-day decision making for underwriting, investments and operations and is also reviewed quarterly from both a unit level and consolidated financial position perspective. We also regularly assess, monitor and review our regulatory risk capital and related constraints.
- *Reserve Risk.* Reserve risk is a subcomponent of assumed risk. We define reserve risk as the risks related to our reserve for net claims and claim expenses, including the amount, both absolute and relative, of our outstanding reserve for net claims and claim expenses, and the impact of economic, social, legal and regulatory matters. Our reserve for net claims and claim expenses is subject to significant uncertainty and has the potential to develop adversely in future periods. While reserve risk may increase in both absolute terms and relative to its overall consideration in our ERM framework, we employ robust resources, procedures and technology to identify, understand, quantify and manage this risk. Our reserving methodologies and sensitivities for each respective line of business described in “Part II. Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations—Summary of Critical Accounting Estimates—Claims and Claim Expense Reserves.”
- *Business Environment Risk.* We define business environment risk as the risk of changes in the business, political or regulatory environment that could negatively impact our short term or long-term financial results or the markets in which we operate. This risk area also typically includes emerging risks. These risks are predominately extrinsic to us and our ability to alter or eliminate

these risks is limited, so we focus our efforts on monitoring developments, assessing potential impacts of any changes, and investing in cost effective means to attempt to mitigate the consequences of, and ensure compliance with, any new requirements applicable to us.

- *Operational Risk.* We are subject to a number of additional risks arising out of operational, regulatory, and other matters. We define operational risk to include the risk we fail to create, manage, control or mitigate the people, processes, structures or functions required to execute our strategic and tactical plans and assemble an optimized portfolio of assumed risk, and to adjust to and comply with the evolving requirements of business environment risk applicable to us. In light of the rapid evolution of our markets, business environment, and business initiatives, we seek to continually invest in the tools, processes and procedures we use to mitigate our exposure to operational risk on a cost-effective basis. As with assumed risk and business environment risk, operational risk presents intrinsic uncertainties, and we may fail to appropriately identify or mitigate applicable operational risk.

Controls and Compliance Committee. The Controls and Compliance Committee is comprised of our Chief Financial Officer, Group General Counsel, Chief Compliance Officer, Chief Accounting Officer, Global Corporate Controller, Group Chief Risk Officer, Head of Internal Audit, staff compliance and controls professionals and representatives from our other business units. The purpose of the Controls and Compliance Committee is to establish, assess the effectiveness of, and enforce policies, procedures and practices relating to accounting, financial reporting, internal controls, regulatory, legal, compliance and related matters, and to ensure compliance with applicable laws and regulations, our Code of Ethics, and other relevant standards. In addition, the Controls and Compliance Committee is charged with reviewing certain transactions that potentially raise complex and/or significant tax, legal, accounting, regulatory, financial reporting, reputational or compliance issues.

We address other areas of operational risk through our business continuity and incident response program, human resource practices such as motivating and retaining top talent, our strict tax protocols and our legal and regulatory policies and procedures.

Environmental and Climate Change Matters

Our principal economic exposures arise from our coverages for natural disasters and catastrophes. We believe, and believe the consensus view of current scientific studies substantiates, that changes in climate conditions, primarily global temperatures and expected sea levels, have increased, and are likely to continue to increase, the severity and frequency of weather related natural disasters and catastrophes relative to the historical experience over the past 100 years. While it is difficult to distinguish between permanent climate change and transient climate variability, an ever expanding body of research suggests that these trends are in fact man-made, and, if correct, we believe that this trend will not revert to the mean but continue to worsen. We believe that this increase in severe weather, coupled with currently projected demographic trends in catastrophe-exposed regions, contributes to factors that will increase the average economic value of expected losses, increase the number of people exposed per year to natural disasters and in general exacerbate disaster risk, including risks to infrastructure, global supply chains and agricultural production. Accordingly, we expect an increase in both the frequency and magnitude of claims, especially from properties located in coastal areas.

The consideration of the impacts of climate change is integral to our ERM process. We have taken measures to mitigate losses related to climate change through our underwriting process and by continuously monitoring and adjusting our risk management models to reflect the higher level of risk that we think will persist. We have been progressively integrating the consideration of the financial risk of climate change into our governance frameworks, risk management processes, and business strategies over the past several years, and many of our regulators are increasingly focused on these and other climate change disclosures.

Our Board of Directors and its committees are actively engaged in the oversight of environmental, social and governance initiatives and receive regular updates from management on progress and developments, and our executive management team and the Board of Directors receive regular reports.

As discussed further below under “—Investments,” we structure our investment portfolio to emphasize the preservation of capital and the availability of liquidity to meet our claims obligations, to be well diversified across market sectors and to generate relatively attractive returns on a risk-adjusted basis over time. To further the sustainability of our investment portfolio, we consider certain environmental, social and governance factors within our investment strategy.

In addition to the impacts that environmental incidents have on our business, there has been a proliferation of governmental and regulatory scrutiny related to climate change and greenhouse gases, which will also affect our business.

RATINGS

Financial strength ratings are an important factor in evaluating and establishing the competitive position of reinsurance and insurance companies. We have received high claims-paying and financial strength ratings from A.M. Best, S&P, Moody's and Fitch. These ratings represent independent opinions of an insurer's financial strength, operating performance and ability to meet policyholder obligations, and are not an evaluation directed toward the protection of investors or a recommendation to buy, sell or hold any of our securities. Rating organizations continually review the financial positions of our principal operating subsidiaries and joint ventures and ratings may be revised or revoked by the agencies which issue them. Additionally, rating organizations may make changes in their capital models and rating methodologies, which could have a material impact on our business.

In addition, S&P and A.M. Best assess companies' ERM practices, which is an opinion on the many critical dimensions of risk that determine overall creditworthiness. RenaissanceRe has been assigned an ERM score of "Very Strong" from each of these agencies, which is the highest ERM score assigned. See "Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations—Financial Condition, Liquidity and Capital Resources—Ratings" for the ratings of our principal operating subsidiaries and joint ventures by segment, and details of recent ratings actions.

RESERVES FOR CLAIMS AND CLAIM EXPENSES

We believe the most significant accounting judgment made by management is our estimate of claims and claim expense reserves. Claims and claim expense reserves represent estimates, including actuarial and statistical projections at a given point in time, of the ultimate settlement and administration costs for unpaid claims and claim expenses arising from the insurance and reinsurance contracts we sell. We establish our claims and claim expense reserves by taking claims reported to us by insureds and ceding companies, but which have not yet been paid, "case reserves," adding estimates for the anticipated cost of claims incurred but not yet reported to us, or incurred but not enough reported to us, which are collectively referred to as "IBNR," and, if deemed necessary, adding costs for additional case reserves which represent our estimates for claims related to specific contracts which we believe may not be adequately estimated by the client as of that date, or adequately covered in the application of IBNR. Our reserving committee, which includes members of our senior management, reviews, discusses, and assesses the reasonableness and adequacy of the reserving estimates included in our audited financial statements. Because of the nature of the coverages that we provide, the amount and timing of the cash flows associated with our policy liabilities will fluctuate, perhaps significantly, and, therefore, are highly uncertain.

Our reserving techniques, assumptions and processes differ among our Property and Casualty and Specialty segments. Refer to "Note 8. Reserve for Claims and Claim Expenses" in our "Notes to the Consolidated Financial Statements" for more information on the risks we insure and reinsure, the reserving techniques, assumptions and processes we follow to estimate our claims and claim expense reserves, prior year development of the reserve for claims and claim expenses, analysis of our incurred and paid claims development and claims duration information for each of our Property and Casualty and Specialty segments. In addition, refer to "Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations—Summary of Critical Accounting Estimates—Claims and Claim Expense Reserves" for more information on our current estimates versus our initial estimates of our claims reserves, and sensitivity analysis for each of our Property and Casualty and Specialty segments.

INVESTMENTS

We structure our investment portfolio to emphasize the preservation of capital and the availability of liquidity to meet our claims obligations, to be well diversified across market sectors, and to generate relatively attractive returns on a risk-adjusted basis over time. The majority of our investments are highly-rated fixed income securities. We also hold a significant amount of short-term investments which have a maturity of one year or less when purchased. In addition, we hold other investments, including direct private equity investments, catastrophe bonds, fund investments and term loans, which offer the potential for higher returns but with relatively higher levels of risk. Our investment portfolio takes into account the duration of our liabilities and the level of strategic asset risk we wish to assume over the medium- to long-term. We may from time to time re-evaluate our investment guidelines and explore investment allocations to other asset classes that either increase or decrease our overall asset risk. Our investments are subject to market-wide risks and fluctuations, as well as to risks inherent in particular securities.

For additional information regarding our investment portfolio, refer to “Part II, Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations—Financial Condition, Liquidity and Capital Resources—Investments” and “Note 5. Investments” in our “Notes to the Consolidated Financial Statements.”

MARKETING

We believe that our modeling and technical expertise, the risk management products we provide to our customers, and our reputation for paying claims promptly has enabled us to become a provider of first choice in many lines of business to our customers worldwide. We market our products primarily through reinsurance brokers and we focus our marketing efforts on targeted brokers and partners. We believe that our existing portfolio of business is a valuable asset and, therefore, we attempt to continually strengthen relationships with our existing brokers and customers. We believe that by maintaining close relationships with brokers, we are able to obtain access to a broad range of potential reinsureds. We target prospects that are capable of supplying detailed and accurate underwriting data and that potentially add further diversification to our book of business.

We believe that primary insurers’ and brokers’ willingness to use a particular reinsurer is based not just on pricing, but also on the financial security of the reinsurer, its claim paying ability ratings and demonstrated willingness to promptly pay valid claims, the quality of a reinsurer’s service, the reinsurer’s willingness and ability to design customized programs, its long-term stability and its commitment to provide stable reinsurance capacity across market cycles. We believe we have established a reputation with our brokers and customers for prompt response on underwriting submissions, for fast payments on valid claims and for providing creative solutions to our customers’ needs.

Our portfolio of business continues to be characterized by relatively large transactions with ceding companies with whom we do business, although no current relationship exceeds 10% of our gross premiums written.

Our brokers assess client needs and also perform data collection, contract preparation and other administrative tasks, enabling us to market our products cost effectively. Our distribution is reliant on a small number of broker relationships, which has continued to decrease in recent years as a result of consolidation in the broker sector. We expect this concentration to continue. In 2021, three brokerage firms accounted for 78.0% of our gross premiums written.

The following table shows the percentage of our Property and Casualty and Specialty segments’ gross premiums written generated through subsidiaries and affiliates of our largest brokers:

Year ended December 31, 2021	Property	Casualty and Specialty	Total
Aon plc	41.8 %	29.7 %	35.8 %
Marsh & McLennan Companies, Inc.	25.6 %	34.5 %	30.0 %
Arthur J. Gallagher (1)	5.8 %	18.7 %	12.2 %
Total of largest brokers	73.2 %	82.9 %	78.0 %
All others	26.8 %	17.1 %	22.0 %
Total	100.0 %	100.0 %	100.0 %

(1) Includes the percentage of gross premiums written for the year ended December 31, 2021 which were generated through Willis Re, a subsidiary of Willis Towers Watson Public Limited Company, which was acquired by Arthur J. Gallagher on December 1, 2021.

HUMAN CAPITAL RESOURCES

Human Capital Resources Oversight

At RenaissanceRe, our people are our most valuable resource and are core to our success. We believe in fostering an open and collaborative culture that encourages employees to take ownership of their performance and development. Our executive management team is committed to creating an environment where every person on our team can succeed. The Compensation and Corporate Governance Committee of our Board of Directors is actively engaged in the oversight of our employees, work environment, DEI initiatives and compensation practices, and receives regular updates from management on progress and developments, and our executive management team and Compensation and Corporate Governance Committee receive regular reports on progress against our annual human resources tactical plans.

Employees

At February 2, 2022, we employed 649 people worldwide (February 1, 2021 - 604, February 3, 2020 - 566). Of these employees, 171 were located in Bermuda, 159 in the U.S., 302 in Europe and 17 in the Asia-Pacific region.

Talent Acquisition, Development, and Retention

We strive to hire talented people and invest heavily in their development to aid them in their professional and personal growth. As employees grow at RenaissanceRe, we support them in mastering specific competencies at each career level, and we believe our Career Development Framework provides all our employees with tools to facilitate career growth at RenaissanceRe. We also invest in the professional growth of our leaders through customized leadership development programs to build advanced skills and capabilities across a diverse set of participants within the organization. Our bespoke approach to development encourages continuous learning through skills-based training, technical development and stretch assignments. We aim to attract, motivate, reward and retain the best people by aligning our performance management practices with our compensation and benefits programs.

Work Environment

We endeavor to provide a safe, healthy and supportive work environment that promotes the well-being of our employees and the value that they contribute to our global organization. We actively encourage open dialogue with our employees, and conduct regular surveys to measure employee satisfaction and engagement, allowing us to ensure that lower-scoring areas are addressed and clear guidance and support is provided.

We have focused on our employees' safety during the COVID-19 pandemic and have used a remote work paradigm as circumstances have dictated across our offices. Our Board of Directors and management team have focused on safety during the COVID-19 pandemic by, among other things, establishing corporate, location-based policies and procedures, providing additional personal protective equipment and cleaning supplies to employees, and implementing protocols to address actual and suspected COVID-19 exposures and cases. As appropriate, certain of our offices have opened in accordance with applicable rules and regulations in their respective jurisdictions. We believe that we have adjusted well to date, benefiting from prior and enhanced investments in technology, systems and training, which have enabled us to maintain robust oversight of the Company and keep our employees connected during the ongoing COVID-19 pandemic.

Diversity, Equity and Inclusion Initiatives

We believe that by seeking diversity, creating equity and practicing inclusion we will build an even stronger culture and company. Our cross-functional DEI Executive Council, chaired by our Chief Underwriting Officer, sets our DEI strategy, identifying focus areas such as raising awareness of DEI throughout our organization, enhancing our recruitment and selection process, and furthering equity around leadership opportunities and development. Our DEI governance structure also includes local advisory committees responsible for implementation at a country level.

Compensation Practices

We design our compensation programs to incorporate a range of components that we believe help to attract and retain talented individuals and mitigate potential risks, while rewarding employees for pursuing our strategic and financial objectives through appropriate risk taking, risk management and prudent tactical and strategic decision making. We strive to provide fair and living employee wages that are competitive and consistent with employee positions, skill levels, experience, knowledge and geographic location. We do this by performing regular market checks of our competitive pay programs in each of our locations, as well as an annual pay cycle review where we assess each employee’s pay levels.

INFORMATION TECHNOLOGY AND CYBERSECURITY

Our business and support functions utilize information systems that provide critical services to both our employees and our customers. We have an integrated team of professionals who manage and support our communication platforms, transaction-management systems, and analytics and reporting capabilities, including the development of proprietary solutions like REMS©. We use both cloud services and off-site, secure data centers in North America and Europe for our core applications.

Information security and privacy are important concerns, with an escalating cyber-threat environment and evolving regulatory requirements driving continued investment in this area. Our information security program is designed to meet or exceed industry best practices. We are subject to a number of cybersecurity and data privacy laws and regulations, such as the BMA’s Insurance Sector Operational Cyber Risk Management Code of Conduct, the NYDFS 23 NYCRR 500 Cybersecurity Requirements for Financial Services Companies, and the EU General Data Protection Regulation. New York’s cybersecurity regulation requires regulated entities, including Renaissance Reinsurance U.S., a New York licensed insurer, and RREAG, US Branch, to establish and maintain a cybersecurity program designed to protect each of their information technology systems as well as their customers’ data. Our program is designed to comply with all applicable cybersecurity regulatory requirements and we continue to evaluate and assess our compliance in the changing regulatory environment.

We have in place, and seek to continuously improve, a comprehensive system of security controls, managed by a dedicated staff. Periodically, we engage the services of reputable third parties to perform security penetration testing, and update our security controls based on any findings. In addition, we are subject to independent assessment and review by regulators, as well as an annual audit of our security controls by our independent internal audit team. We also provide regular security risk education awareness and training sessions for all staff. Despite these efforts, computer viruses, hackers, employee misuse or misconduct, and other internal or external hazards could expose our data systems to security breaches, cyber-attacks or other disruptions.

We have implemented incident response and business continuity plans for our operations, which are regularly tested with respect to our business-critical infrastructure and systems. We employ data backup procedures that seek to ensure that our key business systems and data are regularly backed up, and can be restored promptly if, and as, needed. In addition, we generally store backup information at off-site locations, in order to seek to minimize our risk of loss of key data in the event of a disaster. Our recovery plans involve arrangements with our off-site, secure data centers and cloud infrastructure. We believe we will be able to utilize these plans to efficiently recover key system functionality in the event that our primary systems are unavailable due to various scenarios, such as natural disasters.

REGULATION

Most countries and all U.S. states regulate (re)insurance business to varying degrees. We currently operate through offices in Australia, Bermuda, Ireland, Singapore, Switzerland, the U.S. and the U.K. Our operating subsidiaries are principally regulated by the regulatory authorities of their respective jurisdictions, and may also be subject to regulation in the jurisdictions of their ceding companies. Expansion into additional (re)insurance markets could expose us or our subsidiaries to increasing regulatory oversight. However, we intend to continue to conduct our operations so as to minimize the likelihood that our Bermudian subsidiaries will become subject to direct U.S. regulation.

Bermuda Regulation

All Bermuda companies must comply with the provisions of the Bermuda Companies Act 1981. Bermuda-licensed insurance companies and management companies are also regulated under the Bermuda Insurance Act 1978 and related regulations. The Insurance Act imposes solvency and liquidity standards as well as auditing and reporting requirements, and confers on the BMA powers to supervise, investigate and intervene in the affairs of insurance companies. As a holding company, RenaissanceRe is not regulated as an insurer under the Insurance Act. Our Bermuda-licensed entities registered under the Insurance Act include:

- Class 4 general business insurers: Renaissance Reinsurance and DaVinci
- Class 3B general business insurers: RenaissanceRe Specialty U.S., Vermeer and RREAG, Bermuda Branch
- Class 3A general business insurer: Top Layer Re
- Class 3 general business insurer: Shima Reinsurance Ltd.
- Collateralized insurer: Upsilon RFO
- SPIs: Mona Lisa Re Ltd. and Fibonacci Reinsurance Ltd.
- Insurance managers: RUM and RenaissanceRe Underwriting Management Ltd.

From time to time, RenaissanceRe's Bermuda-licensed operating insurance subsidiaries, branches, joint ventures and managed funds may apply for, and be granted, certain modifications to, or exemptions from, regulatory requirements which may otherwise apply to them. For example, RREAG, Bermuda Branch has applied for and been granted certain modifications.

The European Parliament recognizes Bermuda's regulatory regime as achieving Solvency II equivalence for its commercial (re)insurers. Equivalence between Bermuda's regulatory regime and the U.K.'s prudential regime was maintained following the expiry of the U.K.'s transition period for leaving the EU on January 1, 2021.

General Purpose Financial Statements. Class 3, Class 3A, Class 3B and Class 4 general business insurers are generally required to prepare annual financial statements in accordance with GAAP, IFRS or other acceptable accounting standards. Audited annual financial statements for each of Renaissance Reinsurance, RenaissanceRe Specialty U.S., DaVinci, Top Layer Re, Vermeer and RREAG, Bermuda Branch must be filed with the BMA prior to April 30 of each year and are available free of charge on the BMA's website.

Statutory Financial Statements. Class 3, Class 3A, Class 3B and Class 4 general business insurers are generally required to submit annual statutory financial statements to the BMA no later than four months after the financial year end (unless specifically extended). The statutory financial statements are prepared based on the GAAP, IFRS, or other acceptable accounting standards financial statements, subject to the application of certain prescribed prudential filters, and contain both consolidated and unconsolidated statements. The unconsolidated information forms the basis for assessing the insurer's liquidity position, minimum solvency margin and class of registration.

Capital and Solvency Return. Class 3A, Class 3B and Class 4 general business insurers are generally required to file an annual capital and solvency return, or "BSCR." The BSCR is a mathematical model designed to give the BMA robust methods for determining an insurer's capital adequacy, based on the belief that all insurers should operate on an ongoing basis with a view to maintaining their capital at a prudent level in excess of the minimum solvency margin otherwise prescribed under the Insurance Act. 2021 BSCRs must be filed with the BMA before April 30, 2022; at this time, we believe each company that is required to file will exceed the minimum amount required to be maintained under Bermuda law.

Financial Condition Report. Class 3A, Class 3B and Class 4 insurers and insurance groups are generally required to prepare and publish an FCR. With the BMA's approval, we file a consolidated group FCR, inclusive of DaVinci, Renaissance Reinsurance, RenaissanceRe Specialty U.S., Top Layer Re and Vermeer, and an FCR for RREAG, in lieu of a standalone FCR for RREAG, Bermuda Branch. Our most recent FCRs were filed with the BMA prior to the required deadline, and are available on our website.

Minimum Solvency Margin. Where applicable, a general business insurer's statutory assets must exceed its statutory liabilities by an amount equal to or greater than the prescribed minimum solvency margin. The minimum solvency for various registration categories is as follows:

- Class 4 insurer: the greater of (i) $100.0 million, (ii) 50% of net premiums written (with a credit for reinsurance ceded not exceeding 25% of gross premiums), (iii) 15% of net aggregate loss and loss expense provisions and other insurance reserves, or (iv) 25% of the ECR.

- Class 3 insurer: the greater of (i) $1.0 million, (ii) 20% of the first $6.0 million of net premiums written; if in excess of $6.0 million, the figure is $1.2 million plus 15% of net premiums written in excess of $6.0 million, or (iii) 15% of net aggregate loss and loss expense provisions and other insurance reserves.
- Class 3A or Class 3B insurer: the greater of (i) $1.0 million, (ii) 20% of the first $6.0 million of net premiums written; if in excess of $6.0 million, the figure is $1.2 million plus 15% of net premiums written in excess of $6.0 million, (iii) 15% of net aggregate loss and loss expense provisions and other insurance reserves, or (iv) 25% of the insurer's ECR.
- Collateralized insurer: $0.25 million.

Enhanced Capital Requirement. Class 3A, Class 3B and Class 4 insurers are generally required to maintain available statutory economic capital and surplus at a level at least equal to their ECR and may be adjusted if the BMA concludes that the insurer's risk profile deviates significantly from the assumptions underlying its ECR or the insurer's assessment of its risk management policies and practices used to calculate the ECR. The BMA has also established a target capital level for each Class 3A, Class 3B and Class 4 insurer equal to 120% of the applicable ECR, which is not a required level of statutory economic capital and surplus, but serves as an early warning tool for the BMA. Failure to maintain statutory capital at least equal to the target capital level would likely result in increased BMA regulatory oversight.

Minimum Liquidity Ratio. An insurer engaged in general business is generally required to maintain a minimum liquidity ratio equal to the value of its relevant assets at not less than 75% of the amount of its relevant liabilities.

Eligible Capital. To enable the BMA to better assess the quality of an insurer's capital resources, Class 3A, Class 3B and Class 4 insurers are generally required to maintain available capital in accordance with a "three tiered capital system." All capital instruments are classified as either basic or ancillary capital, which in turn are classified into Tier 1, Tier 2 or Tier 3 based on their "loss absorbency" characteristics. Eligibility limits are then applied to each tier to determine the amounts eligible to cover regulatory capital requirement levels. Tier 1 capital is the highest quality capital, and lesser quality capital is classified as either Tier 2 or Tier 3. Not more than certain specified percentages of Tier 1, Tier 2 and Tier 3 capital may be used to satisfy the Class 3A, 3B and 4 insurers' minimum solvency margin, ECR requirements and target capital level.

Restrictions on Dividends, Distributions and Reductions of Capital. Class 3, Class 3A, Class 3B and Class 4 insurers are prohibited from declaring or paying any dividends if in breach of the required minimum solvency margin or minimum liquidity ratio, or if the declaration or payment of such dividend would cause the insurer to fail to meet the required minimum solvency margin or minimum liquidity ratio. Further, Class 3A, Class 3B and Class 4 insurers are prohibited from declaring or paying in any financial year dividends of more than 25% of total statutory capital and surplus unless the insurer file an affidavit with the BMA stating that it will continue to meet the required minimum solvency margin or minimum liquidity ratio. Class 3, Class 3A, Class 3B and Class 4 insurers must obtain the BMA's prior approval for a reduction by 15% or more of the total statutory capital as set forth in its previous year's financial statements. These restrictions on declaring or paying dividends and distributions under the Insurance Act are in addition to the solvency requirements under the Companies Act 1981 which apply to all Bermuda companies.

Fit and Proper Controllers. The BMA maintains supervision over the controllers (as defined herein) of all Bermuda registered insurers, insurance managers, brokers, agents or insurance marketplace providers. For so long as shares of RenaissanceRe are listed on the NYSE or another recognized stock exchange, the Insurance Act requires that the BMA be notified in writing within 45 days of any person becoming, or ceasing to be, a controller. A controller includes the managing director or chief executive of the registered insurer or its parent company; a 10%, 20%, 33% or 50% shareholder controller; and any person in accordance with whose directions or instructions the directors of the registered insurer or of its parent company are accustomed to act. In addition, all Bermuda insurers and insurance managers are also required to give the BMA written notice of the fact that a person has become, or ceased to be, a controller or officer of the registered insurer within 45 days (and in the case of an insurance manager, before the end of a 14 day period) of becoming aware of such fact. An officer of a registered insurer includes a director, secretary, chief executive or senior executive performing the duties of underwriting, actuarial, risk management, compliance, internal audit, finance or investment matters.

Insurance Code of Conduct. All Bermuda insurers are generally required to comply with the BMA's Insurance Code of Conduct, which establishes duties, requirements and standards to ensure each insurer implements sound corporate governance, risk management and internal controls. The BMA will consider failure to comply with these requirements when determining whether an insurer is conducting its business in a sound and prudent manner under the Insurance Act and in calculating the operational risk charge applicable in accordance with the insurer's BSCR model (or an approved internal model).

Special Purpose Insurer and Collateralized Insurer Reporting Requirements. Unlike other (re)insurers, SPIs and collateralized insurers are fully funded to meet their (re)insurance obligations; therefore the application and supervision processes are streamlined to facilitate the transparent structure. Further, the BMA has the discretion to modify such insurer's accounting requirements under the Insurance Act. Like other (re)insurers, the principal representative of an SPI or a collateralized insurer has a duty to inform the BMA in relation to solvency matters, where applicable. SPIs and collateralized insurers are generally required to prepare audited financial statements in accordance with GAAP or other standards recognized by the BMA, as well as annual statutory financial statements, and file these statements with the BMA together with a statutory financial return.

Insurance Manager Reporting Requirements. The BMA's Insurance Manager Code of Conduct requires insurance managers to file an Insurance Manager's Return, which requires, among other things, details around the insurance manager's directors and officers, services provided by the entity, and the insurers managed by the insurance manager. Additionally, under the Insurance Act, insurance managers are required to notify the BMA of certain events, such as a failure to comply with a condition imposed upon it by the BMA or the occurrence of a cyber-reporting event.

Group Supervision. Pursuant to the Insurance Act, the BMA acts as the group supervisor of the RenaissanceRe Group and it has designated Renaissance Reinsurance to be the "designated insurer" in respect of the RenaissanceRe Group. The designated insurer is required to ensure that the RenaissanceRe Group complies with the provisions of the Insurance Act pertaining to groups and all related group solvency and group supervision rules. Under these rules, the RenaissanceRe Group is required to prepare annual group GAAP financial statements, group statutory financial statements, a group capital and solvency return. a group solvency self-assessment and an FCR. The value of the insurance group's assets must exceed the amount of the insurance group's liabilities by the group minimum solvency margin, which is the aggregate of: (i) the individual minimum solvency margin of each qualifying member of the group controlled by the parent company; and (ii) the parent company's percentage shareholding in the member multiplied by the member's minimum solvency margin, where the parent company exercises significant influence over a member of the group but does not control the member. A member is a qualified member of the insurance group if it is subject to solvency requirements in the jurisdiction in which it is registered. The group must appoint a group actuary and group auditor approved by the BMA. Insurance groups are required to maintain available statutory economic capital and surplus that is equal to or exceeds the value of its group ECR, which is calculated by reference to the group BSCR (or an approved internal capital model). The BMA expects insurance groups to operate at or above a target capital level of 120% of its group ECR. In addition, under the tiered capital requirements described above, not more than certain specified percentages of Tier 1, Tier 2 and Tier 3 capital may be used by an insurance group to satisfy the group minimum solvency margin and group ECR requirements.

We are currently completing our 2021 group BSCR, which must be filed with the BMA on or before May 31, 2022, and at this time, we believe we will exceed the target capital. Our 2020 group BSCR exceeded the target capital level. In addition, the RenaissanceRe Group is required to prepare and submit to the BMA a quarterly financial return.

The BMA has certain powers of investigation and intervention relating to insurers and their holding companies, subsidiaries and other affiliates, which it may exercise in the interest of such insurer's policyholders or if there is any risk of insolvency or of a breach of the Insurance Act or the insurer's license conditions. The BMA may cancel an insurer's registration on certain grounds specified in the Insurance Act.

Under the provisions of the Insurance Act, the BMA may conduct "on site" visits at the offices of insurers it regulates, and has conducted "on site" reviews of our Bermuda-domiciled operating insurers over the past several years.

Economic Substance Act. Under the provisions of the Economic Substance Act 2018, as amended, every Bermuda registered entity engaged in a relevant activity (which includes insurance and holding entity activities) must satisfy economic substance requirements by maintaining a substantial economic presence in Bermuda. Certain of our entities registered in Bermuda, are required to demonstrate compliance with economic substance requirements by filing an annual economic substance declaration with the Registrar of Companies in Bermuda, or they could face financial penalties, restriction or regulation of its business activities and/or may be struck off as a registered entity in Bermuda.

Income Taxes. Currently, neither we nor our shareholders are required to pay Bermuda income or profits tax, withholding tax, capital gains tax, capital transfer tax, estate duty or inheritance tax in respect of our shares. We have obtained an assurance from the Minister of Finance of Bermuda under the Exempted Undertakings Tax Protection Act 1966 that, if Bermuda enacts legislation imposing any tax on profits, income, capital asset, gain or appreciation or any tax in the nature of estate duty or inheritance tax, such tax shall not be applicable to us, our operations or our shares, debentures or other obligations until March 31, 2035, except insofar as such tax applies to persons ordinarily resident in Bermuda or is payable by us in respect of real property owned or leased by us in Bermuda.

Policyholder Priority. The Insurance Amendment (No. 2) Act 2018 provides that, subject to the prior payment of preferential debts under the Employment Act 2000 and the Companies Act 1981, the insurance debts of an insurer must be paid in priority to all other unsecured debts of the insurer.

Investment Fund Regulation. Medici, Upsilon Fund and RenaissanceRe Upsilon Co-Invest Fund Ltd. are registered or regulated by the BMA pursuant to the Bermuda Investment Funds Act 2006, as amended from time to time.

The purpose of the Bermuda Investment Funds Act is to set standards and criteria applicable to the establishment and operation of investment funds in Bermuda, with a view to protecting the interests of investors. The BMA is responsible for supervising, regulating and inspecting any financial institution which operates in Bermuda, including investment funds. The BMA has general powers to supervise, investigate and intervene in the affairs of investment funds registered with it and requires each registered fund to certify on an annual basis that the fund has complied with the Bermuda Investment Funds Act.

The BMA has also issued the Investment Fund Offering Document Rules 2019 and Investment Fund Rules 2019, both effective January 1, 2020. The Offering Document Rules provide that an offering document for every registered or authorized fund be submitted to the BMA for approval and set forth certain minimum content requirements for offering documents. The Investment Fund Rules set forth obligations of funds with respect to service providers, depositary functions, safekeeping obligations, valuations, and reporting to investors and the public, among other requirements.

U.S. Regulation

Admitted Company Regulation. Renaissance Reinsurance U.S. is a Maryland-domiciled insurer licensed in 26 states and the District of Columbia and accredited as a reinsurer in an additional 24 states. As a U.S. licensed and authorized insurer, Renaissance Reinsurance U.S. is subject to considerable regulation and supervision by state insurance regulators. State insurance departments regulate insurer solvency, authorized investments, loss and loss adjustment expense and unearned premium reserves, and deposits of securities for the benefit of policyholders. They also conduct periodic examinations of the affairs of authorized insurance companies and require the filing of annual and other reports relating to the financial condition of companies and other matters. The MIA, as Renaissance Reinsurance U.S.'s domestic regulator, is the primary financial regulator of Renaissance Reinsurance U.S.

Holding Company Regulation. We are subject to the insurance holding company laws of Maryland, which require Renaissance Reinsurance U.S. to file certain reports concerning its capital structure, ownership, financial condition and general business operations with the MIA. As the ultimate controlling person in the insurance holding company system, RenaissanceRe must also file an annual enterprise risk report identifying the material risks within the holding company system that could pose enterprise risk to Renaissance Reinsurance U.S.

Generally, all affiliate transactions involving Renaissance Reinsurance U.S. must be fair and, if material or of specified types, require prior notice and approval or non-disapproval by the MIA.

Restrictions on Dividends and Distributions. Further, Maryland law places limitations on the amounts of dividends or distributions payable by Renaissance Reinsurance U.S. Payment of ordinary dividends by Renaissance Reinsurance U.S. requires notice to the MIA. Declaration of an extraordinary dividend, which must be paid out of earned surplus, generally requires thirty days' prior notice to and approval or non-disapproval of the MIA. An extraordinary dividend includes any dividend whose fair market value together with that of other dividends or distributions made within the preceding twelve months exceeds the lesser of (1) ten percent of the insurer's surplus as regards policyholders as of December 31 of the preceding year or (2) the insurer's net investment income, excluding realized capital gains (as determined under statutory accounting principles), for the twelve month period ending December 31 of the preceding year and pro rata distributions of any class of the insurer's own securities, plus any amounts of net investment income (subject to the foregoing exclusions), in the three calendar years prior to the preceding year which have not been distributed.

Acquisition of Control. Any person seeking to acquire control of a Maryland-domestic insurer or of an entity that directly or indirectly controls a Maryland-domestic insurer, including its holding company, must file a statement with the MIA at least 60 days before the proposed acquisition of control. Any purchaser of 10% or more of the outstanding voting securities of an insurance company, its holding company or any other entity directly or indirectly controlling the insurance company is presumed to have acquired control, unless the presumption is rebutted. Therefore, any investor who intends to acquire 10% or more of RenaissanceRe's outstanding voting securities may need to comply with these laws and would be required to file statements and reports with the MIA before such acquisition.

ORSA. The Risk Management and Own Risk Solvency and Assessment Act requires Renaissance Reinsurance U.S. to: (i) maintain a risk management framework for identifying, assessing, monitoring, managing, and reporting its material and relevant risks; (ii) complete an ORSA at least once each year and at any time there is a significant change to the risk profile of Renaissance Reinsurance U.S. or its holding company system; and (iii) submit an ORSA summary report to the MIA at least once each year. The obligation to maintain a risk management framework may be satisfied if the RenaissanceRe Group maintains a risk management framework that applies to the operations of Renaissance Reinsurance U.S. and the ORSA obligation may be satisfied if the RenaissanceRe Group completes an ORSA in accordance with the requirements of the Risk Management and Own Risk Solvency and Assessment Act.

Capital Requirements. Renaissance Reinsurance U.S. is required to meet certain minimum statutory capital and surplus requirements under Maryland law. At December 31, 2021, we believe that Renaissance Reinsurance U.S. exceeded the minimum required statutory capital and surplus.

Renaissance Reinsurance U.S. is also subject to risk-based capital requirements under Maryland law, and must file an annual report of its risk-based capital levels. If the report shows Renaissance Reinsurance U.S.'s statutory capital and surplus or total adjusted capital is below certain levels, Renaissance Reinsurance U.S. may be required to take certain corrective action or the MIA may be permitted or required to take certain regulatory action. As of December 31, 2021, we believe Renaissance Reinsurance U.S.'s total adjusted capital exceeded the company action level and regulatory action level thresholds.

RREAG, US Branch. RREAG, US Branch is a United States branch of RREAG whose port of entry is New York. Following receipt of applicable regulatory approvals from the New York and Maryland state insurance regulators, the U.S. casualty portfolio of RREAG, US Branch was transferred to Renaissance Reinsurance U.S. through a loss portfolio transfer retrocession agreement effective as of October 1, 2019. The remaining property and specialty business portfolio of RREAG, US Branch will be runoff until all liabilities are extinguished through novation, commutation or expiration, subject to applicable ceding company consent. We expect that the run-off of RREAG, US Branch will not be complete for several years.

RREAG, US Branch is licensed in New York and Kansas and it is an accredited reinsurer in 48 states, and the District of Columbia. The NYDFS is RREAG, US Branch's domestic insurance regulator in the U.S. As a New York regulated insurer, RREAG, US Branch is subject to New York's holding company laws as well as laws and regulations pertaining to solvency, authorized investments, deposits of securities for the benefit of policyholders, cybersecurity, corporate governance and the financial risks related to climate change. The NYDFS may conduct periodic examinations of RREAG, US Branch's affairs and it requires the filing of annual and other reports relating to RREAG, US Branch's financial condition.

RREAG, US Branch is required to meet certain trusteed surplus requirements under New York law. At December 31, 2021, we believe that RREAG, US Branch's trusteed surplus exceeded the minimum required statutory level.

RREAG, US Branch must file an annual report of its risk-based capital levels with the NYDFS. If the report shows RREAG, US Branch's total adjusted capital is below certain levels, RREAG, US Branch may be required to take certain corrective action or the NYDFS may be permitted or required to take certain regulatory action. As of December 31, 2021, we believe RREAG, US Branch's total adjusted capital exceeded the company action level and regulatory action level thresholds. RREAG, US Branch does not pay ordinary dividends and would need approval from the NYDFS for any return of capital to RREAG.

Reinsurance Regulation. The insurance laws of each U.S. state regulate the sale of reinsurance to licensed ceding insurers by non-admitted alien reinsurers acting from locations outside the state. With some exceptions, the sale of insurance within a jurisdiction where the insurer is not admitted to do business is prohibited. Our Bermuda-domiciled insurance operations and joint ventures (principally Renaissance Reinsurance, DaVinci, Top Layer Re, RenaissanceRe Specialty U.S., Upsilon RFO and Vermeer) are all admitted to transact insurance business in Bermuda and do not maintain an office or solicit, advertise, settle claims or conduct other insurance activities in any other jurisdiction where the conduct of such activities would require that any company be so admitted.

RenaissanceRe Underwriting Managers U.S. LLC is licensed by the Connecticut Department of Insurance as a reinsurance intermediary broker and is required to maintain its reinsurance intermediary broker license in force in order to conduct its reinsurance operations in Connecticut.

Although reinsurance contract terms and rates are generally not subject to regulation by state insurance authorities, a primary U.S. insurer ordinarily will enter into a reinsurance agreement only if it can obtain credit on its statutory financial statements for the reinsurance ceded. State insurance regulators permit U.S. ceding insurers to take credit for reinsurance ceded to non-admitted, non-U.S. (alien) reinsurers if the reinsurance contract contains certain minimum provisions and if the reinsurance obligations of the non-U.S. reinsurer are appropriately collateralized. Qualifying collateral may be established by an alien reinsurer exclusively for a single U.S. ceding company. Alternatively, an alien reinsurer that is accredited by a state may establish a multi-beneficiary trust with qualifying assets equal to its reinsurance obligations to all of its U.S. ceding insurers, plus trusteed surplus. Renaissance Reinsurance, DaVinci and RREAG have all established multi-beneficiary trusts with a qualifying financial institution in New York for the benefit of their respective U.S. cedants.

States also permit U.S. ceding insurers to take credit for reinsurance ceded to non-admitted alien reinsurers that post collateral in amounts less than one hundred percent of their reinsurance obligations if the reinsurer (i) has been designated as a “certified reinsurer” and (ii) is domiciled in a country recognized by the state and the NAIC as a “qualified” jurisdiction. A certified reinsurer is a non-U.S. reinsurer that, based on a secure rating assigned by a U.S. state insurance regulator upon an assessment of the reinsurer's financial condition, financial strength ratings and other factors, may post a reduced collateral amount. Bermuda, the U.K. and Switzerland are listed as qualified jurisdictions by the NAIC, and each of Renaissance Reinsurance, RenaissanceRe Specialty U.S., DaVinci and RREAG has been approved as a “certified reinsurer” eligible for collateral reduction in various states.

States also permit U.S. ceding insurers to take credit for reinsurance ceded to non-admitted alien reinsurers that post zero collateral if the reinsurer (i) has been designated as a “reciprocal jurisdiction reinsurer” and (ii) is domiciled in a country recognized by the state and the NAIC as a “qualified” jurisdiction. Bermuda, the U.K. and Switzerland are listed as qualified jurisdictions by the NAIC, and each of Renaissance Reinsurance, RenaissanceRe Specialty U.S., DaVinci and RREAG has been approved as a “reciprocal jurisdiction reinsurer” eligible for zero collateral in various states.

NAIC Ratios. The NAIC has established 13 financial ratios to assist state insurance departments in their oversight of the financial condition of licensed property and casualty insurance companies. The NAIC's Insurance Regulatory Information System calculates these ratios based on information submitted by insurers on an annual basis and shares the information with the applicable state insurance departments. Each ratio has an established “usual range” of results and assists state insurance departments in executing their statutory mandate to oversee the financial condition of insurance companies. A ratio result falling outside the usual range of such ratios 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. An insurance company may fall outside of the usual range for one or more ratios because of specific transactions that are themselves immaterial.

Federal Oversight and Other Government Intervention. Although generally the insurance industry is not directly regulated by the federal government, federal legislation and initiatives can affect the industry and our business.The Dodd-Frank Act created the Federal Insurance Office, which does not have general supervisory or regulatory authority over the business of insurance, but has preemption authority over state insurance laws that conflict with certain international agreements. The Dodd-Frank Act also authorizes the U.S. Treasury and the Office of the U.S. Trade Representative to enter into international agreements of mutual recognition regarding the prudential regulation of insurance or reinsurance, or "covered agreements." The U.S. and EU entered into a bilateral agreement regarding the prudential regulation of insurance and reinsurance in 2017. Each party has been working to complete its internal requirements and procedures (such as amending or promulgating appropriate statutes and regulations) in order to satisfy the U.S.-EU covered agreement's substantive and timing requirements. Following the U.K.'s decision to leave the EU, the U.S. and the U.K. also entered into a bilateral agreement in 2018, which largely reflects the provisions of the U.S.-EU covered agreement and incorporates the same timeframes for implementation. The U.S.-EU and U.S.-U.K. covered agreements require U.S. state insurance regulators to work towards eliminating statutory collateral requirements for qualifying EU and U.K. reinsurers. These standards include, among others, minimum capital and solvency or capital ratios, submission to U.S. jurisdictions by the non-U.S. reinsurers and prompt payment of reinsured claims. Under the terms of the covered agreements, as of September 1, 2022, state credit for reinsurance laws that result in non-U.S. reinsurers subject to the covered agreements being treated less favorably than U.S. reinsurers may be pre-empted by the applicable covered agreement.

U.K. Regulation

Lloyd's Regulation

General. The operations of RSML are subject to oversight by Lloyd's, substantially effected through the Lloyd's Council. RSML's business plan for Syndicate 1458, including maximum underwriting capacity, requires annual approval by Lloyd's. Lloyd's may require changes to any business plan presented to it or additional capital to be provided to support the underwriting plan. Lloyd's also imposes various charges and assessments on its members. We have deposited certain assets with Lloyd's to support RenaissanceRe CCL's underwriting business at Lloyd's. Dividends from a Lloyd's managing agent and a Lloyd's corporate member can be declared and paid provided the relevant company has sufficient profits available for distribution.

By entering into a membership agreement with Lloyd's, RenaissanceRe CCL has undertaken to comply with all Lloyd's bye-laws and regulations as well as the provisions of the Lloyd's Acts and the Financial Services and Markets Act 2000, as amended by the Financial Services Act 2012.

Capital Requirements. The underwriting capacity of a member of Lloyd's must be supported by providing a deposit, referred to as "Funds at Lloyd's" or "FAL," in the form of cash, securities or letters of credit in an amount determined under the capital adequacy regime of the PRA. The amount of such deposit is calculated for each member through the completion of an annual capital adequacy exercise. Under these requirements, Lloyd's must demonstrate that each member has sufficient assets to meet its underwriting liabilities plus a required solvency margin. The amount of FAL for Syndicate 1458 is determined by Lloyd's and is based on Syndicate 1458's solvency and capital requirement as calculated through its internal model. In addition, if the FAL are not sufficient to cover all losses, the Lloyd's Central Fund provides an additional level of security for policyholders.

Restrictions. A Reinsurance to Close generally is put in place after the third year of operations of a syndicate year of account. On successful conclusion of a Reinsurance to Close, any profit from the syndicate's operations for that year of account can be remitted by the managing agent to the syndicate's members. If the syndicate's managing agency concludes that an appropriate Reinsurance to Close cannot be determined or negotiated on commercially acceptable terms in respect of a particular underwriting year, it must determine that the underwriting year remain open and be placed into run-off. During this period, there cannot be a release of the Funds at Lloyd's of a member of that syndicate without the consent of Lloyd's.

The financial security of the Lloyd's market as a whole is regularly assessed by three independent rating agencies (A.M. Best, S&P and Fitch). Syndicates at Lloyd's take their financial security rating from the rating of the Lloyd’s market. A satisfactory credit rating issued by an accredited rating agency is necessary for Lloyd’s syndicates to be able to trade in certain classes of business at current levels. RSML and RenaissanceRe CCL would be adversely affected if Lloyd’s current ratings were downgraded.

Intervention Powers. The Lloyd’s Council has wide discretionary powers to regulate members’ underwriting at Lloyd’s. It may, for instance, withdraw a member’s permission to underwrite business or to underwrite a particular class of business. The Lloyd’s Council may change the basis on which syndicate expenses are allocated or vary the Funds at Lloyd’s requirements or the investment criteria applicable to the provision of Funds at Lloyd’s. Exercising any of these powers might affect the return on the corporate member’s participation in a given underwriting year. If a member of Lloyd’s is unable to pay its debts to policyholders, the member may obtain financial assistance from the Lloyd’s Central Fund, which in many respects acts as an equivalent to a state guaranty fund in the U.S. If Lloyd’s determines that the Central Fund needs to be increased, it has the power to assess premium levies on current Lloyd’s members. The Lloyd’s Council has discretion to call or assess up to 3% of a member’s underwriting capacity in any one year as a Central Fund contribution.

While not currently material to our operations, Syndicate 1458 also accesses insurance business from the European Economic Area though the Lloyd’s Brussels Subsidiary. The Lloyd’s Brussels Subsidiary is authorized and regulated by the National Bank of Belgium and regulated by the Financial Services and Markets Authority.

PRA and FCA Regulation

The PRA currently has ultimate responsibility for the prudential supervision of financial services in the U.K. The FCA has responsibility for market conduct regulation. As such, the PRA and the FCA regulate all financial services firms in the U.K. including the Lloyd’s market, RSML and RREAG, UK Branch. Both the PRA and FCA have substantial powers of intervention in relation to regulated firms.

Lloyd’s as a whole is authorized by the PRA and regulated by both the FCA and the PRA. Lloyd’s is required to implement certain rules prescribed by the PRA and by the FCA; such rules are to be implemented by Lloyd’s pursuant to its powers under the Lloyd’s Act 1982 relating to the operation of the Lloyd’s market. Lloyd’s prescribes, in respect of its managing agents, certain principles relating to their management and control, solvency and various other requirements. If it appears to either the PRA or the FCA that either Lloyd’s is not fulfilling its delegated regulatory responsibilities or that managing agents are not complying with the applicable regulatory rules and guidance, the PRA or the FCA may intervene at their discretion.

Solvency II and the U.K.’s Domestic Prudential Regime

The European Parliament adopted Solvency II in April 2009 and it came into effect on January 1, 2016. Solvency II represents a risk-based approach to insurance regulation and capital adequacy. Its principal goals are to improve the correlation between capital and risk, effect group supervision of insurance and reinsurance affiliates, implement a uniform capital adequacy structure for (re)insurers across the EU Member States, establish consistent corporate governance standards for insurance and reinsurance companies, and establish transparency through standard reporting of insurance operations. Under Solvency II, an insurer’s or reinsurer’s capital adequacy in relation to various insurance and business risks may be measured with an internal model developed by the insurer or reinsurer and approved for use by the Member State’s regulator or pursuant to a standard formula developed by the European Commission. Following the U.K.'s exit from the EU, and the expiry of the transition period on December 31, 2020, U.K. authorized insurers will be subject to the U.K.'s separate domestic prudential regime. This regime is identical to the Solvency II regime from January 1, 2021, although the two regimes may begin to diverge over time. The U.K. is currently undertaking a review of Solvency II and of the regulatory regime applicable to U.K. authorized insurers and reinsurers.

The PRA granted approval to Lloyd’s internal model application in December 2015. Each year, the PRA requires Lloyd’s to satisfy an annual solvency test which measures whether Lloyd’s has sufficient assets in the aggregate to meet all outstanding liabilities of its members, both current and run-off. If Lloyd’s fails this test, the PRA may require the entire Lloyd's market to cease underwriting or individual Lloyd's members may be required to cease or reduce their underwriting.

RREAG, UK Branch is authorized and regulated in the U.K. by the PRA and by the FCA. RREAG, UK Branch was therefore subject to the Solvency II regime, until January 1, 2021, at which point it became subject to the U.K.'s domestic prudential regime. However, notwithstanding these regulatory changes, RREAG, UK Branch is still not required, nor will it be required under the terms of the U.K.'s domestic prudential regime, to hold capital at the branch level. In light of this and related matters, the PRA granted various modifications and waivers to RREAG, UK Branch from its regulatory reporting requirements.

Change of Control

The PRA and the FCA currently regulate the acquisition of control of insurers, reinsurers and Lloyd's managing agents which are authorized under the Financial Services Act 2012. Any company or individual that, together with its or his associates, directly or indirectly acquires 10% or more of the shares in such an entity or its parent company, or is entitled to exercise or control the exercise of 10% or more of the voting power in such entity or its parent company, would be considered to have acquired control for the purposes of the relevant legislation, as would a person who had significant influence over the management of such entity or its parent company by virtue of their shareholding or voting power in either. A purchaser of 10% or more of RenaissanceRe's common shares or voting power would therefore be considered to have acquired control of RSML. Under the Financial Services Act 2012, any person or entity proposing to acquire control over an insurer, reinsurer or Lloyd's managing agent must give prior notification to the PRA and the FCA of their or the entity's intention to do so. The PRA and FCA would then have 60 working days to consider the application to acquire control. Failure to make the relevant prior application could result in action being taken against RSML by the PRA or the FCA or both of them. Lloyd's approval is also required before any person can acquire control (using the same definition as for the PRA and FCA) of a Lloyd's managing agent or Lloyd's corporate member.

Other Applicable Laws

Lloyd's worldwide insurance and reinsurance business is subject to various regulations, laws, treaties and other applicable policies of the EU, as well as of each nation, state and locality in which it operates. Material changes in governmental requirements and laws could have an adverse effect on Lloyd's and market participants, including RSML and RenaissanceRe CCL.

Switzerland Regulation

Swiss Group Affiliate Companies and Reinsurance Branches. RREAG, a company limited by shares with its registered seat in Zurich, Switzerland, is a reinsurance company licensed in class C1 and supervised by FINMA. As such, RREAG must comply with Swiss insurance supervisory law (as applicable to reinsurers), including in particular the Insurance Supervisory Act, Insurance Supervisory Ordinance, FINMA ordinances and FINMA circulars. RREAG's accounts are prepared in accordance with the Swiss Code of Obligations, the Insurance Supervision Act and the Insurance Supervision Ordinance. RREAG maintains branch operations in Australia, Bermuda, U.K. and the U.S., each in accordance with applicable local regulations.

Further, the group affiliates Renaissance Reinsurance and DaVinci each have a branch office registered with the commercial register of the Canton of Zurich, Switzerland; however, as these are reinsurance-only branch offices of a foreign reinsurer, they are not currently subject to the license and supervision requirements of FINMA.

The group affiliate RenaissanceRe Services of Switzerland AG, a company limited by shares with registered seat in Zurich, Switzerland, is a service company. Until December 31, 2019, it held a license granted by FINMA for the distribution of insurance-linked securities. This license type ceased to exist on January 1, 2020 as a result of the new Swiss Federal Financial Institutions Act and the Swiss Federal Financial Services Act, which amended certain provisions of the Swiss collective investment schemes legislation. Thus, as of that date, RenaissanceRe Services of Switzerland AG has ceased to hold any FINMA license. However, RenaissanceRe Services of Switzerland AG has affiliated with a Swiss ombudsman's office and registered the relevant client advisors with a Swiss recognized client advisor register in accordance with the Swiss Federal Financial Services Act, which has enabled it to continue its distribution activities for insurance-linked securities.

Adequacy of Financial Resources. The minimum capital requirement for a Swiss reinsurance company under the Insurance Supervisory Act for reinsurance license class C1 is CHF 10 million.

Being a Swiss domiciled reinsurance company, RREAG must further maintain adequate solvency and provide for sufficient free and unencumbered capital in relation to its entire activities in accordance with the Swiss Solvency Test. The SST adopts a risk-based and total balance sheet approach whereby reinsurance companies are required to provide a market-consistent assessment of the value of their assets and liabilities. The solvency requirement is met if the available risk-bearing capital exceeds the required target capital. It is then assessed whether the identified available capital can meet the SST requirements and is sufficient to cover the company's obligations in less favorable scenarios. The European Commission recognized the SST as being of an equivalent standard to European law with an effective date of January 1, 2016. The SST is also equivalent to the standards in the U.K.'s prudential regime following the expiry of the U.K.'s transition period for leaving the EU on January 1, 2021.

In addition, RREAG must establish sufficient technical reserves for its entire reinsurance business activities. RREAG also has to maintain an organizational fund to cover the costs of establishing and developing the business, and for an extraordinary business expansion. The organizational fund usually amounts to up to 50% of the minimum capital (as discussed above) at the start of business operations and subsequently should typically settle at an amount equivalent to around 20% of the minimum capital. The exact minimum amount is determined by FINMA in each individual case.

Reporting and Disclosure Requirements. RREAG has to submit an annual report (consisting of the annual financial statements and management report) and an annual supervisory report to FINMA by the end of June of the following year. In the course of the supervisory reporting to FINMA, RREAG has to annually disclose its financial condition report containing quantitative and qualitative information, in particular relating to business activities, business results, risk management, the risk profile and valuation principles and methods applied to provisions, capital management and solvency by the end of April of the following year.

Moreover, under the Insurance Supervisory Act, a reinsurance undertaking must be organized in a way that it can, in particular, identify, limit and monitor all material risks. In this context, RREAG must conduct a forward-looking self-assessment of their risk situation and capital requirements at least once a year, and a report on the ORSA must be submitted to FINMA no later than the end of January of the following year.

Further, a reinsurance undertaking must maintain and file with FINMA a regulatory business plan, including details on its organization, financials, qualified participants, management, oversight and control persons, responsible actuary, among other items. Any changes to the business plan must either be approved by FINMA prior to the implementation or be notified to FINMA, depending on the type of change.

Dividends and Distributions. RREAG may only distribute dividends out of its retained earnings or distributable reserves based on the audited annual accounts of the company. Any distribution of dividends remains subject to the approval of FINMA (as a change of the regulatory business plan) if they have a bearing on the solvency of the reinsurer and/or the interests of the insured. The solvency and capital requirements must still be met following any distribution. At December 31, 2020, we believe RREAG exceeded the minimum solvency and capital requirements required to be maintained under Swiss law. RREAG was required to prepare an FCR for the year ended December 31, 2020, which is available on our website.

Singapore Regulation

Branches of Renaissance Reinsurance and DaVinci based in the Republic of Singapore have each received a license to carry on insurance business as a general reinsurer. The activities of these Singapore branches are primarily regulated by the Monetary Authority of Singapore pursuant to Singapore's Insurance Act. Additionally, these branches are each regulated by the Accounting and Corporate Regulatory Authority as a foreign company pursuant to Singapore's Companies Act. We do not currently consider the activities and regulatory requirements of these branches to be material to us.

Renaissance Services of Asia Pte. Ltd., our Singapore-based service company, was established as a private company limited by shares in Singapore on March 15, 2012 and is registered with the Accounting and Corporate Regulatory Authority and subject to Singapore's Companies Act.

Ireland Regulation

Renaissance Reinsurance of Europe, incorporated under the laws of Ireland, provides coverage to insurers and reinsurers, primarily in Europe. Business has been written in Dublin. However, following the U.K.'s exit from the EU, and the expiry of the transition period on December 31, 2020, Renaissance Reinsurance of Europe's U.K. branch is no longer underwriting any new business, and its existing book of business is now undergoing an orderly run-off under the U.K.'s "Financial Services Contracts Regime."

Renaissance Reinsurance of Europe is regulated and supervised by the Central Bank of Ireland and is subject to the requirements of Solvency II. Renaissance Reinsurance of Europe is registered with the Companies Registration Office in Ireland and is subject to the Companies Act 2014. The Central Bank of Ireland adopts a risk-based framework to the supervision of regulated firms. Firms are rated according to the impact their failure would have on financial systems, the Irish economy and on the citizens of Ireland. Renaissance Reinsurance of Europe is currently considered by the Central Bank of Ireland to be a 'low impact' firm. We do not currently consider the regulatory requirements of Renaissance Reinsurance of Europe to be material to us.

Renaissance Services of Europe Ltd., our Dublin-based Irish service company, was established as a private company limited by shares in Ireland and is registered with the Companies Registration Office and subject to the Companies Act 2014.

Australia Regulation

RREAG, Australia Branch, based in Sydney, Australia, has received a license to carry on insurance business. RREAG, Australia Branch provides coverage to insurers and reinsurers from Australia and New Zealand. The activities of RREAG, Australia Branch are primarily regulated by APRA. RREAG, Australia Branch is classified as a Category C insurer (a foreign insurer operating as a foreign branch in Australia) pursuant to the Insurance Act 1973. Additionally, RREAG, Australia Branch is also regulated by the Australian Securities and Investments Commission as a foreign company pursuant to the Corporations Act 2001. We do not currently consider the activities and regulatory requirements of RREAG, Australia Branch to be material to us.

RREAG, Australia Branch's regulatory reporting is prepared in accordance with the Australian Accounting Standards and APRA Prudential Standards. APRA Prudential Standards require the maintenance of net assets in Australia in excess of a calculated Prescribed Capital Amount. At December 31, 2021, we believe that the net assets of RREAG, Australia Branch that are located in Australia exceeded the Prescribed Capital Amount that we estimated under the APRA Prudential Standards.

GLOSSARY OF DEFINED TERMS

"2017 Large Loss Events"	Hurricanes Harvey, Irma and Maria, the Mexico City Earthquake, the wildfires in California during the fourth quarter of 2017 and certain losses associated with aggregate loss contracts
"2018 Large Loss Events"	Typhoons Jebi, Mangkhut and Trami, Hurricane Florence, the wildfires in California during the third and fourth quarters of 2018, Hurricane Michael and certain losses associated with aggregate loss contracts
"2019 Aggregate Losses"	certain losses associated with aggregate loss contracts in 2019
"2019 Large Loss Events"	Hurricane Dorian and Typhoons Faxai and Hagibis and certain losses associated with aggregate loss contracts
"2020 Aggregate Losses"	loss estimates associated with aggregate loss contracts triggered during 2021 primarily as a result of losses associated with the Q3 2020 Weather-Related Catastrophe Events and Q4 2020 Weather-Related Catastrophe Events.
"2020 Weather-Related Large Loss Events"	Hurricanes Laura, Sally, Isaias, Delta, Zeta and Eta, the California, Oregon and Washington wildfires, Typhoon Maysak, the August 2020 Derecho, and losses associated with aggregate loss contracts

“2021 Weather-Related Large Losses”	Winter Storm Uri, the European Floods, Hurricane Ida, Other 2021 Catastrophe Events and loss estimates associated with certain aggregate loss contracts triggered during 2021 as a result of weather-related catastrophe events
“A.M. Best”	A.M. Best Company, Inc.
“APRA”	Australian Prudential Regulation Authority
“BMA”	Bermuda Monetary Authority
“BSCR”	Bermuda solvency and capital requirement
“Code of Ethics”	RenaissanceRe’s Code of Ethics and Conduct
“DaVinci”	DaVinci Reinsurance Ltd.
“DaVinciRe”	DaVinciRe Holdings Ltd.
“DEI”	Diversity, Equity and Inclusion
“ECR”	Enhanced Capital Requirement
“ERM”	enterprise risk management
“EU”	European Union
“Exchange Act”	the Securities Exchange Act of 1934, as amended
“FAL”	a deposit that must be submitted to support the underwriting capacity of a member of Lloyd’s
“FASB”	Financial Accounting Standards Board
“FCA”	U.K. Financial Conduct Authority
“FCR”	financial condition report
“FINMA”	Swiss Financial Market Supervisory Authority
“Fitch”	Fitch Ratings Ltd.
“Form 10-K”	this Annual Report on Form 10-K for the year ended December 31, 2021
“GAAP”	generally accepted accounting principles in the U.S.
“IFRS”	International Financial Reporting Standards
“IRS”	United States Internal Revenue Service
“MIA”	Maryland Insurance Administration
“Medici”	RenaissanceRe Medici Fund Ltd.
“Moody’s”	Moody’s Investors Service
“NAIC”	National Association of Insurance Commissioners
“NYDFS”	New York State Department of Financial Services
“NYSE”	New York Stock Exchange
“OECD”	Organisation for Economic Co-operation and Development
“OFAC”	U.S. Treasury’s Office of Foreign Assets Control
“ORSA”	Own Risk and Solvency Assessment
“Other 2021 Catastrophe Events”	the hail storm in Europe in late June 2021, the wildfires in California during the third quarter of 2021, the tornadoes in the Central and Midwest U.S. in December 2021, and the Midwest Derecho in December 2021.
“PFIC”	passive foreign investment company
“PGGM”	PGGM Vermogensbeheer B.V.
“Platinum”	Platinum Underwriters Holdings, Ltd.
“PRA”	U.K. Prudential Regulatory Authority
“Proxy Statement”	Proxy Statement for the Annual General Meeting of Shareholders to be held on May 16, 2022
“Q3 2020 Weather-Related Catastrophe Events”	Hurricane Laura, Hurricane Sally, the third quarter 2020 wildfires in California, Oregon and Washington, other third quarter catastrophe events including the August 2020 derecho which impacted the U.S. Midwest, Hurricane Isaias, and Typhoon Maysak

“Q4 2020 Weather-Related Catastrophe Events”	Hurricanes Zeta, Delta, Hurricane Eta and wildfires on the West Coast of the United States during the fourth quarter of 2021
“REMS©”	Renaissance Exposure Management System
“Renaissance Reinsurance”	Renaissance Reinsurance Ltd.
“Renaissance Reinsurance of Europe”	Renaissance Reinsurance of Europe Unlimited Company
“Renaissance Reinsurance U.S.”	Renaissance Reinsurance U.S. Inc.
“RenaissanceRe CCL”	RenaissanceRe Corporate Capital (UK) Limited
“RenaissanceRe Group”	RenaissanceRe group of companies
“RenaissanceRe Specialty U.S.”	RenaissanceRe Specialty U.S. Ltd.
“RenaissanceRe UK”	RenaissanceRe (UK) Limited
“RenaissanceRe”	RenaissanceRe Holdings Ltd.
“RFM”	RenaissanceRe Fund Management Ltd.
“RREAG, Australia Branch”	RenaissanceRe Europe AG, Australia Branch
“RREAG, Bermuda Branch”	RenaissanceRe Europe AG, Bermuda Branch
“RREAG, UK Branch”	RenaissanceRe Europe AG, UK Branch
“RREAG, US Branch”	RenaissanceRe Europe AG, US Branch
“RREAG”	RenaissanceRe Europe AG
“RSML”	RenaissanceRe Syndicate Management Ltd.
“RUM”	Renaissance Underwriting Managers, Ltd.
“S&P”	Standard and Poor’s Rating Services
“SEC”	U.S. Securities and Exchange Commission
“Securities Act”	Securities Act of 1933, as amended
“SPI”	special purpose insurer
“SST”	Swiss Solvency Test
“State Farm”	State Farm Mutual Automobile Insurance Company
“Syndicate 1458”	RenaissanceRe Syndicate 1458
“TMR”	collectively, Tokio Millennium Re AG and certain associated entities and subsidiaries
“Top Layer Re”	Top Layer Reinsurance Ltd.
“Tower Hill Companies”	collectively, our investments in a group of Tower Hill affiliated companies including Bluegrass Insurance Management, LLC, Tower Hill Claims Service, LLC, Tower Hill Holdings, Inc., Tower Hill Insurance Group, LLC, Tower Hill Insurance Managers, LLC, Tower Hill Re Holdings, Inc., Tower Hill Signature Insurance Holdings, Inc., Tower Hill Risk Management LLC and Tomoka Re Holdings, Inc.
“U.K.”	United Kingdom
“U.S. persons”	a citizen or resident of the United States, a U.S. partnership or corporation, or an estate or trust that is not a foreign estate or trust
“U.S. Treasury”	U.S. Department of the Treasury
“U.S.”	United States of America
“Upsilon Fund”	RenaissanceRe Upsilon Fund Ltd.
“Upsilon RFO”	Upsilon RFO Re Ltd.
“Vermeer”	Vermeer Reinsurance Ltd.
“VOBA”	value of business acquired

GLOSSARY OF SELECTED INSURANCE AND REINSURANCE TERMS

Accident year	Year of occurrence of a loss. Claim payments and reserves for claims and claim expenses are allocated to the year in which the loss occurred for losses occurring contracts and in the year the loss was reported for claims made contracts.
Acquisition expenses	The aggregate expenses incurred by a company for acquiring new business, including commissions, underwriting expenses, premium taxes and administrative expenses.
Additional case reserves	Additional case reserves represent management's estimate of reserves for claims and claim expenses that are allocated to specific contracts, less paid and reported losses by the client.
Attachment point	The dollar amount of loss (per occurrence or in the aggregate, as the case may be) above which excess of loss reinsurance becomes operative.
Bordereaux	A report providing premium or loss data with respect to identified specific risks. This report is periodically furnished to a reinsurer by the ceding insurers or reinsurers.
Bound	A (re)insurance contract is considered bound, and the (re)insurer responsible for the risks of the contract, when both parties agree to the terms and conditions set forth in the contract.
Broker	An intermediary who negotiates contracts of insurance or reinsurance, receiving a commission for placement and other services rendered, between (1) a policy holder and a primary insurer, on behalf of the insured party, (2) a primary insurer and reinsurer, on behalf of the primary insurer, or (3) a reinsurer and a retrocessionaire, on behalf of the reinsurer.
Capacity	The percentage of surplus, or the dollar amount of exposure, that an insurer or reinsurer is willing or able to place at risk. Capacity may apply to a single risk, a program, a line of business or an entire book of business. Capacity may be constrained by legal restrictions, corporate restrictions or indirect restrictions.
Case reserves	Loss reserves, established with respect to specific, individual reported claims.
Casualty insurance or reinsurance	Insurance or reinsurance that is primarily concerned with the losses caused by injuries to third persons and their property (in other words, persons other than the policyholder) and the legal liability imposed on the insured resulting therefrom. Also referred to as liability insurance.
Catastrophe	A severe loss, typically involving multiple claimants. Common perils include earthquakes, hurricanes, hailstorms, severe winter weather, floods, fires, tornadoes, typhoons, explosions and other natural or man-made disasters. Catastrophe losses may also arise from acts of war, acts of terrorism and political instability.
Catastrophe excess of loss reinsurance	A form of excess of loss reinsurance that, subject to a specified limit, indemnifies the ceding company for the amount of loss in excess of a specified retention with respect to an accumulation of losses resulting from a "catastrophe."
Catastrophe-linked securities; cat-linked securities	Cat-linked securities are generally privately placed fixed income securities where all or a portion of the repayment of the principal is linked to catastrophic events. This includes securities where the repayment is linked to the occurrence and/or size of, for example, one or more hurricanes or earthquakes, or insured industry losses associated with these catastrophic events.

Cede; cedant; ceding company	When a party reinsures its liability with another, it “cedes” business and is referred to as the “cedant” or “ceding company.”
Claim	Request by an insured or reinsured for indemnification by an insurance company or a reinsurance company for losses incurred from an insured peril or event.
Claims made contracts	Contracts that cover claims for losses occurring during a specified period that are reported during the term of the contract.
Claims and claim expense ratio, net	The ratio of net claims and claim expenses to net premiums earned determined in accordance with either statutory accounting principles or GAAP.
Claim reserves	Liabilities established by insurers and reinsurers to reflect the estimated costs of claim payments and the related expenses that the insurer or reinsurer will ultimately be required to pay in respect of insurance or reinsurance policies it has issued. Claims reserves consist of case reserves, established with respect to individual reported claims, additional case reserves and “IBNR” reserves. For reinsurers, loss expense reserves are generally not significant because substantially all of the loss expenses associated with particular claims are incurred by the primary insurer and reported to reinsurers as losses.
Combined ratio	The combined ratio is the sum of the net claims and claim expense ratio and the underwriting expense ratio. A combined ratio below 100% generally indicates profitable underwriting prior to the consideration of investment income. A combined ratio over 100% generally indicates unprofitable underwriting prior to the consideration of investment income.
Delegated authority	A contractual arrangement between an insurer or reinsurer and an agent whereby the agent is authorized to bind insurance or reinsurance on behalf of the insurer or reinsurer. The authority is normally limited to a particular class or classes of business and a particular territory. The exercise of the authority to bind insurance or reinsurance is normally subject to underwriting guidelines and other restrictions such as maximum premium income. Under the delegated authority, the agent is responsible for issuing policy documentation, the collection of premium and may also be responsible for the settlement of claims.
Excess of loss reinsurance or insurance	Reinsurance or insurance that indemnifies the reinsured or insured against all or a specified portion of losses on underlying insurance policies in excess of a specified amount, which is called a “level” or “retention.” Also known as non-proportional reinsurance. Excess of loss reinsurance is written in layers. A reinsurer or group of reinsurers accepts a layer of coverage up to a specified amount. The total coverage purchased by the cedant is referred to as a “program” and will typically be placed with predetermined reinsurers in pre-negotiated layers. Any liability exceeding the outer limit of the program reverts to the ceding company, which also bears the credit risk of a reinsurer’s insolvency.
Exclusions	Those risks, perils, or classes of insurance with respect to which the reinsurer will not pay loss or provide reinsurance, notwithstanding the other terms and conditions of reinsurance.
Expense override	An amount paid to a ceding company in addition to the acquisition cost to compensate for overhead expenses.
Frequency	The number of claims occurring during a given coverage period.

Funds at Lloyd's	Funds of an approved form that are lodged and held in trust at Lloyd's as security for a member's underwriting activities. They comprise the members' deposit, personal reserve fund and special reserve fund and may be drawn down in the event that the member's syndicate level premium trust funds are insufficient to cover its liabilities. The amount of the deposit is related to the member's premium income limit and also the nature of the underwriting account.
Generally Accepted Accounting Principles in the United States	Accounting principles as set forth in the statements of the Financial Accounting Standards Board and related guidance, which are applicable in the circumstances as of the date in question.
Gross premiums written	Total premiums for insurance written and assumed reinsurance during a given period.
Incurred but not reported; IBNR	Reserves for estimated losses that have been incurred by insureds and reinsureds but not yet reported to the insurer or reinsurer, including unknown future developments on losses that are known to the insurer or reinsurer.
Insurance-linked securities	Financial instruments whose values are driven by (re)insurance loss events. Our investments in insurance-linked securities are generally linked to property losses due to natural catastrophes.
International Financial Reporting Standards	Accounting principles, standards and interpretations as set forth in opinions of the International Accounting Standards Board which are applicable in the circumstances as of the date in question.
Layer	The interval between the retention or attachment point and the maximum limit of indemnity for which a reinsurer is responsible.
Line	The amount of excess of loss reinsurance protection provided to an insurer or another reinsurer, often referred to as limit.
Line of business	The general classification of insurance written by insurers and reinsurers, *e.g.*, fire, allied lines, homeowners and surety, among others.
Lloyd's	Depending on the context, this term may refer to (a) the society of individual and corporate underwriting members that insure and reinsure risks as members of one or more syndicates (i.e., Lloyd's is not an insurance company); (b) the underwriting room in the Lloyd's building in which managing agents underwrite insurance and reinsurance on behalf of their syndicate members (in this sense Lloyd's should be understood as a market place); or (c) the Corporation of Lloyd's which regulates and provides support services to the Lloyd's market.
Loss; losses	An occurrence that is the basis for submission and/or payment of a claim. Whether losses are covered, limited or excluded from coverage is dependent on the terms of the policy.
Loss reserve	For an individual loss, an estimate of the amount the insurer expects to pay for the reported claim. For total losses, estimates of expected payments for reported and unreported claims. These may include amounts for claims expenses.
Managing agent	An underwriting agent which has permission from Lloyd's to manage a syndicate and carry on underwriting and other functions for a member.
Net claims and claim expenses	The expenses of settling claims, net of recoveries, including legal and other fees and the portion of general expenses allocated to claim settlement costs (also known as claim adjustment expenses or loss adjustment expenses) plus losses incurred with respect to net claims.
Net claims and claim expense ratio	Net claims and claim expenses incurred expressed as a percentage of net earned premiums.
Net premiums earned	The portion of net premiums written during or prior to a given period that was actually recognized as income during such period.

Net premiums written	Gross premiums written for a given period less premiums ceded to reinsurers and retrocessionaires during such period.
Perils	This term refers to the causes of possible loss in the property field, such as fire, windstorm, collision, hail, etc. In the casualty field, the term “hazard” is more frequently used.
Profit commission	A provision found in some reinsurance agreements that provides for profit sharing. Parties agree to a formula for calculating profit, an allowance for the reinsurer’s expenses, and the cedant’s share of such profit after expenses.
Property insurance or reinsurance	Insurance or reinsurance that provides coverage to a person with an insurable interest in tangible property for that person’s property loss, damage or loss of use.
Property per risk	Reinsurance on a treaty basis of individual property risks insured by a ceding company.
Proportional reinsurance	A generic term describing all forms of reinsurance in which the reinsurer shares a proportional part of the original premiums and losses of the reinsured. (Also known as pro rata reinsurance, quota share reinsurance or participating reinsurance.) In proportional reinsurance, the reinsurer generally pays the ceding company a ceding commission. The ceding commission generally is based on the ceding company’s cost of acquiring the business being reinsured (including commissions, premium taxes, assessments and miscellaneous administrative expense) and also may include a profit factor. *See also* “Quota Share Reinsurance.”
Quota share reinsurance	A form of proportional reinsurance in which the reinsurer assumes an agreed percentage of each insurance policy being reinsured and shares all premiums and losses accordingly with the reinsured. *See also* “Proportional Reinsurance.”
Reinstatement premium	The premium charged for the restoration of the reinsurance limit of a catastrophe contract to its full amount after payment by the reinsurer of losses as a result of an occurrence.
Reinsurance	An arrangement in which an insurance company, the reinsurer, agrees to indemnify another insurance or reinsurance company, the ceding company, against all or a portion of the insurance or reinsurance risks underwritten by the ceding company under one or more policies. Reinsurance can provide a ceding company with several benefits, including a reduction in net liability on insurances and catastrophe protection from large or multiple losses. Reinsurance also provides a ceding company with additional underwriting capacity by permitting it to accept larger risks and write more business than would be possible without an equivalent increase in capital and surplus, and facilitates the maintenance of acceptable financial ratios by the ceding company. Reinsurance does not legally discharge the primary insurer from its liability with respect to its obligations to the insured.
Reinsurance to Close	Also referred to as a RITC, it is a contract to transfer the responsibility for discharging all the liabilities that attach to one year of account of a syndicate into a later year of account of the same or different syndicate in return for a premium.
Retention	The amount or portion of risk that an insurer retains for its own account. Losses in excess of the retention level are paid by the reinsurer. In proportional treaties, the retention may be a percentage of the original policy’s limit. In excess of loss business, the retention is a dollar amount of loss, a loss ratio or a percentage.
Retrocedant	A reinsurer who cedes all or a portion of its assumed insurance to another reinsurer.

Retrocessional reinsurance; Retrocessionaire	A transaction whereby a reinsurer cedes to another reinsurer, the retrocessionaire, all or part of the reinsurance that the first reinsurer has assumed. Retrocessional reinsurance does not legally discharge the ceding reinsurer from its liability with respect to its obligations to the reinsured. Reinsurance companies cede risks to retrocessionaires for reasons similar to those that cause primary insurers to purchase reinsurance: to reduce net liability on insurances, to protect against catastrophic losses, to stabilize financial ratios and to obtain additional underwriting capacity.
Risks	A term used to denote the physical units of property at risk or the object of insurance protection that are not perils or hazards. Also defined as chance of loss or uncertainty of loss.
Solvency II	A set of regulatory requirements that codify and harmonize the EU insurance and reinsurance regulation. Among other things, these requirements impact the amount of capital that EU insurance and reinsurance companies are required to hold. Solvency II came into effect on January 1, 2016.
Specialty lines	Lines of insurance and reinsurance that provide coverage for risks that are often unusual or difficult to place and do not fit the underwriting criteria of standard commercial products carriers.
Statutory accounting principles	Recording transactions and preparing financial statements in accordance with the rules and procedures prescribed or permitted by Bermuda, U.S. state insurance regulatory authorities including the NAIC and/or in accordance with Lloyd's specific principles, all of which generally reflect a liquidating, rather than going concern, concept of accounting.
Stop loss	A form of reinsurance under which the reinsurer pays some or all of a cedant's aggregate retained losses in excess of a predetermined dollar amount or in excess of a percentage of premium.
Submission	An unprocessed application for (i) insurance coverage forwarded to a primary insurer by a prospective policyholder or by a broker on behalf of such prospective policyholder, (ii) reinsurance coverage forwarded to a reinsurer by a prospective ceding insurer or by a broker or intermediary on behalf of such prospective ceding insurer or (iii) retrocessional coverage forwarded to a retrocessionaire by a prospective ceding reinsurer or by a broker or intermediary on behalf of such prospective ceding reinsurer.
Surplus lines insurance	Any type of coverage that cannot be placed with an insurer admitted to do business in a certain jurisdiction. Risks placed in excess and surplus lines markets are often substandard in respect to adverse loss experience, unusual, or unable to be placed in conventional markets due to a shortage of capacity.
Syndicate	A member or group of members underwriting (re)insurance business at Lloyd's through the agency of a managing agent or substitute agent to which a syndicate number is assigned.
Treaty	A reinsurance agreement covering a book or class of business that is automatically accepted on a bulk basis by a reinsurer. A treaty contains common contract terms along with a specific risk definition, data on limit and retention, and provisions for premium and duration.
Underwriting	The insurer's or reinsurer's process of reviewing applications submitted for insurance coverage, deciding whether to accept all or part of the coverage requested and determining the applicable premiums.
Underwriting capacity	The maximum amount that an insurance company can underwrite. The limit is generally determined by a company's retained earnings and investment capital. Reinsurance serves to increase a company's underwriting capacity by reducing its exposure from particular risks.

Underwriting expense ratio	The ratio of the sum of the acquisition expenses and operational expenses to net premiums earned.
Underwriting expenses	The aggregate of policy acquisition costs, including commissions, and the portion of administrative, general and other expenses attributable to underwriting operations.
Unearned premium	The portion of premiums written representing the unexpired portions of the policies or contracts that the insurer or reinsurer has on its books as of a certain date.

AVAILABLE INFORMATION

We maintain a website at *www.renre.com*. The information on our website is not incorporated by reference in this Form 10-K. We make available, free of charge through our website, 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 Exchange Act as soon as reasonably practicable after we electronically file such material with, or furnish such material to, the SEC. We also make available, free of charge from our website, our Audit Committee Charter, Compensation and Corporate Governance Committee Charter, Corporate Governance Guidelines, and Code of Ethics. Such information is also available in print for any shareholder who sends a request to RenaissanceRe Holdings Ltd., Attn: Office of the Corporate Secretary, P.O. Box HM 2527, Hamilton, HMGX, Bermuda. The SEC maintains an internet site that contains reports, proxy and information statements, and other information regarding issuers, including the Company, that file electronically with the SEC. The address of the SEC's website is *www.sec.gov*.

ITEM 1A. RISK FACTORS

Factors that could have a material impact on our results of operations or financial condition are outlined below. Additional risks not presently known to us or that we currently deem insignificant may also impair our business or results of operations as they become known or as facts and circumstances change. Any of the risks described below could cause our actual results to differ materially from those in the forward-looking statements contained in this Form 10-K and other documents we file with the SEC:

Risks Related to our (Re)insurance Business

Our exposure to natural and non-natural catastrophic events and circumstances could cause significant variance in, or adversely impact, our financial results.

We have substantial exposure to natural and non-natural catastrophic events and circumstances, such as earthquakes, hurricanes, tsunamis, winter storms, freezes, floods, fires, tornadoes, hailstorms, drought, pandemics, cyber-risks, political unrest, war, riots and acts of terrorism. Historically, a relatively large percentage of our coverage exposures has been concentrated in natural disasters in the U.S. Southeast or West Coast, but we have significant exposure to large catastrophic events globally. As a result, our operating results have historically been, and we expect will continue to be, significantly affected by the frequency and severity of loss events.

The occurrence, or nonoccurrence, of catastrophic events, the frequency and severity of which are inherently unpredictable, may cause significant volatility in our quarterly and annual financial results and may materially adversely affect our financial condition, results of operations and cash flows. In addition, we believe that certain factors may continue to increase the number and severity of claims from catastrophic events in the future, including increases in the value and geographic concentration of insured property, increasing risks associated with extreme weather events because of changes in climate conditions and sea-level rise, and the effects of higher-than-expected inflation.

The trend towards increasingly frequent and severe climate events could exacerbate our potential exposure to losses from natural perils.

Our largest estimated economic exposures arise from natural disasters and other catastrophes. We believe the trend towards increased severity and frequency of weather-related natural disasters and catastrophes arises in part from climate change. In addition, we believe that climate change and shifting demographic trends in catastrophe exposed regions each contributes to increases in the average economic value of expected losses. Further, we believe that the recent increase in catastrophic events is indicative of permanent climate change rather than transient climate variability.

A substantial portion of our property coverages may be adversely impacted by climate change. While we have invested heavily to understand the influence of climate change on the weather and its impact on the risks that we take, we cannot predict with certainty the frequency or severity of tropical cyclones, wildfires or other natural catastrophes, and our risk assessments may not accurately reflect shifting environmental and climate related risks. Unanticipated factors could lead to additional insured losses that exceed our current estimates, resulting in disruptions to or adverse impacts on our business, the market, or our clients. Further, some of our investments, such as catastrophe-linked securities and property catastrophe joint ventures or managed funds, could also be adversely impacted by climate change.

Our claims and claim expense reserves are subject to inherent uncertainties, and if actual claims exceed our reserves, our financial results could be adversely affected.

Our results of operations and financial condition depend upon our ability to accurately assess the potential losses associated with the risks that we insure and reinsure. Our claims and claim expense reserves reflect our estimates of these potential losses. We use actuarial and computer models, historical reinsurance and insurance industry loss statistics, and management's experience and judgment to assist in the establishment of appropriate claims and claim expense reserves. Ssee "Part I, Item 1. Business—Underwriting and Enterprise Risk Management." Our estimates and judgments may be revised as additional experience and other data become available, as new or improved methodologies are developed, as loss trends and claims inflation impact future payments, or as rules and regulations change.

Due to the assumptions and estimates involved in establishing reserves, they are inherently uncertain. As information emerges and losses are paid, we expect that some of our assumptions or estimates will change, perhaps materially, and that our actual net claims and claim expenses paid and reported will differ, perhaps materially, from the reserve estimates reflected in our financial statements. For example, our significant gross and net reserves associated with the large catastrophe events of the past several years, as well as those associated with the COVID-19 pandemic, remain subject to significant uncertainty.

If we determine that our claims and claim expense reserves are inadequate, we may be required to increase these reserves at the time of the determination and take income statement charges, reducing our net income and available capital. Conversely, if our reserving estimates are too conservative, it could impede our ability to grow our business. Our claims reserves are large, and a small percentage increase to those liabilities could materially adversely affect our financial condition and results of operations.

Emerging claim and coverage issues, or other litigation, could adversely affect us.

Unanticipated developments in the law as well as changes in social conditions could result in unexpected claims for coverage under our insurance and reinsurance contracts. These developments and changes may adversely affect us, perhaps materially, by, for example, imposing additional coverage obligations beyond our underwriting intent or increasing the number or size of claims to which we are subject. We believe that our property results have been adversely impacted over recent periods by increasing fraud and abuses at the primary claims level, as well as other forms of social inflation, and that these trends may continue. Assignment of benefits practices, particularly in Florida, have resulted in increases in the size and number of claims and incidences of litigation, which may directly affect us through policies we write or by reducing the value of investments we have in Florida domestic reinsurers.

These legal and social changes and their impact may not become apparent until some time after their occurrence, particularly with respect to our casualty and specialty business. Our exposure to these uncertainties could be exacerbated by social inflation trends, including increased litigation, expanded theories of liability and higher jury awards.

The full effects of these and other unforeseen emerging claims and coverage issues are extremely difficult to predict. As a result, the full extent of our liability under our coverages may not be known for many years after a contract is issued. Furthermore, we expect that our exposure to this uncertainty will grow as our casualty business grows, because in these "long-tail" lines claims can typically be made for many years, making them more susceptible to these trends than our property and specialty businesses, which are generally more "short-tail."

We depend on a few insurance and reinsurance brokers for a preponderance of our business, and any loss of business provided by them could adversely affect us.

We market our insurance and reinsurance products worldwide through a limited number of insurance and reinsurance brokers. As a result, the loss of a broker, through a merger, acquisition or otherwise, could result in the loss of a substantial portion of our business, which would reduce our premium volume and could have a material adverse effect on us. Further, due to the concentration of our brokers, they may have increased power to dictate the terms and conditions of our arrangements with them, which could have a negative impact on our business.

The (re)insurance business is historically cyclical and the pricing and terms for our products may decline, which would affect our profitability and ability to maintain or grow premiums.

The (re)insurance industry has historically been cyclical by product and market. After experiencing a prolonged soft market cycle over the last several years, we believe that the current (re)insurance underwriting market is in a hard market phase for many lines of business, characterized by increasing prices and improving terms and conditions. This shift has likely been caused by recent withdrawals of alternative capital, the number of multiple catastrophic events and continuing prior year adverse development. We cannot assure you that this increase in premium rates will continue, and rates may decrease in the future. If demand for our products falls or the supply of competing capacity rises, our prospects for potential growth may be adversely affected. In particular, we might lose existing customers or suffer a decline in business during shifting market cycles, which we might not regain when industry conditions improve.

We believe the hard/soft market cycle dynamic is likely to persist, and that we may return to soft market conditions in the future. Additionally, it is possible that increased access of primary insurers to capital, new technologies and other factors may reduce the duration or eliminate or significantly lessen the impact of any current or future hard reinsurance underwriting market. The cumulative impact of these risks could negatively impact our profitability and ability to maintain or grow premiums.

Retrocessional reinsurance may not be available to us on acceptable terms or provide the coverage we intended to obtain, or we may not be able to collect on claimed retrocessional coverage.

The retrocessional reinsurance that we purchase for our own account is generally subject to annual renewal, and market conditions may. Recent large catastrophe events have limited and may continue to limit or prevent us from obtaining desired amounts of new or replacement coverage on favorable terms or from entities with satisfactory creditworthiness. This could limit the amount of business we are willing to write or decrease the protection available to us following large loss events.

When we purchase reinsurance or retrocessional reinsurance for our own account, complex coverage issues or coverage disputes may impede our ability to collect amounts we believe we are owed. We have significant reinsurance recoverable associated with the large catastrophe events of the past several years, and the insolvency of any of our reinsurers, or the inability or reluctance of any of our reinsurers to make timely payments to us under the terms of our reinsurance agreements, could have a material adverse effect on us.

In addition, a large portion of our reinsurance protection is concentrated with a relatively small number of reinsurers, which could increase credit risk and may make it difficult to negotiate favorable terms and conditions. The risk of such concentration of retrocessional coverage may be increased by recent and future consolidation within the industry.

We depend on the policies, procedures and expertise of ceding companies and delegated authority counterparties, who may fail to accurately assess the risks they underwrite, which exposes us to operational and financial risks.

We do not separately underwrite each primary risk assumed under our reinsurance contracts or pursuant to our delegated authority business. Accordingly, we are heavily dependent on the original underwriting decisions made by our ceding companies and delegated authority counterparties, who may not have adequately evaluated the risks to be reinsured. As a result, the premiums they cede to us may not properly compensate us for the risks we assume, which could materially adversely affect our financial condition. In addition, it is possible that our delegated authority counterparties or other counterparties authorized to bind policies on our behalf will fail to comply with regulatory requirements, such as those relating to sanctions, or our own standards regarding underwriting and reputational risk tolerance, which could lead to increased regulatory and operational burden, among other risks. We expect the amount of business we write through delegated authority counterparties to continue to increase, and to the extent we continue to increase the proportional coverages we offer, we will increase our aggregate exposure to risks of this nature.

A decline in our financial strength ratings may adversely impact our business, perhaps materially.

Financial strength ratings are used by ceding companies and reinsurance intermediaries to assess the financial strength and quality of reinsurers and insurers. Rating agencies evaluate us periodically and may downgrade or withdraw their financial strength ratings if we do not continue to meet their criteria. In addition, rating agencies may make changes in their capital models and rating methodologies, which could increase the amount of capital required to support our ratings. In December 2021, S&P announced proposed changes to its rating methodologies. The proposed changes have not been finalized, so the impact, if any, these changes may have on our ratings is unknown.

A ratings downgrade or other negative ratings action could adversely affect our ability to compete with other reinsurers and insurers, the marketability of our product offerings, access to and cost of borrowing, and ability to write new business. We could also breach covenants under, or incur higher borrowing costs on, our credit facilities. In addition, if we are downgraded below a certain rating level, nearly all of our reinsurance contracts contain provisions permitting cedants to cancel coverage and/or requiring us to post collateral for our obligations.

For the current ratings of certain of our subsidiaries and joint ventures and additional ratings information, refer to "Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations—Financial Condition, Liquidity and Capital Resources—Ratings."

We operate in a highly competitive environment.

Competition and consolidation in the (re)insurance industry could adversely impact us. We compete with major U.S. and non-U.S. insurers and reinsurers, many of which have greater financial, marketing and management resources than we do. In addition, pension funds, endowments, investment banks, investment managers, exchanges, hedge funds and other capital markets participants have become increasingly active in the reinsurance market, either through the formation of reinsurance companies or the use of other financial products intended to compete with traditional reinsurance. We may also face competition from non-traditional competitors, as well as Insurtech start-up companies and others who aim to leverage access to "big data," artificial intelligence or other emerging technologies to gain a competitive advantage.

We expect competition to continue to increase over time. It is possible that new or alternative capital could cause reductions in prices of our products or reduce the duration or amplitude of attractive portions of the historical market cycles. New entrants or existing competitors, which may include government sponsored funds or other vehicles, may attempt to replicate all or part of our business model and provide further competition in the markets in which we participate. We will also need to continue to invest significant time and resources in new technologies and new ways to deliver our products and services in order to maintain our competitive position.

Along with increased competition, there has also been significant consolidation in the (re)insurance industry over the last several years, including among our competitors, customers and brokers. These consolidated enterprises may try to use their enhanced market power or better capitalization to negotiate price reductions for our products and services or obtain a larger market share through increased line sizes. If competitive pressures decrease the prices for our products, we would generally expect to reduce our future underwriting activities, resulting in lower premium volume and profitability.

As the insurance industry consolidates, we expect competition for customers to become more intense, and sourcing and properly servicing each customer to become even more important. We could incur greater expenses relating to customer acquisition and retention, further reducing our operating margins. In addition, insurance companies that merge may be able to spread their risks across a consolidated, larger capital base so that they require less reinsurance.

Reinsurance intermediaries may also continue to consolidate, potentially adversely impacting our ability to access business and distribute our products. Any of the foregoing could adversely affect our business or results of operations.

Large non-recurring contracts and reinstatement premiums may increase the volatility of our financial results.

Our premiums are prone to significant volatility due to factors including the timing of contract inception, as well as our differentiated strategy and capability that position us to pursue potentially non-recurring bespoke or large solutions for clients. In addition, after a large catastrophic event or circumstance, we may record significant amounts of reinstatement premium, which can cause quarterly, non-recurring fluctuations in both our written and earned premiums in our Property segment.

Risks Related to our Strategy and Operations

The loss of key senior members of management and the inability to attract and retain qualified personnel could adversely affect us.

Our success depends upon our ability to attract and retain our senior officers and to attract and retain additional qualified personnel in the future. The loss of services of members of our senior management team and the uncertain transition of new members of our senior management team may strain our ability to execute our strategic initiatives, or make it more difficult to retain customers, attract or maintain our capital support, or meet other needs of our business. This risk may be particularly acute for us relative to some of our competitors because some of our senior executives work in countries where they are not citizens (such as Bermuda) and work permit and immigration issues could adversely affect the ability to retain or hire key persons.

We are subject to cybersecurity risks and may incur increasing costs to minimize those risks.

Cybersecurity threats and incidents have increased in recent years, and we may be subject to heightened cyber-related risks, in part due to the extended period of remote work arrangements due to the COVID-19 pandemic. Our business depends on the proper functioning and availability of our information technology platform, including communications and data processing systems and our proprietary systems. We are also required to effect electronic transmissions with third parties including brokers, clients, vendors and others with whom we do business, as well as with our Board of Directors. We cannot guarantee that the controls and procedures we or third parties have in place to protect or recover our systems and information will be effective, successful or sufficiently rapid to avoid harm to our business.

Security breaches, including at third parties that have our information, could expose us to a risk of loss or misuse of our information, litigation and potential liability. In addition, cyber incidents, such as ransomware attacks, that impact the availability, reliability, speed, accuracy or other proper functioning of our systems could have a significant impact on our operations and financial results. We may not have the resources or technical sophistication to anticipate or prevent rapidly evolving types of cyberattacks. A significant cyber incident, including system failure, security breach, disruption by malware or other damage could interrupt or delay our operations, result in a violation of applicable cybersecurity and privacy and other laws, damage our reputation, cause a loss of customers or expose sensitive customer data, or give rise to monetary fines and other penalties, which could be significant. While management is not aware of a cybersecurity incident that has had a material effect on our operations, there can be no assurances that a cybersecurity incident that could have a material impact on us will not occur in the future.

The cybersecurity regulatory environment is evolving, and it is likely that the costs of complying with new or developing regulatory requirements will increase. In addition, we operate in a number of jurisdictions with strict data privacy and other related laws, which could be violated in the event of a significant cybersecurity incident or in the event of noncompliance by our personnel. Failure to comply with these obligations can give rise to fines and other penalties, which could be significant.

See “Part I, Item 1. Business—Information Technology and Cybersecurity” for additional information related to information technology and cybersecurity.

We may from time to time modify our business and strategic plan, and these changes could adversely affect us and our financial condition.

We frequently monitor and analyze opportunities to acquire or make strategic investments in new or other businesses. The negotiation of potential acquisitions or strategic investments as well as the integration of an acquired business could be unsuccessful, result in a substantial diversion of management resources, or lead to other unanticipated risks or challenges. In addition, while our current business strategy focuses predominantly on writing reinsurance, as we grow our casualty and specialty and other property lines of business, we are increasingly writing excess and surplus lines insurance through delegated authority arrangements. risks associated with implementing or changing our business strategies and initiatives, including risks related to developing or enhancing our operations, controls and other infrastructure, may not have an impact on our publicly reported results until many years after implementation. Our failure to carry out our business plans may have an adverse effect on our long-term results of operations and financial condition.

The preparation of our consolidated financial statements requires us to make many estimates and judgments.

The preparation of consolidated financial statements requires us to make many estimates and judgments that affect the reported amounts of assets, liabilities (including claims and claim expense reserves), shareholders' equity, revenues and expenses, and related disclosures. On an ongoing basis, we evaluate our estimates, including those related to premiums written and earned, our net claims and claim expenses, investment valuations and income taxes. We base our estimates on historical experience, where possible, and on various other assumptions we believe to be reasonable under the circumstances, which form the basis for our judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Our judgments and estimates may not reflect, and may deviate materially from, our actual results. For more details on our estimates and judgments, see "Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations—Summary of Critical Accounting Estimates."

We are exposed to risks in connection with our management of capital on behalf of investors in joint ventures or other entities we manage.

Our operating subsidiaries owe certain legal duties and obligations (including reporting, governance and allocation obligations) to third-party investors and are subject to laws and regulations relating to the management of third-party capital. Complying with these obligations, laws and regulations requires significant management time and attention. Faulty judgments, simple errors or mistakes, or the failure of our personnel to adhere to established policies and procedures could result in our failure to comply with applicable obligations, laws or regulations, which could result in significant liabilities, penalties or other losses to us and seriously harm our business and results of operations.

In addition, our third-party capital providers may, subject to restrictions, redeem their interests in our joint ventures and managed funds or we may be unable to attract and raise additional third-party capital for our existing or potential new joint ventures and managed funds. The loss, or alteration in a negative manner, of any of this capital support could cause us to forego fee income and other income-generating opportunities and could materially impact our financial condition and results of operations. Moreover, we can provide no assurance that we will be able to attract and raise additional third-party capital for our existing joint ventures and managed funds or for potential new joint ventures and managed funds and therefore we may forego existing and/or potentially attractive

The covenants in our debt agreements limit our financial and operational flexibility, which could have an adverse effect on our financial condition.

We have incurred indebtedness and may incur additional indebtedness in the future. Our indebtedness primarily consists of publicly traded notes, letters of credit and a revolving credit facility. For more details on our indebtedness, see "Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations—Financial Condition, Liquidity and Capital Resources—Capital Resources."

The agreements governing our indebtedness contain covenants that limit our ability and the ability of some of our subsidiaries to make particular types of investments or other restricted payments, sell or place a lien on our or their respective assets, merge or consolidate. Some of these agreements also require us or our subsidiaries to maintain specific financial ratios or contain cross-defaults to our other indebtedness. Under certain circumstances, if we or our subsidiaries fail to comply with these covenants or meet these financial ratios, the noteholders or the lenders could declare a default and demand immediate repayment of all amounts owed to them or, where applicable, cancel their commitments to lend or issue letters of credit or, where the reimbursement obligations are unsecured, require us to pledge collateral or, where the reimbursement obligations are secured, require us to pledge additional or a different type of collateral.

The determination of impairments taken is highly subjective and could materially impact our financial condition or results of operations.

The determination of impairments taken on our investments, investments in other ventures, goodwill and other intangible assets and loans varies by type of asset and is based upon our periodic evaluation and assessment of known and inherent risks associated with the respective asset class. Such evaluations and assessments are revised as conditions change and new information becomes available. Management updates its evaluations regularly and reflects impairments in operations as such evaluations are revised. We cannot assure you that we have accurately assessed the level of impairments taken in our financial statements. Furthermore, management may determine that impairments are needed in future periods and any such impairment will be recorded in the period in which it occurs, which could materially impact our financial condition or results of operations. Historical trends may not be indicative of future impairments.

Risks Related to the Economic Environment

A decline in our investment performance could reduce our profitability and capital resources.

We have historically derived a meaningful portion of our income from our invested assets, which are principally comprised of fixed maturity securities. Accordingly, our financial results are subject to a variety of investment risks, including risks relating to general economic conditions, inflation, market volatility, interest rate fluctuations, foreign currency risk, liquidity risk and credit and default risk. The volatility in global financial markets resulting from the COVID-19 pandemic has impacted, and may continue to impact, the value of our investment portfolio and our strategic investments. Additionally, some of our investments are subject to pre-payment or reinvestment risk. Our investment portfolio also includes securities with a longer duration, which may be more susceptible to risks such as inflation. Changes in various factors, including prevailing interest rates and credit spreads may cause fluctuations in the market value of our fixed maturity investments. Any decline in interest rates or continuation of a low interest rate environment could reduce our investment yield, which would reduce our overall profitability. Conversely, increases in interest rates could cause the market value of our investment portfolio to decrease, which could reduce our capital resources. Interest rates are highly sensitive to many factors, including governmental monetary policies, inflation levels, domestic and international economic and political conditions, and other factors beyond our control.

A portion of our investment portfolio is allocated to other classes of investments including equity securities, catastrophe bonds, term loans and interests in alternative investment vehicles such as private equity investments, private credit investments, senior secured bank loan funds and hedge funds. For certain investments, the valuation on our consolidated balance sheet may differ significantly from the values that would be used if ready markets existed for the securities representing interests in the relevant investment vehicles. If we were to sell these assets (which may be necessary if we need liquidity to pay claims), it may be at significantly lower prices than we have recorded them. Furthermore, our interests in many of the investment classes described above are subject to restrictions on redemptions and sales that limit our ability to liquidate these investments in the short term. The performance of these classes of investments is also dependent on individual investment managers and investment strategies. It is possible that these investment managers will leave, the investment strategies will become ineffective or that the managers will fail to follow our investment guidelines. Our investment portfolio may become concentrated in a limited number of issuers or have significant exposure to certain geographic areas or economic sectors. Concentration of investments can increase investment risk and portfolio volatility. Any of the foregoing could result in a decline in our investment performance and capital resources, and accordingly, adversely affect our financial results.

We may be adversely impacted by inflation.

The principal markets in which we operate are susceptible to monetary inflation, which could cause loss costs to increase, impact the performance of our investment portfolio, and borrowing costs to increase. We believe the risks of inflation across our key markets have increased. In particular, the steps taken by governments in responding to the COVID-19 pandemic, and the costs of such actions, have led to significant inflation. The impact of inflation on loss costs could be more pronounced for those lines of business that are long tail in nature, as they require a relatively long period of time to finalize and settle claims. Changes in the level of inflation may also result in an increased level of uncertainty in our estimation of loss reserves, particularly for long tail lines of business, and may require us to strengthen reserves, with a corresponding reduction in our net income in the period in which the deficiency is identified. Unanticipated higher inflation could also lead to higher interest rates, which would negatively impact the value of our fixed income securities and potentially other investments. To the extent higher inflation could lead to currency fluctuation, we may also experience increased volatility on foreign exchange gains and losses in our consolidated financial statements.

We are exposed to counterparty credit risk, which could increase our liabilities and reduce liquidity.

Counterparty credit risk typically increases during periods of economic uncertainty, and we believe our exposure has increased in recent years. In connection with the settlement of reinsurance balances, we assume a substantial degree of credit risk associated with our brokers. In accordance with industry practice, we pay virtually all amounts owed on claims under our policies to reinsurance brokers, who then forward these payments to the ceding insurers that have purchased reinsurance from us. Likewise, premiums due to us by ceding insurers are virtually all paid to brokers, who then pass the amounts to us. Many of our contracts provide that if a broker fails to make a payment to a ceding insurer, we remain liable to the ceding insurer for the deficiency. Conversely, when the ceding insurer pays premiums to brokers for payment to us, these premiums are considered to have been received by us upon receipt by the broker and the ceding insurer is no longer liable to us for those amounts, even if we have not received the premiums.

We are also exposed to the credit risk of our customers, who, pursuant to their contracts with us, frequently pay us over time. We may not collect all our premiums receivable from our ceding insurers and reinsurers, and we may not collect all our reinsurance recoverable from our own retrocessionaires. We have significant premiums receivable and reinsurance recoverable, and our failure to collect even a small portion of these amounts, or a meaningful delay in the collection of recoverables as to which our own underlying obligations are due, could negatively affect our results of operations and financial condition, perhaps materially.

The continuing COVID-19 pandemic has and may continue to adversely affect our financial performance and ability to conduct operations.

The COVID-19 pandemic has had immense impacts on a global scale, including on the insurance and reinsurance industries where it has raised many new questions and challenges for us and our industry. It is difficult to predict all of the potential impacts of the COVID-19 pandemic on the markets in which we participate and our ability to effectively respond to these changing market dynamics.

The pandemic has significantly increased economic uncertainty. To the extent these conditions continue and potentially worsen, particularly with subsequent waves of infection, they could have the following impacts on our business operations and current and future financial performance and could impact us in other ways that we cannot predict:

- We have significant exposure to losses stemming from COVID-19 related claims, and we expect losses to emerge over time as the full impact of the pandemic and its effects on the global economy are realized. The extent to which the COVID-19 pandemic triggers coverage is dependent on specific policy language, terms and exclusions. In addition, legislative, regulatory, judicial or social influences may impose new obligations on insurers in connection with the pandemic that extend coverage beyond the intended contractual obligations or lead to an increase in the frequency or severity of claims beyond expected levels, resulting in the emergence of unexpected or un-modeled insurance or reinsurance losses.
- An economic recession or slowdown in economic activity resulting from the pandemic will not only increase the probability of losses, but could also reduce the demand for insurance and reinsurance, which could reduce our premium volume.
- Ongoing disruption in global financial markets and economic uncertainty due to the continuing impact of COVID-19 could cause us to incur investment losses, including credit impairments in our fixed maturity portfolio, or decline in interest rates which may reduce our future net investment income. Responses to the pandemic, including by governments, may lead or contribute to continued high inflation.
- Our counterparty credit risk may also increase, as some of our counterparties may face increased financial difficulties due to the ongoing impacts of COVID-19 on the world economy and financial markets.
- From an operational perspective, our employees, directors and agents, as well as the workforces of our brokers, vendors, service providers, retrocessionaires and other counterparties, may be adversely affected by the COVID-19 pandemic or efforts to mitigate the pandemic. Remote work arrangements affect our business continuity plans, introduce operational risk, including cybersecurity risks, and may adversely affect our ability to manage our business.

The impact of the COVID-19 pandemic could also exacerbate the other risks we face described herein. All of the foregoing events or potential outcomes, including in combination with other risk factors included herein, could cause a material adverse effect on our results of operations for any period, and, depending on their severity, could also materially and adversely affect our financial condition.

We may be adversely affected by foreign currency fluctuations.

We routinely transact business in currencies other than the U.S. dollar, our financial reporting currency. Moreover, we maintain a portion of our cash and investments in currencies other than the U.S. dollar and certain of our subsidiaries have non-U.S. dollar functional currencies. Although we generally seek to hedge significant non-U.S. dollar positions, we may experience losses resulting from fluctuations in the values of these foreign currencies, which could cause our consolidated earnings to decrease. In addition, failure to manage our foreign currency exposures could cause our results of operations to be more volatile. Our significant third-party capital management operations may further complicate these foreign currency operational needs and risk.

We may require additional capital in the future, which may not be available or may only be available on unfavorable terms.

Our exposure to significant catastrophic events may cause significant volatility in our operating and capital needs. To the extent that our existing capital is insufficient to support our future operating requirements, we may need to raise additional funds through financings or limit our growth. Any further equity, debt or hybrid financings, or capacity needed for letters of credit, if available at all, may be on terms that are unfavorable to us. We are also exposed to the risk that the contingent capital facilities we have in place may not be available as expected.

If we are unable to obtain adequate capital when needed, we may not be able to grow and take advantage of favorable market conditions, or we may be required to reduce the amount of business that we write, impacting our results of operations and financial condition.

In addition, we are exposed to the risk that we may be unable to raise new capital for our joint ventures, managed funds and other private alternative investment vehicles, which would reduce our future fee income and market capacity, and thus negatively affect our results of operations and financial condition. For example, it is possible that substantial losses ceded to the alternative capital sector over a period of years, and restraints on capital return and maintenance of collateral for prior loss periods by a number of market participants, may contribute to a reduction in investor appetite to this product class in the near term.

Risks Related to Legal and Regulatory Matters

The regulatory systems under which we operate could restrict our ability to operate, increase our costs, or otherwise adversely impact us.

Our operating subsidiaries conduct business globally and are subject to varying degrees of regulation and supervision in multiple jurisdictions. See “Part I, Item 1. Business—Regulation.” These statutes, regulations and policies may, among other things, restrict the ability of our subsidiaries, joint ventures or managed funds to write certain business, make certain investments and distribute funds. We may not be able to comply fully with, or obtain appropriate exemptions from, these statutes and regulations, which could result in restrictions on our ability to do business or undertake activities that are regulated in these jurisdictions, which could subject us to fines and/or penalties. Our current or future business strategy could cause one or more of our currently unregulated subsidiaries to become subject to some form of regulation in the future. Any failure to comply with current or future applicable laws or regulations could result in restrictions on our ability to do business or undertake activities that are regulated in these jurisdictions, which could subject us to fines and other penalties. In addition, changes in the laws or regulations to which our operating subsidiaries are subject or in their interpretation could have an adverse effect on our business.

Several of our operating subsidiaries are not licensed or admitted in any jurisdiction except Bermuda, conduct business only from their offices in Bermuda and do not maintain offices in the U.S. The insurance and reinsurance regulatory framework continues to be subject to increased scrutiny in many jurisdictions, including the U.S. and Europe. If our Bermuda insurance or reinsurance operations become subject to the insurance laws of any state in the U.S., jurisdictions in the EU, or elsewhere, we could face challenges to the future operations of these companies. We could also be required to allocate considerable time and resources to comply with any new or additional regulatory requirements in any of the jurisdictions in which we operate, and any such requirements could impact the operations of our insurance and/or non-insurance subsidiaries, result in increased costs for us and impact our financial condition

It is possible that individual jurisdiction or cross border regulatory developments could adversely differentiate Bermuda, the jurisdiction in which we are subject to group supervision, or could exclude Bermuda-based companies from benefits such as market access, mutual recognition or reciprocal rights made available to other jurisdictions, which could adversely impact us. Any such development could significantly and negatively affect our operations.

Political, regulatory and industry initiatives by state and international authorities could adversely affect our business.

The insurance and reinsurance regulatory framework is subject to heavy scrutiny by the U.S. and individual state governments, as well as a number of international authorities, and we believe it is likely there will be increased regulatory intervention in our industry in the future.

We could also be adversely affected by proposals or enacted legislation that provide for reinsurance capacity in markets and to consumers that we target, expand the scope of coverage under existing policies for perils such as hurricanes or earthquakes or for a pandemic disease outbreak, mandate the terms of insurance and reinsurance policies, expand the scope of the Federal Insurance Office or establish a new federal insurance regulator or otherwise revise laws, regulations, or contracts under which we operate, which may disproportionately benefit the companies of one country over those of another.

Bermuda is also subject to increasing scrutiny by political bodies outside of Bermuda, including the EU Code of Conduct Group. See "*The OECD and the EU may pursue measures that might increase our taxes and reduce our net income and increase our reporting requirements*." Due to this increased legislative and regulatory scrutiny of the reinsurance industry and Bermuda, our cost of compliance with applicable laws may increase, which could result in a decrease to our profitability. Further, as we continue to expand our business operations outside of Bermuda, we are increasingly subject to new and additional regulations, including, for example, laws relating to anti-corruption and anti-bribery.

We face risks related to changes in Bermuda law and regulations, and the political environment in Bermuda.

We are incorporated in Bermuda and many of our operating companies are domiciled in Bermuda. Therefore, changes in Bermuda law and regulation may have an adverse impact on our operations, such as the imposition of tax liability, increased regulatory supervision or changes in regulation.

In addition, we are subject to changes in the political environment in Bermuda, which could make it difficult to operate in, or attract talent to, Bermuda. In addition, Bermuda, which is currently an overseas territory of the U.K., may consider changes to its relationship with the U.K. in the future. These changes could adversely affect Bermuda or the international reinsurance market focused there, either of which could adversely impact us commercially.

Our liquidity could be impacted due to regulatory requirements for collateral by non-U.S. insurers.

Many jurisdictions in the U.S. do not permit insurance companies to take credit for reinsurance obtained from unlicensed or non-admitted insurers on their statutory financial statements unless security is posted, the form and quantity of which is also subject to the regulations of those jurisdictions. Our contracts generally require us to post such security via a letter of credit, a trust account, or where applicable utilize a multi-beneficiary reinsurance trust, with the release of such security being controlled by the insurance company and/or a regulator. Because of these requirements, we could be put at a competitive disadvantage relative to certain of our competitors who are licensed and admitted in U.S. jurisdictions. Further, if we are not able to access sufficient unrestricted liquid assets from our other operations in order to operate our business from time to time, our business could be adversely impacted. See "Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations—Financial Condition, Liquidity and Capital Resources—Liquidity and Cash Flows—Credit Facilities, Trusts and Other Collateral Arrangements—Multi-Beneficiary Reinsurance Trusts and Multi-Beneficiary Reduced Collateral Reinsurance Trusts" for a discussion of certain of these collateral arrangements.

Regulatory regimes and changes to accounting rules may adversely impact our financial results irrespective of business operations.

Accounting standards and regulatory changes may require modifications to our accounting principles, both prospectively and for prior periods, and such changes could have an adverse impact on our financial results. Required modification of our existing principles, and new disclosure requirements, could have an impact on our results of operations and increase our expenses in order to implement and comply with any new requirements.

Our business is subject to certain laws and regulations relating to sanctions and foreign corrupt practices, the violation of which could adversely affect our operations.

We must comply with all applicable economic sanctions and anti-bribery laws and regulations of the U.S. and other jurisdictions. U.S. laws and regulations that may be applicable to us include economic trade sanctions laws and regulations administered by OFAC as well as certain laws administered by the U.S. Department of State. The sanctions laws and regulations of non-U.S. jurisdictions in which we operate may differ to some degree from those of the U.S. and these differences may additionally expose us to sanctions violations.

In addition, we are subject to the Foreign Corrupt Practices Act and other anti-bribery laws that generally prohibit corrupt payments or improper gifts to non-U.S. governments or officials. It is possible that an employee or intermediary could fail to comply with applicable laws and regulations. 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 our reputation. Such criminal or civil sanctions, penalties, other sanctions, and damage to our business and reputation could adversely affect our financial condition and results of operations.

Risks Related to Taxation

Our Bermuda subsidiaries may be subject to U.S. corporate income tax.

We conduct a significant amount of business through Bermuda subsidiaries that we believe are not subject to U.S. corporate income tax as they are not engaged in a trade or business in the U.S. Since there is considerable uncertainty, however, as to the activities that constitute being engaged in a trade or business within the U.S., we cannot be certain that the U.S. Internal Revenue Service will not contend successfully that any of our non-U.S. companies is engaged in a trade or business in the U.S. Were this to occur, such company could be subject to U.S. corporate income and additional branch profits taxes on the portion of its earnings effectively connected to such U.S. business. If we or one or more of our Bermuda subsidiaries were ultimately held to be subject to taxation, our earnings would correspondingly decline.

While we have maintained our rigorous tax-related operating protocols during the ongoing COVID-19 pandemic, it is possible that ongoing severe travel restrictions may give rise to substantial operating challenges should current conditions persist.

U.S. tax changes could reduce our access to capital, decrease demand for our products, impact our shareholders or investors in our joint ventures or other entities we manage or otherwise adversely affect us.

In 2017, the U.S. adopted tax reform legislation, commonly referred to as the Tax Cuts and Jobs Act. The Tax Cuts and Jobs Act included a new base erosion anti-avoidance tax that would have substantially altered the taxation of affiliate reinsurance between our operating affiliates which are subject to U.S. taxation and our non-U.S. affiliates which are not. Although base erosion anti-avoidance tax has not significantly impacted us to date as the affiliate reinsurance targeted by the base erosion anti-avoidance tax was not material to our operations, it could limit our ability to execute affiliate reinsurance transactions that would otherwise be undertaken for non-tax business reasons, such as efficient use of capital within our group, in the future and could result in higher prices for the reinsurance products we buy and sell.

The Tax Cuts and Jobs Act increased the likelihood that we or any of our non-U.S. subsidiaries or any entity managed by us will be deemed a “controlled foreign corporation” within the meaning of the Internal Revenue Code for U.S. federal tax purposes. Specifically, the Tax Cuts and Jobs Act expands the definition of “U.S. shareholder” for “controlled foreign corporation” purposes to include “U.S. persons” who own 10% or more of the value of a foreign corporation’s shares, rather than only looking to voting power held. In the event a corporation is characterized as a “controlled foreign corporation,” any “U.S. shareholder” of the “controlled foreign corporation” is required to include its pro rata share of certain insurance and related investment income in income for a taxable year, even if such income is not distributed.

In addition to changes in the “controlled foreign corporation” rules, the Tax Cuts and Jobs Act contains modifications to certain provisions relating to PFIC status that could, for example, discourage U.S. persons from investing in our joint ventures or other entities we manage. While we believe that we should not be characterized as a PFIC, we cannot assure you that this will continue to be the case in future years. It is also possible that joint venture entities managed by us may be characterized as PFICs, which could make these entities less attractive to investors and reduce our fee income.

It is currently anticipated (though not assured) that we will operate each of our non-U.S. subsidiaries in such a way that gross related person insurance income will constitute less the 20% of the gross insurance income of each of our non-U.S. insurance subsidiaries for any taxable year in the foreseeable future. On January 25, 2022, proposed regulations were published which could, if finalized in their current form, substantially expand the definition of related person insurance income to include insurance income of our non-U.S. subsidiaries related to affiliate reinsurance transactions. These regulations would apply to taxable years beginning after the date the regulations are finalized. Although we cannot predict whether, when or in what form the proposed regulations might be finalized, the proposed regulations, if finalized in their current form, could limit our ability to execute affiliate reinsurance transactions that would otherwise be undertaken for non-tax business reasons in the future and could increase the risk that gross related person insurance income could constitute 20% or more of the gross insurance income of one or more of our non-U.S. insurance subsidiaries in a particular taxable year, which could result in such related person insurance income being taxable to U.S. persons that own our shares.

Further, the taxation of us or our subsidiaries and our shareholders may be the subject of future tax legislation, which could have a material adverse effect on us or our shareholders.

The OECD and the jurisdictions in which we operate may pursue measures that might increase our taxes and reduce our net income and increase our reporting requirements.

The OECD has published reports and launched a global dialog among member and non-member countries on measures to limit harmful tax competition. These measures are largely directed at counteracting the effects of jurisdictions perceived by the OECD to be tax havens or offering preferential tax regimes. In 2017, the EU initiated similar measures and identified certain jurisdictions, including Bermuda, which it considered had tax systems that facilitated offshore structuring by attracting profits without commensurate economic activity. The EU did temporarily add Bermuda to its "blacklist" of non-cooperative jurisdictions for tax purposes between March 2019 and May 2019, when Bermuda adopted economic substance legislation that the EU deemed compliant with its requirements.

In addition, in 2015, the OECD published its final series of Base Erosion and Profit Shifting reports related to its attempt to coordinate multilateral action on international tax rules. The actions recommended changes in the tax law which, if adopted, could subject us to additional taxes and increase the complexity and cost of tax compliance.

Following the recommendations in the final series of these reports, the OECD has continued to consult on and review the tax challenges arising from the digital economy. In May 2019, the OECD published a "Programme of Work," divided into two pillars, with the goal of tackling the challenges of taxing the digital economy. The OECD then published Blueprints for the two pillars late in 2020 and commenced a public consultation on the proposals.

In 2021, significant steps were taken to develop a plan for implementing a two-pillar solution. In October, the OECD/G20 Inclusive Framework released a statement agreeing a two-pillar solution to address the tax challenges arising from the digital economy. Pillar One addresses the broader challenge of a digitalized economy and focuses on the allocation of group profits among taxing jurisdictions based on a market-based concept rather than historical "permanent establishment" concepts. Pillar One includes explicit exclusions for Regulated Financial Services, so is not expected to have a material impact on insurance and reinsurance groups. Pillar Two addresses the remaining Base Erosion and Profit Shifting risk of profit shifting to entities in low tax jurisdictions by introducing a global minimum tax on large groups (groups with consolidated revenues in excess of €750 million), which would require large groups to calculate the effective tax rate of each group company operating in a relevant jurisdiction and, where a group company has an effective tax rate below 15%, pay an additional top-up tax. In December 2021, the OECD issued Pillar Two model rules for domestic implementation of the global minimum tax and shortly thereafter the European Commission proposed a Directive to implement the Pillar Two rules into EU law, which, if unanimously agreed by EU member states, will require EU member states to transpose the rules into their national laws by 31 December 2022 with certain measures initially coming into effect from 1 January 2023. If the countries in which we operate amend their tax laws to fully adopt the Pillar Two framework, there may be an increase in the company's income taxes.

Further, we could be adversely impacted by other changes in tax laws, tax treaties or tax regulations or the interpretation or enforcement thereof by taxation authorities in the jurisdictions in which we operate, which could materially adversely affect our results of operations.

Risks Related to the Ownership of our Securities

Because we are a holding company, we are dependent on dividends and payments from our subsidiaries.

As a holding company with no direct operations, we rely on our investment income, cash dividends and other permitted payments from our subsidiaries to make principal and interest payments on our debt and to pay dividends to our shareholders. From time to time, we may not have sufficient liquid assets to meet these obligations. Regulatory restrictions on the payment of dividends under Bermuda law, Swiss law and various U.S. laws regulate the ability of our subsidiaries to pay dividends. If our subsidiaries are restricted from paying dividends to us, we may be unable to pay dividends to our shareholders or to repay our indebtedness.

Some aspects of our corporate structure may discourage third-party takeovers and other transactions or prevent the removal of our current board of directors and management.

Some provisions of our bye-laws may discourage third parties from making unsolicited takeover bids or prevent the removal of our current board of directors and management. In particular, our bye-laws prohibit transfers of our capital shares if the transfer would result in a person owning or controlling shares that constitute 9.9% or more of any class or series of our shares, unless otherwise waived at the discretion of the Board. In addition, our bye-laws reduce the total voting power of any shareholder owning, directly or indirectly, beneficially or otherwise, more than 9.9% of our common shares to not more than 9.9% of the total voting power of our shares unless otherwise waived at the discretion of the Board. These provisions may have the effect of deterring purchases of large blocks of our common shares or proposals to acquire us, even if our shareholders might deem these purchases or acquisition proposals to be in their best interests.

In addition, our bye-laws provide for, among other things:

- a classified Board, whose size is generally fixed and whose members may be removed by the shareholders only for cause upon a 66 2/3% vote;
- restrictions on the ability of shareholders to nominate persons to serve as directors, submit resolutions to a shareholder vote and requisition special general meetings;
- a large number of authorized but unissued shares which may be issued by the Board without further shareholder action; and
- a 66 2/3% shareholder vote to amend, repeal or adopt any provision inconsistent with several provisions of the bye-laws.

These bye-law provisions make it more difficult to acquire control of us by means of a tender offer, open market purchase, proxy contest or otherwise and could discourage a prospective acquirer from making a tender offer or otherwise attempting to obtain control of us. In addition, these bye-law provisions could prevent the removal of our current Board of Directors and management. To the extent these provisions discourage takeover attempts, they could deprive shareholders of opportunities to realize takeover premiums for their shares or could depress the market price of the shares.

In addition, many jurisdictions in which our insurance and reinsurance subsidiaries operate have laws and regulations that require regulatory approval of a change in control of an insurer or an insurer’s holding company. Where such laws apply to us and our subsidiaries, there can be no effective change in our control unless the person seeking to acquire control has filed a statement with the regulators and has obtained prior approval for the proposed change from such regulators. Under these laws, control is typically presumed when a person acquires, directly or indirectly, 10% or more of the voting power of the insurance company or its parent, although this presumption is rebuttable. Therefore, a person may not acquire 10% or more of our common shares without the prior approval of the applicable insurance regulators.

Investors may have difficulty in serving process or enforcing judgments against us in the U.S.

We are a Bermuda company. In addition, many of our officers and directors reside in countries outside the U.S. All or a substantial portion of our assets and the assets of these officers and directors may be located outside the U.S. Investors may have difficulty effecting service of process within the U.S. on our directors and officers who reside outside the U.S. or recovering against us or these directors and officers on judgments of U.S. courts based on civil liabilities provisions of the U.S. federal securities laws whether or not we appoint an agent in the U.S. to receive service of process.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

We lease office space in Bermuda, which houses our headquarters and principal executive offices, as well as in other locations throughout the U.S. and in the U.K., Australia, Ireland, Singapore and Switzerland. While we believe that our current office space is sufficient for us to conduct our operations, we may expand into additional facilities and new locations to accommodate future growth. To date, the cost of acquiring and maintaining our office space has not been material to us as a whole.

ITEM 3. LEGAL PROCEEDINGS

The information required by this Item relating to legal proceedings is incorporated herein by reference to information included in “Note 20. Commitments, Contingencies and Other Items” in our “Notes to the Consolidated Financial Statements.”

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT’S COMMON EQUITY, RELATED SHAREHOLDER MATTERS AND ISSUER REPURCHASES OF EQUITY SECURITIES

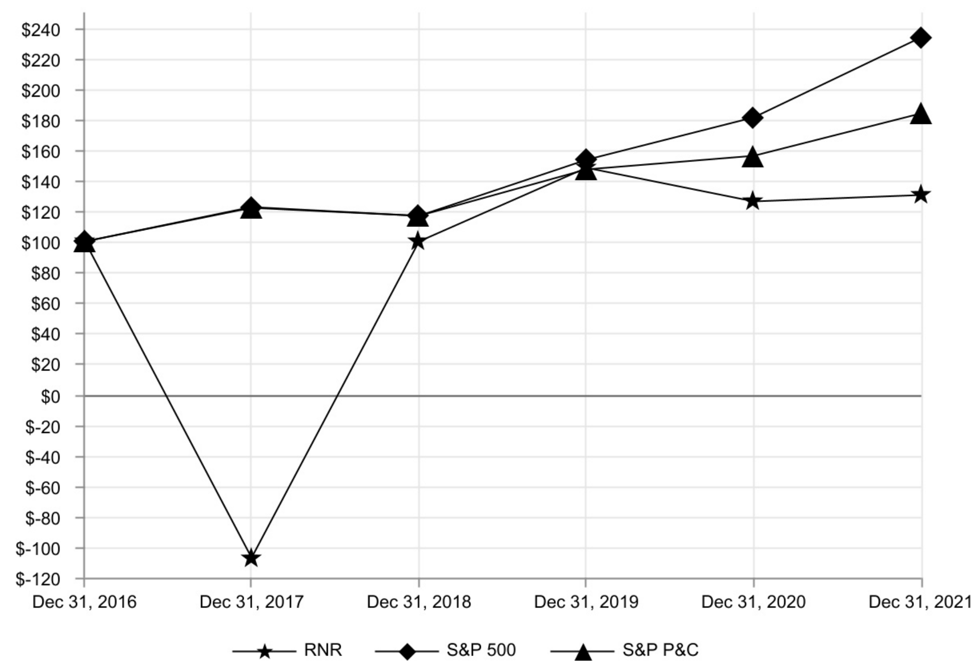
MARKET INFORMATION AND NUMBER OF HOLDERS

Our common shares are listed on the NYSE under the symbol “RNR.” On February 2, 2022, there were 99 holders of record of our common shares.

PERFORMANCE GRAPH

The following graph compares the cumulative return on our common shares, including reinvestment of our dividends on our common shares, to such return for the S&P 500 Composite Stock Price Index and S&P’s Property-Casualty Industry Group Stock Price Index, for the five-year period commencing December 31, 2016 and ending December 31, 2021, assuming $100 was invested on December 31, 2016. Each measurement point on the graph below represents the cumulative shareholder return as measured by the last sale price at the end of each calendar year during the period from January 1, 2017 through December 31, 2021. As depicted in the graph below, during this period, the cumulative return was (1) 30.0% on our common shares; (2) 133.3% for the S&P 500 Composite Stock Price Index; and (3) 83.5% for the S&P’s Property-Casualty Industry Group Stock Price Index.

COMPARISON OF FIVE YEAR CUMULATIVE TOTAL RETURN



ISSUER REPURCHASES OF EQUITY SECURITIES

Our share repurchase program may be effected from time to time, depending on market conditions and other factors, through open market purchases and privately negotiated transactions. On each of November 11, 2021 and February 4, 2022, our Board of Directors approved a renewal of our authorized share repurchase program to an aggregate amount of up to $500.0 million. Unless terminated earlier by our Board of Directors, the program will expire when we have repurchased the full value of the shares authorized. The table below details the repurchases that were made under the program during the fourth quarter of 2021, and also includes other shares purchased, which represents common shares surrendered by employees in respect of withholding tax obligations on the vesting of restricted stock.

	Total Shares Purchased		Other Shares Purchased		Shares Purchased Under Repurchase Program		Dollar Amount Still Available Under Repurchase Program
	Shares Purchased	Average Price per Share	Shares Purchased	Average Price per Share	Shares Purchased	Average Price per Share	(in millions)
Beginning dollar amount available to be repurchased							$ 421.8
October 1 - 31, 2021	684,654	$ 146.52	145	$ 141.80	684,509	$ 146.52	321.5
November 1 - 10, 2021	216,275	$ 153.52	—	$ —	216,275	$ 153.52	288.3
November 11 - renewal of authorized share repurchase program of $500.0 million							500.0
November 11 - 30, 2021	311,066	$ 160.80	87	$ 152.55	310,979	$ 160.80	450.0
December 1 - 31, 2021	876,867	$ 165.99	12,945	$ 169.33	863,922	$ 165.94	306.6
Total	2,088,862	$ 157.54	13,177	$ 168.92	2,075,685	$ 157.47	$ 306.6

During 2021, pursuant to our publicly announced share repurchase program, we repurchased 6.6 million common shares at an aggregate cost of $1.0 billion and an average price of $156.78 per common share. At December 31, 2021, $306.6 million remained available for repurchase under the share repurchase program. Subsequent to December 31, 2021 and through the period ended February 2, 2022, we repurchased 462 thousand common shares at an aggregate cost of $76.1 million and an average price of $164.52 per common share. In the future, we may authorize additional purchase activities under the currently authorized share repurchase program, increase the amount authorized under the share repurchase program, or adopt additional trading plans. Our decision to repurchase common shares will depend on, among other matters, the market price of the common shares and our capital requirements.

ITEM 6. [Reserved]

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following is a discussion and analysis of our results of operations for 2021 compared to 2020 and 2020 compared to 2019, respectively as well as our liquidity and capital resources at December 31, 2021. This discussion and analysis should be read in conjunction with the audited consolidated financial statements and notes thereto included in this filing. This filing contains forward-looking statements that involve risks and uncertainties. Actual results may differ materially from the results described or implied by these forward-looking statements. See "Note on Forward-Looking Statements."

On March 22, 2019, we acquired TMR, including RREAG, RenaissanceRe UK, and their subsidiaries, and our results of operations and financial condition include TMR from the acquisition date. The three months ended June 30, 2019, was the first full period that reflected the results of TMR on the Company's results of operations. Subsequently, on August 18, 2020, we sold RenaissanceRe UK to an investment vehicle managed by AXA Liabilities Managers, an affiliate of AXA XL. Refer to "Note 21. Sale of RenaissanceRe UK" in our "Notes to the Consolidated Financial Statements" for additional information with respect to the sale of RenaissanceRe UK. Refer to "Note 3. Acquisition of Tokio Millennium Re" in our "Notes to the Consolidated Financial Statements" for additional information with respect to the acquisition of TMR. The following discussion and analysis of our financial condition and results of operations for 2021 compared to 2020, and 2020 compared to 2019, should be read in this context.

In this Form 10-K, references to "RenaissanceRe" refer to RenaissanceRe Holdings Ltd. (the parent company) and references to "we," "us," "our" and the "Company" refer to RenaissanceRe Holdings Ltd. together with its subsidiaries, unless the context requires otherwise. Defined terms used throughout this Form 10-K are included in the "Glossary of Defined Terms" at the end of "Part I, Item 1. Business" of this Form 10-K.

All dollar amounts referred to in this Form 10-K are in U.S. dollars unless otherwise indicated.

Due to rounding, numbers presented in the tables included in this Form 10-K may not add up precisely to the totals provided.

INDEX TO MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

OVERVIEW

RenaissanceRe is a global provider of reinsurance and insurance. We provide property, casualty and specialty reinsurance and certain insurance solutions to customers, principally through intermediaries. Established in 1993, we have offices in Bermuda, Australia, Ireland, Singapore, Switzerland, the U.K., and the U.S. To best serve our clients in the places they do business, we have operating subsidiaries, branches, joint ventures, managed funds and underwriting platforms around the world. Our operating subsidiaries include Renaissance Reinsurance, Renaissance Reinsurance U.S., RenaissanceRe Specialty U.S., RREAG, Renaissance Reinsurance of Europe and our Lloyd's syndicate, Syndicate 1458. We write property and casualty and specialty reinsurance through our wholly-owned operating subsidiaries, joint ventures, managed funds and Syndicate 1458 and certain insurance products primarily through Syndicate 1458 and RenaissanceRe Specialty U.S. Syndicate 1458 provides us with access to Lloyd's extensive distribution network and worldwide licenses, and also writes business through delegated authority arrangements. We also underwrite reinsurance on behalf of joint ventures, including DaVinci, Top Layer Re, Upsilon RFO and Vermeer. In addition, through Medici, we invest in various insurance-based investment instruments that have returns primarily tied to property catastrophe risk.

Our mission is to match desirable, well-structured risks with efficient sources of capital to achieve our vision of being the best underwriter. We believe that this will allow us to produce superior returns for our shareholders over the long term, and to protect communities and enable prosperity. We seek to accomplish these goals by being a trusted, long-term partner to our customers for assessing and managing risk, delivering responsive and innovative solutions, leveraging our core capabilities of risk assessment and information management, investing in these core capabilities in order to serve our customers across market cycles, and keeping our promises. Our strategy focuses on superior risk selection, superior customer relationships and superior capital management. We provide value to our customers and joint venture and managed fund partners in the form of financial security, innovative products, and responsive service. We are known as a leader in paying valid claims promptly. We principally measure our financial success through long-term growth in tangible book value per common share plus the change in accumulated dividends. We believe this metric is the most appropriate measure of our financial performance, and in respect of which we believe we have delivered superior performance over time. The principal drivers of our profit are underwriting income, investment income, and fee income generated by our third-party capital management business.

Our core products include property, casualty and specialty reinsurance, and certain insurance products principally distributed through intermediaries, with whom we have cultivated strong long-term relationships. We believe we have been one of the world's leading providers of catastrophe reinsurance since our founding. In recent years, through the strategic execution of several initiatives, including organic growth and acquisitions, we have expanded and diversified our casualty and specialty platform and products, and believe we are a leader in certain casualty and specialty lines of business.

Our current business strategy focuses predominantly on writing reinsurance, although as we grow our casualty and specialty and other property lines of business, we are increasingly writing excess and surplus lines insurance through delegated authority arrangements. We also pursue a number of other opportunities, such as creating and managing our joint ventures and managed funds, executing customized reinsurance transactions to assume or cede risk, and managing certain strategic investments directed at classes of risk other than catastrophe reinsurance. From time to time we consider diversification into new ventures, either through organic growth, the formation of new joint ventures or managed funds, or the acquisition of, or the investment in, other companies or books of business of other companies.

We have determined our business consists of the following reportable segments: (1) Property, which is comprised of catastrophe and other property (re)insurance written on behalf of our operating subsidiaries, joint ventures and managed funds, and (2) Casualty and Specialty, which is comprised of casualty and specialty (re)insurance written on behalf of our operating subsidiaries, joint ventures and managed funds.

The underwriting results of our operating subsidiaries and underwriting platforms are included in our Property and Casualty and Specialty segment results as appropriate.

A meaningful portion of the reinsurance and insurance we write provides protection from damages relating to natural and man-made catastrophes. Our results depend to a large extent on the frequency and severity of these catastrophic events, and the coverages we offer to customers that are affected by these events.

We are exposed to significant losses from these catastrophic events and other exposures we cover, which primarily impact our Property segment, in both the property catastrophe and other property lines of business. Accordingly, we expect a significant degree of volatility in our financial results and our financial results may vary significantly from quarter-to-quarter and from year-to-year, based on the level of insured catastrophic losses occurring around the world. Our Casualty and Specialty business, which represents approximately half of our gross premiums written annually, is an efficient use of capital that is generally less correlated with our Property business. It allows us to bring additional capacity to our clients, across a wider range of product offerings, while continuing to be good stewards of our shareholders’ capital.

We continually explore appropriate and efficient ways to address the risk needs of our clients and the impact of various regulatory and legislative changes on our operations. We have created, and manage, multiple capital vehicles across several jurisdictions and may create additional risk bearing vehicles or enter into additional jurisdictions in the future. In addition, our differentiated strategy and capabilities position us to pursue bespoke or large solutions for clients, which may be non-recurring. This, and other factors including the timing of contract inception, could result in significant volatility of premiums in both our Property and Casualty and Specialty segments. As our product and geographical diversity increases, we may be exposed to new risks, uncertainties and sources of volatility.

Our revenues are principally derived from three sources: (1) net premiums earned from the reinsurance and insurance policies we sell; (2) net investment income and net realized and unrealized gains from the investment of our capital funds and the investment of the cash we receive on the policies which we sell; and (3) fees received from our joint ventures and managed funds.

Our expenses primarily consist of: (1) net claims and claim expenses incurred on the policies of reinsurance and insurance we sell; (2) acquisition costs, which typically represent a percentage of the premiums we write; (3) operating expenses, which primarily consist of personnel expenses, rent and other operating expenses; (4) corporate expenses, which include certain executive, legal and consulting expenses, costs for research and development, transaction and integration-related expenses, and other miscellaneous costs, including those associated with operating as a publicly traded company; (5) redeemable noncontrolling interests, which represent the interests of third parties with respect to the net income of DaVinciRe, Medici and Vermeer; and (6) interest and dividends related to our debt and preference shares. We are also subject to taxes in certain jurisdictions in which we operate. Since the majority of our income is currently earned in Bermuda, which does not have a corporate income tax, the tax impact to our operations has historically been minimal. In the future, our net tax exposure may increase as our operations expand geographically, or as a result of adverse tax developments.

The underwriting results of an insurance or reinsurance company are discussed frequently by reference to its net claims and claim expense ratio, underwriting expense ratio, and combined ratio. The net claims and claim expense ratio is calculated by dividing net claims and claim expenses incurred by net premiums earned. The underwriting expense ratio is calculated by dividing underwriting expenses (acquisition expenses and operational expenses) by net premiums earned. The combined ratio is the sum of the net claims and claim expense ratio and the underwriting expense ratio. A combined ratio below 100% indicates profitable underwriting prior to the consideration of investment income. A combined ratio over 100% indicates unprofitable underwriting prior to the consideration of investment income. We also discuss our net claims and claim expense ratio on a current accident year basis and a prior accident years basis. The current accident year net claims and claim expense ratio is calculated by taking current accident year net claims and claim expenses incurred, divided by net premiums earned. The prior accident years net claims and claim expense ratio is calculated by taking prior accident years net claims and claim expenses incurred, divided by net premiums earned.

Effects of Inflation

General economic inflation has increased and there is a risk of inflation remaining elevated for an extended period, which could cause claims and claim expenses to increase, impact the performance of our investment portfolio or have other adverse effects. This risk may be exacerbated by the steps taken by governments and central banks throughout the world in responding to the COVID-19 pandemic. The actual effects of the current and potential future increase in inflation on our results cannot be accurately known until, among other items, claims are ultimately settled. The onset, duration and severity of an inflationary period cannot be estimated with precision. We consider the anticipated effects of inflation on us in our catastrophe loss models and on our investment portfolio. Our estimates of the potential effects of inflation are also considered in pricing and in estimating reserves for unpaid claims and claim expenses. The potential exists, after a catastrophe loss, for the development of inflationary pressures in a local economy.

COVID-19 Pandemic

Due to the ongoing and rapidly evolving nature of the COVID-19 pandemic, we are continuing to evaluate the impact of the COVID-19 pandemic on our business, operations and financial condition, including our potential loss exposures. It is not yet possible to give an estimate of all of the Company’s potential reinsurance, insurance or investment exposures, or any other effects that the COVID-19 pandemic may have on our results of operations or financial condition. We continue to evaluate industry trends and information received from or reported by clients, brokers, industry actuaries, regulators, courts, and others, and expect historically significant industry losses to emerge over time as the full impact of the pandemic and its effects on the global economy are realized.

SELECTED CONSOLIDATED FINANCIAL DATA

The following tables set forth our selected consolidated financial data and other financial information at the end of and for each of the years in the five-year period ended December 31, 2021. The results of TMR are included in our consolidated financial data from March 22, 2019. The selected consolidated financial data should be read in conjunction with our consolidated financial statements and related notes thereto and the other information in this “Part II, Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations” of this Form 10-K.

Year ended December 31,	2021	2020	2019	2018	2017
(in thousands, except share and per share data and percentages)					
Statements of Operations Data:					
Gross premiums written	$ 7,833,798	$ 5,806,165	$ 4,807,750	$ 3,310,427	$ 2,797,540
Net premiums written	5,939,375	4,096,333	3,381,493	2,131,902	1,871,325
Net premiums earned	5,194,181	3,952,462	3,338,403	1,976,129	1,717,575
Net investment income	319,479	354,038	424,207	269,965	197,775
Net realized and unrealized gains (losses) on investments	(218,134)	820,636	414,109	(183,168)	160,256
Net claims and claim expenses incurred	3,876,087	2,924,609	2,097,021	1,120,018	1,861,428
Acquisition expenses	1,214,858	897,677	762,232	432,989	346,892
Operational expenses	212,184	206,687	222,733	178,267	160,778
Underwriting income (loss)	(108,948)	(76,511)	256,417	244,855	(651,523)
Net income (loss)	(103,440)	993,058	950,267	268,917	(354,671)
Net income (loss) available (attributable) to RenaissanceRe common shareholders	(73,421)	731,482	712,042	197,276	(244,770)
Net income (loss) available (attributable) to RenaissanceRe common shareholders per common share – diluted	(1.57)	15.31	16.29	4.91	(6.15)
Dividends per common share	1.44	1.40	1.36	1.32	1.28
Weighted average common shares outstanding – diluted	47,171	47,178	43,175	39,755	39,854
Return on average common equity	(1.1)%	11.7 %	14.1 %	4.7 %	(5.7)%
Combined ratio	102.1 %	101.9 %	92.3 %	87.6 %	137.9 %

At December 31,	2021	2020	2019	2018	2017
Balance Sheet Data:					
Total investments	$ 21,442,659	$ 20,558,176	$ 17,368,789	$ 11,885,747	$ 9,503,439
Total assets	33,959,502	30,820,580	26,330,094	18,676,196	15,226,131
Reserve for claims and claim expenses	13,294,630	10,381,138	9,384,349	6,076,271	5,080,408
Unearned premiums	3,531,213	2,763,599	2,530,975	1,716,021	1,477,609
Debt	1,168,353	1,136,265	1,384,105	991,127	989,623
Capital leases	22,459	22,853	25,072	25,853	26,387
Preference shares	750,000	525,000	650,000	650,000	400,000
Total shareholders' equity attributable to RenaissanceRe	6,624,281	7,560,248	5,971,367	5,045,080	4,391,375
Common shares outstanding	44,445	50,811	44,148	42,207	40,024
Book value per common share	$ 132.17	$ 138.46	$ 120.53	$ 104.13	$ 99.72
Accumulated dividends	23.52	22.08	20.68	19.32	18.00
Book value per common share plus accumulated dividends	$ 155.69	$ 160.54	$ 141.21	$ 123.45	$ 117.72
Change in book value per common share plus change in accumulated dividends	(3.5)%	16.0 %	17.1 %	5.7 %	(6.9)%

SUMMARY OF CRITICAL ACCOUNTING ESTIMATES

Claims and Claim Expense Reserves

General Description

We believe the most significant accounting judgment made by management is our estimate of claims and claim expense reserves. Claims and claim expense reserves represent estimates, including actuarial and statistical projections at a given point in time, of the ultimate settlement and administration costs for unpaid claims and claim expenses arising from the insurance and reinsurance contracts we sell. We establish our claims and claim expense reserves by taking case reserves, adding estimates for IBNR and, if deemed necessary, adding costs for additional case reserves which represent our estimates for claims related to specific contracts which we believe may not be adequately estimated by the client as of that date, or adequately covered in the application of IBNR. Our reserving committee, which includes members of our senior management, reviews, discusses, and assesses the reasonableness and adequacy of the reserving estimates included in our audited financial statements.

In accordance with FASB ASC Topic *Business Combinations*, we allocated the total consideration paid for TMR among acquired assets and assumed liabilities based on their fair values. These assets and liabilities include TMR's claims and claim expense reserves, which totaled $2.4 billion at March 22, 2019, and consisted of $783.3 million and $1.6 billion included in our Property and Casualty and Specialty segments, respectively.

The following table summarizes our claims and claim expense reserves by segment, allocated between case reserves, additional case reserves and IBNR:

At December 31, 2021 (in thousands)	Case Reserves	Additional Case Reserves	IBNR	Total
Property	$ 1,555,210	$ 1,996,760	$ 2,825,718	$ 6,377,688
Casualty and Specialty	1,784,334	128,065	5,004,543	6,916,942
Total	$ 3,339,544	$ 2,124,825	$ 7,830,261	$ 13,294,630
At December 31, 2020 (in thousands)				
Property	$ 1,127,909	$ 1,617,003	$ 1,627,541	$ 4,372,453
Casualty and Specialty	1,651,150	133,843	4,223,692	6,008,685
Total	$ 2,779,059	$ 1,750,846	$ 5,851,233	$ 10,381,138

Activity in the liability for unpaid claims and claim expenses is summarized as follows:

Year ended December 31, (in thousands)	2021	2020	2019
Reserve for claims and claim expenses, net of reinsurance recoverable, as of beginning of period	$ 7,455,128	$ 6,593,052	$ 3,704,050
Net incurred related to:			
Current year	4,125,557	3,108,421	2,123,876
Prior years	(249,470)	(183,812)	(26,855)
Total net incurred	3,876,087	2,924,609	2,097,021
Net paid related to:			
Current year	574,230	412,172	265,649
Prior years	1,649,872	1,592,456	832,405
Total net paid	2,224,102	2,004,628	1,098,054
Foreign exchange (1)	(81,152)	97,273	31,260
Amounts disposed (2)	—	(155,178)	—
Amounts acquired (3)	—	—	1,858,775
Reserve for claims and claim expenses, net of reinsurance recoverable, as of end of period	9,025,961	7,455,128	6,593,052
Reinsurance recoverable as of end of period	4,268,669	2,926,010	2,791,297
Reserve for claims and claim expenses as of end of period	$ 13,294,630	$ 10,381,138	$ 9,384,349

(1) Reflects the impact of the foreign exchange revaluation of the reserve for claims and claim expenses, net of reinsurance recoverable, denominated in non-U.S. dollars as at the balance sheet date.

(2) Represents the fair value of RenaissanceRe UK's reserve for claims and claim expenses, net of reinsurance recoverable, disposed of on August 18, 2020.

(3) Represents the fair value of TMR's reserve for claims and claim expenses, net of reinsurance recoverable, acquired at March 22, 2019.

The following table details our prior year development by segment of its liability for unpaid claims and claim expenses:

Year ended December 31, (in thousands)	2021 (Favorable) adverse development	2020 (Favorable) adverse development	2019 (Favorable) adverse development
Property	$ (233,373)	$ (157,049)	$ (2,973)
Casualty and Specialty	(16,097)	(26,763)	(23,882)
Total favorable development of prior accident years net claims and claim expenses	$ (249,470)	$ (183,812)	$ (26,855)

Our reserving methodology for each line of business uses a loss reserving process that calculates a point estimate for our ultimate settlement and administration costs for claims and claim expenses. We do not calculate a range of estimates and do not discount any of our reserves for claims and claim expenses. We use this point estimate, along with paid claims and case reserves, to record our best estimate of additional case reserves and IBNR in our consolidated financial statements. Under GAAP, we are not permitted to establish estimates for catastrophe claims and claim expense reserves until an event occurs that gives rise to a loss.

Reserving for our claims involves other uncertainties, such as the dependence on information from ceding companies, the time lag inherent in reporting information from the primary insurer to us or to our ceding companies, and different reserving practices among ceding companies. The information received from ceding companies is typically in the form of bordereaux, broker notifications of loss and/or discussions with ceding companies or their brokers. This information may be received on a monthly, quarterly or transactional basis and normally includes paid claims and estimates of case reserves. We may also receive an estimate or provision for IBNR from certain ceding companies. This information is often updated and adjusted from time to time during the loss settlement period as new data or facts in respect of initial claims, client accounts, industry or event trends may be reported or emerge in addition to changes in applicable statutory and case laws.

Our estimates of large losses are based on factors including currently available information derived from claims information from certain customers and brokers, industry assessments of losses, proprietary models, historical reinsurance and insurance loss experience and statistics, management's experience and judgment to assist the establishment of appropriate claims and claim expense reserves, and the terms and conditions of our contracts. The uncertainty of our estimates for large losses is also impacted by the preliminary nature of the information available, the magnitude and relative infrequency of the loss, the expected duration of the respective claims development period, inadequacies in the data provided to the relevant date by industry participants, the potential for further reporting lags or insufficiencies and, in certain cases, the form of the claims and legal issues under the relevant terms of insurance and reinsurance contracts. In addition, a significant portion of the net claims and claim expenses associated with certain large losses can be concentrated with a few large clients and therefore the loss estimates for these losses may vary significantly based on the claims experience of those clients. The contingent nature of business interruption and other exposures will also impact losses in a meaningful way, which we believe may give rise to significant complexity in respect of claims handling, claims adjustment and other coverage issues, over time. Given the magnitude of certain losses, there can be meaningful uncertainty regarding total covered losses for the insurance industry and, accordingly, several of the key assumptions underlying our loss estimates. Loss reserve estimation in respect of our retrocessional contracts poses further challenges compared to directly assumed reinsurance. In addition, our actual net losses may increase if our reinsurers or other obligors fail to meet their obligations.

Because of the inherent uncertainties discussed above, we have developed a reserving philosophy which attempts to incorporate prudent assumptions and estimates, and we have generally experienced favorable development on prior accident years net claims and claim expenses in the last several years. However, there is no assurance that this favorable development on prior accident years net claims and claim expenses will occur in future periods.

Our reserving techniques, assumptions and processes differ among our Property and Casualty and Specialty segments. Refer to "Note 8. Reserve for Claims and Claim Expenses" in our "Notes to the Consolidated Financial Statements" for more information on the risks we insure and reinsure, the reserving techniques, assumptions and processes we follow to estimate our claims and claim expense reserves, prior year development of the reserve for claims and claim expenses, analysis of our incurred and paid claims development and claims duration information for each of our Property and Casualty and Specialty segments.

Property Segment

Actual Results vs. Initial Estimates

As discussed above, the key assumption in estimating reserves for our Property segment is our estimate of incurred claims and claim expenses. The table below shows our initial estimates of incurred claims and claim expenses for each accident year and how these initial estimates have developed over time. The initial estimate of accident year incurred claims and claim expenses represents our estimate of the ultimate settlement and administration costs for claims incurred in our Property segment occurring during a particular accident year, and as reported as of December 31 of that year. The re-estimated incurred claims and claim expenses as of December 31 of subsequent years, represent our revised estimates as reported as of those dates. Our most recent estimates as reported at December 31, 2021 differ from our initial accident year estimates and demonstrate that our most recent estimate of incurred claims and claim expenses are reasonably likely to vary from our initial estimate, perhaps significantly. Changes in this estimate will be recorded in the period in which they occur. In accident years where our current estimates are lower than our initial estimates, we have experienced favorable development, in comparison, for accident years where our current estimates are higher than our original estimates we have experienced adverse development. The table is presented on a net basis and, therefore, includes the benefit of reinsurance recoverable. In addition, we have included historical incurred claims and claim expenses development information related to Platinum and TMR in the table below. For incurred accident year claims and claim expenses denominated in currencies other than USD, we have used the current year-end balance sheet foreign exchange rate for all periods provided, thereby eliminating the effects of changes in foreign currency translation rates from the incurred accident year claims development information included in the table below.

The following table details our Property segment incurred claims and claim expenses, net of reinsurance, as of December 31, 2021.

(in thousands)	Incurred Claims and Claim Expenses, Net of Reinsurance									
	For the year ended December 31,									
Accident Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
2012	$ 560,348	$ 429,885	$ 395,605	$ 375,439	$ 358,509	$ 346,756	$ 338,877	$ 334,347	$ 325,042	$ 322,871
2013	—	318,033	294,315	272,191	250,014	238,734	235,016	235,356	238,404	240,779
2014	—	—	302,158	278,813	265,569	260,542	259,379	256,845	250,647	247,708
2015	—	—	—	372,338	357,065	334,099	323,211	311,964	305,847	295,081
2016	—	—	—	—	455,503	469,120	452,922	434,706	415,572	411,698
2017	—	—	—	—	—	1,644,982	1,461,953	1,350,684	1,328,419	1,273,461
2018	—	—	—	—	—	—	938,309	1,020,102	979,598	857,217
2019	—	—	—	—	—	—	—	992,526	956,445	898,472
2020	—	—	—	—	—	—	—	—	1,580,564	1,600,743
2021	—	—	—	—	—	—	—	—	—	2,370,891
Total										$ 8,518,921

Our initial and subsequent estimates of incurred claims and claim expenses, net of reinsurance, are impacted by available information derived from claims information from customers and brokers, industry assessments of losses, proprietary models, historical reinsurance and insurance loss experience and statistics, management's experience and judgment to assist the establishment of appropriate claims and claim expense reserves, and the terms and conditions of our contracts. As described above, given the complexity in reserving for claims and claims expenses associated with property losses, and catastrophe excess of loss reinsurance contracts in particular, which make up a significant proportion of our Property segment, we have experienced development, both favorable and unfavorable, in any given accident year. For example, net claims and claim expenses associated with the 2017 accident year have experienced favorable development. This is largely driven by reductions in estimated net ultimate claims and claim expenses associated with the 2017 Large Loss Events. In comparison, net claims and claim expenses associated with 2020 accident year have experienced adverse development. The adverse development was driven by an increase in expected net claims and claim expenses as new and additional claims information was received associated with the 2020 Weather-Related Large Loss Events.

In accident years with a low level of insured catastrophe losses, our other property lines of business contribute a greater proportion of our overall incurred claims and claim expenses within our Property segment, compared to years with a high level of insured catastrophe losses. We expect that certain of our other property lines of business will tend to generate less volatility in future calendar years and, as such, we would expect to see a slower more stable increase or decrease in estimated incurred net claims and claim expenses over time in such business. Certain of our other property contracts are also exposed to catastrophe events, resulting in increased volatility of incurred claims and claim expenses driven by the occurrence of catastrophe events. In addition, volatility in the initial estimate associated with large catastrophe losses and the speed at which we settle claims can vary significantly based on the type of event. We also anticipate that losses from the COVID-19 pandemic will be highly complex and uncertain, given the unprecedented situation, and will take longer to develop given the nature of the losses, thus potentially adding volatility to our incurred net claims and claim expenses.

Sensitivity Analysis

The table below shows the impact on our reserve for claims and claim expenses, net income (loss) and shareholders' equity as of and for the year ended December 31, 2021 of a reasonable range of possible outcomes associated with our estimates of gross ultimate losses for claims and claim expenses incurred within our Property segment. The reasonable range of possible outcomes is based on a distribution of outcomes of our ultimate incurred claims and claim expenses from large losses. In addition, we adjust the loss ratios and development curves in our other property lines of business in a similar fashion to the sensitivity analysis performed for our Casualty and Specialty segment, discussed in greater detail below. In general, our reserve for claims and claim expenses for more recent losses are subject to greater uncertainty and, therefore, greater variability and are likely to experience material changes from one period to the next. This is due to uncertainty with respect to the size of the industry losses, which contracts have been exposed to the loss and the magnitude of claims incurred by our clients. As our claims age, more information becomes available and we believe our estimates become more certain, although there is no assurance this trend will continue in the future. As a result, the sensitivity analysis below is based on the age of each accident year, our current estimated incurred claims and claim expenses for the losses occurring in each accident year, and a reasonable range of possible outcomes of our current estimates of claims and claim expenses by accident year. The impact on net income (loss) and shareholders' equity assumes no increase or decrease in reinsurance recoveries, loss related premium or profit commission, or redeemable noncontrolling interest.

Property Claims and Claim Expense Reserve Sensitivity Analysis

(in thousands, except percentages)	Reserve for Claims and Claim Expenses at December 31, 2021	$ Impact of Change Reserve for Claims and Claim Expenses at December 31, 2021	% Impact of Change on Reserve for Claims and Claim Expenses at December 31, 2021	% Impact of Change on Net Income (Loss) for the Year Ended December 31, 2021	% Impact of Change on Shareholders' Equity at December 31, 2021
Higher	$ 7,070,794	$ 693,106	5.2 %	670.1 %	(10.5)%
Recorded	$ 6,377,688	$ —	— %	— %	— %
Lower	$ 5,892,394	$ (485,294)	(3.7)%	(469.2)%	7.3 %

We believe the changes we made to our estimated incurred claims and claim expenses represent a reasonable range of possible outcomes based on our experience to date and our future expectations. While we believe these are a reasonable range of possible outcomes, we do not believe the above sensitivity analysis should be considered an actuarial reserve range. In addition, the sensitivity analysis only reflects a reasonable range of possible outcomes in our underlying assumptions. It is possible that our estimated incurred claims and claim expenses could be significantly higher or lower than the sensitivity analysis described above. For example, we could be liable for events for which we have not estimated claims and claim expenses or for exposures we do not currently believe are covered under our policies. These changes could result in significantly larger changes to our estimated incurred claims and claim expenses, net income and shareholders' equity than those noted above, and could be recorded across multiple periods. We also caution that the above sensitivity analysis is not used by management in developing our reserve estimates and is also not used by management in managing the business.

Casualty and Specialty Segment

Actual Results vs. Initial Estimates

As discussed above, the key assumption in estimating reserves for our Casualty and Specialty segment is our estimate of incurred claims and claim expenses. Standard actuarial techniques are used to calculate the ultimate claims and claim expenses. The key assumptions in the determination of ultimate claims and claim expenses include the estimated incurred claims and claim expenses ratio and the estimated loss reporting patterns. The table below shows our initial estimates of incurred claims and claim expenses for each accident year and how these initial estimates have developed over time. The initial estimate of accident year incurred claims and claim expenses represents our estimate of the ultimate settlement and administration costs for claims incurred in our Casualty and Specialty segment occurring during a particular accident year, and as reported as of December 31 of that year. The re-estimated incurred claims and claim expenses as of December 31 of subsequent years, represent our revised estimates as reported as of those dates. Our most recent estimates as reported at December 31, 2021 differ from our initial accident year estimates and demonstrates that our initial estimate of incurred claims and claim expenses are reasonably likely to vary from our most recent estimate, perhaps significantly. Changes in this estimate will be recorded in the period in which they occur. In accident years where our current estimates are lower than our initial estimates, we have experienced favorable development while accident years where our current estimates are higher than our original estimates indicate adverse development. The table is presented on a net basis and, therefore, includes the benefit of reinsurance recoverable. In addition, we have included historical incurred claims and claim expenses development information related to Platinum and TMR in the table below. For incurred accident year claims denominated in currencies other than USD, we have used the current year-end balance sheet foreign exchange rate for all periods provided, thereby eliminating the effects of changes in foreign currency translation rates from the incurred accident year claims development information included in the table below.

The following table details our Casualty and Specialty segment incurred claims and claim expenses, net of reinsurance, as of December 31, 2021.

(in thousands)	Incurred Claims and Claim Expenses, Net of Reinsurance									
	For the year ended December 31,									
Accident Year	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
2012	$ 578,130	$ 592,453	$ 563,062	$ 551,958	$ 540,732	$ 554,391	$ 568,888	$ 577,474	$ 569,186	$ 570,741
2013	—	594,425	592,861	564,622	540,484	527,719	512,923	490,856	482,099	485,498
2014	—	—	700,597	695,827	700,137	681,191	663,280	675,424	646,998	640,914
2015	—	—	—	767,250	787,882	827,103	807,386	793,509	811,403	816,906
2016	—	—	—	—	962,878	995,833	994,781	986,009	950,960	962,173
2017	—	—	—	—	—	1,309,433	1,286,751	1,313,703	1,274,909	1,285,920
2018	—	—	—	—	—	—	1,260,481	1,322,850	1,318,322	1,331,532
2019	—	—	—	—	—	—	—	1,262,941	1,256,812	1,255,990
2020	—	—	—	—	—	—	—	—	1,510,390	1,475,979
2021	—	—	—	—	—	—	—	—	—	1,709,700
Total										$ 10,535,353

As each underwriting year has developed, our estimated expected incurred claims and claim expenses, net of reinsurance, have changed. As an example, our re-estimated incurred claims and claim expenses decreased for the 2014 accident year from the initial estimates. This decrease was principally driven by actual reported and paid net claims and claim expenses associated with the 2014 accident year being lower than expected, which has resulted in a reduction in our expected ultimate claims and claim expense ratio for this accident year. In comparison, the 2018 accident year has developed adversely compared to our initial estimates of incurred claims and claim expenses and our current estimates are higher than our initial estimates. The increase in incurred claims and claim expenses for the 2018 accident year is due to reported losses generally coming in higher than expected on attritional net claims and claim expenses.

The reserving methodology for our Casualty and Specialty segment is weighted more heavily to our initial estimate in the early periods immediately following the contracts' inception through the use of the expected loss ratio method. The expected loss ratio method estimates the incurred losses by multiplying the initial expected loss ratio by the earned premium. Under the expected loss ratio method, no reliance is placed on the development of claims and claim expenses. The determination of when reported losses are sufficient and credible to warrant selection of an ultimate loss ratio different from the initial expected loss ratio also requires judgment. We generally make adjustments for reported loss experience indicating unfavorable variances from the initial expected loss ratio sooner than reported loss experience indicating favorable variances as reporting of losses in excess of expectations tends to have greater credibility than an absence of, or lower than expected level of, reported losses. Over time, as a greater number of claims are reported and the credibility of reported losses improves, actuarial estimates of IBNR are typically based on the Bornhuetter-Ferguson actuarial method. The Bornhuetter-Ferguson method places weight on claims and claim expenses development experience. If there is adverse development of prior accident years claims and claim expenses, we generally select the Bornhuetter-Ferguson method to ensure the claim experience is considered in the determination of our estimated claims and claim expenses with the associated business. If we believe we lack the claims experience in the early stages of development of a line of business, we may not select the Bornhuetter-Ferguson method until such time as we believe there is greater credibility in the level of reported losses. As development experience for claims and claim expenses on prior accident years becomes credible, the Bornhuetter-Ferguson method is generally selected which places greater weight on this reported experience as it develops. The Bornhuetter-Ferguson method estimates our expected ultimate claims and claim expenses by applying our initial estimated loss ratio to our undeveloped premium, and adding the reported losses to the estimate. The impact of these methodologies can be observed in the table above. For example, the 2014 accident year ultimate loss remained relatively consistent for the first two years of development (i.e., the years ended December 31, 2015 and 2016), before experiencing favorable development in years three and four (i.e., the years ended December 31, 2017 and 2018), reflecting the timing of our adoption of the Bornhuetter-Ferguson method as the reported experience became more credible.

Sensitivity Analysis

The table below shows the impact on our Casualty and Specialty segment reserve for claims and claim expenses, net income (loss) and shareholders' equity as of and for the year ended December 31, 2021, of a reasonable range of possible outcomes associated with a variety of reasonable actuarial assumptions for our estimates of gross ultimate claims and claim expense ratios and loss reporting patterns. The impact on net income (loss) and shareholders' equity assumes no increase or decrease in reinsurance recoveries, loss related premium or profit commission, or redeemable noncontrolling interest.

Casualty and Specialty Claims and Claim Expense Reserve Sensitivity Analysis

(in thousands, except percentages)	Estimated Loss Reporting Pattern	$ Impact of Change on Reserves for Claims and Claim Expenses at December 31, 2021	% Impact of Change on Reserve for Claims and Claim Expenses at December 31, 2021	% Impact of Change on Net Income (Loss) for the Year Ended December 31, 2021	% Impact of Change on Shareholders' Equity at December 31, 2021
Increase expected claims and claim expense ratio by 10%	Slower reporting	$ 1,143,914	8.6 %	1,105.9 %	(17.3)%
Increase expected claims and claim expense ratio by 10%	Expected reporting	$ 500,454	3.8 %	483.8 %	(7.6)%
Increase expected claims and claim expense ratio by 10%	Faster reporting	$ 141,739	1.1 %	137.0 %	(2.1)%
Expected claims and claim expense ratio	Slower reporting	$ 584,963	4.4 %	565.5 %	(8.8)%
Expected claims and claim expense ratio	Expected reporting	$ —	— %	— %	— %
Expected claims and claim expense ratio	Faster reporting	$ (326,104)	(2.5)%	(315.3)%	4.9 %
Decrease expected claims and claim expense ratio by 10%	Slower reporting	$ 26,013	0.2 %	25.1 %	(0.4)%
Decrease expected claims and claim expense ratio by 10%	Expected reporting	$ (500,454)	(3.8)%	(483.8)%	7.6 %
Decrease expected claims and claim expense ratio by 10%	Faster reporting	$ (793,948)	(6.0)%	(767.5)%	12.0 %

We believe that ultimate claims and claim expense ratios 10.0 percentage points above or below our estimated assumptions constitute a reasonable range of possible outcomes based on our experience to date and our future expectations. In addition, we believe that the adjustments we made to speed up or slow down our estimated loss reporting patterns represent a reasonable range of possible outcomes. While we believe these are a reasonable range of possible outcomes, we do not believe the above sensitivity analysis should be considered an actuarial reserve range. In addition, the sensitivity analysis only reflects a reasonable range of possible outcomes in our underlying assumptions. It is possible that our initial estimated claims and claim expense ratios and loss reporting patterns could be significantly different from the sensitivity analysis described above. For example, we could be liable for events that we have not estimated reserves for, or for exposures we do not currently believe are covered under our contracts. These changes could result in significantly larger changes to reserves for claims and claim expenses, net income and shareholders' equity than those noted above, and could be recorded across multiple periods. We also caution that the above sensitivity analysis is not used by management in developing our reserve estimates and is also not used by management in managing the business.

Premiums and Related Expenses

Premiums are recognized as income, net of any applicable reinsurance or retrocessional coverage purchased, over the terms of the related contracts and policies. Premiums written are based on contract and policy terms and include estimates based on information received from both insureds and ceding companies. Unearned premiums represents the portion of premiums written that relate to the unexpired terms of contracts and policies in force. Amounts are computed by pro rata methods based on statistical data or reports received from ceding companies. Reinstatement premiums are estimated after the occurrence of a loss and are recorded in accordance with the contract terms based upon paid losses as well as reported and estimated reserves. Reinstatement premiums are earned when written.

Due to the nature of reinsurance, ceding companies routinely report and remit premiums to us subsequent to the contract coverage period. Consequently, premiums written and receivable include amounts reported by the ceding companies, supplemented by our estimates of premiums that are written but not reported. The estimation of written premiums may be affected by early cancellation, election of contract provisions for cut-off and return of unearned premiums or other contract disruptions. The time lag involved in the process of reporting premiums is shorter than the lag in reporting losses. In addition to estimating premiums written, we estimate the earned portion of premiums written which is subject to judgment and uncertainty. Any adjustments to written and earned premiums, and the related losses and acquisition expenses, are accounted for as changes in estimates and are reflected in the results of operations in the period in which they are made.

Lines of business that are similar in both the nature of their business and estimation process may be grouped for purposes of estimating premiums. Premiums are estimated based on ceding company estimates and our own judgment after considering factors such as: (1) the ceding company's historical premium versus projected premium, (2) the ceding company's history of providing accurate estimates, (3) anticipated changes in the marketplace and the ceding company's competitive position therein, (4) reported premiums to date and (5) the anticipated impact of proposed underwriting changes. Estimates of premiums written and earned are based on the selected ultimate premium estimate, the terms and conditions of the reinsurance contracts and the remaining exposure from the underlying policies. We evaluate the appropriateness of these estimates in light of the actual premium reported by the ceding companies, information obtained during audits and other information received from ceding companies.

We estimate our provision for current expected credit losses by applying specific percentages against each premiums receivable based on the counterparty's credit ratings. The percentages applied are based on information received from both insureds and ceding companies and are then adjusted by us based on industry knowledge and our judgment and estimates. We then evaluate the overall adequacy of the provision for current expected credit losses based on other qualitative and judgmental factors. At December 31, 2021, the Company's premiums receivable balance was $3.8 billion (2020 - $2.9 billion). Of the Company's premiums receivable balance as of December 31, 2021, the majority are receivables from highly rated counterparties. At December 31, 2021, the Company held a provision for current expected credit losses on its premiums receivable of $2.8 million (2020 - $6.0 million).

Reinsurance Recoverable

We enter into retrocessional reinsurance agreements in order to help reduce our exposure to large losses and to help manage our risk portfolio. Amounts recoverable from reinsurers are estimated in a manner consistent with the claims and claim expense reserves associated with the related assumed reinsurance. For multi-year retrospectively rated contracts, we accrue amounts (either assets or liabilities) that are due to or from our retrocessionaires based on estimated contract experience. If we determine that adjustments to earlier estimates are appropriate, such adjustments are recorded in the period in which they are determined.

The estimate of reinsurance recoverable can be more subjective than estimating the underlying claims and claim expense reserves as discussed under the heading "Claims and Claim Expense Reserves" above. In particular, reinsurance recoverable may be affected by deemed inuring reinsurance, industry losses reported by various statistical reporting services, and other factors. Reinsurance recoverable on dual trigger reinsurance contracts require us to estimate our ultimate losses applicable to these contracts as well as estimate the ultimate amount of insured industry losses that will be reported by the applicable statistical reporting agency, as per the contract terms. In addition, the level of our additional case reserves and IBNR reserves has a significant impact on reinsurance recoverable. These factors can impact the amount and timing of the reinsurance recoverable to be recorded.

The majority of the balance we have accrued as recoverable will not be due for collection until some point in the future. The amounts recoverable that will ultimately be collected are subject to uncertainty due to the ultimate ability and willingness of reinsurers to pay our claims at a future point in time, for reasons including insolvency or elective run-off, contractual dispute and various other reasons. In addition, because the majority of the balances recoverable will not be collected for some time, economic conditions as well as the financial and operational performance of a particular reinsurer may change, and these changes may affect the reinsurer's willingness and ability to meet their contractual obligations to us. To reflect these uncertainties, we estimate and record a provision for current expected credit losses for potential uncollectible reinsurance recoverable which reduces reinsurance recoverable and net income.

We estimate our provision for current expected credit losses by applying specific percentages against each reinsurance recoverable based on our counterparty's credit rating. The percentages applied are based on historical industry default statistics developed by major rating agencies and are then adjusted by us based on industry knowledge and our judgment and estimates. We then evaluate the overall adequacy of the provision for current expected credit losses based on other qualitative and judgmental factors. At December 31, 2021, our reinsurance recoverable balance was $4.3 billion (2020 - $2.9 billion). Of this amount, 46.9% is fully collateralized by our reinsurers, 52.1% is recoverable from reinsurers rated A- or higher by major rating agencies and 1.0% is recoverable from reinsurers rated lower than A- by major rating agencies (2020 - 45.2%, 53.4% and 1.4%, respectively). The reinsurers with the three largest balances accounted for 19.9%, 8.4% and 4.3%, respectively, of our reinsurance recoverable balance at December 31, 2021 (2020 - 15.3%, 10.8% and 6.7%, respectively). The provision for current expected credit losses recorded against reinsurance recoverable was $8.3 million at December 31, 2021 (2020 - $6.3 million). The three largest company-specific components of the provision for current expected credit losses represented 18.0%, 13.9% and 11.2%, respectively, of our total provision for current expected credit losses at December 31, 2021 (2020 - 13.2%, 13.0% and 6.7%, respectively).

Fair Value Measurements and Impairments

Fair Value

The use of fair value to measure certain assets and liabilities with resulting unrealized gains or losses is pervasive within our consolidated financial statements. Fair value is defined under accounting guidance currently applicable to us to be the price that would be received upon the sale of an asset or paid to transfer a liability in an orderly transaction between open market participants at the measurement date. We recognize the change in unrealized gains and losses arising from changes in fair value in our consolidated statements of operations.

FASB ASC Topic *Fair Value Measurements and Disclosures* prescribes a fair value hierarchy that prioritizes the inputs to the respective valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to valuation techniques that use at least one significant input that is unobservable (Level 3).

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 in its entirety falls has been determined based on the lowest level input that is significant to the fair value measurement of the asset or liability. Our assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment, and we consider factors specific to the asset or liability.

In order to determine if a market is active or inactive for a security, we consider a number of factors, including, but not limited to, the volume of trading activity for the security in question, the price of the security compared to its par value (for fixed maturity investments), and other factors that may be indicative of market activity.

At December 31, 2021, we classified $169.3 million and $10.8 million of our assets and liabilities, respectively, at fair value on a recurring basis using Level 3 inputs. This represented 0.5% and 0.0% of our total assets and liabilities, respectively. Level 3 fair value measurements are based on valuation techniques that use at least one significant input that is unobservable. These measurements are made under circumstances in which there is little, if any, market activity for the asset or liability. We use valuation models or other pricing techniques that require a variety of inputs including contractual terms, market prices and rates, yield curves, credit curves, measures of volatility, prepayment rates and correlations of such inputs, some of which may be unobservable, to value these Level 3 assets and liabilities.

Refer to "Note 6. Fair Value Measurements" in our "Notes to the Consolidated Financial Statements" for additional information about fair value measurements.

Impairments

The amount and timing of asset impairment is subject to significant estimation techniques and is a critical accounting estimate for us. The significant impairment reviews we complete are for our goodwill and other intangible assets and equity method investments, as described in more detail below.

Goodwill and Other Intangible Assets

Goodwill and other intangible assets acquired are initially recorded at fair value. Subsequent to initial recognition, finite lived other intangible assets are amortized over their estimated useful life, subject to impairment, and goodwill and indefinite lived other intangible assets are carried at the lower of cost or fair value, subject to impairment. If goodwill or other intangible assets are impaired, they are written down to their estimated fair values with a corresponding expense reflected in our consolidated statements of operations.

In accordance with FASB ASC Topic *Business Combinations*, we allocated the total consideration paid for TMR among acquired assets and assumed liabilities based on their fair values. We recognized identifiable finite lived intangible assets of $11.2 million, which will be amortized over a weighted average period of 10.5 years, identifiable indefinite lived intangible assets of $6.8 million, and certain other adjustments to the fair values of the assets acquired, liabilities assumed and shareholders' equity of TMR at March 22, 2019, based on foreign exchange rates on March 22, 2019.

In addition, we recognized goodwill of $13.1 million, based on foreign exchange rates on March 22, 2019, attributable to the excess of the purchase price over the fair value of the net assets of TMR. Goodwill resulting from the acquisition of TMR will not be amortized but instead will be tested for impairment at least annually, as outlined below (more frequently if certain indicators are present). Goodwill is assigned to the applicable reporting unit of the acquired entities giving rise to the goodwill and other intangible assets.

We assess goodwill and other intangible assets for impairment in the fourth quarter of each year, or more frequently if events or changes in circumstances indicate that the carrying amount may not be recoverable. For purposes of the annual impairment evaluation, we assess qualitative factors to determine if events or circumstances exist that would lead us to conclude that it is more likely than not that the fair value of a reporting unit is less than its carrying amount. If we determine that it is not more likely than not that the fair value of a reporting unit is less than its carrying amount, then we do not perform a quantitative evaluation. Should we determine that a quantitative analysis is required, we will first determine the fair value of the reporting unit and compare that with the carrying value, including goodwill. If the fair value of the reporting unit exceeds its carrying amount, then goodwill is not considered impaired and no further analysis is required. If the carrying amount of a reporting unit exceeds its fair value, we then proceed to determine the amount of the impairment charge, if any. There are many assumptions and estimates underlying the fair value calculation. Principally, we identify the reporting unit or business entity that the goodwill or other intangible asset is attributed to, and review historical and forecasted operating and financial performance and other underlying factors affecting such analysis, including market conditions. Other assumptions used could produce significantly different results which may result in a change in the value of goodwill or our other intangible assets and a related charge in our consolidated statements of operations. An impairment charge could be recognized in the event of a significant decline in the implied fair value of those operations where the goodwill or other intangible assets are applicable. In the event we determine that the value of goodwill has become impaired, an accounting charge will be taken in the fiscal quarter in which such determination is made, which could have a material adverse effect on our results of operations in the period in which the impairment charge is recorded.

As a result of the Company's impairment assessment performed during the fourth quarter of 2021, the Company determined that there was no impairment during 2021, and therefore the Company recorded no intangible asset impairment charge during the year ended December 31, 2021. Refer to "Note 4. Goodwill and Other Intangible Assets" in our "Notes to the Consolidated Financial Statements" for additional information with respect to the impairment.

As at December 31, 2021, excluding the amounts recorded in investments in other ventures, under the equity method, as noted below, our consolidated balance sheets include $210.9 million of goodwill (2020 - $211.0 million) and $32.6 million of other intangible assets (2020 - $38.6 million). Impairment charges related to these balances were $Nil during the year ended December 31, 2021 (2020 - $6.8 million, 2019 - $Nil). In the future, it is possible we will hold more goodwill and intangible assets, which would increase the degree of judgment and uncertainty embedded in our financial statements, and potentially increase the volatility of our reported results.

Deferred Acquisition Costs and Value of Business Acquired

VOBA was initially recorded to reflect the establishment of the value of business acquired asset in connection with the acquisition of TMR, which represents the estimated present value of the expected underwriting profit within the unearned premiums liability, net of reinsurance, less costs to service the related policies and a risk premium. VOBA is derived using, among other things, estimated loss ratios by line of business to calculate the underwriting profit, weighted average cost of capital, risk premium and expected payout patterns. The adjustment for VOBA will be amortized to acquisition expenses over approximately two years, as the contracts for business in-force as of the acquisition date expire.

Investments in Other Ventures, Under Equity Method

Investments in which we have significant influence over the operating and financial policies of the investee are classified as investments in other ventures, under equity method, and are accounted for under the equity method of accounting. Under this method, we record our proportionate share of income or loss from such investments in our results for the period. Any decline in the value of investments in other ventures, under equity method, including goodwill and other intangible assets arising upon acquisition of the investee, considered by management to be other-than-temporary, is reflected in our consolidated statements of operations in the period in which it is determined. As of December 31, 2021, we had $98.1 million (2020 - $98.4 million) in investments in other ventures, under equity method on our consolidated balance sheets, including $9.9 million of goodwill and $8.7 million of other intangible assets (2020 - $10.6 million and $12.4 million). The carrying value of our investments in other ventures, under equity method, individually or in the aggregate, may, and likely will, differ from the realized value we may ultimately attain, perhaps significantly so.

In determining whether an equity method investment is impaired, we take into consideration a variety of factors including the operating and financial performance of the investee, the investee's future business plans and projections, recent transactions and market valuations of publicly traded companies where available, discussions with the investee's management, and our intent and ability to hold the investment until it recovers in value. Accordingly, we make assumptions and estimates in assessing whether an impairment has occurred and if, in the future, our assumptions and estimates made in assessing the fair value of these investments change, this could result in a material decrease in the carrying value of these investments. This would cause us to write-down the carrying value of these investments and could have a material adverse effect on our results of operations in the period the impairment charge is taken. We do not have any current plans to dispose of these investments, and cannot assure you we will consummate future transactions in which we realize the value at which these holdings are reflected in our financial statements. We have not recorded any other-than-temporary impairment charges related to goodwill and other intangible assets associated with our investments in other ventures, under the equity method in any of the years ended December 31, 2021, 2020 or 2019. See "Note 4. Goodwill and Other Intangible Assets" in our "Notes to the Consolidated Financial Statements" for additional information.

Income Taxes

Income taxes have been provided in accordance with the provisions of FASB ASC Topic *Income Taxes*. Deferred tax assets and liabilities result from temporary differences between the amounts recorded in our consolidated financial statements and the tax basis of our assets and liabilities. Such temporary differences are primarily due to net operating loss carryforwards and GAAP versus tax basis accounting differences relating to unearned premiums, reserves for claims and claim expenses, deferred finance charges, deferred underwriting results, accrued expenses, investments, deferred acquisition expenses, intangible assets, amortization and depreciation and VOBA. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period in which the change in tax rates is enacted. A valuation allowance against net deferred tax assets is recorded if it is more likely than not that all, or some portion, of the benefits related to deferred tax assets will not be realized.

At December 31, 2021, our net deferred tax asset (prior to our valuation allowance) and valuation allowance were $192.4 million (2020 - $138.0 million) and $131.5 million (2020 - $88.7 million), respectively. See “Note 15. Taxation” in our “Notes to the Consolidated Financial Statements” for additional information. At each balance sheet date, we assess the need to establish a valuation allowance that reduces the net deferred tax asset when it is more likely than not that all, or some portion, of the net deferred tax assets will not be realized. The valuation allowance assessment is performed separately in each taxable jurisdiction based on all available information including projections of future GAAP taxable income from each tax-paying component in each tax jurisdiction. The valuation allowance relates to a substantial portion of our net deferred tax assets in most jurisdictions in which we do business. It excludes Bermuda and our U.S. operations that existed prior to the acquisition of TMR, which only have a small valuation allowance against finite lived tax carryforwards.

We have unrecognized tax benefits of $Nil as of December 31, 2021 (2020 - $Nil). Interest and penalties related to unrecognized tax benefits, would be recognized in income tax expense. At December 31, 2021, interest and penalties accrued on unrecognized tax benefits were $Nil (2020 - $Nil).

The following filed income tax returns are open for examination with the applicable tax authorities: tax years 2018 through 2020 with the IRS; 2017 through 2020 with Ireland; 2019 through 2020 with the U.K.; 2017 through 2020 with Singapore; 2019 and 2020 with Switzerland; and 2017 through 2020 with Australia. We do not expect the resolution of these open years to have a significant impact on our consolidated statements of operations and financial condition.

SUMMARY OF RESULTS OF OPERATIONS

(in thousands, except per share amounts and percentages)

Statements of Operations Highlights

Year ended December 31,	2021	2020	2019
Gross premiums written	$ 7,833,798	$ 5,806,165	$ 4,807,750
Net premiums written	$ 5,939,375	$ 4,096,333	$ 3,381,493
Net premiums earned	$ 5,194,181	$ 3,952,462	$ 3,338,403
Net claims and claim expenses incurred	3,876,087	2,924,609	2,097,021
Acquisition expenses	1,214,858	897,677	762,232
Operational expenses	212,184	206,687	222,733
Underwriting income (loss)	$ (108,948)	$ (76,511)	$ 256,417
Net investment income	$ 319,479	$ 354,038	$ 424,207
Net realized and unrealized gains (losses) on investments	(218,134)	820,636	414,109
Total investment result	$ 101,345	$ 1,174,674	$ 838,316
Net income (loss)	$ (103,440)	$ 993,058	$ 950,267
Net income (loss) available (attributable) to RenaissanceRe common shareholders	$ (73,421)	$ 731,482	$ 712,042
Net income (loss) available (attributable) to RenaissanceRe common shareholders per common share – diluted	$ (1.57)	$ 15.31	$ 16.29
Dividends per common share	$ 1.44	$ 1.40	$ 1.36

Key Ratios

Year ended December 31,	2021	2020	2019
Net claims and claim expense ratio – current accident year	79.4 %	78.6 %	63.6 %
Net claims and claim expense ratio – prior accident years	(4.8)%	(4.6)%	(0.8)%
Net claims and claim expense ratio – calendar year	74.6 %	74.0 %	62.8 %
Underwriting expense ratio	27.5 %	27.9 %	29.5 %
Combined ratio	102.1 %	101.9 %	92.3 %
Return on average common equity	(1.1)%	11.7 %	14.1 %

Book Value

At December 31,	2021	2020	2019
Book value per common share	$ 132.17	$ 138.46	$ 120.53
Accumulated dividends per common share	23.52	22.08	20.68
Book value per common share plus accumulated dividends	$ 155.69	$ 160.54	$ 141.21
Change in book value per common share plus change in accumulated dividends	(3.5)%	16.0 %	17.1 %

Balance Sheet Highlights

At December 31,	2021	2020	2019
Total assets	$ 33,959,502	$ 30,820,580	$ 26,330,094
Total shareholders' equity attributable to RenaissanceRe	$ 6,624,281	$ 7,560,248	$ 5,971,367

Results of Operations for 2021 Compared to 2020

Net loss attributable to RenaissanceRe common shareholders was $73.4 million in 2021, compared to net income available to RenaissanceRe common shareholders of $731.5 million in 2020, a decrease of $804.9 million. As a result of our net loss attributable to RenaissanceRe common shareholders in 2021, we generated an annualized return on average common equity of negative 1.1% and our book value per common share decreased from $138.46 at December 31, 2020 to $132.17 at December 31, 2021, a 3.5% decrease, after considering the change in accumulated dividends paid to our common shareholders.

The most significant items affecting our financial performance during 2021, on a comparative basis to 2020, include:

- *Impact of Weather-Related Large Losses and COVID-19* - in 2021, we had a net negative impact on our net loss attributable to RenaissanceRe common shareholders of $962.1 million resulting from the 2021 Weather-Related Large Losses. This compares to a net negative impact on our net income available to RenaissanceRe common shareholders of $493.6 million in 2020 resulting from the 2020 Weather-Related Large Loss Events and $286.6 million resulting from losses related to the COVID-19 pandemic;
- *Underwriting Results* - we incurred an underwriting loss of $108.9 million and had a combined ratio of 102.1% in 2021, compared to an underwriting loss of $76.5 million and a combined ratio of 101.9% in 2020. Our underwriting loss in 2021 was comprised of an underwriting loss of $185.5 million in our Property segment, partially offset by underwriting income of $76.6 million in our Casualty and Specialty segment. In comparison, our underwriting loss in 2020 was comprised of $87.5 million of underwriting loss in our Casualty and Specialty segment, partially offset by underwriting income of $11.0 million in our Property segment.

  Included in our underwriting results in 2021 was the impact of the 2021 Weather-Related Large Losses, which resulted in a net negative impact on our underwriting result of $1.4 billion and added 28.5 percentage points to the combined ratio, primarily in the Property segment. In comparison, our underwriting result in 2020 was principally impacted by the 2020 Weather-Related Large Loss Events and the COVID-19 losses. In 2020, the 2020 Weather-Related Large Loss Events resulted in a net negative impact on the underwriting result of $668.5 million and added 17.2 percentage points to the combined ratio, primarily in the Property segment. The COVID-19 losses incurred in 2020, which impacted both the Property and Casualty and Specialty segments, resulted in a net negative impact on the underwriting result of $351.9 million and added 8.9 percentage points to the combined ratio;
- *Gross Premiums Written* - our gross premiums written increased by $2.0 billion, or 34.9%, to $7.8 billion, in 2021, compared to 2020, with an increase of $959.6 million in the Property segment and an increase of $1.1 billion in the Casualty and Specialty segment. The increase was driven by growth from both new and existing business and rate improvements across both segments and a number of our underwriting platforms, and, in our Property segment, reinstatement premiums of $348.0 million associated with 2021 Weather-Related Large Losses, as compared to $79.2 million of reinstatement premiums in 2020 associated with the 2020 Weather-Related Large Loss Events and $28.0 million associated with COVID-19 losses in 2020;
- *Investment Results* - our total investment result, which includes the sum of net investment income and net realized and unrealized gains (losses) on investments, was $101.3 million in 2021, compared to $1.2 billion in 2020, a decrease of $1.1 billion. The primary driver of the lower total investment result, for 2021, was the net realized and unrealized losses on our fixed maturity trading portfolio, partially offset by net realized and unrealized gains on our equity investments trading portfolio. The higher investment results in 2020 were favorably impacted by the market recovery following the disruption in global financial markets associated with the COVID-19 pandemic; and
- *Net Loss (Income) Attributable to Redeemable Noncontrolling Interests* - our net loss attributable to redeemable noncontrolling interests was $63.3 million in 2021, compared to net income attributable to redeemable noncontrolling interest of $230.7 million in 2020, reflecting the impact of higher underwriting losses in DaVinci, lower underwriting income in Vermeer, and a decrease in Medici net income, primarily due to foreign exchange losses that are attributable to third party investors.

Results of Operations for 2020 Compared to 2019

Net income available to RenaissanceRe common shareholders was $731.5 million in 2020, compared to $712.0 million in 2019, an increase of $19.4 million. As a result of our net income available to RenaissanceRe common shareholders in 2020, we generated an annualized return on average common equity of 11.7% and our book value per common share increased from $120.53 at December 31, 2019 to $138.46 at December 31, 2020, a 16.0% increase, after considering the change in accumulated dividends paid to our common shareholders.

The most significant items affecting our financial performance during 2020, on a comparative basis to 2019, include:

- *Impact of Weather-Related Large Loss Events and COVID-19* - in 2020, we had a net negative impact on our net income available to RenaissanceRe common shareholders of $493.6 million resulting from the 2020 Weather-Related Large Loss Events and $286.6 million resulting from losses related to the COVID-19 pandemic. This compares to a net negative impact on our net income available to RenaissanceRe common shareholders of $348.2 million from the combined impacts of the 2019 Large Loss Events.
- *Underwriting Results* - we incurred an underwriting loss of $76.5 million and had a combined ratio of 101.9% in 2020, compared to underwriting income of $256.4 million and a combined ratio of 92.3% in 2019. Our underwriting loss in 2020 was comprised of an $87.5 million underwriting loss in our Casualty and Specialty segment, offset by underwriting income of $11.2 million in our Property segment. In comparison, underwriting income in 2019 was comprised of $209.3 million of underwriting income in our Property segment and $46.0 million of underwriting income in our Casualty and Specialty segment.

  Our underwriting result in 2020 was principally impacted by the 2020 Weather-Related Large Loss Events and the COVID-19 losses. The 2020 Weather-Related Large Loss Events resulted in a net negative impact on the underwriting result of $668.5 million and added 17.2 percentage points to the combined ratio, primarily in the Property segment. The COVID-19 losses, which impacted both the Property and Casualty and Specialty segments, resulted in a net negative impact on the underwriting result of $351.9 million and added 8.9 percentage points to the combined ratio.

  Partially offsetting the impact of the 2020 Weather-Related Large Loss Events and COVID-19 losses was favorable development on prior accident years of $183.8 million, primarily related to large loss events in 2019, 2018 and 2017, as well as favorable movements in other assumed losses and ceded recoveries. This favorable development reduced the combined ratio by 4.6 percentage points and was principally in the Property segment.

  In comparison, our underwriting result in 2019 was principally impacted by the 2019 Large Loss Events, which had a net negative impact on our underwriting result of $418.9 million and added 12.9 percentage points to the combined ratio, principally in the Property segment;
- *Gross Premiums Written* - our gross premiums written increased by $1.0 billion, or 20.8%, to $5.8 billion, in 2020, compared to 2019, with an increase of $568.2 million in the Property segment and an increase of $430.3 million in the Casualty and Specialty segment;
- *Investment Results* - our total investment result, which includes the sum of net investment income and net realized and unrealized gains on investments, was $1.2 billion in 2020, compared to $838.3 million in 2019, an increase of $336.4 million. The increase was primarily driven by net realized and unrealized gains on investments of $820.6 million in 2020, compared to $414.1 million in 2019. The net realized and unrealized gains on investments in 2020 were driven by net realized and unrealized gains on the fixed maturity investments portfolio, equity investments trading and investment-related derivatives;
- *Net Income Attributable to Redeemable Noncontrolling Interests* - our net income attributable to redeemable noncontrolling interests was $230.7 million in 2020, compared to $201.5 million in 2019. The increase was due to improved performance from Medici and Vermeer, compared to 2019, partially offset by lower underlying performance in DaVinci which was negatively impacted by the 2020 Weather-Related Large Loss Events and the COVID-19 losses; and

- *Common Share Offering* - on June 5, 2020, we issued 6,325,000 of our common shares in an underwritten public offering at a public offering price of $166.00 per share. Concurrently with the public offering, we raised $75.0 million through the issuance of 451,807 of our common shares at a price of $166.00 per share to State Farm, one of our existing stockholders, in a private placement. The total net proceeds from the offerings were $1.1 billion.

Net Negative Impact

Net negative impact on underwriting result includes the sum of (1) net claims and claim expenses incurred, (2) assumed and ceded reinstatement premiums earned and (3) earned and lost profit commissions. Net negative impact on net income (loss) available (attributable) to RenaissanceRe common shareholders is the sum of (1) net negative impact on underwriting result and (2) redeemable noncontrolling interest, before consideration of any related income tax benefit (expense). Our estimates of net negative impact are based on a review of our potential exposures, preliminary discussions with certain counterparties and actuarial modeling techniques. Our actual net negative impact, both individually and in the aggregate, may vary from these estimates, perhaps materially. Changes in these estimates will be recorded in the period in which they occur.

Meaningful uncertainty remains regarding the estimates and the nature and extent of the losses from catastrophe events, driven by the magnitude and recent nature of each event, the geographic areas impacted by the events, relatively limited claims data received to date, the contingent nature of business interruption and other exposures, potential uncertainties relating to reinsurance recoveries and other factors inherent in loss estimation, among other things.

2021 Net Negative Impact

The financial data in the table below provides additional information detailing the net negative impact of the 2021 Weather-Related Large Losses on our consolidated financial statements in 2021.

Year ended December 31, 2021	Winter Storm Uri	European Floods	Hurricane Ida	Other 2021 Catastrophe Events [1]	Aggregate Losses [2]	Total 2021 Weather-Related Large Losses [3]
(in thousands)						
Net claims and claims expenses incurred	$ (358,937)	$ (360,644)	$ (741,285)	$ (85,941)	$ (161,093)	$ (1,707,900)
Assumed reinstatement premiums earned	86,626	90,346	156,061	9,939	6,140	349,112
Ceded reinstatement premiums earned	(11,045)	(16,372)	(27,467)	—	—	(54,884)
Earned (lost) profit commissions	773	8,084	—	1,645	—	10,502
Net negative impact on underwriting result	(282,583)	(278,586)	(612,691)	(74,357)	(154,953)	(1,403,170)
Redeemable noncontrolling interest - DaVinciRe	91,966	84,082	179,403	15,660	37,175	408,286
Redeemable noncontrolling interest - Vermeer	10,000	—	21,403	1,422	—	32,825
Redeemable noncontrolling interest	101,966	84,082	200,806	17,082	37,175	441,111
Net negative impact on net income (loss) available (attributable) to RenaissanceRe common shareholders	$ (180,617)	$ (194,504)	$ (411,885)	$ (57,275)	$ (117,778)	$ (962,059)

The financial data in the table below provides additional information detailing the net negative impact of the 2021 Weather-Related Large Losses on our segment underwriting results and consolidated combined ratio in 2021.

Year ended December 31, 2021 (in thousands, except percentages)	Winter Storm Uri	European Floods	Hurricane Ida	Other 2021 Catastrophe Events [1]	Aggregate Losses [2]	Total 2021 Weather-Related Large Losses [3]
Net negative impact on Property segment underwriting result	$ (275,566)	$ (276,317)	$ (596,271)	$ (74,357)	$ (154,953)	$ (1,377,464)
Net negative impact on Casualty and Specialty segment underwriting result	(7,017)	(2,269)	(16,420)	—	—	(25,706)
Net negative impact on underwriting result	$ (282,583)	$ (278,586)	$ (612,691)	$ (74,357)	$ (154,953)	$ (1,403,170)
Percentage point impact on consolidated combined ratio	5.5	5.4	12.0	1.4	3.0	28.5

(1) "Other 2021 Catastrophe Events" includes the hail storm in Europe in late June 2021, the wildfires in California during the third quarter of 2021, the tornadoes in the Central and Midwest U.S. in December 2021, and the Midwest Derecho in December 2021.
(2) "Aggregate Losses" includes loss estimates associated with certain aggregate loss contracts triggered during 2021 as a result of weather-related catastrophe events.
(3) "2021 Weather-Related Large Losses" includes Winter Storm Uri, the European Floods, Hurricane Ida, Other 2021 Catastrophe Events and Aggregate Losses.

2020 Net Negative Impact

The financial data in the table below provides additional information detailing the net negative impact of the 2020 Weather-Related Large Loss Events on our consolidated financial statements in 2020.

Year ended December 31, 2020 (in thousands)	**Q3 2020 Weather-Related Catastrophe Events** [(1)]	**Q4 2020 Weather-Related Catastrophe Events** [(2)]	**2020 Aggregate Losses** [(3)]	**Total 2020 Weather-Related Large Loss Events** [(4)]
Net claims and claims expenses incurred	$ (456,425)	$ (129,394)	$ (153,757)	$ (739,576)
Assumed reinstatement premiums earned	68,094	6,323	4,997	79,414
Ceded reinstatement premiums earned	(4,019)	(1,678)	—	(5,697)
Earned (lost) profit commissions	837	2,774	(6,270)	(2,659)
Net negative impact on underwriting result	(391,513)	(121,975)	(155,030)	(668,518)
Redeemable noncontrolling interest	92,823	36,811	45,270	174,904
Net negative impact on net income (loss) available (attributable) to RenaissanceRe common shareholders	$ (298,690)	$ (85,164)	$ (109,760)	$ (493,614)

The financial data in the table below provides additional information detailing the net negative impact of the 2020 Weather-Related Large Loss Events on our segment underwriting results and consolidated combined ratio in 2020.

Year ended December 31, 2020 (in thousands, except percentages)	**Q3 2020 Weather-Related Catastrophe Events** [(1)]	**Q4 2020 Weather-Related Catastrophe Events** [(2)]	**2020 Aggregate Losses** [(3)]	**Total 2020 Weather-Related Large Loss Events** [(4)]
Net negative impact on Property segment underwriting result	$ (378,674)	$ (118,150)	$ (155,030)	$ (651,854)
Net negative impact on Casualty and Specialty segment underwriting result	(12,839)	(3,825)	—	(16,664)
Net negative impact on underwriting result	$ (391,513)	$ (121,975)	$ (155,030)	$ (668,518)
Percentage point impact on consolidated combined ratio	10.0	3.1	3.9	17.2

(1) "Q3 2020 Weather-Related Catastrophe Events" includes Hurricane Laura, Hurricane Sally, the third quarter 2020 wildfires in California, Oregon and Washington, other third quarter catastrophe events including the August 2020 derecho which impacted the U.S. Midwest, Hurricane Isaias, and Typhoon Maysak.

(2) "Q4 2020 Weather-Related Catastrophe Events" includes Hurricanes Zeta, Delta, Hurricane Eta and wildfires on the West Coast of the United States during the fourth quarter of 2020.

(3) "2020 Aggregate Losses" includes loss estimates associated with aggregate loss contracts triggered during 2020 primarily as a result of losses associated with the Q3 2020 Weather-Related Catastrophe Events and Q4 2020 Weather-Related Catastrophe Events.

(4) "2020 Weather-Related Large Loss Events" includes the Q3 2020 Weather-Related Catastrophe Events, Q4 2020 Weather-Related Catastrophe Events and the aggregate losses in 2020 described in footnote (3).

COVID-19 Losses

In 2020, losses related to the COVID-19 pandemic resulted in a net negative impact on net income available to RenaissanceRe common shareholders of $286.6 million, which reflects a net negative impact on underwriting result of $351.9 million, offset by redeemable noncontrolling interest of $65.4 million. The net negative impact on underwriting result had a 8.9 percentage point impact on the consolidated combined ratio, and is comprised of net claims and claims expenses incurred of $385.6 million, offset by net reinstatement premiums earned and earned profit commissions of $33.6 million. The net negative impact on underwriting result was $235.0 million in the Property Segment, principally representing the cost of claims incurred but not yet reported with respect to exposures such as business interruption coverage, and $117.0 million for the Casualty and Specialty segment, primarily representing the cost of claims incurred but not yet reported, with respect to exposures such as event contingency and event-based casualty covers.

2019 Net Negative Impact

The financial data below provides additional details regarding the net negative impact of certain events on our consolidated results of operations in 2019.

Year ended December 31, 2019 (in thousands)	Typhoon Hagibis	Q3 2019 Catastrophe Events	2019 Aggregate Losses	Total 2019 Large Loss Events
Net claims and claims expenses incurred	$ (199,305)	$ (187,188)	$ (97,591)	$ (484,084)
Assumed reinstatement premiums earned	28,829	24,596	183	53,608
Ceded reinstatement premiums earned	(219)	(574)	—	(793)
Earned (lost) profit commissions	7,509	3,100	1,740	12,349
Net negative impact on underwriting result	(163,186)	(160,066)	(95,668)	(418,920)
Redeemable noncontrolling interest - DaVinciRe	35,078	22,677	12,932	70,687
Net negative impact on net income (loss) available (attributable) to RenaissanceRe common shareholders	$ (128,108)	$ (137,389)	$ (82,736)	$ (348,233)

The financial data below provides additional information detailing the net negative impact of certain events on our segment underwriting results and consolidated combined ratio in 2019.

Year ended December 31, 2019 (in thousands, except percentages)	Typhoon Hagibis	Q3 2019 Catastrophe Events	2019 Aggregate Losses	Total 2019 Large Loss Events
Net negative impact on Property segment underwriting result	$ (161,654)	$ (157,064)	$ (95,668)	$ (414,386)
Net negative impact on Casualty and Specialty segment underwriting result	(1,532)	(3,002)	—	(4,534)
Net negative impact on underwriting result	$ (163,186)	$ (160,066)	$ (95,668)	$ (418,920)
Percentage point impact on consolidated combined ratio	5.0	4.9	2.8	12.9

Underwriting Results by Segment

Property Segment

Below is a summary of the underwriting results and ratios for our Property segment:

Year ended December 31, (in thousands, except percentages)	2021	2020	2019
Gross premiums written	$ 3,958,724	$ 2,999,142	$ 2,430,985
Net premiums written	$ 2,868,002	$ 2,037,200	$ 1,654,259
Net premiums earned	$ 2,608,298	$ 1,936,215	$ 1,627,494
Net claims and claim expenses incurred	2,163,016	1,435,947	965,384
Acquisition expenses	487,178	353,700	313,554
Operational expenses	143,608	135,547	138,187
Underwriting income (loss)	$ (185,504)	$ 11,021	$ 210,369
Net claims and claim expenses incurred – current accident year	$ 2,396,389	$ 1,592,996	$ 968,357
Net claims and claim expenses incurred – prior accident years	(233,373)	(157,049)	(2,973)
Net claims and claim expenses incurred – total	$ 2,163,016	$ 1,435,947	$ 965,384
Net claims and claim expense ratio – current accident year	91.9 %	82.3 %	59.5 %
Net claims and claim expense ratio – prior accident years	(9.0)%	(8.1)%	(0.2)%
Net claims and claim expense ratio – calendar year	82.9 %	74.2 %	59.3 %
Underwriting expense ratio	24.2 %	25.2 %	27.8 %
Combined ratio	107.1 %	99.4 %	87.1 %

Property Gross Premiums Written

In 2021, our Property segment gross premiums written increased by $959.6 million, or 32.0%, to $4.0 billion, compared to $3.0 billion in 2020.

Gross premiums written in the catastrophe class of business were $2.2 billion in 2021, an increase of $349.0 million, or 18.5%, compared to 2020. The increase in gross premiums written in the catastrophe class of business included $339.7 million of reinstatement premiums associated with the 2021 Weather-Related Large Losses, compared to reinstatement premiums of $77.0 million associated with the 2020 Weather-Related Large Loss Events and $25.9 million associated with COVID-19 losses in 2020. The growth in 2021 was also driven by an improved rate environment, increased shares on existing deals, participation in new deals and opportunities across underwriting platforms.

Gross premiums written in the other property class of business were $1.7 billion in 2021, an increase of $610.6 million, or 54.9%, compared to 2020. The increase in gross premiums written in the other property class of business was primarily driven by rate improvements which contributed to growth in new and existing business written in the current and prior periods across underwriting platforms. This included growth in catastrophe exposed U.S. property excess and surplus lines.

In 2020, our Property segment gross premiums written increased by $568.2 million, or 23.4%, to $3.0 billion, compared to $2.4 billion in 2019.

Gross premiums written in our catastrophe class of business were $1.9 billion in 2020, an increase of $291.3 million, or 18.3%, compared to 2019. The increase in gross premiums written in our catastrophe class of business in 2020 was primarily driven by expanded participation on existing transactions, certain new transactions, rate improvements and business acquired as a result of the acquisition of TMR.

Gross premiums written in our other property class of business were $1.1 billion in 2020, an increase of $276.8 million, or 33.1%, compared to 2019. The increase in gross premiums written in our other property class of business was primarily driven by growth from existing relationships, new opportunities across a number of our underwriting platforms, and business acquired as a result of the acquisition of TMR.

As our other property class of business has become a larger percentage of our Property segment gross premiums written, the amount of proportional business has increased. Proportional business typically has a higher expense ratio and combined ratio than traditional excess of loss reinsurance.

Our Property segment gross premiums written continue to be characterized by a large percentage of U.S. and Caribbean premium, as we have found business derived from exposures in Europe, Asia and the rest of the world to be, in general, less attractive on a risk-adjusted basis during recent periods. A significant amount of our U.S. and Caribbean premium provides coverage against windstorms, notably U.S. Atlantic windstorms, as well as earthquakes and other natural and man-made catastrophes.

Property Ceded Premiums Written

Year ended December 31, (in thousands)	2021	2020	2019
Ceded premiums written - Property	$ 1,090,722	$ 961,942	$ 776,726

Ceded premiums written in our Property segment increased 13.4%, to $1.1 billion, in 2021, compared to $961.9 million in 2020. The increase in ceded premiums written was primarily driven by higher gross premiums written in 2021, which were ceded to Upsilon RFO, and ceded reinstatement premiums earned of $54.7 million associated with the 2021 Weather-Related Large Losses.

Ceded premiums written in our Property segment increased $185.2 million, to $961.9 million, in 2020, compared to $776.7 million in 2019. The increase in ceded premiums written was principally due to certain of the gross premiums written in the catastrophe class of business noted above being ceded to third-party investors in our managed vehicles, primarily Upsilon RFO, as well as an overall increase in ceded purchases as part of the Company’s gross-to-net strategy.

Due to the potential volatility of the reinsurance contracts which we sell, we purchase reinsurance to reduce our exposure to large losses and to help manage our risk portfolio. To the extent that appropriately priced coverage is available, we anticipate continued use of retrocessional reinsurance to reduce the impact of large losses on our financial results and to manage our portfolio of risk; however, the buying of ceded reinsurance in our Property segment is based on market opportunities and is not based on placing a specific reinsurance program each year. In addition, in future periods, we may utilize the growing market for insurance-linked securities to expand our purchases of retrocessional reinsurance if we find the pricing and terms of such coverages attractive.

Property Underwriting Results

Our Property segment incurred an underwriting loss of $185.5 million in 2021, compared to underwriting income of $11.0 million in 2020, a decrease of $196.5 million. In 2021, our Property segment generated a net claims and claim expense ratio of 82.9%, an underwriting expense ratio of 24.2% and a combined ratio of 107.1%, compared to 74.2%, 25.2% and 99.4%, respectively, in 2020.

Principally impacting the Property segment underwriting result and combined ratio in 2021 were the 2021 Weather-Related Large Losses, which resulted in a net negative impact on the Property segment underwriting result of $1.4 billion and added 58.6 percentage points to the combined ratio. In comparison, 2020 was impacted by the 2020 Weather-Related Large Loss Events, which resulted in a net negative impact on the underwriting result of $651.9 million and added 35.0 percentage points to the combined ratio, and COVID-19 losses, which resulted in a net negative impact on the underwriting result of $235.0 million and added 12.3 percentage points to the combined ratio.

The net claims and claim expense ratio for prior accident years reflected net favorable development of 15.3% for the catastrophe class of business and 2.4% for the other property class of business, primarily related to weather-related large losses in the 2017 to 2019 accident years. The underwriting expense ratio decreased 1.0 percentage point, principally driven by improved operating leverage, through higher net premiums earned, including $293.3 million of net reinstatement premiums earned associated with the 2021 Weather-Related Large Losses.

Our Property segment generated underwriting income of $11.0 million in 2020, compared to $209.3 million in 2019, a decrease of $198.1 million. In 2020, our Property segment generated a net claims and claim expense ratio of 74.2%, an underwriting expense ratio of 25.2% and a combined ratio of 99.4%, compared to 59.3%, 27.8% and 87.1%, respectively, in 2019.

Principally impacting the Property segment underwriting result and combined ratio in 2020 were the 2020 Weather-Related Large Loss Events, which resulted in a net negative impact on the underwriting result of $651.9 million and added 35.0 percentage points to the combined ratio, and COVID-19 losses, which resulted in a net negative impact on the underwriting result of $235.0 million and added 12.3 percentage points to the combined ratio. Partially offsetting the impact of the 2020 Weather-Related Large Loss Events and COVID-19 losses was favorable development on prior accident years of $157.3 million, primarily related to large loss events in 2019, 2018 and 2017, as well as favorable movements in other assumed losses and ceded recoveries. This favorable development reduced the Property segment combined ratio by 8.1 percentage points. In comparison, 2019 was principally impacted by the 2019 Large Loss Events, which resulted in a net negative impact on the Property segment underwriting result of $414.4 million and a corresponding increase in the Property segment combined ratio of 26.7 percentage points.

Refer to “Part II, Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations—Summary of Critical Accounting Estimates—Claims and Claim Expense Reserves” and “Note 8. Reserve for Claims and Claim Expenses” in our “Notes to the Consolidated Financial Statements” for additional discussion of our reserving techniques and prior year development of net claims and claim expenses.

Casualty and Specialty Segment

Below is a summary of the underwriting results and ratios for our Casualty and Specialty segment:

Year ended December 31, (in thousands, except percentages)	2021	2020	2019
Gross premiums written	$ 3,875,074	$ 2,807,023	$ 2,376,765
Net premiums written	$ 3,071,373	$ 2,059,133	$ 1,727,234
Net premiums earned	$ 2,585,883	$ 2,016,247	$ 1,710,909
Net claims and claim expenses incurred	1,713,071	1,488,662	1,131,637
Acquisition expenses	727,680	543,977	448,678
Operational expenses	68,576	71,140	84,546
Underwriting income (loss)	$ 76,556	$ (87,532)	$ 46,048
Net claims and claim expenses incurred – current accident year	$ 1,729,168	$ 1,515,425	$ 1,155,519
Net claims and claim expenses incurred – prior accident years	(16,097)	(26,763)	(23,882)
Net claims and claim expenses incurred – total	$ 1,713,071	$ 1,488,662	$ 1,131,637
Net claims and claim expense ratio – current accident year	66.9 %	75.2 %	67.5 %
Net claims and claim expense ratio – prior accident years	(0.7)%	(1.4)%	(1.4)%
Net claims and claim expense ratio – calendar year	66.2 %	73.8 %	66.1 %
Underwriting expense ratio	30.8 %	30.5 %	31.2 %
Combined ratio	97.0 %	104.3 %	97.3 %

Casualty and Specialty Gross Premiums Written

In 2021, our Casualty and Specialty segment gross premiums written increased by $1.1 billion, or 38.0%, to $3.9 billion, compared to $2.8 billion in 2020. The increase was primarily due to growth from new and existing business opportunities written in the current and prior periods across various classes of business within the segment, combined with rate improvements.

In 2020, our Casualty and Specialty segment gross premiums written increased by $430.3 million, or 18.1%, to $2.8 billion, compared to $2.4 billion in 2019. The increase was due to growth from new and existing business opportunities written in the current period and prior periods across various classes of business within the segment, and business acquired in connection with the acquisition of TMR.

Our relative mix of business between proportional business and excess of loss business has fluctuated in the past and will likely continue to do so in the future. Proportional business typically has a higher expense ratio and tends to be exposed to more attritional and frequent losses, while being subject to less expected severity as compared to traditional excess of loss business.

Casualty and Specialty Ceded Premiums Written

Year ended December 31, (in thousands)	2021	2020	2019
Ceded premiums written - Casualty and Specialty	$ 803,701	$ 747,890	$ 649,531

Ceded premiums written in our Casualty and Specialty segment increased by 7.5%, to $803.7 million, in 2021, compared to $747.9 million in 2020, primarily driven by the increase in gross premiums written subject to our retrocessional quota share reinsurance programs.

Ceded premiums written in our Casualty and Specialty segment increased by $98.4 million, to $747.9 million, in 2020, compared to $649.5 million in 2019, primarily resulting from increased gross premiums written subject to our retrocessional quota share reinsurance programs.

As in our Property segment, the buying of ceded reinsurance in our Casualty and Specialty segment is based on market opportunities and is not based on placing a specific reinsurance program each year.

Casualty and Specialty Underwriting Results

Our Casualty and Specialty segment generated underwriting income of $76.6 million in 2021, compared to an underwriting loss of $87.5 million in 2020. In 2021, our Casualty and Specialty segment generated a net claims and claim expense ratio of 66.2%, an underwriting expense ratio of 30.8% and a combined ratio of 97.0%, compared to 73.8%, 30.5% and 104.3%, respectively, in 2020. The underwriting loss in 2020 was principally driven by net claims and claim expenses associated with the COVID-19 pandemic of $122.1 million, which added 6.1 percentage points to the net claims and claim expense ratio during 2020.

The decrease in the Casualty and Specialty segment combined ratio in 2021 was principally driven by a decrease of 7.6 percentage points in the net claims and claim expense ratio, driven by lower current accident year losses, as compared to 2020 which was impacted by losses associated with the COVID-19 pandemic. Additionally, our Casualty and Specialty segment experienced net favorable development on prior accident years net claims and claim expenses of $16.1 million, or 0.7 percentage points, during 2021. The net favorable development during 2021 was driven by reported losses generally coming in lower than expected on attritional net claims and claim expenses. See “Note 8. Reserve for Claims and Claim Expenses” in our “Notes to the Consolidated Financial Statements” for additional information related to the development of prior accident years net claims and claim expenses.

The underwriting expense ratio in 2021 was comparable to 2020 and included an increase in the net acquisition expense ratio, principally due to the effects of purchase accounting amortization related to the acquisition of TMR, which improved the ratio in 2020, largely offset by a decrease in the operating expense ratio due to continued improvement in operating leverage.

Our Casualty and Specialty segment incurred an underwriting loss of $87.5 million in 2020, compared to underwriting income of $46.0 million in 2019. The underwriting loss in 2020 was driven by the COVID-19 losses. In 2020, our Casualty and Specialty segment generated a net claims and claim expense ratio of 73.8%, an underwriting expense ratio of 30.5% and a combined ratio of 104.3%, compared to 66.1%, 31.2% and 97.3%, respectively, in 2019.

The increase in the combined ratio in 2020 was principally driven by net claims and claim expenses associated with the COVID-19 losses of $122.1 million, which added 6.1 percentage points to the net claims and claim expense ratio during 2020.

Our Casualty and Specialty segment experienced net favorable development on prior accident years net claims and claim expenses of $26.8 million, or 1.4 percentage points, during 2020, compared to $23.9 million, or 1.4 percentage points, respectively, in 2019. The net favorable development during 2020 and 2019 was principally driven by reported losses coming in lower than expected.

Refer to “Part II, Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations—Summary of Critical Accounting Estimates—Claims and Claim Expense Reserves” and “Note 8. Reserve for Claims and Claim Expenses” in our “Notes to the Consolidated Financial Statements” for additional discussion of our reserving techniques and prior year development of net claims and claim expenses.

Fee Income

Year ended December 31, (in thousands)	2021	2020	2019
Management Fee Income			
Joint ventures	$ 43,074	$ 45,499	$ 42,546
Structured reinsurance products	34,639	34,951	35,238
Managed funds	31,358	31,026	18,636
Total management fee income	$ 109,071	$ 111,476	$ 96,420
Performance Fee Income			
Joint ventures	$ 14,235	$ 10,167	$ 9,660
Structured reinsurance products	4,917	7,525	7,693
Managed funds	280	15,994	420
Total performance fee income	$ 19,432	$ 33,686	$ 17,773
Total fee income	$ 128,503	$ 145,162	$ 114,193

The table above shows total fee income earned through third-party capital management activities, including various joint ventures, managed funds and certain structured retrocession agreements to which we are a party. Performance fees are based on the performance of the individual vehicles or products, and may be zero or negative in a particular period if, for example, large losses occur, which can potentially result in no performance fees or the reversal of previously accrued performance fees. Joint ventures include DaVinciRe, Top Layer Re, Vermeer and certain entities investing in Langhorne Holdings LLC. Managed funds include Upsilon Fund and Medici. Structured reinsurance products and other includes certain reinsurance contracts and certain other vehicles through which we transfer risk to capital.

In 2021, total fee income earned through third-party capital management activities decreased $16.7 million, to $128.5 million, as compared to $145.2 million in 2020, primarily driven by lower performance fee income due to the impact of the 2021 Weather-Related Large Losses on our joint ventures and managed funds, partially offset by higher favorable development on prior year losses in DaVinci.

In 2020, total fee income earned through third-party capital management activities increased $31.0 million, to $145.2 million, compared to $114.2 million in 2019, driven by an increase in performance fee income due to favorable development on prior accident years, which benefited certain of the Company's managed funds, and an increase in management fee income due to an increase in the dollar value of third-party capital being managed by the Company.

The fees earned through our third-party capital management activities are principally recorded through redeemable noncontrolling interest, or as an increase to underwriting income (reduction to underwriting loss), through a decrease in operating expenses or acquisition expenses, as detailed in the table below.

Twelve months ended December 31 (in thousands)	2021	2020	2019
Underwriting income (loss) - fee income on third-party capital management activities(1)	$ 67,287	$ 87,764	$ 60,046
Equity in earnings of other ventures	50	70	105
Net income (loss) attributable to redeemable noncontrolling interest	61,166	57,328	54,042
Total fee income	$ 128,503	$ 145,162	$ 114,193

(1) Reflects total fee income earned through third-party capital management activities recorded through underwriting income (loss) as a decrease (increase) to operating expenses or acquisition expenses.

In addition to the $128.5 million of fee income earned through our third-party capital management activities described above, we earned $73.4 million of additional fees on other underwriting-related activities, primarily related to expense overrides paid to us by our reinsurers. These additional fees on other underwriting-related activities are recorded as a reduction to operating expenses or acquisition expenses, as applicable. The total fees recorded through underwriting income (loss) are detailed in the table below.

Twelve months ended December 31 (in thousands)	2021	2020	2019
Underwriting income (loss) - fee income on third-party capital management activities	$ 67,287	$ 87,764	$ 60,046
Underwriting income (loss) - additional fees on other underwriting-related activities	73,418	59,080	47,828
Total fees recorded through underwriting income (loss)	140,705	146,844	107,874
Impact of Total fees recorded through underwriting income (loss) on the combined ratio	2.7 %	3.7 %	3.2 %

Net Investment Income

Year ended December 31, (in thousands)	2021	2020	2019
Fixed maturity investments	$ 234,911	$ 278,215	$ 318,503
Short term investments	2,333	20,799	56,264
Equity investments trading	9,017	6,404	4,808
Other investments			
Catastrophe bonds	64,860	54,784	46,154
Other	28,811	9,417	8,447
Cash and cash equivalents	297	2,974	7,676
	340,229	372,593	441,852
Investment expenses	(20,750)	(18,555)	(17,645)
Net investment income	$ 319,479	$ 354,038	$ 424,207

Net investment income was $319.5 million in 2021, compared to $354.0 million in 2020, a decrease of $34.6 million. Impacting our net investment income for 2021 were lower returns in our fixed maturity and short term investment portfolios, primarily as a result of general decline in credit spreads and an increased allocation to lower yielding short term and U.S. treasury investments from other fixed maturity investments as compared to 2020.

Net investment income was $354.0 million in 2020, compared to $424.2 million in 2019, a decrease of $70.2 million. Impacting our net investment income for 2020 was lower returns in our fixed maturity and short term investments, primarily as a result of lower yields on these investments following the decline in interest rates in early 2020, partially offset by higher returns on our catastrophe bonds due to growth in the portfolio.

Net Realized and Unrealized Gains (Losses) on Investments

Year ended December 31, (in thousands)	2021	2020	2019
Gross realized gains	$ 177,314	$ 323,425	$ 133,409
Gross realized losses	(97,726)	(46,524)	(43,149)
Net realized gains (losses) on fixed maturity investments	79,588	276,901	90,260
Net unrealized gains (losses) on fixed maturity investments trading	(389,376)	216,859	170,183
Net realized and unrealized gains (losses) on investments-related derivatives (1)	(12,237)	68,608	58,891
Net realized gains (losses) on equity investments trading	335,491	3,532	31,062
Net unrealized gains (losses) on equity investments trading	(285,882)	262,064	64,087
Net realized and unrealized gains (losses) on other investments - catastrophe bonds	(35,033)	(7,031)	(9,392)
Net realized and unrealized gains (losses) on other investments - other	89,315	(297)	9,018
Net realized and unrealized gains (losses) on investments	$ (218,134)	$ 820,636	$ 414,109

(1) Net realized and unrealized gains (losses) on investment-related derivatives includes fixed maturity investments related derivatives (interest rate futures, interest rate swaps, credit default swaps and total return swaps), and equity investments related derivatives (equity futures). See “Note 19. Derivative Instruments” in our “Notes to Consolidated Financial Statements” for additional information.

Our investment portfolio strategy seeks to preserve capital and provide us with a high level of liquidity. A large majority of our investments are invested in the fixed income markets and, therefore, our realized and unrealized holding gains and losses on investments are highly correlated to fluctuations in interest rates. Therefore, as interest rates decline, we will tend to have realized and unrealized gains from our investment portfolio, and as interest rates rise, we will tend to have realized and unrealized losses from our investment portfolio.

Net realized and unrealized losses on investments were $218.1 million in 2021, compared to net realized and unrealized gains of $820.6 million in 2020, a decrease of $1.0 billion. Principally impacting our net realized and unrealized losses on investments in 2021 were:

- net realized and unrealized losses on our fixed maturity investments trading of $309.8 million compared to net realized and unrealized gains of $493.8 million in 2020, a decrease of $803.5 million, principally driven by increasing yields on U.S. treasuries during 2021;
- net realized and unrealized gains on equity investments trading of $49.6 million compared to $265.6 million in 2020, a decrease of $216.0 million. The net realized and unrealized gains in 2021 were primarily driven by net realized and unrealized gains on our equity investments, which was in line with the performance of the wider equity markets. This was partially offset by net realized and unrealized losses from our investment in Trupanion, Inc. In 2020, the net realized and unrealized gains were principally driven by net unrealized gains of $226.6 million on our strategic investment in Trupanion, Inc.
- net realized and unrealized gains on our other investments of $89.3 million compared to net realized and unrealized losses of $0.3 million in 2020, an improvement of $89.6 million, principally driven by fair value appreciation of the underlying investments, which favorably impacted our fund investments portfolio; and
- net realized and unrealized losses on investments-related derivatives of $12.2 million compared to net realized and unrealized gains of $68.6 million in 2020, a decrease of $80.8 million, principally driven by net realized and unrealized gains on our interest rate futures in 2020, which were favorably impacted by declining interest rates.

Net realized and unrealized gains on investments were $820.6 million in 2020, compared to net realized and unrealized gains of $414.1 million in 2019, an increase of $406.5 million. Principally impacting our net realized and unrealized gains on investments in 2020 were:

- net realized and unrealized gains on our fixed maturity investments trading of $493.8 million in 2020, compared to net realized and unrealized gains of $260.4 million in 2019, an increase of $233.3 million, principally higher as a result of realized gains generated on the sale of fixed maturity investments;
- net realized and unrealized gains on our investment-related derivatives of $68.6 million in 2020, compared to gains of $58.9 million in 2019, an increase of $9.7 million, principally driven by higher net realized and unrealized gains on interest rate futures during 2020, compared to 2019; and
- net realized and unrealized gains on equity investments trading of $265.6 million in 2020, compared to $95.1 million in 2019, an improvement of $170.4 million, principally driven by net unrealized gains of $226.6 million on the Company's strategic investment in Trupanion Inc.

Net Foreign Exchange Gains (Losses)

Year ended December 31, (in thousands)	2021	2020	2019
Total foreign exchange gains (losses)	$ (41,006)	$ 27,773	$ (2,938)

In 2021, net foreign exchange losses were $41.0 million compared to a $27.8 million net foreign exchange gain in 2020. The net foreign exchange loss was primarily driven by losses attributable to third party investors in Medici which are allocated through noncontrolling interest and miscellaneous foreign exchange losses generated by our underwriting activities.

In 2020, net foreign exchange gains were $27.8 million compared to net foreign exchange losses of $2.9 million in 2019. The net foreign exchange gains were primarily driven by gains attributable to third-party investors in Medici, miscellaneous foreign exchange gains generated by our underwriting activities, and foreign exchange gains attributable to our operations with non-U.S. dollar functional currencies.

Our functional currency is the U.S. dollar. We routinely write a portion of our business in currencies other than U.S. dollars and invest a portion of our cash and investment portfolio in those currencies. In addition, and in connection with the acquisition of TMR, we acquired certain entities with non-U.S. dollar functional currencies. As a result, we may experience foreign exchange gains and losses in our consolidated financial statements. We are primarily impacted by the foreign currency risk exposures associated with our underwriting operations and our investment portfolio, and may, from time to time, enter into foreign currency forward and option contracts to minimize the effect of fluctuating foreign currencies on the value of non-U.S. dollar denominated assets and liabilities.

Refer to "Part II, Item 7A. Quantitative and Qualitative Disclosures About Market Risk" for additional information related to our exposure to foreign currency risk and "Note 19. Derivative Instruments" in our "Notes to the Consolidated Financial Statements" for additional information related to foreign currency forward and option contracts we have entered into.

Equity in Earnings of Other Ventures

Year ended December 31, (in thousands)	2021	2020	2019
Top Layer Re	$ 8,286	$ 9,595	$ 8,801
Tower Hill Companies	(2,073)	3,104	10,337
Other	6,096	4,495	4,086
Total equity in earnings of other ventures	$ 12,309	$ 17,194	$ 23,224

Equity in earnings of other ventures represents our pro-rata share of the net income from our investments in the Tower Hill Companies, Top Layer Re, and our equity investments in a select group of insurance and insurance-related companies, which are included in Other. Except for Top Layer Re, which is recorded on a current quarter basis, equity in earnings of other ventures is recorded one quarter in arrears. The carrying value of these investments on our consolidated balance sheets, individually or in the aggregate, may differ from the realized value we may ultimately attain, perhaps significantly so.

Earnings from our investments in other ventures was $12.3 million in 2021, compared to earnings of $17.2 million in 2020, a decrease of $4.9 million, principally driven by reduced profitability of our equity investments in the Tower Hill group of companies, primarily as a result of underwriting losses during 2021.

Equity in earnings of other ventures was $17.2 million in 2020, compared to $23.2 million in 2019, a decrease of $6.0 million, principally driven by reduced profitability in the Tower Hill Companies, partially offset by improved profitability in Top Layer Re and our equity investments within the other category.

Other Income (Loss)

Year ended December 31, (in thousands)	2021	2020	2019
Assumed and ceded reinsurance contracts accounted for as derivatives and deposits	$ 5,905	$ (1,177)	$ 4,473
Other	4,975	1,390	476
Total other income (loss)	$ 10,880	$ 213	$ 4,949

In 2021, we generated other income of $10.9 million, compared to $0.2 million in 2020, an increase of $10.7 million, driven by a gain on the sale of a portion of our strategic investments recorded under the equity method and lower losses from assumed and ceded reinsurance contracts accounted for at fair value during 2021.

In 2020, we generated other income of $0.2 million, compared to $4.9 million in 2019, a decrease of $4.7 million, driven by losses on our assumed and ceded reinsurance contracts accounted for as derivatives and deposits.

Corporate Expenses

Year ended December 31, (in thousands)	2021	2020	2019
Total corporate expenses	$ 41,152	$ 96,970	$ 94,122

Corporate expenses include certain executive, director, legal and consulting expenses, costs for research and development, impairment charges related to goodwill and other intangible assets, and other miscellaneous costs, including those associated with operating as a publicly traded company. In 2020 and 2019, corporate expenses also included costs incurred in connection with the acquisition of TMR. From time to time, we may revise the allocation of certain expenses between corporate and operating expenses to better reflect the characteristic of the underlying expense.

Corporate expenses decreased $55.8 million to $41.2 million, in 2021, compared to $97.0 million in 2020. The decrease of $55.8 million was primarily due to higher non-recurring expenses in 2020 resulting from the loss on sale of RenaissanceRe UK, executive compensation charges and certain integration and compensation related costs associated with the acquisition of TMR.

Corporate expenses increased $2.8 million to $97.0 million, in 2020, compared to $94.1 million in 2019. Corporate expenses for 2020 included a loss of $30.2 million on the sale of RenaissanceRe UK on August 18, 2020, including related transaction and other expenses, and $8.5 million of certain expenses associated with senior management departures during the year. In comparison, corporate expenses in 2019 included $49.7 million of corporate expenses associated with the acquisition of TMR.

Interest Expense and Preferred Share Dividends

Year ended December 31,	2021	2020	2019
(in thousands)			
Interest Expense			
$250.0 million 5.75% Senior Notes due 2020	$ —	$ 2,995	$ 14,375
$300.0 million 3.700% Senior Notes due 2025	11,100	11,100	11,100
$300.0 million 3.450% Senior Notes due 2027	10,350	10,350	10,350
$400.0 million 3.600% Senior Notes due 2029	14,400	14,400	10,720
$150.0 million 4.750% Senior Notes due 2025 (DaVinciRe)	7,125	7,125	7,125
Other	4,561	4,483	4,694
Total interest expense	47,536	50,453	58,364
Preferred Share Dividends			
$125.0 million 6.08% Series C Preference Shares	—	1,767	7,600
$275.0 million 5.375% Series E Preference Shares	9,033	14,781	14,781
$250.0 million 5.750% Series F Preference Shares	14,375	14,375	14,375
$500.0 million 4.20% Series G Preference Shares	9,858	—	—
Total preferred share dividends	33,266	30,923	36,756
Total interest expense and preferred share dividends	$ 80,802	$ 81,376	$ 95,120

Interest expense decreased $2.9 million to $47.5 million in 2021, compared to $50.5 million in 2020.

Interest expense decreased $7.9 million to $50.5 million in 2020, compared to $58.4 million in 2019, primarily driven by the maturity of our 5.75% Senior Notes in March 2020.

Preferred share dividends increased $2.3 million to $33.3 million in 2021, compared to $30.9 million in 2020, primarily driven by the issuance of 4.20% Series G Preference Shares in July, 2021, partially offset by the redemption in full of the $275.0 million 5.375% Series E Preference Shares in August, 2021 and the redemption in full of 6.08% Series C Preference Shares in 2020.

Preferred share dividends decreased $5.8 million to $30.9 million in 2020, compared to $36.8 million in 2019, primarily driven by the redemption in full of the $125 million outstanding principal amount of 6.08% Series C Preference Shares in March, resulting in only three months of dividends compared to 12 months in the prior period.

Income Tax (Expense) Benefit

Year ended December 31, (in thousands)	2021	2020	2019
Income tax (expense) benefit	$ 10,668	$ (2,862)	$ (17,215)

We are subject to income taxes in certain jurisdictions in which we operate; however, since the majority of our income is currently earned in Bermuda, which does not have a corporate income tax, the tax impact to our operations has historically been minimal.

In 2021, we recognized an income tax benefit of $10.7 million, compared to an income tax expense of $2.9 million in 2020. The income tax benefit in 2021 was principally driven by unrealized investment portfolio losses in our taxable jurisdictions, while the income tax expense in the prior comparative period was principally driven by unrealized investment gains in our U.S. based operations.

In 2020, we recognized an income tax expense of $2.9 million, compared to $17.2 million in 2019. The reduction in income tax expense was principally driven by lower underwriting performance, partially offset by higher investment gains, primarily in our U.S.-based operations.

At December 31, 2021, our net deferred tax asset (after valuation allowance) totaled $60.9 million. Our operations in Ireland, the U.K., Singapore, Switzerland and the U.S. operations of TMR have historically produced GAAP taxable losses and we currently do not believe it is more likely than not that we will be able to recover the predominant amount of our net deferred tax assets in these jurisdictions. Our valuation allowance totaled $131.5 million and $88.7 million at December 31, 2021 and 2020, respectively.

Our effective income tax rate, which we calculate as income tax (expense) benefit divided by income or loss before taxes, may fluctuate significantly from period to period depending on the geographic distribution of pre-tax income or loss in any given period between different jurisdictions with comparatively higher tax rates and those with comparatively lower tax rates. The geographic distribution of pre-tax income or loss can vary significantly between periods due to, but not limited to, the following factors: the business mix of net premiums written and earned; the size and nature of net claims and claim expenses incurred; the amount and geographic location of operating expenses, net investment income, net realized and unrealized gains (losses) on investments; outstanding debt and related interest expense; and the amount of specific adjustments to determine the income tax basis in each of our operating jurisdictions. In addition, a significant portion of our gross and net premiums are currently written and earned in Bermuda, which does not have a corporate income tax, including the majority of our catastrophe business, which can result in significant volatility to our pre-tax income or loss in any given period. We expect our consolidated effective tax rate to increase in the future, as our global operations outside of Bermuda expand. In addition, it is possible we could be adversely affected by changes in tax laws, regulation, or enforcement, any of which could increase our effective tax rate more rapidly or steeply than we currently anticipate.

Generally, the preponderance of our revenue and pre-tax income or loss is generated by our domestic (i.e., Bermuda) operations, in the form of underwriting income or loss and net investment income or loss, rather than our foreign operations. However, the geographic distribution of pre-tax income or loss can vary significantly between periods for a variety of reasons, including the business mix of net premiums written and earned, the size and nature of net claims and claim expenses incurred, the amount and geographic location of operating expenses, net investment income and net realized and unrealized gains (losses) on investments and the amount of specific adjustments to determine the income tax basis in each of our operating jurisdictions. Pre-tax income for our domestic operations was higher compared to our foreign operations for the years ended December 31, 2021, 2020 and 2019 primarily as a result of the more volatile catastrophe business underwritten in our Bermuda operations during these periods incurring a comparatively lower level of catastrophe losses and thus generating higher levels of net underwriting income than our foreign operations, which underwrite primarily less volatile business with higher attritional net claims and claim expenses and as a result produce lower levels of net underwriting income in benign loss years.

Net Income (Loss) Attributable to Redeemable Noncontrolling Interests

Year ended December 31, (in thousands)	2021	2020	2019
Redeemable noncontrolling interest - DaVinciRe	$ (102,932)	$ 113,671	$ 127,084
Redeemable noncontrolling interest - Medici	1,492	55,970	25,759
Redeemable noncontrolling interest - Vermeer	38,155	61,012	48,626
Net income (loss) attributable to redeemable noncontrolling interests	$ (63,285)	$ 230,653	$ 201,469

Our net loss attributable to redeemable noncontrolling interests was $63.3 million compared to net income attributable to redeemable noncontrolling interests of $230.7 million in 2020. This change from 2020 reflects the impact of higher underwriting losses in DaVinci, lower underwriting income in Vermeer, and a decrease in Medici net income, primarily due to foreign exchange losses that are attributable to third party investors.

Our net income attributable to redeemable noncontrolling interests was $230.7 million in 2020, compared to $201.5 million in 2019, a change of $29.2 million. The increase was driven by improved performance from Medici and Vermeer, compared to 2019, partially offset by lower underlying performance in DaVinci which was negatively impacted by the 2020 Weather-Related Large Loss Events and the COVID-19 losses.

Refer to “Note 10. Noncontrolling Interests” in our “Notes to Consolidated Financial Statements” for additional information regarding our redeemable noncontrolling interests.

FINANCIAL CONDITION, LIQUIDITY AND CAPITAL RESOURCES

Financial Condition

As a Bermuda-domiciled holding company, RenaissanceRe has limited operations of its own. Its assets consist primarily of investments in subsidiaries and cash and securities in amounts which fluctuate over time. We therefore rely on dividends and distributions (and other statutorily permissible payments) from our subsidiaries, investment income and fee income to meet our liquidity requirements, which primarily include making principal and interest payments on our debt and dividend payments to our preference and common shareholders.

The payment of dividends by our subsidiaries is, under certain circumstances, limited by the applicable laws and regulations in the various jurisdictions in which our subsidiaries operate In addition, insurance laws require our insurance subsidiaries to maintain certain measures of solvency and liquidity. We believe that each of our insurance subsidiaries and branches exceeded the minimum solvency, capital and surplus requirements in their applicable jurisdictions at December 31, 2021. Certain of our subsidiaries and branches are required to file FCRs, with their regulators, which provide details on solvency and financial performance. Where required, these FCRs will be posted on our website. The regulations governing our and our principal operating subsidiaries’ ability to pay dividends and to maintain certain measures of solvency and liquidity and requirements to file FCRs are discussed in detail in “Part I, Item 1. Business—Regulation” and “Note 18. Statutory Requirements” in our “Notes to the Consolidated Financial Statements.”

Liquidity and Cash Flows

Holding Company Liquidity

RenaissanceRe’s principal uses of liquidity are: (1) common share related transactions including dividend payments to our common shareholders and common share repurchases, (2) preference share related transactions including dividend payments to our preference shareholders and preference share redemptions, (3) interest and principal payments on debt, (4) capital investments in our subsidiaries, (5) acquisition of new or existing companies or businesses and (6) certain corporate and operating expenses.

We attempt to structure our organization in a way that facilitates efficient capital movements between RenaissanceRe and our operating subsidiaries and to ensure that adequate liquidity is available when required, giving consideration to applicable laws and regulations, and the domiciliary location of sources of liquidity and related obligations. For example, our internal investment structures and cash pooling arrangements among the Company and certain of our subsidiaries help to efficiently facilitate capital and liquidity movements.

In the aggregate, our principal operating subsidiaries have historically produced sufficient cash flows to meet their expected claims payments and operational expenses and to provide dividend payments to us. In addition, our subsidiaries maintain a concentration of investments in high quality liquid securities, which management believes will provide additional liquidity for extraordinary claims payments should the need arise. However, in some circumstances, RenaissanceRe may determine it is necessary or advisable to contribute capital to our subsidiaries, or may be contractually required to contribute capital to our joint ventures or managed funds. For example, during 2019, RenaissanceRe contributed capital to RenaissanceRe Specialty Holdings (UK) Limited to fund the acquisition of TMR and made a capital contribution to Renaissance Reinsurance to increase its shareholders' equity to support growth in premiums, and in 2020, RenaissanceRe contributed capital to RREAG to support growth in premiums. In addition, from time to time we invest in new managed joint ventures or managed funds, increase our investments in certain of our managed joint ventures or managed funds and contribute cash to investment subsidiaries. In certain instances, we are required to make capital contributions to our subsidiaries, for example, Renaissance Reinsurance is obligated to make a mandatory capital contribution of up to $50.0 million in the event that a loss reduces Top Layer Re's capital below a specified level.

Sources of Liquidity

Historically, cash receipts from operations, consisting primarily of premiums, investment income and fee income, have provided sufficient funds to pay the losses and operating expenses incurred by our subsidiaries and to fund dividends and distributions to RenaissanceRe. Other potential sources of liquidity include borrowings under our credit facilities and issuances of securities. For example, in July 2021, we raised $488.7 million of net proceeds in an underwritten public offering of Depositary Shares, each representing a 1/1,000th interest in a share of 4.20% Series G Preference Shares.

The premiums received by our operating subsidiaries are generally received months or even years before losses are paid under the policies related to such premiums. Premiums and acquisition expenses generally are received within the first two years of inception of a contract, while operating expenses are generally paid within a year of being incurred. It generally takes much longer for net claims and claims expenses incurred to be reported and ultimately settled, requiring the establishment of reserves for claims and claim expenses and losses recoverable. Therefore, the amount of net claims paid in any one year is not necessarily related to the amount of net claims and claims expenses incurred in that year, as reported in the consolidated statement of operations.

While we expect that our liquidity needs will continue to be met by our cash receipts from operations, relatively low investment yields, and the nature of our business where a large portion of the coverages we provide can produce losses of high severity and low frequency, future cash flows from operating activities cannot be accurately predicted and may fluctuate significantly between individual quarters and years. In addition, due to the magnitude and complexity of certain large loss events, meaningful uncertainty remains regarding losses from these events and our actual ultimate net losses from these events may vary materially from preliminary estimates, which would impact our cash flows from operations.

Our "shelf" registration statement on Form S-3 under the Securities Act allows for the public offering of various types of securities, including common shares, preference shares and debt securities, which provides a source of liquidity. Because we are a "well-known seasoned issuer" as defined by the rules promulgated under the Securities Act, we are also eligible to file additional automatically effective registration statements on Form S-3 in the future for the potential offering and sale of additional debt and equity securities.

Credit Facilities, Trusts and Other Collateral Arrangements

We also maintain various other arrangements that allow us to access liquidity and satisfy collateral requirements, including revolving credit facilities, letter of credit facilities, and regulatory trusts, as well as other types of trust and collateral arrangements. Regulatory and other requirements to post collateral to support our reinsurance obligations could impact our liquidity. For example, many jurisdictions in the U.S. do not permit insurance companies to take credit for reinsurance obtained from unlicensed or non-admitted insurers on their statutory financial statements unless security is posted, so our contracts generally require us to post a letter of credit or provide other security (*e.g.*, through a multi-beneficiary reinsurance trust). In addition, if we were to fail to comply with certain covenants in our debt agreements, we may have to pledge additional collateral.

Letter of Credit and Revolving Credit Facilities

We and certain of our subsidiaries, joint ventures, and managed funds maintain secured and unsecured revolving credit facilities and letter of credit facilities that provide liquidity and allow us to satisfy certain collateral requirements. The outstanding amounts drawn under each of our significant credit facilities are set forth below:

At December 31, 2021 (in thousands)	Issued or Drawn
Revolving Credit Facility [1]	$ —
Medici Revolving Credit Facility [2]	30,000
Bilateral Letter of Credit Facilities	
Secured	410,440
Unsecured	369,324
Funds at Lloyd’s Letter of Credit Facility	275,000
	$ 1,084,764

(1) At December 31, 2021, no amounts were issued or drawn under this facility.

(2) RenaissanceRe owns a noncontrolling economic interest in Medici. Because RenaissanceRe controls all of Medici’s outstanding voting rights, the financial statements of Medici are included in RenaissanceRe’s consolidated financial statements. The drawn amount of the Medici revolving credit facility is included on the Company’s consolidated balance sheets under debt.

Refer to “Note 9. Debt and Credit Facilities” in our “Notes to the Consolidated Financial Statements” for additional information related to our significant debt and credit facilities.

Funds at Lloyd’s

As a member of Lloyd’s, the underwriting capacity, or stamp capacity, of Syndicate 1458 must be supported by providing a deposit, the FAL, in the form of cash, securities or letters of credit. At December 31, 2021, the FAL required to support the underwriting activities at Lloyd’s through Syndicate 1458 was £756.0 million (2020 - £696.2 million). Actual FAL posted for Syndicate 1458 at December 31, 2021 by RenaissanceRe CCL was $983.4 million (2020 - $874.2 million), supported by a $275.0 million letter of credit and a $708.4 million deposit of cash and fixed maturity securities (2020 - $225.0 million and $649.2 million, respectively). Refer to “Note 9. Debt and Credit Facilities” in our “Notes to the Consolidated Financial Statements” for additional information related to this letter of credit facility.

Multi-Beneficiary Reinsurance Trusts and Multi-Beneficiary Reduced Collateral Reinsurance Trusts

Certain of our insurance subsidiaries use multi-beneficiary reinsurance trusts and multi-beneficiary reduced collateral reinsurance trusts to collateralize reinsurance liabilities. As of December 31, 2021, all of these trusts were funded in accordance with the relevant regulatory thresholds. However, Renaissance Reinsurance maintains a significant surplus in the amount of approximately $660 million, which is the subject of a withdrawal request that is under review by the NYDFS. Refer to “Note 18. Statutory Requirements” in our “Notes to the Consolidated Financial Statements” for additional information on our multi-beneficiary reinsurance trusts and multi-beneficiary reduced collateral reinsurance trusts.

Contractual Obligations

In assessing our liquidity requirements and cash needs, we also consider contractual obligations to which we are a party. In certain circumstances, our contractual obligations may be accelerated due to defaults under the agreements governing those obligations (including pursuant to cross-default provisions in such agreements) or in connection with certain changes in control of the Company, for example. In addition, in certain circumstances, in the event of a default these obligations may bear an increased interest rate or be subject to penalties.

The table below shows certain of our current and long-term contractual obligations:

At December 31, 2021	Total	Less Than 1 Year	1-3 Years	3-5 Years	More Than 5 Years
(in thousands)					
Long term debt obligations (1)					
3.600% Senior Notes due 2029	$ 504,942	$ 14,400	$ 28,800	$ 28,800	$ 432,942
3.450% Senior Notes due 2027	356,911	10,350	20,700	20,700	305,161
3.700% Senior Notes due 2025	336,067	11,100	22,200	302,767	—
4.750% Senior Notes due 2025 (DaVinciRe)	173,737	7,125	14,250	152,362	—
Total long term debt obligations	1,371,657	42,975	85,950	504,629	738,103
Investment commitments (2)	1,411,306	1,411,306	—	—	—
Operating lease obligations	54,870	8,515	13,626	11,586	21,143
Capital lease obligations	18,112	2,661	5,322	5,322	4,807
Payable for investments purchased	1,170,568	1,170,568	—	—	—
Reserve for claims and claim expenses (3)	13,294,630	3,988,389	4,254,281	2,127,141	2,924,819
Total contractual obligations	$ 17,321,143	$ 6,624,414	$ 4,359,179	$ 2,648,678	$ 3,688,872

(1) Includes contractual interest payments.

(2) The investment commitments do not have a defined contractual commitment date and we have therefore included them in the less than one year category.

(3) The amount and timing of the cash flows associated with our policy liabilities are highly uncertain. Refer to “Note 8. Reserve for Claims and Claim Expenses” in our “Notes to the Consolidated Financial Statements” for more information on our estimate of claims and claim expense reserves.

Cash Flows

Year ended December 31, (in thousands)	2021	2020	2019
Net cash provided by (used in) operating activities	$ 1,234,815	$ 1,992,735	$ 2,137,195
Net cash provided by (used in) investing activities	(816,296)	(2,304,689)	(2,988,644)
Net cash provided by (used in) financing activities	(302,461)	665,214	1,120,117
Effect of exchange rate changes on foreign currency cash	6,148	4,485	2,478
Net increase (decrease) in cash and cash equivalents	122,206	357,745	271,146
Cash and cash equivalents, beginning of period	1,736,813	1,379,068	1,107,922
Cash and cash equivalents, end of period	$ 1,859,019	$ 1,736,813	$ 1,379,068

2021

During 2021, our cash and cash equivalents increased by $122.2 million, to $1.9 billion at December 31, 2021, compared to $1.7 billion at December 31, 2020.

Cash flows provided by operating activities. Cash flows provided by operating activities during 2021 were $1.2 billion, compared to $2.0 billion during 2020. Cash flows provided by operating activities during 2021 were primarily the result of certain adjustments to reconcile our net loss of $103.4 million to net cash provided by operating activities, including:

- an increase in reserve for claims and claim expenses of $2.9 billion primarily resulting from net claims and claim expenses associated with the 2021 Weather-Related Large Losses;
- an increase in unearned premiums of $767.6 million due to the growth in gross premiums written across both our Property and Casualty and Specialty segments;
- an increase in reinsurance balances payable of $372.6 million principally driven by the issuance of non-voting preference shares to investors in Upsilon RFO, which are accounted for as prospective reinsurance and included in reinsurance balances payable on our consolidated balance sheet. See “Note 11. Variable Interest Entities” in our “Notes to the Consolidated Financial Statements” for additional information related to Upsilon RFO’s non-voting preference shares; partially offset by
- an increase in reinsurance recoverable of $1.3 billion due to the increase in net claims and claim expenses and recoverables associated with the 2021 Weather-Related Large Losses;
- an increase in premiums receivable of $886.9 million due to the timing of receipts and increase in our gross premiums written;
- an increase of $215.6 million in our deferred acquisition costs due to the growth in gross premiums written across both our Property and Casualty and Specialty segments;
- an increase of $31.1 million in our prepaid reinsurance premiums due to an increase in ceded premiums written; and
- a decrease in other operating cash flows of $437.2 million primarily reflecting subscriptions received in advance of the issuance of Upsilon RFO’s non-voting preference shares effective January 1, 2021, which were recorded in other liabilities at December 31, 2020. During 2021, in connection with the issuance of the non-voting preference shares of Upsilon RFO, other liabilities were reduced by the subscriptions received in advance, and reinsurance balances payable were increased by an offsetting amount, with corresponding impacts to other operating cash flows and the change in reinsurance balances payable, as noted above, on our consolidated statements of cash flows for 2021. See “Note 11. Variable Interest Entities” in our “Notes to the Consolidated Financial Statements” for additional information related to Upsilon RFO’s non-voting preference shares.

Cash flows used in investing activities. During 2021, our cash flows used in investing activities were $816.3 million, principally reflecting net purchases of other investments of $617.8 million, short term investments of $252.8 million and fixed maturity investments trading of $136.8 million, partially offset by cash flow from net sales of and equity investments trading of $206.6 million. The net purchases of other investments, was primarily driven by an increased allocation to catastrophe bonds and fund investments, whereas the net purchases of short term investments and fixed maturity investments trading was primarily funded by cash flows provided by operating activities, as described above.

Cash flows used in financing activities. Our cash flows used in financing activities in 2021 were $302.5 million, and were principally the result of:

- the repurchase of 6.6 million of our common shares in open market transactions at an aggregate cost of $1.0 billion and an average price of $156.78 per common share;
- the redemption of all 11 million of our outstanding 5.375% Series E Preference Shares on August 11, 2021 for $275.0 million;
- dividends paid on our common and preference shares of $67.8 million and $32.9 million, respectively; and partially offset by
- net inflows of $488.7 million associated with the issuance of 20 million of Depositary Shares (each representing 1/1000th interest in a share of our 4.20% Series G Preference Shares), net of expenses;
- net inflows of $594.3 million primarily related to net third-party redeemable noncontrolling interest share transactions in DaVinci, Medici and Vermeer; and
- net inflows of $30.0 million from the drawdown of the Medici Revolving Credit Facility. See “Note 9. Debt and Credit Facilities” in our “Notes to the Consolidated Financial Statements” for additional information related to the revolving credit facility available to Medici.

2020

During 2020, our cash and cash equivalents increased by $357.7 million, to $1.7 billion at December 31, 2020, compared to $1.4 billion at December 31, 2019.

Cash flows provided by operating activities. Cash flows provided by operating activities during 2020 were $2.0 billion, compared to $2.1 billion during 2019. Cash flows provided by operating activities during 2020 were primarily the result of certain adjustments to reconcile our net income of $993.1 million to net cash provided by operating activities, including:

- an increase in reserve for claims and claim expenses of $1.2 billion primarily, the result of claims and claim expenses associated with the 2020 Weather-Related Large Loss Events and losses related to the COVID-19 pandemic, partially offset by a reduction in net claims and claim expenses of $155.2 million due to the sale of RenaissanceRe UK and favorable development on prior accident years net claim and claim expenses of $183.8 million;
- an increase in reinsurance balances payable of $662.3 million principally driven by the issuance of non-voting preference shares to investors in Upsilon RFO, which are accounted for as prospective reinsurance and included in reinsurance balances payable on our consolidated balance sheet. Refer to “Note 11. Variable Interest Entities” in our “Notes to the Consolidated Financial Statements” for additional information related to Upsilon RFO’s non-voting preference shares;
- an increase in unearned premiums of $232.9 million due to the growth in gross premiums written across both our Property and Casualty and Specialty segments; partially offset by
- net realized and unrealized gains on investments of $820.6 million principally driven by net realized and unrealized gains on our fixed maturity investments portfolio, equity investments trading and investment-related derivatives;
- an increase in premiums receivable of $293.6 million due to the timing of receipts and increase in our gross premiums written;
- an increase in reinsurance recoverable of $138.4 million principally related to the increase in claims and claim expenses noted above;

- an increase of $55.8 million in our prepaid reinsurance premiums due to the timing of payments and increase in ceded premiums written; and
- an increase in other operating cash flows of $178.3 million primarily reflecting subscriptions received in advance of the issuance of Upsilon RFO's non-voting preference shares effective January 1, 2021, which were recorded in other liabilities at December 31, 2020. Refer to "Note 11. Variable Interest Entities" in our "Notes to the Consolidated Financial Statements" for additional information related to Upsilon RFO's non-voting preference shares;

Cash flows used in investing activities. During 2020, our cash flows used in investing activities were $2.3 billion, principally reflecting net purchases of fixed maturity investments trading, short term investments and other investments of $1.6 billion, $581.5 million, and $216.8 million, respectively. The net purchase of fixed maturity investments trading was primarily funded by cash flows provided by operating activities, as described above, and the issuance of RenaissanceRe common shares during the second quarter of 2020, whereas the net purchase of short term investments was primarily associated with capital received from investors in Upsilon RFO during 2020.The net purchase of other investments during 2020 was primarily driven by an increased allocation to catastrophe bonds. Partially offsetting these net outflows from investing activities were net proceeds of $136.7 million from the sale of RenaissanceRe UK during the third quarter of 2020.

Cash flows provided by financing activities. Our cash flows provided by financing activities in 2020 were $665.2 million, and were principally the result of:

- the issuance of 6,325,000 of our common shares in an underwritten public offering at a public offering price of $166.00 per share, combined with an additional $75.0 million raised through the issuance of 451,807 of our common shares at a price of $166.00 per share to State Farm, one of our existing stockholders, in a private placement. The total net proceeds from the offerings were $1.1 billion;
- net inflows of $119.1 million related to net third-party redeemable noncontrolling interest share transactions in DaVinciRe, Medici and Vermeer; partially offset by
- the repayment in full at maturity of the aggregate principal amount of $250.0 million, plus applicable accrued interest, of our 5.75% Senior Notes due 2020 of RenRe North America Holdings Inc. and RenaissanceRe Finance;
- the redemption of all 5 million of our outstanding Series C 6.08% Preference Shares on March 26, 2020 for $125.0 million plus accrued and unpaid dividends thereon;
- the repurchase of 406 thousand of our common shares in open market transactions at an aggregate cost of $62.6 million and an average price of $154.36 per common share; and
- dividends paid on our common and preference shares of $68.5 million and $30.9 million, respectively.

Capital Resources

We monitor our capital adequacy on a regular basis and seek to adjust our capital according to the needs of our business. In particular, we require capital sufficient to meet or exceed the capital adequacy ratios established by rating agencies for maintenance of appropriate financial strength ratings, the capital adequacy tests performed by regulatory authorities and the capital requirements under our credit facilities. From time to time, rating agencies may make changes in their capital models and rating methodologies, which could increase the amount of capital required to support our ratings. We may seek to raise additional capital or return capital to our shareholders through common share repurchases and cash dividends (or a combination of such methods). In the normal course of our operations, we may from time to time evaluate additional share or debt issuances given prevailing market conditions and capital management strategies, including for our operating subsidiaries, joint ventures and managed funds. In addition, as noted above, we enter into agreements with financial institutions to obtain letter of credit facilities for the benefit of our operating subsidiaries and certain of our joint ventures and managed funds in their reinsurance and insurance business.

Our total shareholders' equity attributable to RenaissanceRe and total debt was as follows:

At December 31, (in thousands)	2021	2020	Change
Common shareholders' equity	$ 5,874,281	$ 7,035,248	$ (1,160,967)
Preference shares	750,000	525,000	225,000
Total shareholders' equity attributable to RenaissanceRe	6,624,281	7,560,248	(935,967)
3.600% Senior Notes due 2029	393,305	392,391	914
3.450% Senior Notes due 2027	297,281	296,787	494
3.700% Senior Notes due 2025	298,798	298,428	370
4.750% Senior Notes due 2025 (DaVinciRe) (1)	148,969	148,659	310
Total senior notes	1,138,353	1,136,265	2,088
Medici Revolving Credit Facility (2)	30,000	—	30,000
Total debt	$ 1,168,353	$ 1,136,265	$ 32,088

(1) RenaissanceRe owns a noncontrolling economic interest in its joint venture DaVinciRe. Because RenaissanceRe controls a majority of DaVinciRe's outstanding voting rights, the consolidated financial statements of DaVinciRe are included in the consolidated financial statements of RenaissanceRe. However, RenaissanceRe does not guarantee or provide credit support for DaVinciRe and RenaissanceRe's financial exposure to DaVinciRe is limited to its investment in DaVinciRe's shares and counterparty credit risk arising from reinsurance transactions.

(2) RenaissanceRe owns a noncontrolling economic interest in Medici. Because RenaissanceRe controls all of Medici's outstanding voting rights, the financial statements of Medici are included in RenaissanceRe's consolidated financial statements.

Our shareholders' equity attributable to RenaissanceRe decreased $0.9 billion during 2021 principally as a result of:

- the repurchase of 6.6 million common shares in open market transactions at an aggregate cost of $1.0 billion and an average price of $156.78 per common share;
- the redemption of all Series E 5.375% Preference Shares for $275.0 million plus accrued and unpaid dividends thereon;
- our comprehensive loss attributable to RenaissanceRe of $38.4 million; and
- $67.8 million and $33.3 million of dividends on our common and preference shares, respectively; and partially offset by
- raising $500.0 million in gross proceeds in July 2021 through the issuance of 20,000,000 Depositary Shares, each of which represents a 1/1,000th interest in a share of our 4.20% Series G Preference Shares.

Our debt increased $32.1 million during the year ended December 31, 2021 principally as a result of $30.0 million that was drawn under the Medici Revolving Credit Facility.

For additional information related to the terms of our debt and significant credit facilities, see "Note 9. Debt and Credit Facilities" in our "Notes to the Consolidated Financial Statements." See "Note 12. Shareholders' Equity" in our "Notes to the Consolidated Financial Statements" for additional information related to our common and preference shares.

Reserve for Claims and Claim Expenses

We believe the most significant accounting judgment made by management is our estimate of claims and claim expense reserves. Claims and claim expense reserves represent estimates, including actuarial and statistical projections at a given point in time, of the ultimate settlement and administration costs for unpaid claims and claim expenses arising from the insurance and reinsurance contracts we sell. Our actual net claims and claim expenses paid will differ, perhaps materially, from the estimates reflected in our financial statements, which may adversely impact our financial condition, liquidity and capital resources.

Refer to “Note 8. Reserve for Claims and Claim Expenses” in our “Notes to the Consolidated Financial Statements” for more information on the risks we insure and reinsure, the reserving techniques, assumptions and processes we follow to estimate our claims and claim expense reserves, prior year development of the reserve for claims and claim expenses, analysis of our incurred and paid claims development and claims duration information for each of our Property and Casualty and Specialty segments. In addition, refer to “Part II, Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations—Summary of Critical Accounting Estimates—Claims and Claim Expense Reserves” for more information on the reserving techniques, assumptions and processes we follow to estimate our claims and claim expense reserves, our current estimates versus our initial estimates of our claims reserves, and sensitivity analysis for each of our Property and Casualty and Specialty segments.

Investments

The table below shows our invested assets:

At December 31, (in thousands, except percentages)	2021		2020		Change
U.S. treasuries	$ 6,247,779	29.1 %	$ 4,960,409	24.1 %	$ 1,287,370
Agencies	361,684	1.7 %	368,032	1.8 %	(6,348)
Non-U.S. government	549,613	2.6 %	491,531	2.4 %	58,082
Non-U.S. government-backed corporate	474,848	2.2 %	338,014	1.6 %	136,834
Corporate	3,214,438	15.0 %	4,261,025	20.7 %	(1,046,587)
Agency mortgage-backed	721,955	3.4 %	1,113,792	5.4 %	(391,837)
Non-agency mortgage-backed	233,346	1.1 %	291,444	1.4 %	(58,098)
Commercial mortgage-backed	634,925	3.0 %	791,272	3.8 %	(156,347)
Asset-backed	1,068,543	5.0 %	890,984	4.3 %	177,559
Total fixed maturity investments, at fair value	13,507,131	63.1 %	13,506,503	65.5 %	628
Short term investments, at fair value	5,298,385	24.7 %	4,993,735	24.3 %	304,650
Equity investments trading, at fair value	546,016	2.5 %	702,617	3.4 %	(156,601)
Catastrophe bonds	1,104,034	5.1 %	881,290	4.3 %	222,744
Direct private equity investments	88,373	0.4 %	79,807	0.4 %	8,566
Fund investments	725,802	3.4 %	295,851	1.4 %	429,951
Term loans	74,850	0.3 %	—	— %	74,850
Total other investments, at fair value	1,993,059	9.2 %	1,256,948	6.2 %	736,111
Total managed investment portfolio	19,351,532	90.3 %	19,202,855	93.2 %	148,677
Investments in other ventures, under equity method	98,068	0.5 %	98,373	0.6 %	(305)
Total investments	$ 21,442,659	90.8 %	$ 20,558,176	93.8 %	$ 884,483

We structure our investment portfolio to emphasize the preservation of capital and the availability of liquidity to meet our claims obligations, to be well diversified across market sectors, and to generate relatively attractive returns on a risk-adjusted basis over time. Notwithstanding the foregoing, our investments are subject to market-wide risks and fluctuations, as well as to risks inherent in particular securities. For additional information regarding our investments and the fair value measurement of our investments refer to “Note 5. Investments” and “Note 6. Fair Value Measurements” in our “Notes to the Consolidated Financial Statements.”

As the reinsurance coverages we sell include substantial protection for damages resulting from natural and man-made catastrophes, as well as for potentially large casualty and specialty exposures, we expect from time to time to become liable for substantial claim payments on short notice. Accordingly, our investment portfolio as a whole is structured to seek to preserve capital and provide a high level of liquidity, which means that the large majority of our investments are highly rated fixed income securities, including U.S. treasuries, agencies, highly rated sovereign and supranational securities, high-grade corporate securities and mortgage-backed and asset-backed securities. We also have an allocation to publicly traded equities reflected on our consolidated balance sheet as equity investments trading and an allocation to other investments (including catastrophe bonds, direct private equity investments, fund investments and term loans).

The following table summarizes the composition of our investment portfolio, including the amortized cost, fair value, credit ratings and effective yields.

					Credit Rating (1)					
December 31, 2021	**Amortized Cost**	**Fair Value**	**% of Total Investment Portfolio**	**Weighted Average Yield to Maturity**	**AAA**	**AA**	**A**	**BBB**	**Non-Investment Grade**	**Not Rated**
(in thousands, except percentages)										
Short term investments	**$ 5,298,385**	**$ 5,298,385**	**24.7 %**	**0.1 %**	**$ 5,261,431**	**$ 21,682**	**$ 13,431**	**$ 203**	**$ 177**	**$ 1,461**
		100.0 %			**99.3 %**	**0.4 %**	**0.3 %**	**— %**	**— %**	**— %**
Fixed maturity investments										
U.S. treasuries	6,302,313	6,247,779	29.1 %	1.1 %	—	6,247,779	—	—	—	—
Agencies	364,429	361,684	1.7 %	1.2 %	56,067	305,617	—	—	—	—
Non-U.S. government	552,935	549,613	2.6 %	1.2 %	286,810	202,067	45,192	14,257	1,287	—
Non-U.S. government-backed corporate	476,200	474,848	2.2 %	1.4 %	168,177	272,297	24,480	3,702	6,192	—
Corporate	3,202,614	3,214,438	15.0 %	2.8 %	31,603	113,253	979,752	996,288	1,053,867	39,675
Agency mortgage-backed	721,711	721,955	3.4 %	1.9 %	—	721,955	—	—	—	—
Non-agency mortgage-backed	232,144	233,346	1.1 %	3.2 %	51,279	11,749	1,810	5,751	110,459	52,298
Commercial mortgage-backed	631,016	634,925	3.0 %	1.9 %	492,903	113,736	4,191	15,835	2,514	5,746
Asset-backed	1,069,217	1,068,543	5.0 %	1.8 %	770,492	166,595	59,346	37,270	22,935	11,905
Total fixed maturity investments	**13,552,579**	**13,507,131**	**63.1 %**	**1.7 %**	**1,857,331**	**8,155,048**	**1,114,771**	**1,073,103**	**1,197,254**	**109,624**
		100.0 %			**13.8 %**	**60.3 %**	**8.3 %**	**7.9 %**	**8.9 %**	**0.8 %**
Equity investments trading		**546,016**	**2.5 %**		**—**	**—**	**—**	**—**	**—**	**546,016**
		100.0 %			**— %**	**— %**	**— %**	**— %**	**— %**	**100.0 %**
Other investments										
Catastrophe bonds		1,104,034	5.1 %		—	—	—	—	1,104,034	—
Direct private equity investments		88,373	0.4 %		—	—	—	—	—	88,373
Total fund investments		725,802	3.4 %		—	—	—	—	—	725,802
Term loans		74,850	0.3 %		—	—	74,850	—	—	—
Total other investments		**1,993,059**	**9.2 %**		**—**	**—**	**74,850**	**—**	**1,104,034**	**814,175**
		100.0 %			**— %**	**— %**	**3.8 %**	**— %**	**55.4 %**	**40.9 %**
Investments in other ventures		**98,068**	**0.5 %**		**—**	**—**	**—**	**—**	**—**	**98,068**
		100.0 %			**— %**	**— %**	**— %**	**— %**	**— %**	**100.0 %**
Total investment portfolio		**$ 21,442,659**	**100.0 %**		**$ 7,118,762**	**$ 8,176,730**	**$ 1,203,052**	**$ 1,073,306**	**$ 2,301,465**	**$ 1,569,344**
		100.0 %			**33.3 %**	**38.1 %**	**5.6 %**	**5.0 %**	**10.7 %**	**7.3 %**

(1) The credit ratings included in this table are those assigned by S&P. When ratings provided by S&P were not available, ratings from other nationally recognized rating agencies were used. We have grouped short term investments with an A-1+ and A-1 short term issue credit rating as AAA, short term investments with an A-2 short term issue credit rating as AA and short term investments with an A-3 short term issue credit rating as A.

Fixed Maturity Investments and Short Term Investments

At December 31, 2021, our fixed maturity investments and short term investment portfolio had a weighted average credit quality rating of AA (2020 – AAA) and a weighted average effective yield of 1.2% (2020 – 0.9%). At December 31, 2021, our non-investment grade and not rated fixed maturity investments totaled $1.3 billion or 9.7% of our fixed maturity investments (2020 - $1.4 billion or 10.0%, respectively). In addition, within our other investments category we have funds that invest in non-investment grade and not rated fixed income securities and non-investment grade cat-linked securities. At December 31, 2021, the funds that invest in non-investment grade and not rated fixed income securities and non-investment grade cat-linked securities totaled $1.8 billion (2020 – $911.4 million).

At December 31, 2021, we had $5.3 billion of short term investments (2020 – $5.0 billion). Short term investments are managed as part of our investment portfolio and have a maturity of one year or less when purchased. Short term investments are carried at fair value. The increase in our allocation to short term investments at December 31, 2021, compared to December 31, 2020, is principally driven by the additional invested assets in certain of our managed joint ventures and managed funds that limit investment allocation to shorter term securities.

The duration of our fixed maturity investments and short term investments at December 31, 2021 was 3.0 years (2020 - 2.9 years). From time to time, we may reevaluate the duration of our portfolio in light of the duration of our liabilities and market conditions.

The value of our fixed maturity investments will fluctuate with changes in the interest rate environment and when changes occur in economic conditions or the investment markets. Additionally, our differing asset classes expose us to other risks which could cause a reduction in the value of our investments.

Equity Investments Trading

The following table summarizes the fair value of equity investments trading:

At December 31,	2021	2020	Change
(in thousands)			
Financials	$ 146,615	$ 452,765	$ (306,150)
Communications and technology	82,444	119,592	(37,148)
Consumer	51,083	44,477	6,606
Industrial, utilities and energy	26,645	43,380	(16,735)
Healthcare	28,796	35,140	(6,344)
Basic materials	5,092	7,263	(2,171)
Equity exchange traded funds	114,919	—	114,919
Fixed income exchange traded funds	90,422	—	90,422
Total equity investments trading	$ 546,016	$ 702,617	$ (156,601)

A portion of our investments included in equity investments trading is managed pursuant to diversified public equity securities mandates with third-party investment managers. In addition, our equity investments trading include more concentrated public equity positions that we invest in through our strategic investment portfolio. These investments are subject to a variety of risks including: company performance, the availability of strategic investment opportunities, and macro-economic, industry, and systemic risks of the equity markets overall. Consequently, the carrying value of our investment portfolio will vary over time as the value or size of our portfolio of strategic investments in marketable equity securities fluctuates. The change in fair value of equity investments trading from 2020 to 2021 was impacted by the partial sale of our strategic investment in Trupanion. It is possible we will increase our equity allocation in the future, and it could, from time to time, have a material effect on our financial results.

Other Investments

The table below shows our portfolio of other investments:

At December 31, (in thousands)	2021	2020	Change
Catastrophe bonds	$ 1,104,034	$ 881,290	$ 222,744
Direct private equity investments	88,373	79,807	8,566
Fund investments	725,802	295,851	429,951
Term loans	74,850	—	74,850
Total other investments	$ 1,993,059	$ 1,256,948	$ 736,111

We account for our other investments at fair value in accordance with FASB ASC Topic *Financial Instruments*. The fair value of our fund investments, which include private equity funds, private credit funds and hedge funds, is recorded on our consolidated balance sheet in other investments, and is generally established on the basis of the net asset value per share (or its equivalent), determined by the managers of these investments in accordance with the applicable governing documents. Many of our fund investments are subject to restrictions on redemptions and sales which limit our ability to liquidate these investments in the short term.

Some of our fund managers and fund administrators are unable to provide final fund valuations as of our current reporting date. We typically experience a reporting lag to receive a final net asset value report of one month for our hedge funds and certain private credit funds and three months for private equity funds and private credit funds, although we have occasionally experienced delays of up to six months at year end. In circumstances where there is a reporting lag, we estimate the fair value of these funds by starting with the prior month or quarter-end fund valuation, adjusting for actual capital calls, redemptions or distributions, and the impact of changes in foreign currency exchange rates, and then estimating the return for the current period using all information available to us. This principally includes using preliminary estimates reported to us by our fund managers, estimating returns based on the performance of broad market indices, or other valuation methods. Actual final fund valuations may differ, perhaps materially, from our estimates and these differences are recorded as a change in estimate in our consolidated statement of operations in the period in which they are reported to us. Included in net realized and unrealized gains (losses) on investments for 2021 is income of $7.0 million (2020 - a loss of $2.4 million) representing the change in estimate during the period related to the difference between our estimated net realized and unrealized gains (losses) due to the lag in reporting discussed above and the actual amount as reported in the final net asset values provided by our fund managers.

Our estimate of the fair value of catastrophe bonds is based on quoted market prices or, when such prices are not available, by reference to broker or underwriter bid indications. Refer to “Note 6. Fair Value Measurements” in our “Notes to the Consolidated Financial Statements” for additional information regarding the fair value measurement of our investments.

We have committed capital to direct equity investments, fund investments, term loans, and investments in other ventures of $2.7 billion, of which $1.3 billion has been contributed at December 31, 2021. Our remaining commitments to these investments at December 31, 2021 totaled $1.4 billion. In the future, we may enter into additional commitments in respect of these investments or individual portfolio company investment opportunities.

Investments in Other Ventures, under Equity Method

The table below shows our investments in other ventures, under equity method:

At December 31,	2021			2020		
(in thousands, except percentages)	Investment	Ownership %	Carrying Value	Investment	Ownership %	Carrying Value
Tower Hill Companies	$ 78,698	2.0% - 25.0%	$ 25,575	$ 64,750	2.0% - 25.0%	$ 30,470
Top Layer Re	65,375	50.0 %	25,903	65,375	50.0 %	26,958
Other	46,698	22.4 %	46,590	42,652	25.0 %	40,945
Total investments in other ventures, under equity method	$ 190,771		$ 98,068	$ 172,777		$ 98,373

The equity in earnings of the Tower Hill Companies and investments in other ventures are reported one quarter in arrears and Top Layer is reported on a current quarter basis. The realized value we ultimately attain for our investments in other ventures, under equity method will likely differ from the carrying value, perhaps materially.

Ratings

Financial strength ratings are important to the competitive position of reinsurance and insurance companies. We have received high long-term issuer credit and financial strength ratings and scores from A.M. Best, S&P, Moody’s and Fitch, as applicable. These ratings represent independent opinions of an insurer’s financial strength, operating performance and ability to meet policyholder obligations, and are not an evaluation directed toward the protection of investors or a recommendation to buy, sell or hold any of our securities. Rating organizations continually review the financial positions of our principal operating subsidiaries and joint ventures and ratings may be revised or revoked by the agencies which issue them. Additionally, rating organizations may change their rating methodology, which could have a material impact on our financial strength ratings.

The ratings of our principal operating subsidiaries and joint ventures and the ERM score of RenaissanceRe as of February 2, 2022 are presented below.

	A.M. Best (1)	S&P (2)	Moody's (3)	Fitch (4)
Renaissance Reinsurance Ltd.	A+	A+	A1	A+
DaVinci Reinsurance Ltd.	A	A+	A3	—
Renaissance Reinsurance of Europe Unlimited Company	A+	A+	—	—
Renaissance Reinsurance U.S. Inc.	A+	A+	—	—
RenaissanceRe Europe AG	A+	A+	—	—
RenaissanceRe Specialty U.S. Ltd.	A+	A+	—	—
Top Layer Reinsurance Ltd.	A+	AA	—	—
Vermeer Reinsurance Ltd.	A	—	—	—
RenaissanceRe Syndicate 1458	—	—	—	—
Lloyd's Overall Market Rating	A	A+	—	AA-
RenaissanceRe ERM Score	Very Strong	Very Strong	—	—

(1) The A.M. Best ratings for our principal operating subsidiaries and joint ventures represent the insurer’s financial strength rating. The Lloyd’s Overall Market Rating represents RenaissanceRe Syndicate 1458’s financial strength rating. RenaissanceRe has been assigned a “Very Strong” ERM score by A.M. Best.

(2) The S&P ratings for our principal operating subsidiaries and joint ventures represent the insurer's financial strength rating and the issuer's long-term issuer credit rating. The Lloyd's Overall Market Rating represents RenaissanceRe Syndicate 1458's financial strength rating. RenaissanceRe has been assigned a "Very Strong" ERM score by S&P.

(3) The Moody's ratings represent the insurer's financial strength rating.

(4) The Fitch rating for Renaissance Reinsurance represents the insurer's financial strength rating. The Lloyd's Overall Market Rating represents Syndicate 1458's financial strength rating.

A.M. Best

The outlook for all of our A.M. Best ratings is stable. "A+" is the second highest designation of A.M. Best's rating levels. "A+" rated insurance companies are defined as "Superior" companies and are considered by A.M. Best to have a very strong ability to meet their obligations to policyholders. "A" is the third highest designation assigned by A.M. Best, representing A.M. Best's opinion that the insurer has an "Excellent" ability to meet its ongoing obligations to policyholders.

S&P

The outlook for all of our S&P ratings is stable. The "A" range ("A+," "A," "A-"), which is the third highest rating assigned by S&P, indicates that S&P believes the insurers have strong capacity to meet their respective financial commitments but they are somewhat more susceptible to adverse effects or changes in circumstances and economic conditions than insurers rated higher.

Moody's

The outlook for all of our Moody's ratings is stable. Moody's Insurance Financial Strength Ratings represent its opinions of the ability of insurance companies to pay punctually policyholder claims and obligations and senior unsecured debt instruments. Moody's believes that insurance companies rated "A1" and "A3" offer good financial security.

Fitch

The outlook for all of our Fitch ratings is stable. Fitch believes that insurance companies rated "A+" have "Strong" capacity to meet policyholders and contract obligations on a timely basis with a low expectation of ceased or interrupted payments. Insurers rated "AA-""by Fitch are believed to have a very low expectation of ceased or interrupted payments and very strong capital to meet policyholder obligations.

Lloyd's Overall Market Rating

A.M. Best, S&P and Fitch have each assigned a financial strength rating to the Lloyd's overall market. The financial risks to policy holders of syndicates within the Lloyd's market are partially mutualized through the Lloyd's Central Fund, to which all underwriting members contribute. Because of the presence of the Lloyd's Central Fund, and the current legal and regulatory structure of the Lloyd's market, financial strength ratings on individual syndicates would not be particularly meaningful and in any event would not be lower than the financial strength rating of the Lloyd's overall market.

SUPPLEMENTAL GUARANTOR FINANCIAL INFORMATION

RenaissanceRe Finance, a 100% owned subsidiary of RenaissanceRe, is the issuer of certain 3.700% Senior Notes due 2025 and 3.450% Senior Notes due 2027, each of which are fully and unconditionally guaranteed by RenaissanceRe. The guarantees are senior unsecured obligations of RenaissanceRe and rank equally in right of payment with all other existing and future unsecured and unsubordinated indebtedness of RenaissanceRe which may be outstanding from time to time. Each series of notes contain various covenants, including limitations on mergers and consolidations, and restrictions as to the disposition of, and the placing of liens on, stock of designated subsidiaries. For additional information related to the terms of our outstanding debt securities, see “Note 9. Debt and Credit Facilities” included herein.

The following tables present supplemental summarized financial information for RenaissanceRe and RenaissanceRe Finance, collectively the “Obligor Group.” Intercompany transactions among the members of the Obligor Group have been eliminated. The financial information of non-obligor subsidiaries has been excluded from the summarized financial information. Significant intercompany transactions and receivable/payable balances between the Obligor Group and non-obligor subsidiaries are presented separately in the summarized financial information:

Summarized Balance Sheets

(in thousands)		December 31, 2021
Assets		
Receivables due from non-obligor subsidiaries	$	9,550
Other current assets		106,482
Total current assets	$	116,032
Goodwill and other intangibles	$	108,261
Loan receivable from non-obligor subsidiaries		840,298
Other noncurrent assets		1,866,059
Total noncurrent assets	$	2,814,618
Liabilities		
Payables due to non-obligor subsidiaries	$	160,703
Other current liabilities		28,680
Total current liabilities	$	189,383
Loan payable to non-obligor subsidiaries	$	201,380
Other noncurrent liabilities		1,088,288
Total noncurrent liabilities	$	1,289,668

Summarized Statement of Operations

(in thousands)		Year ended December 31, 2021
Revenues		
Intercompany revenue with non-obligor subsidiaries	$	100,933
Other revenue		245
Total revenues		101,178
Expenses		
Intercompany expense with non-obligor subsidiaries		38,960
Other expense		67,493
Total expenses		106,453
Income tax benefit (expense)		(44)
Net income (loss)		(5,319)
Dividends on RenaissanceRe preference shares		(33,266)
Net income (loss) attributable to Obligor Group	$	(38,585)

CURRENT OUTLOOK

Reinsurance Market Trends and Developments

We have built a global, multi-line, specialist company that allows us to write more business with more customers in more locations around the world. In 2021, we continued our growth with existing and new customers across our segments and broadened our access to risk, writing more lines of business on more platforms. We also continued to diversify our sources of capital through various owned and managed balance sheets as well as the equity, debt and insurance-linked securities markets. This has afforded us significant flexibility to react when the world changes. We believe that the trusted relationships we have developed have provided us an incumbency position, contributing to our significant growth in attractive business in 2021. Despite our recent growth, we reduced our growth rate at the recent January 1st renewals, electing to focus more on optimizing our portfolio and increasing its efficiency and profitability. As always, we were a consistent partner, offering capacity across the risk spectrum.

Recent Industry Trends

In 2021, the insurance industry experienced its fifth consecutive year of elevated catastrophe losses. We saw a market trend shift away from property catastrophe risk due to the effects of climate change, social and monetary inflation, as well as a lack of confidence in catastrophe modeling. Despite these challenges, we believe that our expertise and experience allow us to determine that we are being paid adequately to assume risk, which we are uniquely positioned to understand due to our strong underwriting bench (which has been through multiple market cycles), as well as our integrated system, and our team of scientists, engineers, and risk modelers at RenaissanceRe Sciences. We believe that market conditions have created significant opportunities to source attractive risk in the lines of business that we write, and that such opportunities will result in superior returns for our shareholders.

Social inflation continues to be a risk, and we expect it to be an ongoing trend. Over the course of 2021, we also saw the rapid increase of monetary inflation. This is particularly impactful to our industry, as it drives rebuilding costs, such as increases in wages and commodity prices. We consider the anticipated effects of inflation on us in our catastrophe loss models and on our investment portfolio.

In the current market, we believe that we are uniquely positioned to write a variety of risks, leveraging the enhancements we made over the last several years to our risk and capital management technology and underwriting expertise to cover additional lines of business. In particular, we have invested heavily to understand the influence of climate change on the weather and its impact on the risks that we take. We plan to continue to seek to take advantage of additional opportunities throughout the year and believe that strategic decisions that we have made in prior periods have laid the foundation for these initiatives. We believe that our clients value our ability to be a long-term partner that brings access to multiple forms of capital and innovative, large-scale solutions.

January 1st Renewals

Property. The January 1 renewal is the largest renewal period for our Property segment. We had several goals we wanted to achieve, including seeking rate increases, improving terms and conditions, adjusting for our increased view of risk, and decreasing our exposure to aggregate deals; and we were pleased with the results and the portfolio we built. We believe that we saw improved market conditions, and across markets we pushed hard for higher rates, while remaining disciplined when rate increases were not sufficient. We used the options we have developed, such as our third-party capital vehicles, to provide flexibility and to optimize our gross-to-net strategy, as evidenced by the growth in DaVinci and the increased percentage of property catastrophe business that we allocated to it. A significant amount of the growth in our Property segment over the last few years has been in the other property class of business, due largely to the substantial rate increases in the U.S. property excess and surplus market. As we expected, there was significant dislocation in the property retrocession markets at January 1, and we expect these trends to continue in 2022.

Casualty and Specialty. The January 1 renewal is also important for our Casualty and Specialty segment. Casualty and Specialty business has become increasingly desirable due to a combination of robust multi-year rate increases, as well as recent favorable plan performance. We continued to see underlying rate increases across multiple lines of business and geographies within our Casualty and Specialty segment, and we expanded participation on multiple casualty and specialty lines. We believe that our book of business is continuing to reflect the rate improvements that we have seen over the past several years. We think that our prior work building strong relationships with key customers allowed us to gain superior access to desirable business.

General Economic Conditions

We actively managed our capital in 2021 and expect to continue to do so in 2022. We believe that our shares have been trading at attractive levels, which provides us with additional options to manage excess capital. If this trend continues, we expect to utilize our strong capital position to continue to return excess capital to shareholders. When possible, our preference is to deploy any excess capital into profitable business opportunities before returning excess capital to shareholders.

Overall, 2021 was a challenging year for third-party capital, but our ability to raise funds is a testament to the deep experience of our Capital Partners team and the relationships that they have built over the 20 years in this area.

We believe the stresses in the global economy will continue and that these conditions may result in increased market volatility. A period of low interest rates may affect our ability to derive investment income from our investments. As interest rates begin to rise from historic lows, we expect that we will see an increase in net investment income from our investment portfolio. The effects of these interest rate trends on our reinsurance and insurance business could be magnified for longer-tail business lines that are more inflation sensitive, particularly in our Casualty and Specialty segment, and in our other property class of business within our Property segment. Notwithstanding the many uncertainties and challenges that lie ahead, we believe that our track record of responding to industry events, differentiated risk management and client-service capabilities, and access to diverse sources of both capital and risk position us favorably in the current environment.

We continue to closely monitor recent tax reform proposals and announcements. Tax law changes globally, and in the jurisdictions where we operate, could increase tax burdens on companies operating in such jurisdictions, or operating multilaterally, or which transact in or with respect to such jurisdictions. At this time, the practical details of how the OECD's framework for instituting a global minimum corporate tax would be implemented are not clear, so we cannot anticipate or estimate the cost to us of this or any other such future initiative. However, we believe that the flexible global operating model that we have utilized will continue to prove resilient.

COVID-19 Pandemic

The COVID-19 pandemic has had immense impacts on a global scale, including on the (re)insurance industries where it has raised many new questions and challenges for us and our industry. While we believe that we can continue to execute on our strategic plan and compete for, and meet, the demand for the protection that we provide, it is difficult to predict all of the potential impacts of the COVID-19 pandemic on the markets in which we participate and our ability to effectively respond to these changing market dynamics.

See "Part I, Item 1A. Risk Factors," for additional information on factors that could cause our actual results to differ materially from those in the forward-looking statements contained in this Form 10-K and other documents we file with the SEC.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

The following risk management discussion and the estimated amounts generated from sensitivities presented are forward-looking statements of market risk assuming certain market conditions occur. Actual results in the future may differ materially from these estimated results due to, among other things, actual developments in the global financial markets and changes in the composition of our investment portfolio, derivatives and product offerings. The results of analysis used by us to assess and mitigate risk should not be considered projections of future events or losses. Refer to "Note On Forward-Looking Statements" for additional discussion regarding forward-looking statements included herein.

We are principally exposed to four types of market risk: interest rate risk; foreign currency risk; credit risk; and equity price risk. Our policies to address these risks in 2021 were not materially different than those used in 2020.

The ongoing and rapidly evolving nature of the COVID-19 pandemic could lead to a longer or more severe recession, which may increase the probability of credit losses in our investment portfolio. Volatility in global financial markets, together with low or negative interest rates, reduced liquidity and a slowdown in global economic conditions may adversely affect our investment portfolio. Additionally, we are exposed to counterparty credit risk, including with respect to reinsurance brokers, customers and retrocessionaires, which may materially increase to the extent the COVID-19 pandemic affects our ability to collect premiums receivable or reinsurance recoverable.

Our investment guidelines permit, subject to approval, investments in derivative instruments such as futures, options, foreign currency forward contracts and swap agreements, which may be used to assume risks or for hedging purposes. Refer to "Note 19. Derivative Instruments" in our "Notes to the Consolidated Financial Statements" for additional information related to derivatives we have entered into.

Interest Rate Risk

Interest rate risk is the price sensitivity of a security to changes in interest rates. Our investment portfolio includes fixed maturity investments and short term investments, as well as private credit funds and term loans which primarily invest in debt instruments. The fair values of these investments will fluctuate with changes in interest rates. As a result, we are exposed to interest rate risk with respect to our overall net economic asset position, and more generally from an accounting standpoint, since the assets are carried at fair value.

We may utilize derivative instruments, for example via interest rate overlay strategies, to manage or optimize our duration and treasury curve exposures. In addition, we attempt to maintain adequate liquidity in our fixed maturity investments portfolio to fund operations, pay reinsurance and insurance liabilities and claims and provide funding for unexpected events.

The following tables summarize the aggregate hypothetical increase (decrease) in fair value of our fixed maturity investment and short term investments, private credit funds and term loans from an immediate parallel shift in the treasury yield curve, assuming credit spreads remain constant, reflecting the use of an immediate time horizon since this presents the worst-case scenario:

	Interest Rate Shift in Basis Points				
At December 31, 2021	**-100**	**-50**	**Base**	**50**	**100**
(in thousands, except percentages)					
Fair value of fixed maturity and short term investments			$ 18,805,516		
Fair value of private credit funds			473,112		
Fair value of term loans			74,850		
Total fair value	$ 19,848,073	$ 19,600,750	$ 19,353,478	$ 19,106,257	$ 18,859,086
Net increase (decrease) in fair value	$ 494,595	$ 247,272	$ —	$ (247,221)	$ (494,392)
Percentage change in fair value	2.6 %	1.3 %	— %	(1.3)%	(2.6)%

	Interest Rate Shift in Basis Points				
At December 31, 2020	**-100**	**-50**	**Base**	**50**	**100**
(in thousands, except percentages)					
Fair value of fixed maturity and short term investments			$ 18,500,238		
Fair value of private credit funds			$ 144,556		
Fair value of term loans			$ —		
Total fair value	$ 19,168,368	$ 18,904,916	$ 18,644,794	$ 18,387,651	$ 18,132,236
Net increase (decrease) in fair value	$ 523,574	$ 260,122	$ —	$ (257,143)	$ (512,558)
Percentage change in fair value	2.8 %	1.4 %	— %	(1.4)%	(2.7)%

As noted above, we use derivative instruments, primarily interest rate futures and interest rate swaps, within our portfolio of fixed maturity investments to manage our exposure to interest rate risk, which can include increasing or decreasing our exposure to this risk. At December 31, 2021, we had $2.2 billion of notional long positions and $0.5 billion of notional short positions of primarily Eurodollar, and U.S. Treasury futures contracts (2020 - $2.0 billion and $1.0 billion, respectively). At December 31, 2021, we had $Nil of notional interest rate swap positions paying a fixed rate and $Nil receiving a fixed rate denominated in U.S. dollar swap contracts (2020 - $Nil and $23.5 million, respectively). Refer to “Note 19. Derivative Instruments” in our “Notes to the Consolidated Financial Statements” for additional information related to interest rate futures and swaps entered into by us.

At December 31, 2021, the aggregate hypothetical impact of an immediate upward parallel shift in the treasury yield curve of 100 basis points would be a decrease in the market value of our net position in interest rate futures of approximately $43.9 million. Conversely, at December 31, 2021, the aggregate hypothetical impact of an immediate downward parallel shift in the treasury yield curve of 100 basis points would be an increase in the market value of our net position in interest rate futures of approximately $42.3 million. The foregoing reflects the use of an immediate time horizon, since this presents the worst-case scenario. Credit spreads are assumed to remain constant in these hypothetical examples.

Foreign Currency Risk

Our functional currency for consolidated reporting purposes is the U.S. dollar. We routinely write a portion of our business in currencies other than U.S. dollars and invest a portion of our cash and investment portfolio in those currencies. In addition, certain of our entities have non-U.S. dollar functional currencies. As a result, we may experience foreign exchange gains and losses in our consolidated financial statements. We are primarily impacted by the foreign currency risk exposures noted below, and may, from time to time, enter into foreign currency forward and option contracts to minimize the effect of fluctuating foreign currencies on the value of non-U.S. dollar denominated assets and liabilities. Refer to “Note 19. Derivative Instruments” in our “Notes to the Consolidated Financial Statements” for additional information related to foreign currency forward and option contracts we have entered into.

Underwriting Operations

Our foreign currency policy with regard to our underwriting operations is generally to enter into foreign currency forward and option contracts for notional values that approximate the foreign currency liabilities, including claims and claim expense reserves and reinsurance balances payable, net of any cash, investments and receivables held in the respective foreign currency. Our use of foreign currency forward and option contracts is intended to minimize the effect of fluctuating foreign currencies on the value of non-U.S. dollar denominated assets and liabilities associated with our underwriting operations. We may determine not to match a portion of our projected underwriting related assets or liabilities with underlying foreign currency exposure with investments in the same currencies, which would increase our exposure to foreign currency fluctuations and potentially increase the impact and volatility of foreign exchange gains and losses on our results of operations.

Investment Portfolio

Our investment portfolio is exposed to currency fluctuations through our investments in non-U.S. dollar fixed maturity investments, short term investments and other investments. To economically hedge our exposure to currency fluctuations from these investments, we may enter into foreign currency forward contracts. In certain instances, we may assume foreign exchange risk as part of our investment strategy. Realized and unrealized foreign exchange gains or losses from the sale of our non-U.S. dollar fixed maturity investments trading and other investments, and foreign exchange gains or losses associated with our hedging of these non-U.S. dollar investments are recorded in net foreign exchange (losses) gains in our consolidated statements of operations. In the future, we may choose to increase our exposure to non-U.S. dollar investments.

The following tables summarize the principal currencies creating foreign exchange risk for us and our net foreign currency exposures and the impact of a hypothetical 10% change in our net foreign currency exposure, keeping all other variables constant, as of the dates indicated:

At December 31, 2021	AUD	CAD	EUR	GBP	JPY	NZD	Other	Total
(in thousands, except for percentages)								
Net assets (liabilities) denominated in foreign currencies	$ 92,683	$ 59,000	$ (372,987)	$ (322,628)	$ 4,053	$ (20,167)	$ (74,000)	$ (634,046)
Net foreign currency derivatives notional amounts	(108,168)	(58,725)	369,335	327,339	(313)	19,760	56,052	605,280
Total net foreign currency exposure	$ (15,485)	$ 275	$ (3,652)	$ 4,711	$ 3,740	$ (407)	$ (17,948)	$ (28,766)
Net foreign currency exposure as a percentage of total shareholders' equity attributable to RenaissanceRe	(0.2)%	— %	(0.1)%	0.1 %	0.1 %	— %	(0.3)%	(0.4)%
Impact of a hypothetical 10% change in total net foreign currency exposure	$ 1,549	$ (28)	$ 365	$ (471)	$ (374)	$ 41	$ 1,795	$ 2,877

At December 31, 2020	AUD	CAD	EUR	GBP	JPY	NZD	Other	Total
(in thousands, except for percentages)								
Net (liabilities) assets denominated in foreign currencies	$ 103,401	$ 34,294	$ (4,254)	$ (322,565)	$ (28,649)	$ (62,892)	$ (28,707)	$ (309,372)
Net foreign currency derivatives notional amounts	(61,228)	(35,024)	(103,426)	312,790	86,314	66,649	36,217	302,292
Total net foreign currency exposure	$ 42,173	$ (730)	$ (107,680)	$ (9,775)	$ 57,665	$ 3,757	$ 7,510	$ (7,080)
Net foreign currency exposure as a percentage of total shareholders' equity attributable to RenaissanceRe	0.6 %	— %	(1.4)%	(0.1)%	0.8 %	— %	0.1 %	(0.1)%
Impact of a hypothetical 10% change in total net foreign currency exposure	$ (4,217)	$ 73	$ 10,768	$ 978	$ (5,767)	$ (376)	$ (751)	$ 708

Credit Risk

Credit risk relates to the uncertainty of a counterparty's ability to make timely payments in accordance with contractual terms of the instrument or contract and market risk associated with changes in credit spreads. We are primarily exposed to direct credit risk within our portfolios of fixed maturity and short term investments, and through customers and reinsurers in the form of premiums receivable and reinsurance recoverable, respectively, as discussed below.

Fixed Maturity Investments, Short Term Investments, Private Credit Funds and Term Loans

Credit risk related to our fixed maturity investments and short term investments, as well as our private credit funds and term loans which primarily invest in debt instruments, is the exposure to adverse changes in the creditworthiness of individual investment holdings, issuers, groups of issuers, industries and countries. We manage credit risk in our fixed maturity investments and short term investments through credit research performed primarily by our investment management service providers and our evaluation of these investment managers adherence to investment mandates provided to them. The management of credit risk in the investment portfolio is integrated in our credit risk governance framework and the management of credit exposures and concentrations within the investment portfolio are carried out in accordance with our risk policies, limits and risk concentrations as overseen by the Investment and Risk Management Committee of our Board of Directors. In the investment portfolio, we review on a regular basis our asset concentration, credit quality and adherence to credit limit guidelines. In addition, we limit the amount of credit exposure to any one financial institution and, except for the securities of the U.S. Government and U.S. Government related entities, and money market securities, none of our fixed-maturity and short-term investments exceeded 10% of shareholders' equity at December 31, 2021.

At December 31, 2021, our fixed maturity investments and short term investment portfolio had a dollar-weighted average credit quality rating of AA (2020 - AAA). The following table summarizes the ratings of our fixed maturity investments and short term investments and term loans (using ratings assigned by S&P and/or other rating agencies when S&P ratings were not available) as a percentage of total of those investments as of the dates indicated:

At December 31,	2021	2020
AAA	37.7 %	36.9 %
AA	43.3 %	39.5 %
A	6.4 %	8.0 %
BBB	5.7 %	8.3 %
Non-investment grade	6.3 %	6.8 %
Not rated	0.6 %	0.5 %
Total	100.0 %	100.0 %

Private credit funds are not included in the table above. Our investments in private credit funds include limited partnership or similar interests that invest in certain private credit asset classes, including senior secured bank loan funds, U.S. direct lending, secondaries, mezzanine investments and distressed securities.

We consider the impact of credit spread movements on the fair value of our fixed maturity and short term investments portfolio, private credit funds and term loans. As credit spreads widen, the fair value of our fixed maturity, short term investments, private credit funds and term loans decreases, and vice versa.

The following tables summarize the aggregate hypothetical increase (decrease) in fair value in our fixed maturity investments and short term investments, private credit funds and term loans, from an immediate parallel shift in credit spreads, assuming the treasury yield curve remains constant, reflecting the use of an immediate time horizon since this presents the worst-case scenario:

	Credit Spread Shift in Basis Points				
At December 31, 2021	**-100**	**-50**	**Base**	**50**	**100**
(in thousands, except percentages)					
Fair value of fixed income and short term investments			$ 18,805,516		
Fair value of private credit			$ 473,112		
Fair value of term loans			$ 74,850		
Total fair value	$ 19,546,182	$ 19,467,319	$ 19,353,478	$ 19,206,525	$ 19,059,573
Net increase (decrease) in fair value	$ 192,704	$ 113,841	$ —	$ (146,953)	$ (293,905)
Percentage change in fair value	1.0 %	0.6 %	— %	(0.8)%	(1.5)%

	Credit Spread Shift in Basis Points				
At December 31, 2020	**-100**	**-50**	**Base**	**50**	**100**
(in thousands, except percentages)					
Fair value of fixed income and short term investments			$ 18,500,238		
Fair value of private credit			$ 144,556		
Fair value of term loans			$ —		
Total fair value	$ 18,900,852	$ 18,803,290	$ 18,644,794	$ 18,456,750	$ 18,269,003
Net increase (decrease) in fair value	$ 256,058	$ 158,496	$ —	$ (188,044)	$ (375,791)
Percentage change in fair value	1.4 %	0.9 %	— %	(1.0)%	(2.0)%

We also employ credit derivatives in our investment portfolio to either assume credit risk or hedge our credit exposure. At December 31, 2021, we had outstanding credit derivatives of $Nil in notional positions to hedge credit risk and $218.5 million in notional positions to assume credit risk, denominated in U.S. dollars (2020 - $Nil and $96.8 million, respectively). Refer to “Note 19. Derivative Instruments” in our “Notes to the Consolidated Financial Statements” for additional information related to credit derivatives entered into by us. The aggregate hypothetical market value impact from an immediate upward shift in credit spreads of 100 basis points would cause a decrease in the market value of our net position in these derivatives of approximately $9.1 million at December 31, 2021. Conversely, the aggregate hypothetical market value impact from an immediate downward shift in credit spreads of 100 basis points would cause an increase in the market value of our net position in these derivatives of approximately $9.1 million at December 31, 2021. For an immediate downward shift in credit spreads, we do not allow credit spreads to go negative in calculating the impact. The foregoing reflects the use of an immediate time horizon, since this presents the worst-case scenario.

Premiums Receivable and Reinsurance Recoverable

Premiums receivable from ceding companies and reinsurance recoverable from our reinsurers are subject to credit risk. To mitigate credit risk related to reinsurance premiums receivable, we have established standards for ceding companies and, in most cases, have a contractual right of offset allowing us to settle claims net of any reinsurance premiums receivable. To mitigate credit risk related to our reinsurance recoverable amounts, we consider the financial strength of our reinsurers when determining whether to purchase coverage from them. We generally obtain reinsurance coverage from companies rated “A-“ or better by S&P unless the obligations are collateralized. We routinely monitor the financial performance and rating status of all material reinsurers. Refer to “Part II, Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations—Summary of Critical Accounting Estimates—Reinsurance Recoverable” for additional information with respect to reinsurance recoverable.

Equity Price Risk

Equity price risk is the potential loss arising from changes in the market value of equity investments. As detailed in the table below, we are directly exposed to this risk through our investment in equity investments trading, including certain positions in our strategic investment portfolio, which are traded on nationally recognized stock exchanges; and indirectly exposed to this risk through other investments such as our direct private equity investments, private equity funds and hedge fund, whose exit strategies and market values often depend on the wider equity markets. We may, from time to time, use equity derivatives in our investment portfolio to either assume equity risk or hedge our equity exposure. The following table summarizes a hypothetical 10% increase or decline in the market value of our equity investments trading, direct private equity investments, private equity funds and hedge funds, holding all other factors constant, at the dates indicated:

At December 31, (in thousands, except for percentages)	2021	2020
Equity investments trading, at fair value	$ 546,016	$ 702,617
Direct private equity investments	88,373	79,807
Private equity funds, at fair value	241,297	140,743
Hedge funds, at fair value	11,394	10,553
Total carrying value of investments exposed to equity price risk	$ 887,080	$ 933,720
Impact of a hypothetical 10% increase in the carrying value of investments exposed to equity price risk	$ 88,708	$ 93,372
Impact of a hypothetical 10% decrease in the carrying value of investments exposed to equity price risk	$ (88,708)	$ (93,372)

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Reference is made to Item 15 of this Report for the Consolidated Financial Statements of RenaissanceRe and the Notes thereto, as well as the Schedules to the Consolidated Financial Statements.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we have evaluated the effectiveness of the design and operation of our disclosure controls and procedures, as defined in Rules 13a-15(b) and 15d-15(b) of the Exchange Act, as of the end of the period covered by this report. Based upon that evaluation, our management, including our

Chief Executive Officer and Chief Financial Officer, concluded that, at December 31, 2021, our disclosure controls and procedures were effective to provide reasonable assurance that information required to be disclosed in Company reports filed or submitted under the Exchange Act is (i) recorded, processed, summarized and reported within the time periods specified in the SEC rules and forms and (ii) accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining effective internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act, as amended. Our internal control over financial reporting was designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles and to reflect management's judgments and estimates concerning effects of events and transactions that are accounted for or disclosed.

Our 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 our transactions and the dispositions of our assets; (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 our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our financial statements.

There are inherent limitations to the effectiveness of any controls. Our Board of Directors and management, including our Chief Executive Officer and Chief Financial Officer, do not expect that our disclosure controls and procedures or internal control over financial reporting will prevent all errors and all fraud. Controls, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the controls are met. Further, we believe that the design of controls must reflect appropriate resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in controls, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, within RenaissanceRe have been detected.

Management, with the participation of the Chief Executive Officer and Chief Financial Officer, assessed our internal control over financial reporting as of December 31, 2021 using the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control-Integrated Framework (2013). Based on this assessment, management concluded that RenaissanceRe's internal control over financial reporting was effective as of December 31, 2021.

Ernst & Young Ltd., the independent registered public accountants who audited our consolidated financial statements included in this Form 10-K, audited our internal control over financial reporting as of December 31, 2021 and their attestation report on our internal control over financial reporting appears below.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting during the quarter ended December 31, 2021, which were identified in connection with our evaluation required pursuant to Rules 13a-15 or 15d-15 under the Exchange Act, that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of RenaissanceRe Holdings Ltd.

Opinion on Internal Control Over Financial Reporting

We have audited RenaissanceRe Holdings Ltd. and subsidiaries' internal control over financial reporting as of December 31, 2021, 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, RenaissanceRe Holdings Ltd. and subsidiaries (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2021, 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 RenaissanceRe Holdings Ltd. and subsidiaries as of December 31, 2021 and 2020, the related consolidated statements of operations, comprehensive income (loss), changes in shareholders' equity and cash flows for each of the three years in the period ended December 31, 2021, and the related notes and schedules and our reports dated February 4, 2022 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 Ltd.

Hamilton, Bermuda
February 4, 2022

ITEM 9B. OTHER INFORMATION

None.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this Item relating to our directors, executive officers and corporate governance is incorporated herein by reference to information found in our Proxy Statement for the Annual General Meeting of Shareholders to be held on May 16, 2022. We intend to file our Proxy Statement no later than 120 days after the close of the fiscal year.

We have adopted a Code of Ethics within the meaning of Item 406 of Regulation S-K of the Exchange Act that applies to all of our directors and employees, including our principal executive officer, principal financial officer, principal accounting officer, controller and other persons performing similar functions. The Code of Ethics is available free of charge on our website *www.renre.com*. We will also provide a printed version of the Code of Ethics to any shareholder who requests it. We intend to disclose any amendments to our Code of Ethics by posting such information on our website. Any waivers of our Code of Ethics applicable to our directors, principal executive officer, principal financial officer, principal accounting officer or controller and other persons who perform similar functions will be disclosed on our website or by filing a Form 8-K, as required.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this Item relating to executive compensation is incorporated herein by reference to information included in our Proxy Statement.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED SHAREHOLDER MATTERS

The information required by this Item relating to security ownership of certain beneficial owners and management and securities authorized for issuance under equity compensation plans is incorporated herein by reference to information included in our Proxy Statement.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this Item relating to certain relationships and related transactions and director independence is incorporated herein by reference to information included in our Proxy Statement.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this Item relating to principal accountant fees and services is incorporated herein by reference to information included in our Proxy Statement.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

Financial Statements

The Consolidated Financial Statements of RenaissanceRe Holdings Ltd. and related Notes thereto are listed in the accompanying Index to Consolidated Financial Statements and are filed as part of this Form 10-K.

Financial Statement Schedules

The Schedules to the Consolidated Financial Statements of RenaissanceRe Holdings Ltd. are listed in the accompanying Index to Schedules to Consolidated Financial Statements and are filed as a part of this Form 10-K.

Exhibit Index

Exhibit Number	Description
3.1	Memorandum of Association, incorporated by reference to the Registration Statement on Form S-1 of RenaissanceRe Holdings Ltd. (Registration No. 33-70008) which was declared effective by the SEC on July 26, 1995. (P)
3.2	Amended and Restated Bye-Laws, incorporated by reference to RenaissanceRe Holdings Ltd.'s Quarterly Report on Form 10-Q for the period ended June 30, 2002, filed with the SEC on August 14, 2002.
3.3	Memorandum of Increase in Share Capital of RenaissanceRe Holdings Ltd., incorporated by reference to Exhibit 3.1 to RenaissanceRe Holdings Ltd.'s Quarterly Report on Form 10-Q for the period ended March 31, 1998, filed with the SEC on May 14, 1998.
3.4	Specimen Common Share certificate, incorporated by reference to the Registration Statement on Form S-1 of RenaissanceRe Holdings Ltd. (Registration No. 33-70008) which was declared effective by the SEC on July 26, 1995. (P)
4.1	Certificate of Designation, Preferences and Rights of 5.750% Series F Preference Shares, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on June 19, 2018.
4.1(a)	Form of Stock Certificate Evidencing the 5.750% Series F Preference Shares, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on June 19, 2018.
4.1(b)	Deposit Agreement, dated June 18, 2018, among RenaissanceRe Holdings Ltd., Computershare, Inc. and Computershare Trust Company, N.A., incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on June 19, 2018.
4.1(c)	Form of Depositary Receipt, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on June 19, 2018.
4.2	Form of Share Certificate Evidencing the 4.20% Series G Preference Shares, incorporated by reference to the Registration Statement on Form 8-A of RenaissanceRe Holdings Ltd. dated July 12, 2021.
4.2(a)	Certificate of Designation, Preferences and Rights of 4.20% Series G Preference Shares, incorporated by reference to the Registration Statement on Form 8-A of RenaissanceRe Holdings Ltd. dated July 12, 2021.
4.2(b)	Deposit Agreement, dated July 12, 2021, among RenaissanceRe Holdings Ltd., Computershare, Inc. and Computershare Trust Company, N.A., incorporated by reference to the Registration Statement on Form 8-A of RenaissanceRe Holdings Ltd. dated July 12, 2021.
4.2(c)	Form of Depositary Receipt, incorporated by reference to the Registration Statement on Form 8-A of RenaissanceRe Holdings Ltd. dated July 12, 2021.
4.3	Senior Indenture, dated as of March 24, 2015, among RenaissanceRe Finance Inc., as issuer, RenaissanceRe Holdings Ltd., as guarantor, and Deutsche Bank Trust Company Americas, as trustee, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on March 25, 2015.
4.3(a)	First Supplemental Indenture, dated as of March 24, 2015, among RenaissanceRe Finance Inc., as issuer, RenaissanceRe Holdings Ltd., as guarantor, and Deutsche Bank Trust Company Americas, as trustee, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on March 25, 2015.

4.3(b)	Senior Debt Securities Guarantee Agreement, dated as of March 24, 2015, between RenaissanceRe Holdings Ltd., as guarantor, and Deutsche Bank Trust Company Americas, as guarantee trustee, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on March 25, 2015.
4.4	Senior Indenture, dated as of June 29, 2017, among RenaissanceRe Finance Inc., as issuer, RenaissanceRe Holdings Ltd., as guarantor, and Deutsche Bank Trust Company Americas, as trustee, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on June 29, 2017.
4.4(a)	First Supplemental Indenture, dated as of June 29, 2017, among RenaissanceRe Finance Inc., as issuer, RenaissanceRe Holdings Ltd., as guarantor, and Deutsche Bank Trust Company Americas, as trustee, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on June 29, 2017.
4.4(b)	Second Supplemental Indenture, March 25, 2019, by and among RenaissanceRe Finance Inc., as issuer, RenaissanceRe Holdings Ltd., as guarantor and Deutsche Bank Trust Company Americas, as trustee, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the Commission on March 26, 2019.
4.4(c)	Senior Debt Securities Guarantee Agreement, dated as of June 29, 2017, between RenaissanceRe Holdings Ltd., as guarantor, and Deutsche Bank Trust Company Americas, as guarantee trustee, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on June 29, 2017.
4.5	Senior Indenture, dated as of April 2, 2019, by and between RenaissanceRe Holdings Ltd., as issuer, and Deutsche Bank Trust Company Americas, as trustee, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the Commission on April 2, 2019.
4.5(a)	First Supplemental Indenture, dated as of April 2, 2019, by and between RenaissanceRe Holdings Ltd., as issuer, and Deutsche Bank Trust Company Americas, as trustee, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the Commission on April 2, 2019.
4.6	Description of Securities.
10.1*	Further Amended and Restated Employment Agreement, dated as of July 22, 2016, by and between RenaissanceRe Holdings Ltd. and Kevin J. O'Donnell, incorporated by reference to RenaissanceRe Holdings Ltd.'s Quarterly Report on Form 10-Q for the period ended June 30, 2016, filed with the SEC on July 27, 2016.
10.2*	Legacy Form of Further Amended and Restated Employment Agreement for Named Executive Officers (other than our Chief Executive Officer), incorporated by reference to RenaissanceRe Holdings Ltd.'s Quarterly Report on Form 10-Q for the period ended June 30, 2016, filed with the SEC on July 27, 2016. **
10.3*	Form of Employment Agreement for Named Executive Officers (other than our Chief Executive Officer), incorporated by reference to RenaissanceRe Holdings Ltd.'s Quarterly Report on Form 10-Q for the period ended June 30, 2016, filed with the SEC on July 27, 2016. ***
10.4*	Letter agreement, dated July 6, 2016, between Ian Branagan and RenaissanceRe Holdings Ltd. regarding secondment to the U.K., incorporated by reference to RenaissanceRe Holdings Ltd.'s Quarterly Report on Form 10-Q for the period ended June 30, 2016, filed with the SEC on July 27, 2016.

10.5*	Letter agreement, dated April 11, 2013, between Ian Branagan and RenaissanceRe Holdings Ltd. regarding secondment to the U.K., incorporated by reference to RenaissanceRe Holdings Ltd.'s Quarterly Report on Form 10-Q for the period ended June 30, 2016, filed with the SEC on July 27, 2016.
10.6*	Separation, Consulting, and Release Agreement, dated December 3, 2020, between RenaissanceRe Holdings Ltd. and Stephen H. Weinstein, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on December 4, 2020.
10.7*	RenaissanceRe Holdings Ltd. 2016 Long-Term Incentive Plan, incorporated by reference to RenaissanceRe Holdings Ltd.'s Annual Report on Form 10-K for the year ended December 31, 2017, filed with the SEC on February 9, 2018.
10.7(a)*	Form of Director Restricted Stock Agreement under the RenaissanceRe Holdings Ltd. 2016 Long-Term Incentive Plan, incorporated by reference to RenaissanceRe Holdings Ltd.'s Quarterly Report on Form 10-Q for the period ended June 30, 2016, filed with the SEC on July 27, 2016.
10.7(b)*	Form of Restricted Stock Agreement under the RenaissanceRe Holdings Ltd. 2016 Long-Term Incentive Plan, incorporated by reference to RenaissanceRe Holdings Ltd.'s Quarterly Report on Form 10-Q for the period ended June 30, 2016, filed with the SEC on July 27, 2016.
10.7(c)*	Form of Performance Share Agreement under the RenaissanceRe Holdings Ltd. 2016 Long-Term Incentive Plan (for awards made in May 2018 and March 2019), incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on May 16, 2018.
10.7(d)*	Form of Performance Share Agreement under the RenaissanceRe Holdings Ltd. 2016 Long-Term Incentive Plan (for awards made in March 2020 and later), incorporated by reference to RenaissanceRe Holdings Ltd.'s Annual Report on Form 10-K for the year ended December 31, 2019, filed with the SEC on February 7, 2020.
10.8	RenaissanceRe Holdings Ltd. Deferred Cash Award Plan, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on November 13, 2017.
10.8(a)	Form of Deferred Cash Award Agreement pursuant to which Deferred Cash Awards are granted under the RenaissanceRe Holdings Ltd. Deferred Cash Award Plan, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on November 13, 2017.
10.9*	RenaissanceRe Holdings Ltd. 2016 Restricted Stock Unit Plan, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on May 16, 2018.
10.9(a)*	Form of Restricted Stock Unit Agreement pursuant to which restricted stock unit grants are made under the RenaissanceRe Holdings Ltd. 2016 Restricted Stock Unit Plan, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on November 10, 2016.
10.10*	Form of Tax Reimbursement Waiver Letter with the Named Executive Officers, incorporated by reference to RenaissanceRe Holdings Ltd.'s Annual Report on Form 10-K for the year ended December 31, 2011, filed with the SEC on February 23, 2012.
10.11*	Form of Agreement Regarding Use of Aircraft Interest by and between RenaissanceRe Holdings Ltd. and Certain Executive Officers of RenaissanceRe Holdings Ltd., incorporated by reference to RenaissanceRe Holdings Ltd.'s Annual Report on Form 10-K for the year ended December 31, 2012, filed with the SEC on February 22, 2013.

10.12*	Form of Director Retention Agreement, dated as of November 8, 2002, entered into by each of the non-employee directors of RenaissanceRe Holdings Ltd., incorporated by reference to RenaissanceRe Holdings Ltd.'s Annual Report on Form 10-K for the year ended December 31, 2002, filed with the SEC on March 31, 2003 (SEC File Number 001-14428).
10.13	Amended and Restated Standby Letter of Credit Agreement, dated as of June 21, 2019, by and among Renaissance Reinsurance Ltd., RenaissanceRe Specialty U.S. Inc., DaVinci Reinsurance Ltd., RenaissanceRe Europe AG, RenaissanceRe Holdings Ltd., as Guarantor, and Wells Fargo Bank, National Association, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on June 24, 2019.
10.13(a)	First Amendment to Amended and Restated Standby Letter of Credit Agreement, dated as of June 11, 2020, by and among Renaissance Reinsurance Ltd., RenaissanceRe Specialty U.S. Inc., DaVinci Reinsurance Ltd., RenaissanceRe Europe AG, RenaissanceRe Holdings Ltd., as Guarantor, and Wells Fargo Bank, National Association, Incorporated by reference to RenaissanceRe Holdings Ltd.'s Quarterly Report on Form 10-Q for the period ended June 30, 2020, filed with the SEC on July 29, 2020.
10.14	Facility Letter, dated September 17, 2010, from Citibank Europe plc to Renaissance Reinsurance Ltd., DaVinci Reinsurance Ltd. and Glencoe Insurance Ltd., incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on September 23, 2010.
10.14(a)	Insurance Letters of Credit - Master Agreement, dated September 17, 2010, between Renaissance Reinsurance Ltd. and Citibank Europe plc. DaVinci Reinsurance Ltd., Glencoe Insurance Ltd., Renaissance Reinsurance of Europe, Renaissance Specialty U.S. Ltd., Platinum Underwriters Bermuda, Ltd. and Renaissance Reinsurance U.S. Inc. each entered into an agreement with Citibank Europe plc that is identical to the foregoing agreement, except with respect to party names and dates, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on September 23, 2010.
10.14(b)	Amendment to Facility Letter, dated July 14, 2011, by and among Citibank Europe plc, Renaissance Reinsurance Ltd., DaVinci Reinsurance Ltd and Glencoe Insurance Ltd., incorporated by reference to RenaissanceRe Holdings Ltd.'s Annual Report on Form 10-K for the year ended December 31, 2018, filed with the SEC on February 7, 2019.
10.14(c)	Amendment to Facility Letter, dated October 1, 2013, by and among Citibank Europe plc, Renaissance Reinsurance Ltd., DaVinci Reinsurance Ltd., RenaissanceRe Specialty Risks Ltd., Renaissance Reinsurance of Europe and RenaissanceRe Specialty U.S. Ltd., incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on October 4, 2013.
10.14(d)	Amendment to Facility Letter, dated December 23, 2014, by and among Citibank Europe plc, Renaissance Reinsurance Ltd., DaVinci Reinsurance Ltd., RenaissanceRe Specialty Risks Ltd., Renaissance Reinsurance of Europe and RenaissanceRe Specialty U.S. Ltd., incorporated by reference to RenaissanceRe Holdings Ltd.'s Annual Report on Form 10-K for the year ended December 31, 2015, filed with the SEC on February 19, 2016.
10.14(e)	Amendment to Facility Letter, dated March 31, 2015, by and among Citibank Europe plc, Renaissance Reinsurance Ltd., DaVinci Reinsurance Ltd., RenaissanceRe Specialty Risks Ltd., Renaissance Reinsurance of Europe, RenaissanceRe Specialty U.S. Ltd., Platinum Underwriters Bermuda, Ltd. and Platinum Underwriters Reinsurance, Inc., Incorporated by reference to RenaissanceRe Holdings Ltd.'s Annual Report on Form 10-K for the year ended December 31, 2015, filed with the SEC on February 19, 2016.

10.14(f)	Amendment to Facility Letter, dated December 30, 2015, by and among Citibank Europe plc, Renaissance Reinsurance Ltd., DaVinci Reinsurance Ltd., RenaissanceRe Specialty Risks Ltd., Renaissance Reinsurance of Europe, RenaissanceRe Specialty U.S. Ltd., Platinum Underwriters Bermuda, Ltd. and Renaissance Reinsurance U.S. Inc., incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on December 31, 2015.
10.14(g)	Amendment to Facility Letter, dated January 14, 2016, by and among Citibank Europe plc, Renaissance Reinsurance Ltd., DaVinci Reinsurance Ltd., RenaissanceRe Specialty Risks Ltd., Renaissance Reinsurance of Europe, RenaissanceRe Specialty U.S. Ltd., Platinum Underwriters Bermuda, Ltd. and Renaissance Reinsurance U.S. Inc., incorporated by reference to RenaissanceRe Holdings Ltd.'s Annual Report on Form 10-K for the year ended December 31, 2015, filed with the SEC on February 19, 2016.
10.14(h)	Termination of Master Agreements, Control Agreements and Pledge Agreements, dated October 1, 2016, between Renaissance Reinsurance Ltd. and Citibank Europe plc., incorporated by reference to RenaissanceRe Holdings Ltd.'s Quarterly Report on Form 10-Q for the period ended September 30, 2016, filed with the SEC on November 2, 2016.
10.14(i)	Amendment to Facility Letter, dated December 31, 2016, by and among Citibank Europe plc, Renaissance Reinsurance Ltd., DaVinci Reinsurance Ltd., Renaissance Reinsurance of Europe, RenaissanceRe Specialty U.S. Ltd. and Renaissance Reinsurance U.S. Inc., incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on January 5, 2017.
10.14(j)	Amendment to Facility Letter, dated December 29, 2017, by and among Citibank Europe plc, Renaissance Reinsurance Ltd., DaVinci Reinsurance Ltd., Renaissance Reinsurance of Europe Unlimited Company, RenaissanceRe Specialty U.S. Ltd. and Renaissance Reinsurance U.S. Inc., incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on January 3, 2018.
10.14(k)	Amendment to Facility Letter, dated December 31, 2018, by and among Citibank Europe plc, Renaissance Reinsurance Ltd., DaVinci Reinsurance Ltd., Renaissance Reinsurance of Europe Unlimited Company, RenaissanceRe Specialty U.S. Ltd. and Renaissance Reinsurance U.S. Inc., incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on January 3, 2019.
10.14(l)	Deed of Amendment and Accession, dated June 24, 2019, by and among Citibank Europe plc, Renaissance Reinsurance Ltd., DaVinci Reinsurance Ltd., RenaissanceRe Specialty U.S. Ltd., Renaissance Reinsurance of Europe, Renaissance Reinsurance U.S. Inc. and RenaissanceRe Europe AG, incorporated by reference to RenaissanceRe Holdings Ltd.'s Quarterly Report on Form 10-Q for the period ended June 30, 2019, filed with the SEC on July 25, 2019.
10.14(m)	Deed of Amendment to Facility Letter, dated December 31, 2019, by and among Citibank Europe plc, Renaissance Reinsurance Ltd., DaVinci Reinsurance Ltd., Renaissance Reinsurance of Europe, RenaissanceRe Specialty U.S. Ltd., Renaissance Reinsurance U.S. Inc. and RenaissanceRe Europe AG, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on January 3, 2020.

10.14(n)	Deed of Amendment to Facility Letter, dated December 31, 2020, by and among Citibank Europe plc, Renaissance Reinsurance Ltd., DaVinci Reinsurance Ltd., Renaissance Reinsurance of Europe, RenaissanceRe Specialty U.S. Ltd., Renaissance Reinsurance U.S. Inc. and RenaissanceRe Europe AG, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on January 5, 2021.
10.14(o)	Deed of Amendment to Facility Letter, dated December 21, 2021, by and among Citibank Europe plc, Renaissance Reinsurance Ltd., DaVinci Reinsurance Ltd., Renaissance Reinsurance of Europe Unlimited Company, RenaissanceRe Specialty U.S. Ltd., Renaissance Reinsurance U.S. Inc. and RenaissanceRe Europe AG, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on December 22, 2021.
10.15	Amended and Restated Letter of Credit Reimbursement Agreement, dated as of November 7, 2019, by and among Renaissance Reinsurance Ltd., as borrower, ING Bank N.V., London Branch, as agent and as lender, Bank of Montreal, London Branch, as a lender, and Citibank Europe plc, as a lender, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on November 12, 2019.
10.15(a)	First Amendment to Amended and Restated Letter of Credit Reimbursement Agreement, dated October 30, 2020, by and among Renaissance Reinsurance Ltd., as borrower, ING Bank N.V., London Branch, as agent and as a lender, Bank of Montreal, London Branch, as a lender, and Citibank Europe plc, as a lender, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on November 3, 2020.
10.15(b)	Second Amendment to Amended and Restated Letter of Credit Reimbursement Agreement, dated November 3, 2021, by and among Renaissance Reinsurance Ltd., as borrower, ING Bank N.V., London Branch, as agent and as a lender, Bank of Montreal, London Branch, as a lender, and Citibank Europe plc, as a lender, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on November 3, 2021.
10.16	Second Amended and Restated Credit Agreement, dated as of November 9, 2018, by and among RenaissanceRe Holdings Ltd., Renaissance Reinsurance Ltd., RenaissanceRe Specialty U.S. Ltd., Renaissance Reinsurance U.S. Inc., various banks and financial institutions parties thereto, and Wells Fargo Bank, National Association, as Fronting Bank, LC Administrator and Administrative Agent for the Lenders, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on November 14, 2018.
10.16(a)	Guaranty Agreement, dated as of November 9, 2018, by and among RenRe North America Holdings Inc., RenaissanceRe Finance Inc. and Wells Fargo Bank, National Association, as Administrative Agent, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on November 14, 2018.
10.16(b)	First Amendment to Loan Documents, dated June 11, 2019, by and among RenaissanceRe Holdings Ltd., Renaissance Reinsurance Ltd., RenaissanceRe Specialty U.S. Ltd., Renaissance Reinsurance U.S. Inc., various banks and financial institutions parties thereto, and Wells Fargo Bank, National Association, as Fronting Bank, LC Administrator, a Swingline Lender and Administrative Agent for the Lenders, incorporated by reference to RenaissanceRe Holdings Ltd.'s Quarterly Report on Form 10-Q for the period ended June 30, 2019, filed with the SEC on July 25, 2019.

10.17	Master Agreement for Issuance of Payment Instruments, dated March 22, 2019, between Renaissance Reinsurance Ltd., RenaissanceRe Specialty U.S. Ltd., Renaissance Reinsurance Inc., RenaissanceRe Europe AG and Citibank Europe plc., incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on March 25, 2019.
10.17(a)	Facility Letter for Issuance of Payment Instruments, dated March 22, 2019, by and among Renaissance Reinsurance Ltd., RenaissanceRe Specialty U.S. Ltd., Renaissance Reinsurance Inc., RenaissanceRe Europe AG and Citibank Europe plc., incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on March 25, 2019.
10.17(b)	Deed of Release, dated August 18, 2020, by and among Citibank Europe Plc, RenaissanceRe Holdings Ltd. and RenaissanceRe (UK) Ltd., incorporated by reference to RenaissanceRe Holdings Ltd.'s Quarterly Report on Form 10-Q for the period ended September 30, 2020, filed with the SEC on November 3, 2020.
10.18	Waiver, dated as of November 15, 2016, by and between RenaissanceRe Holdings Ltd. and BlackRock, Inc., incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on November 18, 2016.
10.19	Waiver, dated as of May 11, 2018, by and between RenaissanceRe Holdings Ltd. and The Vanguard Group, Inc., incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on May 16, 2018.
10.20+	Reserve Development Agreement, dated as of March 22, 2019, by and between Tokio Millennium Re AG, and Tokio Millennium Re (UK) Limited and Tokio Marine & Nichido Fire Insurance Co., Ltd., incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the Commission on March 22, 2019.
10.21+	Retrocession Agreement, dated as of March 22, 2019, by and between Tokio Millennium Re AG and Tokio Marine & Nichido Fire Insurance Co., Ltd., Incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the Commission on March 22, 2019i.
10.22	Amended and Restated Registration Rights Agreement, dated June 2, 2020, by and between RenaissanceRe Holdings Ltd. and State Farm Mutual Automobile Insurance, incorporated by reference to RenaissanceRe Holdings Ltd.'s Current Report on Form 8-K, filed with the SEC on June 5, 2020
21.1	List of Subsidiaries of the Registrant.
22.1	Issuers of Registered Guaranteed Debt Securities.
23.1	Consent of Ernst & Young Ltd.
31.1	Certification of Kevin J. O'Donnell, Chief Executive Officer of RenaissanceRe Holdings Ltd., pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended.
31.2	Certification of Robert Qutub, Chief Financial Officer of RenaissanceRe Holdings Ltd., pursuant to Rule 13a-14(a) or Rule 15d-14(a) of the Securities Exchange Act of 1934, as amended.
32.1	Certification of Kevin J. O'Donnell, Chief Executive Officer of RenaissanceRe Holdings Ltd., pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification of Robert Qutub, Chief Financial Officer of RenaissanceRe Holdings Ltd., pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

101.INS Inline XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
101.SCH Inline XBRL Taxonomy Extension Schema Document
101.CAL Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE Inline XBRL Taxonomy Extension Presentation Linkbase Document
101.DEF Inline XBRL Taxonomy Extension Definition Linkbase Document
104 Cover Page Interactive Data File (embedded within the Inline XBRL document and included in Exhibit 101)

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* Represents management contract or compensatory plan or arrangement.
** Applicable to Stephen H. Weinstein and Ian D. Branagan.
*** Applicable to Ross A. Curtis and Robert Qutub.
+ Certain schedules have been omitted pursuant to Item 601(b)(2) of Regulation S-K. The Company hereby undertakes to furnish supplemental copies of any of the omitted schedules upon request by the SEC.

ITEM 16. FORM 10-K SUMMARY

Not applicable.

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.

Date:	February 4, 2022	**RENAISSANCERE HOLDINGS LTD.**
		/s/ Kevin J. O'Donnell
		Kevin J. O'Donnell
		Chief Executive Officer and 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.

Signature	Title	Date
/s/ Kevin J. O'Donnell Kevin J. O'Donnell	Chief Executive Officer, President and Director (Principal Executive Officer)	February 4, 2022
/s/ Robert Qutub Robert Qutub	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 4, 2022
/s/ James C. Fraser James C. Fraser	Senior Vice President and Chief Accounting Officer (Principal Accounting Officer)	February 4, 2022
/s/ James L. Gibbons James L. Gibbons	Non-Executive Chair of the Board of Directors	February 4, 2022
/s/ David C. Bushnell David C. Bushnell	Director	February 4, 2022
/s/ Brian G. J. Gray Brian G. J. Gray	Director	February 4, 2022
/s/ Jean D. Hamilton Jean D. Hamilton	Director	February 4, 2022
/s/ Duncan P. Hennes Duncan P. Hennes	Director	February 4, 2022
/s/ Henry Klehm, III Henry Klehm, III	Director	February 4, 2022
/s/ Valerie Rahmani Valerie Rahmani	Director	February 4, 2022
/s/ Carol P. Sanders Carol P. Sanders	Director	February 4, 2022
/s/ Anthony M. Santomero Anthony M. Santomero	Director	February 4, 2022
/s/ Cynthia Trudell Cynthia Trudell	Director	February 4, 2022

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of RenaissanceRe Holdings Ltd.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of RenaissanceRe Holdings Ltd. and subsidiaries (the Company) as of December 31, 2021 and 2020, the related consolidated statements of operations, comprehensive income (loss), changes in shareholders' equity and cash flows for each of the three years in the period ended December 31, 2021, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2021 and 2020, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2021, in conformity with 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, 2021, 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 4, 2022, expressed an unqualified opinion thereon.

Basis for Opinion

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

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

Critical Audit Matters

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

Valuation of Reserve for Incurred But Not Reported Claim Reserves

Description of the Matter

At December 31, 2021, the liability for incurred but not reported (IBNR) claim reserves, including additional case reserves (ACR) (collectively referred to as IBNR claim reserves) represented $9,955 million of the total $13,295 million of reserves for claims and claim expenses. The IBNR claim reserves for the property segment was $4,823 million and for the casualty and specialty segment was $5,132 million. As disclosed in Notes 2 and 8 of the consolidated financial statements, reserves for claims and claim expenses represent estimates that are established by management based on actuarial and statistical projections at a given point in time, of the ultimate settlement and administration costs for unpaid claims and claim expenses arising from the insurance and reinsurance contracts the Company sells for both their casualty and specialty segment and their property segment.

There is significant uncertainty inherent in estimating IBNR claim reserves. In determining management's estimate of the IBNR claim reserves for the casualty and specialty segment, management's analysis includes consideration of loss development patterns; historical ultimate loss ratios; and the presence of individual large losses. In particular, the estimate is sensitive to the selection and weighting of actuarial methods, expected trends in claim severity and frequency, the time lag inherent in reporting information and industry or event trends. In determining management's estimate of the ultimate loss settlement costs which is used to determine the IBNR claim reserves for the property segment, which generally involve catastrophic events, management's analysis includes available information derived from claims information from certain customers and brokers, industry assessments of losses from the events, proprietary models, and the terms and conditions of the Company's contracts. In particular, the estimate is sensitive to the preliminary nature of the information available, the magnitude and relative infrequency of the events, the expected duration of the respective claims development period, inadequacies in the data provided to the relevant date by industry participants and the potential for further reporting lags or insufficiencies, and in certain large events, significant uncertainty as to the form of the claims and legal issues under the relevant terms of insurance and reinsurance contracts.

Auditing management's estimate for IBNR claim reserves was complex and required the involvement of our actuarial specialists due to the high degree of subjectivity inherent in management's methods and assumptions used in the calculations which have a significant effect on the valuation of the reserves.

How We Addressed the Matter in Our Audit

We obtained an understanding, evaluated the design and tested the operating effectiveness of the relevant controls over the estimation process for IBNR claim reserves. This included, among others, evaluating management's review controls over the actuarial methods selected to determine the estimate and the assumptions and methods used for the Company's determination of their recorded estimate.

To test the IBNR claim reserves that are included in claims and claim expense reserves, our audit procedures included, among others, utilizing the assistance of actuarial specialists. Our actuarial specialists evaluated the selection of standard reserving methods applied, considering the methods used in prior periods and those applied in the broader insurance industry. To evaluate the significant assumptions used by management in the reserving methods for the casualty and specialty segment, we compared the significant assumptions, including loss development patterns, ultimate loss ratios, and the impact of individual large losses, to company experience and current industry benchmarks. To evaluate the significant assumptions used by management in their actuarial methods in the property segment we compared the significant assumptions, including the severity of industry losses by event and development patterns, to current industry benchmarks such as incurred to ultimate loss ratios and industry loss levels. In addition, for casualty, specialty and property claims and claims expense reserves, we developed a range of reasonable reserve estimates including performing independent projections for a significant portion of the Company's classes of business and compared the range of reserve estimates to the Company's recorded claims and claim expense reserves.

/s/ Ernst & Young Ltd.

We have served as the Company's auditor since 1993.
Hamilton, Bermuda
February 4, 2022

RenaissanceRe Holdings Ltd. and Subsidiaries
Consolidated Balance Sheets
At December 31, 2021 and 2020
(in thousands of United States Dollars, except share and per share amounts)

	December 31, 2021	December 31, 2020
Assets		
Fixed maturity investments trading, at fair value - amortized cost $13,552,579 at December 31, 2021 (2020 - $13,155,035) (Notes 5 and 6)	$ 13,507,131	$ 13,506,503
Short term investments, at fair value (Notes 5 and 6)	5,298,385	4,993,735
Equity investments trading, at fair value (Notes 5 and 6)	546,016	702,617
Other investments, at fair value (Notes 5 and 6)	1,993,059	1,256,948
Investments in other ventures, under equity method (Note 5)	98,068	98,373
Total investments	21,442,659	20,558,176
Cash and cash equivalents	1,859,019	1,736,813
Premiums receivable (Note 7)	3,781,542	2,894,631
Prepaid reinsurance premiums (Note 7)	854,722	823,582
Reinsurance recoverable (Notes 7 and 8)	4,268,669	2,926,010
Accrued investment income	55,740	66,743
Deferred acquisition costs and value of business acquired	849,160	633,521
Receivable for investments sold	380,442	568,293
Other assets	224,053	363,170
Goodwill and other intangible assets (Note 4)	243,496	249,641
Total assets	$ 33,959,502	$ 30,820,580
Liabilities, Noncontrolling Interests and Shareholders' Equity		
Liabilities		
Reserve for claims and claim expenses (Note 8)	$ 13,294,630	$ 10,381,138
Unearned premiums	3,531,213	2,763,599
Debt (Note 9)	1,168,353	1,136,265
Reinsurance balances payable	3,860,963	3,488,352
Payable for investments purchased	1,170,568	1,132,538
Other liabilities	755,441	970,121
Total liabilities	23,781,168	19,872,013
Commitments and Contingencies (Note 20)		
Redeemable noncontrolling interests (Note 10)	3,554,053	3,388,319
Shareholders' Equity (Note 12)		
Preference shares: $1.00 par value – 30,000 shares issued and outstanding at December 31, 2021 (2020 – 11,010,000)	750,000	525,000
Common shares: $1.00 par value – 44,444,831 shares issued and outstanding at December 31, 2021 (2020 – 50,810,618)	44,445	50,811
Additional paid-in capital	608,121	1,623,206
Accumulated other comprehensive income (loss)	(10,909)	(12,642)
Retained earnings	5,232,624	5,373,873
Total shareholders' equity attributable to RenaissanceRe	6,624,281	7,560,248
Total liabilities, noncontrolling interests and shareholders' equity	$ 33,959,502	$ 30,820,580

See accompanying notes to the consolidated financial statements

RenaissanceRe Holdings Ltd. and Subsidiaries
Consolidated Statements of Operations
For the years ended December 31, 2021, 2020, and 2019
(in thousands of United States Dollars, except per share amounts)

	2021	2020	2019
Revenues			
Gross premiums written (Note 7)	$ 7,833,798	$ 5,806,165	$ 4,807,750
Net premiums written (Note 7)	$ 5,939,375	$ 4,096,333	$ 3,381,493
Increase in unearned premiums	(745,194)	(143,871)	(43,090)
Net premiums earned (Note 7)	5,194,181	3,952,462	3,338,403
Net investment income (Note 5)	319,479	354,038	424,207
Net foreign exchange gains (losses)	(41,006)	27,773	(2,938)
Equity in earnings of other ventures (Note 5)	12,309	17,194	23,224
Other income	10,880	213	4,949
Net realized and unrealized gains (losses) on investments (Note 5)	(218,134)	820,636	414,109
Total revenues	5,277,709	5,172,316	4,201,954
Expenses			
Net claims and claim expenses incurred (Notes 7 and 8)	3,876,087	2,924,609	2,097,021
Acquisition expenses	1,214,858	897,677	762,232
Operational expenses	212,184	206,687	222,733
Corporate expenses	41,152	96,970	94,122
Interest expense (Note 9)	47,536	50,453	58,364
Total expenses	5,391,817	4,176,396	3,234,472
Income (loss) before taxes	(114,108)	995,920	967,482
Income tax benefit (expense) (Note 15)	10,668	(2,862)	(17,215)
Net income (loss)	(103,440)	993,058	950,267
Net (income) loss attributable to redeemable noncontrolling interests (Note 10)	63,285	(230,653)	(201,469)
Net income (loss) attributable to RenaissanceRe	(40,155)	762,405	748,798
Dividends on preference shares (Note 12)	(33,266)	(30,923)	(36,756)
Net income (loss) available (attributable) to RenaissanceRe common shareholders	$ (73,421)	$ 731,482	$ 712,042
Net income (loss) available (attributable) to RenaissanceRe common shareholders per common share – basic (Note 13)	$ (1.57)	$ 15.34	$ 16.32
Net income (loss) available (attributable) to RenaissanceRe common shareholders per common share – diluted (Note 13)	$ (1.57)	$ 15.31	$ 16.29

See accompanying notes to the consolidated financial statements

RenaissanceRe Holdings Ltd. and Subsidiaries
Consolidated Statements of Comprehensive Income (Loss)
For the years ended December 31, 2021, 2020 and 2019
(in thousands of United States Dollars)

	2021	2020	2019
Comprehensive income (loss)			
Net income (loss)	$ (103,440)	$ 993,058	$ 950,267
Change in net unrealized gains (losses) on investments, net of tax	(2,492)	606	2,173
Foreign currency translation adjustments, net of tax	4,225	(11,309)	(2,679)
Comprehensive income (loss)	(101,707)	982,355	949,761
Net (income) loss attributable to redeemable noncontrolling interests	63,285	(230,653)	(201,469)
Comprehensive income (loss) attributable to redeemable noncontrolling interests	63,285	(230,653)	(201,469)
Comprehensive income (loss) attributable to RenaissanceRe	$ (38,422)	$ 751,702	$ 748,292

See accompanying notes to the consolidated financial statements

RenaissanceRe Holdings Ltd. and Subsidiaries
Consolidated Statements of Changes in Shareholders' Equity
For the years ended December 31, 2021, 2020 and 2019
(in thousands of United States Dollars)

	2021	2020	2019
Preference shares			
Balance – January 1	$ 525,000	$ 650,000	$ 650,000
Issuance of shares (Note 12)	500,000	—	—
Repurchase of shares (Note 12)	(275,000)	(125,000)	—
Balance – December 31	750,000	525,000	650,000
Common shares			
Balance – January 1	50,811	44,148	42,207
Issuance of shares (Note 12)	—	6,777	1,739
Repurchase of shares (Note 12)	(6,579)	(406)	—
Exercise of options and issuance of restricted stock awards (Notes 12 and 17)	213	292	202
Balance – December 31	44,445	50,811	44,148
Additional paid-in capital			
Balance – January 1	1,623,206	568,277	296,099
Issuance of shares (Note 12)	—	1,088,730	248,259
Repurchase of shares (Note 12)	(1,024,751)	(62,215)	—
Offering expenses (Note 12)	(11,347)	—	—
Change in redeemable noncontrolling interest	(6,994)	(334)	(342)
Exercise of options and issuance of restricted stock awards (Notes 12 and 17)	28,007	28,748	24,261
Balance – December 31	608,121	1,623,206	568,277
Accumulated other comprehensive income (loss)			
Balance – January 1	(12,642)	(1,939)	(1,433)
Change in net unrealized gains (loss) on investments, net of tax	(2,492)	606	2,173
Foreign currency translation adjustments, net of tax	4,225	(11,309)	(2,679)
Balance – December 31	(10,909)	(12,642)	(1,939)
Retained earnings			
Balance – January 1	5,373,873	4,710,881	4,058,207
Net income (loss)	(103,440)	993,058	950,267
Net (income) loss attributable to redeemable noncontrolling interests (Note 10)	63,285	(230,653)	(201,469)
Dividends on common shares (Note 12)	(67,828)	(68,490)	(59,368)
Dividends on preference shares (Note 12)	(33,266)	(30,923)	(36,756)
Balance – December 31	5,232,624	5,373,873	4,710,881
Total shareholders' equity	$ 6,624,281	$ 7,560,248	$ 5,971,367

See accompanying notes to the consolidated financial statements

RenaissanceRe Holdings Ltd. and Subsidiaries
Consolidated Statements of Cash Flows
For the years ended December 31, 2021, 2020 and 2019
(in thousands of United States Dollars)

	2021	2020	2019
Cash flows provided by (used in) operating activities			
Net income (loss)	$ (103,440)	$ 993,058	$ 950,267
Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities			
Amortization, accretion and depreciation	(20,989)	16,652	(58,964)
Equity in undistributed (earnings) losses of other ventures	13,200	1,561	(762)
Net realized and unrealized (gains) losses on investments	205,897	(820,636)	(414,109)
Loss on sale of RenaissanceRe UK	—	30,242	—
Change in:			
Premiums receivable	(886,911)	(293,581)	(424,973)
Prepaid reinsurance premiums	(31,140)	(55,801)	(11,798)
Reinsurance recoverable	(1,342,659)	(138,361)	129,665
Deferred acquisition costs	(215,639)	30,442	118,676
Reserve for claims and claim expenses	2,913,492	1,155,615	900,562
Unearned premiums	767,614	232,949	51,343
Reinsurance balances payable	372,611	662,281	658,532
Other	(437,221)	178,314	238,756
Net cash provided by (used in) operating activities	1,234,815	1,992,735	2,137,195
Cash flows provided by (used in) investing activities			
Proceeds from sales and maturities of fixed maturity investments trading	15,543,565	15,186,952	17,313,940
Purchases of fixed maturity investments trading	(15,680,351)	(16,836,538)	(17,919,343)
Net sales (purchases) of equity investments trading	206,595	829	(7,841)
Net sales (purchases) of short term investments	(252,833)	(581,473)	(1,900,741)
Net sales (purchases) of other investments	(617,782)	(216,760)	(202,878)
Net sales (purchases) of investments in other ventures	(23,835)	(3,698)	(2,717)
Return of investment from investment in other ventures	8,345	9,255	11,250
Net sales (purchases) of other assets	—	—	(4,108)
Net proceeds from sale of RenaissanceRe UK	—	136,744	—
Net purchase of TMR	—	—	(276,206)
Net cash provided by (used in) investing activities	(816,296)	(2,304,689)	(2,988,644)
Cash flows provided by (used in) financing activities			
Dividends paid – RenaissanceRe common shares	(67,828)	(68,490)	(59,368)
Dividends paid – preference shares	(32,889)	(30,923)	(36,756)
RenaissanceRe common share repurchases	(1,027,505)	(62,621)	—
RenaissanceRe common share issuance	—	1,095,507	—
Issuance of debt, net of expenses	—	—	396,411
Repayment of debt	—	(250,000)	—
Drawdown of Medici Revolving Credit Facility	30,000	—	—
Redemption of preference shares	(275,000)	(125,000)	—
Issuance of preference shares, net of expenses	488,653	—	—
Net third-party redeemable noncontrolling interest share transactions	594,279	119,071	827,083
Taxes paid on withholding shares	(12,171)	(12,330)	(7,253)
Net cash provided by (used in) financing activities	(302,461)	665,214	1,120,117
Effect of exchange rate changes on foreign currency cash	6,148	4,485	2,478
Net increase (decrease) in cash and cash equivalents	122,206	357,745	271,146
Cash and cash equivalents, beginning of year	1,736,813	1,379,068	1,107,922
Cash and cash equivalents, end of year	$ 1,859,019	$ 1,736,813	$ 1,379,068
Supplemental disclosure of cash flow information			
Income taxes paid (refunded)	$ (4,261)	$ 5,668	$ 9,749
Interest paid	$ 21,172	$ 48,805	$ 53,220

See accompanying notes to the consolidated financial statements

(unless otherwise noted, amounts in tables expressed in thousands of United States ("U.S.") dollars, except per share amounts and percentages)

NOTE 1. ORGANIZATION

RenaissanceRe Holdings Ltd. ("RenaissanceRe" or the "Company") was formed under the laws of Bermuda on June 7, 1993. Together with its wholly owned and majority-owned subsidiaries, joint ventures and managed funds, the Company provides property, casualty and specialty reinsurance and certain insurance solutions to its customers.

- Renaissance Reinsurance Ltd. ("Renaissance Reinsurance"), a Bermuda-domiciled reinsurance company, is the Company's principal reinsurance subsidiary and provides property, casualty and specialty reinsurance coverages to insurers and reinsurers on a worldwide basis.
- Renaissance Reinsurance U.S. Inc. ("Renaissance Reinsurance U.S.") is a reinsurance company domiciled in the state of Maryland that provides property, casualty and specialty reinsurance coverages to insurers and reinsurers, primarily in the Americas.
- RenaissanceRe Syndicate 1458 ("Syndicate 1458") is the Company's Lloyd's syndicate. RenaissanceRe Corporate Capital (UK) Limited ("RenaissanceRe CCL"), a wholly owned subsidiary of RenaissanceRe, is Syndicate 1458's sole corporate member. RenaissanceRe Syndicate Management Ltd. ("RSML"), a wholly owned subsidiary of RenaissanceRe, is the managing agent for Syndicate 1458.
- RenaissanceRe Europe AG ("RREAG"), a Swiss-domiciled reinsurance company, which has branches in Australia, Bermuda, the U.K. and the U.S., provides property, casualty and specialty reinsurance coverages to insurers and reinsurers on a worldwide basis.
- RenaissanceRe Specialty U.S. Ltd. ("RenaissanceRe Specialty U.S."), a Bermuda-domiciled insurer, which operates subject to U.S. federal income tax.
- DaVinci Reinsurance Ltd. ("DaVinci"), a wholly-owned subsidiary of DaVinciRe Holdings Ltd. ("DaVinciRe"), is a managed joint venture formed by the Company to principally write property catastrophe reinsurance and certain casualty and specialty reinsurance lines of business on a global basis.
- Top Layer Reinsurance Ltd. ("Top Layer Re") is a managed joint venture formed by the Company to write high excess non-U.S. property catastrophe reinsurance.
- RenaissanceRe Underwriting Managers U.S. LLC, is licensed as a reinsurance intermediary broker in the State of Connecticut and underwrites specialty treaty reinsurance solutions on both a quota share and excess of loss basis on behalf of affiliates.
- Renaissance Underwriting Managers, Ltd. ("RUM"), a wholly owned subsidiary of RenaissanceRe, acts as exclusive underwriting manager for certain of our joint ventures or managed funds in return for fee-based income and profit participation.
- RenaissanceRe Fund Management Ltd. ("RFM") is a wholly-owned Bermuda exempted company and acts as the exclusive investment fund manager for several of the Company's joint ventures or managed funds, in return for a management fee, a performance fee, or both. RFM is registered as an Exempt Reporting Adviser with the Securities and Exchange Commission and serves as the investment adviser to third-party investors in the various private investment partnerships and insurance-related investment products offered by the Company.
- RenaissanceRe Medici Fund Ltd. ("Medici") is an exempted company, incorporated in Bermuda and registered as an institutional fund. Medici invests, primarily on behalf of third-party investors, in various instruments that have returns primarily tied to property catastrophe risk.
- Upsilon RFO Re Ltd. ("Upsilon RFO"), an exempted company incorporated in Bermuda and registered as a segregated accounts company and as a collateralized insurer, is a managed fund

formed by the Company principally to provide additional capacity to the worldwide aggregate and per-occurrence primary and retrocessional property catastrophe excess of loss market.

- RenaissanceRe Upsilon Fund Ltd., an exempted company incorporated in Bermuda and registered as a segregated accounts company and a Class A Professional Fund, provides a fund structure through which third-party investors can invest in reinsurance risk managed by the Company.
- Vermeer Reinsurance Ltd. ("Vermeer"), an exempted company incorporated in Bermuda and registered as a Class 3B insurer, provides capacity focused on risk remote layers in the U.S. property catastrophe market. The Company maintains a majority voting control of Vermeer, while Stichting Pensioenfonds Zorg en Welzijn ("PFZW"), a pension fund represented by PGGM Vermogensbeheer B.V., a Dutch pension fund manager, retains economic benefits.
- Mona Lisa Re Ltd. ("Mona Lisa Re"), a Bermuda domiciled SPI, provides reinsurance capacity to subsidiaries of RenaissanceRe, namely Renaissance Reinsurance and DaVinci, through reinsurance agreements which are collateralized and funded by Mona Lisa Re through the issuance of one or more series of principal-at-risk variable rate notes.
- Fibonacci Reinsurance Ltd. ("Fibonacci Re"), an exempted company incorporated in Bermuda and registered as a special purpose insurer ("SPI"), provides collateralized capacity to Renaissance Reinsurance and its affiliates. Fibonacci Re raises capital from third-party investors and the Company, via private placements of participating notes which are listed on the Bermuda Stock Exchange.
- The Company and Reinsurance Group of America, Incorporated are engaged in an initiative ("Langhorne") to source third-party capital to support reinsurers targeting large in-force life and annuity blocks. Langhorne Holdings LLC ("Langhorne Holdings") was incorporated to own and manage certain reinsurance entities within Langhorne. Langhorne Partners LLC ("Langhorne Partners") is the general partner for Langhorne and manages the third-parties investing in Langhorne Holdings.
- Following the acquisition of Tokio Millennium Re AG and certain associated entities and subsidiaries (collectively, "TMR") on March 22, 2019, the Company managed Shima Reinsurance Ltd. ("Shima Re"), Norwood Re Ltd. ("Norwood Re") and Blizzard Re Ltd. ("Blizzard," together with Shima Re and Norwood Re, the "TMR managed third-party capital vehicles"), which provided third-party investors with access to reinsurance risk. The TMR managed third-party capital vehicles no longer write new business. The Company ceased providing management services to Blizzard effective November 1, 2020, and to Shima Re and Norwood Re effective December 1, 2020.

NOTE 2. SIGNIFICANT ACCOUNTING POLICIES

BASIS OF PRESENTATION

These consolidated financial statements have been prepared on the basis of accounting principles generally accepted in the United States ("GAAP"). All significant intercompany accounts and transactions have been eliminated from these statements.

Certain comparative information has been reclassified to conform to the current presentation.

USE OF ESTIMATES IN FINANCIAL STATEMENTS

The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported and disclosed amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ materially from those estimates. The major estimates reflected in the Company's consolidated financial statements include, but are not limited to, the reserve for claims and claim expenses; reinsurance recoverable and premiums receivable, including provisions for reinsurance recoverable and premiums receivable to reflect expected credit losses; estimates of written and earned premiums; fair value, including the fair value of investments, financial instruments and derivatives; impairment charges; deferred acquisition costs, and the Company's deferred tax valuation allowance.

PREMIUMS AND RELATED EXPENSES

Premiums are recognized as income, net of any applicable reinsurance or retrocessional coverage purchased, over the terms of the related contracts and policies. Premiums written are based on contract and policy terms and include estimates based on information received from both insureds and ceding companies. Subsequent differences arising on such estimates are recorded in the period in which they are determined. Unearned premiums represent the portion of premiums written that relate to the unexpired terms of contracts and policies in force. Amounts are computed by pro rata methods based on statistical data or reports received from ceding companies. Reinstatement premiums are estimated after the occurrence of a significant loss and are recorded in accordance with the contract terms based upon paid losses and case reserves. Reinstatement premiums are earned when written.

Acquisition costs are incurred when a contract or policy is issued and only the costs directly related to the successful acquisition of new and renewal contract or policies are deferred and amortized over the same period in which the related premiums are earned. Acquisition costs consist principally of commissions, brokerage and premium tax expenses. Certain of our assumed contracts contain profit sharing provisions or adjustable commissions that are estimated based on the expected loss and loss adjustment expense on those contracts. Acquisition costs include accruals for such estimates of commissions and are shown net of commissions and profit commissions earned on ceded reinsurance. Deferred policy acquisition costs are limited to their estimated realizable value based on the related unearned premiums. Anticipated claims and claim expenses, based on historical and current experience, and anticipated investment income related to those premiums are considered in determining the recoverability of deferred acquisition costs.

CLAIMS AND CLAIM EXPENSES

The reserve for claims and claim expenses includes estimates for unpaid claims and claim expenses on reported losses as well as an estimate of losses incurred but not reported. The reserve is based on individual claims, case reserves and other reserve estimates reported by insureds and ceding companies as well as management estimates of ultimate losses. Inherent in the estimates of ultimate losses are expected trends in claim severity and frequency and other factors which could vary significantly as claims are settled. Also, the Company does not have the benefit of a significant amount of its own historical experience in certain casualty and specialty and insurance lines of business. Accordingly, the reserving for incurred losses in these lines of business could be subject to greater variability.

Ultimate losses may vary materially from the amounts provided in the consolidated financial statements. These estimates are reviewed regularly and, as experience develops and new information becomes known, the reserves are adjusted as necessary. Such adjustments, if any, are reflected in the consolidated statements of operations in the period in which they become known and are accounted for as changes in estimates.

REINSURANCE

Amounts recoverable from reinsurers are estimated in a manner consistent with the claim liability associated with the reinsured policies. For multi-year retrospectively rated contracts, the Company accrues amounts (either assets or liabilities) that are due to or from assuming companies based on estimated contract experience. If the Company determines that adjustments to earlier estimates are appropriate, such adjustments are recorded in the period in which they are determined. Reinsurance recoverable on dual trigger reinsurance contracts require the Company to estimate its ultimate losses applicable to these contracts as well as estimate the ultimate amount of insured industry losses that will be reported by the applicable statistical reporting agency, as per the contract terms. Amounts recoverable from reinsurers are recorded net of a provision for current expected credit losses to reflect expected credit losses.

Assumed and ceded reinsurance contracts that lack significant transfer of risk are treated as deposits.

Certain assumed and ceded reinsurance contracts that do not meet all of the criteria to be accounted for as reinsurance in accordance with Financial Accounting Standards Board (“FASB”) Accounting Standards Codification (“ASC”) Topic *Financial Services - Insurance* have been accounted for at fair value under the fair value option in accordance with FASB ASC Topic *Financial Instruments.*

INVESTMENTS

Fixed Maturity Investments

Investments in fixed maturities are classified as trading and are reported at fair value. Investment transactions are recorded on the trade date with balances pending settlement reflected in the balance sheet as a receivable for investments sold or a payable for investments purchased. Net investment income includes interest and dividend income together with amortization of market premiums and discounts and is net of investment management and custody fees. The amortization of premium and accretion of discount for fixed maturity securities is computed using the effective yield method. For mortgage-backed securities and other holdings for which there is prepayment risk, prepayment assumptions are evaluated quarterly and revised as necessary. Any adjustments required due to the change in effective yields and maturities are recognized on a prospective basis through yield adjustments. Fair values of investments are based on quoted market prices, or when such prices are not available, by reference to broker or underwriter bid indications and/or internal pricing valuation techniques. The net unrealized appreciation or depreciation on fixed maturity investments trading is included in net realized and unrealized gains (losses) on investments in the consolidated statements of operations. Realized gains or losses on the sale of investments are determined on the basis of the first in first out cost method.

Short Term Investments

Short term investments, which are managed as part of the Company's investment portfolio and have a maturity of one year or less when purchased, are carried at fair value. The net unrealized appreciation or depreciation on short term investments is included in net realized and unrealized gains (losses) on investments in the consolidated statements of operations.

Equity Investments, Classified as Trading

Equity investments are accounted for at fair value in accordance with FASB ASC Topic *Financial Instruments.* Fair values are primarily priced by pricing services, reflecting the closing price quoted for the final trading day of the period. Net investment income includes dividend income and the net realized and unrealized appreciation or depreciation on equity investments is included in net realized and unrealized gains (losses) on investments in the consolidated statements of operations.

Other Investments

The Company accounts for its other investments at fair value in accordance with FASB ASC Topic *Financial Instruments* with interest and dividend income included in net investment income. Realized and unrealized gains and losses on other investments are included in net realized and unrealized gains (losses) on investments. The fair value of the Company's fund investments, which include private equity funds, private credit funds and hedge funds, is generally established on the basis of the net asset value ("NAV") per share (or its equivalent) established by the managers of such fund investments, if applicable. The net asset value established by the managers of such fund investments is determined in accordance with the governing documents of such fund investments. The Company applies the practical expedient provided by the FASB ASC Topic *Financial Instruments* relating to investments in certain entities that calculate NAV per share (or its equivalent) and therefore measure the fair value of the fund investments based on that NAV per share, or its equivalent. Fund investments are recorded on the consolidated balance sheet in other investments. Fund investments which are valued using NAV per share as a practical expedient are not categorized within the fair value hierarchy.

Certain of the Company's fund managers, fund administrators, or both, are unable to provide final fund valuations as of the Company's current reporting date. The typical reporting lag experienced by the Company to receive a final net asset value report is one month for hedge funds and certain private credit funds and three months for private equity funds and private credit funds. In the past, in respect of certain of the funds, the Company has, on occasion, experienced delays of up to six months at year end, as the funds typically complete their respective year-end audits before releasing their final net asset value statements.

In circumstances where there is a reporting lag between the current period end reporting date and the reporting date of the latest fund valuation, the Company estimates the fair value of these funds by starting with the prior month or quarter-end fund valuations, adjusting these valuations for actual capital calls, redemptions or distributions, as well as the impact of changes in foreign currency exchange rates, and then estimating the return for the current period. In circumstances in which the Company estimates the return for the current period, all information available to the Company is utilized. This principally includes using preliminary estimates reported to the Company by its fund managers, estimating returns based on the performance of broad market indices or other valuation methods, where necessary. Actual final fund valuations may differ, perhaps materially so, from the Company's estimates and these differences are recorded in the Company's statement of operations in the period in which they are reported to the Company as a change in estimate.

The Company's other investments also include investments in catastrophe bonds, direct private equity investments and term loans which are recorded at fair value. The fair value of catastrophe bonds is based on broker or underwriter bid indications. The fair value of direct private equity investments is based on the use of internal valuation models and the fair value of term loans are based on discounted cash flow valuation model.

Investments in Other Ventures, Under Equity Method

Investments in which the Company has significant influence over the operating and financial policies of the investee are classified as investments in other ventures, under equity method, and are accounted for under the equity method of accounting. Under this method, the Company records its proportionate share of income or loss from such investments in its results for the period. If the Company's proportionate share of loss from such investment is in excess of the carrying value of such investment, the company discontinues applying the equity method when the carrying value of the investment is reduced to zero, unless the Company has committed to provide further financial support to the investee. If the investee subsequently reports net income, the Company resumes applying the equity method only after its proportionate share of net income equals the proportionate share of net losses not recognized during the period the equity method was suspended. Any decline in value of investments in other ventures, under equity method considered by management to be other-than-temporary is charged to income in the period in which it is determined.

CASH AND CASH EQUIVALENTS

Cash equivalents include money market instruments with a maturity of ninety days or less when purchased.

STOCK INCENTIVE COMPENSATION

The Company is authorized to issue restricted stock awards and units, performance shares, stock options and other equity-based awards to its employees and directors. The fair value of the compensation cost is measured at the grant date and expensed over the period for which the employee or director is required to provide services in exchange for the award.

In addition, the Company is authorized to issue cash settled restricted stock units ("CSRSU") to its employees. The fair value of CSRSUs is determined using the fair market value of RenaissanceRe common shares at the end of each reporting period and is expensed over the period for which the employee is required to provide service in exchange for the award. The fair value of these awards is recorded on the Company's consolidated balance sheet as a liability as it is expensed until the point payment is made to the employee.

The Company has elected to recognize forfeitures as they occur rather than estimating service-based forfeitures over the requisite service period.

DERIVATIVES

From time to time, the Company enters into derivative instruments such as futures, options, swaps, forward contracts and other derivative contracts primarily to manage its foreign currency exposure, obtain exposure to a particular financial market, for yield enhancement, or for trading and to assume risk. The Company accounts for its derivatives in accordance with FASB ASC Topic *Derivatives and Hedging*, which requires all derivatives to be recorded at fair value on the Company's balance sheet as either assets or liabilities, depending on their rights or obligations, with changes in fair value reflected in current earnings. Commencing in 2019, the Company elected to adopt hedge accounting for certain of its derivative instruments used as hedges of a net investment in a foreign operation, as discussed below. The fair value of the Company’s derivatives is estimated by reference to quoted prices or broker quotes, where available, or in the absence of quoted prices or broker quotes, the use of industry or internal valuation models.

Hedges of a Net Investment in a Foreign Operation

Changes in the fair value of derivative instruments used to hedge the net investment in a foreign operation, to the extent effective as a hedge, are recorded as a component of accumulated other comprehensive income (loss) in foreign currency translation adjustments, net of tax. Cumulative changes in fair value recorded in accumulated other comprehensive income (loss) are reclassified into earnings upon the sale, or complete or substantially complete liquidation, of the foreign operation. Any hedge ineffectiveness is recorded immediately in current period earnings as net foreign exchange gains (losses).

Hedge Documentation and Effectiveness Testing

To qualify for hedge accounting treatment, a derivative must be highly effective in mitigating the designated changes in value or cash flow of the hedged item. At the inception of a hedge, the Company formally documents relationships between hedging instruments and hedged items, as well as its risk management objective and strategy for undertaking each hedge transaction. The documentation process includes linking derivatives that are designated as net investment hedges to specific assets or liabilities on the consolidated balance sheet. The Company also formally assesses, both at the hedge's inception and on an ongoing basis, whether the derivatives that are used in hedging transactions are highly effective in offsetting changes in the net investment in a foreign operation. The Company will discontinue hedge accounting prospectively if it determines that the derivative is no longer highly effective in offsetting changes in the net investment in a foreign operation, the derivative is no longer designated as a hedging instrument, or the derivative expires or is sold, terminated or exercised. If hedge accounting is discontinued, the derivative continues to be carried at fair value on the consolidated balance sheet with changes in its fair value recognized in current period earnings through net realized and unrealized gains (losses) on investments.

FAIR VALUE OPTION

The Company has elected to account for certain of its assets and liabilities at fair value in accordance with FASB ASC Topic *Fair Value Measurement*s *and Disclosures*. The Company recognizes the change in unrealized gains and losses arising from changes in fair value in its statements of operations.

BUSINESS COMBINATIONS, GOODWILL AND OTHER INTANGIBLE ASSETS

The Company accounts for business combinations in accordance with FASB ASC Topic *Business Combinations*, and goodwill and other intangible assets that arise from business combinations in accordance with FASB ASC Topic *Intangibles – Goodwill and Other*. A purchase price that is in excess of the fair value of the net assets acquired arising from a business combination is recorded as goodwill, and is not amortized. Other intangible assets with a finite life are amortized over the estimated useful life of the asset. Other intangible assets with an indefinite useful life are not amortized.

Goodwill and other indefinite life intangible assets are tested for impairment on an annual basis or more frequently if events or changes in circumstances indicate that the carrying amount may not be recoverable. Finite life intangible assets are reviewed for indicators of impairment on an annual basis or more frequently if events or changes in circumstances indicate that the carrying amount may not be recoverable, and tested for impairment if appropriate. For purposes of the annual impairment evaluation, goodwill is assigned to the applicable reporting unit of the acquired entities giving rise to the goodwill. Goodwill and other intangible assets recorded in connection with investments accounted for under the equity method, are recorded as “Investments in other ventures, under equity method” on the Company’s consolidated balance sheets.

The Company has established the third and fourth quarters of the year as the period for performing its annual impairment tests. Upon further assessment, the Company may determine to perform additional impairment testing later in the year if it is deemed necessary. The Company has elected to use the option to first assess qualitative factors to determine whether it is necessary to perform the quantitative goodwill impairment test. Under this option, the Company is not required to calculate the fair value of a reporting unit unless the Company determines, based on its qualitative assessment, that it is more likely than not that a reporting unit’s fair value is less than its carrying amount. If goodwill or other intangible assets are impaired, they are written down to their estimated fair value with a corresponding expense reflected in the Company’s consolidated statements of operations.

The Company initially recorded VOBA to reflect the establishment of the value of business acquired asset, which represents the estimated present value of the expected underwriting profit within the unearned premiums liability, net of reinsurance, less costs to service the related policies and a risk premium. VOBA is derived using, among other things, estimated loss ratios by line of business to calculate the underwriting profit, weighted average cost of capital, risk premium and expected payout patterns. The adjustment for VOBA was amortized to acquisition expenses over approximately two years, as the contracts for business in-force as of the acquisition date expired.

NONCONTROLLING INTERESTS

The Company accounts for redeemable noncontrolling interests in the mezzanine section of the Company’s consolidated balance sheet in accordance with United States Securities and Exchange Commission (“SEC”) guidance which is applicable to SEC registrants. The share classes related to the redeemable noncontrolling interest portion of the issuer are accounted for in accordance with SEC guidance, which requires that shares not required to be accounted for in accordance with FASB ASC Topic *Distinguishing Liabilities from Equity*, and having redemption features that are not solely within the control of the issuer, to be classified outside of permanent equity in the mezzanine section of the balance sheet. The SEC guidance does not impact the accounting for redeemable noncontrolling interest on the consolidated statements of operations; therefore, the provisions of FASB ASC Topic *Consolidation* with respect to the consolidated statements of operations still apply, and net income attributable to redeemable noncontrolling interests is presented separately in the Company’s consolidated statements of operations.

VARIABLE INTEREST ENTITIES

The Company accounts for variable interest entities (“VIEs”) in accordance with FASB ASC Topic *Consolidation*, which requires the consolidation of all VIEs by the primary beneficiary, that being the investor that has the power to direct the activities of the VIE and that will absorb a portion of the VIE’s expected losses or residual returns that could potentially be significant to the VIE. When the Company determines it has a variable interest in a VIE, it determines whether it is the primary beneficiary of that VIE by performing an analysis that principally considers: (i) the VIE’s purpose and design, including the risks the VIE was designed to create and pass through to its variable interest holders; (ii) the VIE’s capital structure; (iii) the terms between the VIE and its variable interest holders and other parties involved with the VIE; (iv) which variable interest holders have the power to direct the activities of the VIE that most significantly impact the VIE’s economic performance; (v) which variable interest holders have the obligation to absorb losses or the right to receive benefits from the VIE that could potentially be significant to the VIE; and (vi) related party relationships. The Company reassesses its determination of whether the Company is the primary beneficiary of a VIE upon changes in facts and circumstances that could potentially alter the Company’s assessment.

EARNINGS PER SHARE

The Company calculates earnings per share in accordance with FASB ASC Topic *Earnings per Share.* Basic earnings per share are based on weighted average common shares and exclude any dilutive effects of options and restricted stock. Diluted earnings per share assumes the exercise of all dilutive stock options and restricted stock grants.

The two-class method is used to determine earnings per share based on dividends declared on common shares and participating securities (i.e., distributed earnings) and participation rights of participating securities in any undistributed earnings. Each unvested restricted share granted by the Company is considered a participating security and the Company uses the two-class method to calculate its net income available to RenaissanceRe common shareholders per common share – basic and diluted.

FOREIGN EXCHANGE

Monetary assets and liabilities denominated in a currency other than the functional currency of the Company’s subsidiaries in which those monetary assets and liabilities reside are revalued into such subsidiary’s functional currency at the prevailing exchange rate on the balance sheet date. Revenues and expenses denominated in a currency other than the functional currency of the Company’s subsidiaries, are valued at the exchange rate on the date on which the underlying revenue or expense transaction occurred. The net effect of these revaluation adjustments are recognized in the Company’s consolidated statement of operations as part of net foreign exchange gains (losses).

The Company’s functional currency is the U.S. dollar. Certain of the Company’s subsidiaries have a functional currency other than the U.S. dollar. Assets and liabilities of foreign operations whose functional currency is not the U.S. dollar are translated into the Company’s U.S. dollar reporting currency at prevailing balance sheet-date exchange rates, while revenue and expenses of such foreign operations are translated into the Company’s U.S. dollar functional currency at monthly average exchange rates during the year. The net effect of these translation adjustments, as well as any gains or losses on intercompany balances for which settlement is not planned or anticipated in the foreseeable future, net of applicable deferred income taxes, is included in the Company’s consolidated balance sheet as currency translation adjustments and reflected within accumulated other comprehensive income (loss).

TAXATION

Income taxes have been provided for in accordance with the provisions of FASB ASC Topic *Income Taxes*. Deferred tax assets and liabilities result from temporary differences between the amounts recorded in the consolidated financial statements and the tax basis of the Company’s assets and liabilities. Such temporary differences are primarily due to net operating loss and interest expense carryforwards and GAAP versus tax basis accounting differences relating to underwriting results, accrued expenses and investments. 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. A valuation allowance against net deferred tax assets is recorded if it is more likely than not that all, or some portion, of the benefits related to net deferred tax assets will not be realized.

Uncertain tax positions are also accounted for in accordance with FASB ASC Topic *Income Taxes*. Uncertain tax positions must meet a more likely than not recognition threshold to be recognized.

RECENTLY ADOPTED ACCOUNTING PRONOUNCEMENTS

Simplifying the Accounting for Income Taxes

In December 2019, the FASB issued ASU No. 2019-12, Simplifying the Accounting for Income Taxes (“ASU 2019-12”). Among other things, ASU 2019-12 eliminates certain exceptions for recognizing deferred taxes for investments, performing intraperiod tax allocation and calculating income taxes in interim periods. ASU 2019-12 also clarifies the accounting for transactions that result in a step-up in the tax basis of goodwill. ASU 2019-12 is effective for public business entities for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2020. Accordingly, the Company adopted ASU 2019-12 effective January 1, 2021. The adoption of ASU 2019-12 did not have a material impact on the Company’s consolidated statements of operations and financial position.

Measurement of Credit Losses on Financial Instruments

In June 2016, the FASB issued ASU No. 2016-13, Measurement of Credit Losses on Financial Instruments (“ASU 2016-13”). ASU 2016-13 modifies the recognition of credit losses by replacing the incurred loss impairment methodology with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to inform credit loss estimates. ASU 2016-13 is applicable to financial assets such as loans, debt securities, trade receivables, off-balance sheet credit exposures, reinsurance receivables, and other financial assets that have the contractual right to receive cash. The measurement of expected credit losses is based on relevant information about past events, including historical experience, current conditions, and reasonable and supportable forecasts that affect the collectability of the reported amount. The Company’s invested assets are measured at fair value through net income, and therefore those invested assets were not impacted by the adoption of ASU 2016-13. The Company has other financial assets, such as premiums receivable and reinsurance recoverable, that were not materially impacted by the adoption of ASU 2016-13. ASU 2016-13 became effective for public business entities that are SEC filers for annual and interim periods beginning after December 15, 2019. Accordingly, the Company adopted ASU 2016-13 effective January 1, 2020. The adoption of ASU 2016-13 did not have a material impact on the Company's consolidated statements of operations and financial position, and as a result, there was no cumulative effect adjustment to opening retained earnings as of January 1, 2020.

Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement

In August 2018, the FASB issued ASU No. 2018-13, Disclosure Framework - Changes to the Disclosure Requirements for Fair Value Measurement ("ASU 2018-13"). The ASU 2018-13 modifies the disclosure requirements of fair value measurements as part of the disclosure framework project with the objective to improve the effectiveness of disclosures in the notes to the financial statements. ASU 2018-13 allows for removal of the amount and reasons for transfer between Level 1 and Level 2 of the fair value hierarchy; the policy for transfers between levels; and the valuation processes for Level 3 fair value measurements. ASU 2018-13 became effective for all entities for fiscal years beginning after December 15, 2019 and interim periods within those fiscal years. Accordingly, the Company adopted ASU 2018-13 effective January 1, 2020. Since ASU 2018-13 is disclosure-related only, it did not have an impact on the Company's consolidated statements of operations and financial position.

Simplifying the Test for Goodwill Impairment

In January 2017, the FASB issued ASU No. 2017-04, Simplifying the Test for Goodwill Impairment ("ASU 2017-04"). Among other things, ASU 2017-04 requires the following: (1) the elimination of step two of the goodwill impairment test; entities will no longer utilize the implied fair value of their assets and liabilities for purposes of testing goodwill for impairment, (2) the quantitative portion of the goodwill impairment test will be performed by comparing the fair value of a reporting unit with its carrying amount; an impairment charge is to be recognized for the excess of carrying amount over fair value, but only to the extent of the amount of goodwill allocated to that reporting unit, and (3) foreign currency translation adjustments are not to be allocated to a reporting unit from an entity's accumulated other comprehensive income (loss); the reporting unit's carrying amount should include only the currently translated balances of the assets and liabilities assigned to the reporting unit. ASU 2017-04 became effective for public business entities that are SEC filers for annual periods, or any interim goodwill impairment tests in annual periods, beginning after December 15, 2019. Accordingly, the Company adopted ASU 2017-04 effective January 1, 2020. The adoption of ASU 2017-04 did not have a material impact on the Company's consolidated statements of operations and financial position.

Leases

In February 2016, the FASB issued Accounting Standards Update No. 2016-02, *Leases* and subsequently issued a number of other ASUs to amend the guidance, each ultimately reflected in FASB ASC Topic *Leases*. FASB ASC Topic *Leases* requires, among other items, lessees to recognize lease assets and lease liabilities on the balance sheet for those leases classified as operating leases under the previous guidance. FASB ASC Topic *Leases* became effective for public business entities for annual and interim periods beginning after December 15, 2018. The Company has adopted FASB ASC Topic *Leases* through the application of the modified retrospective transition approach. In addition, the Company employed certain practical expedients permitted under the guidance and utilized its incremental borrowing rate in determining the present value of lease payments, not yet paid. The adoption of this guidance did not have a material impact on the Company's consolidated statements of operations and financial position. The Company determined there was no material impact and as a result, there was no cumulative effect adjustment to opening retained earnings as of January 1, 2019.

Intra-Entity Transfers of Assets Other Than Inventory

In October 2016, the FASB issued ASU No. 2016-16, *Intra-Entity Transfers of Assets Other Than Inventory* ("ASU 2016-16"). ASU 2016-16 requires entities to recognize the income tax consequences of intra-entity transfers of assets other than inventory when the transfers occur; this is a change from current guidance which prohibits the recognition of current and deferred income taxes until the underlying assets have been sold to outside entities. ASU 2016-16 became effective for public business entities for annual and interim periods beginning after December 15, 2018. The adoption of this guidance did not have a material impact on the Company's consolidated statements of operations and financial position.

NOTE 3. ACQUISITION OF TOKIO MILLENNIUM RE

Overview

The aggregate consideration for the acquisition of TMR, which closed on March 22, 2019, was $1.6 billion, consisting of cash, RenaissanceRe common shares and a special dividend from TMR, as described in more detail below. The aggregate consideration paid at closing for the acquisition of TMR was based on the closing tangible book value of TMR, subject to a post-closing adjustment under the terms of the Stock Purchase Agreement by and among the Company, Tokio Marine & Nichido Fire Insurance Co. Ltd. ("Tokio") and, with respect to certain sections only, Tokio Marine Holdings, Inc. entered into on October 30, 2018. The parties determined that no closing adjustment was required.

In connection with the closing of the TMR Stock Purchase, Tokio, RREAG and RenaissanceRe (UK) Limited (formerly known as Tokio Millennium Re (UK) Limited) ("RenaissanceRe UK") entered into a reserve development agreement whereby RREAG and RenaissanceRe UK agreed to cede to Tokio, and Tokio agreed to indemnify and reimburse RREAG and RenaissanceRe UK for, substantially all of RREAG and RenaissanceRe UK's adverse development on stated reserves at time of the closing, including unearned premium reserves, subject to certain terms and conditions. The reserve development agreement provides the Company with indemnification on stated reserves, including unearned premium reserves, for RREAG and RenaissanceRe UK, on a whole-account basis, and takes into consideration adverse performance across the Company's reportable segments. To the extent the combined performance of acquired reserves for claims and claim expenses or unearned premiums is worse than expected on an aggregate basis across reportable segments, the Company is indemnified under the terms of the reserve development agreement and would expect to collect under the reserve development agreement.

At closing, RREAG and Tokio entered into a retrocessional agreement pursuant to which RREAG ceded to Tokio all of its liabilities arising from certain stop loss reinsurance contracts RREAG entered into with third-party capital partners which were either in force as of the closing date or which incept prior to December 31, 2021.

The Company recorded $9.1 million of corporate expenses associated with the acquisition of TMR during 2020 (2019 - $49.7 million). Included in these expenses are compensation, transaction and integration-related costs.

Purchase Price

The Company's total purchase price for TMR was calculated as follows:

Special Dividend		
Special Dividend paid to common shareholders of Tokio and holders of Tokio equity awards		$ 500,000
RenaissanceRe Common Shares		
Common shares issued by RenaissanceRe to Tokio	1,739,071	
Common share price of RenaissanceRe (1)	$ 143.75	
Market value of RenaissanceRe common shares issued by RenaissanceRe to Tokio		249,998
Cash Consideration		
Cash consideration paid by RenaissanceRe as acquisition consideration		813,595
Total purchase price		1,563,593
Less: Special Dividend paid to Tokio		(500,000)
Net purchase price		$ 1,063,593

(1) RenaissanceRe common share price was based on the 30-day trailing volume weighted average price of $143.7539 as of market close on March 15, 2019, which approximates fair value.

Fair Value of Net Assets Acquired and Liabilities Assumed

The purchase price was allocated to the acquired assets and liabilities of the Company based on estimated fair values on March 22, 2019, the date the transaction closed, as detailed below. During the quarter ended March 31, 2019, the Company recognized goodwill of $13.1 million, based on foreign exchange rates on March 22, 2019, attributable to the excess of the purchase price over the fair value of the net assets of TMR. The Company recognized identifiable finite lived intangible assets of $11.2 million, which will be amortized over a weighted average period of 10.5 years, identifiable indefinite lived intangible assets of $6.8 million, and certain other adjustments to the fair values of the assets acquired, liabilities assumed and shareholders' equity of TMR at March 22, 2019, based on foreign exchange rates on March 22, 2019, as summarized in the table below:

Shareholders' equity of TMR at March 22, 2019	$	1,032,961
Adjustments for fair value, by applicable balance sheet caption:		
Net deferred acquisition costs and value of business acquired		(56,788)
Net reserve for claims and claim expenses		67,782
Goodwill and intangible assets at March 22, 2019 of TMR		(6,569)
Total adjustments for fair value by applicable balance sheet caption before tax impact		4,425
Other assets - net deferred tax liability related to fair value adjustments and value of business acquired		(2,606)
Total adjustments for fair value by applicable balance sheet caption, net of tax		1,819
Adjustments for fair value of the identifiable intangible assets:		
Identifiable indefinite lived intangible assets (insurance licenses)		6,800
Identifiable finite lived intangible assets (top broker relationships and renewal rights)		11,200
Identifiable intangible assets before tax impact		18,000
Other assets - deferred tax liability on identifiable intangible assets		(2,281)
Total adjustments for fair value of the identifiable intangible assets and value of business acquired, net of tax		15,719
Total adjustments for fair value by applicable balance sheet caption, identifiable intangible assets and value of business acquired, net of tax		17,538
Shareholders' equity of TMR at fair value		1,050,499
Total net purchase price paid by RenaissanceRe		1,063,593
Excess purchase price over the fair value of net assets acquired assigned to goodwill	$	13,094

An explanation of the significant fair value adjustments and related future amortization is as follows:

- Net deferred acquisition costs and VOBA - to reflect the elimination of TMR's net deferred acquisition costs, partially offset by the establishment of the value of business acquired asset, which represents the present value of the expected underwriting profit within the unearned premiums liability, net of reinsurance, less costs to service the related policies and a risk premium. The adjustment for VOBA will be amortized to acquisition expenses over approximately two years, as the contracts for business in-force as of the acquisition date expire. VOBA at March 22, 2019 was $287.6 million;
- Reserve for claims and claim expenses - to reflect a decrease related to the present value of the net unpaid claims and claim expenses based on the estimated payout pattern, partially offset by an increase in net claims and claim expenses related to the estimated market based risk margin. The risk margin represents the estimated cost of capital required by a market participant to assume the net claims and claim expenses. This will be amortized using the projected discount and risk margin patterns of the net claims and claims expenses as of the acquisition date;
- Identifiable indefinite lived and finite lived intangible assets - to establish the fair value of identifiable intangible assets related to the acquisition of TMR described in detail below; and

- Other assets - to reflect the net deferred tax liability on identifiable intangible assets.

Identifiable intangible assets consisted of the following and are included in goodwill and other intangible assets on the Company’s consolidated balance sheet:

		Amount	Economic Useful Life
Top broker relationships	$	10,000	10.0 years
Renewal rights		1,200	15.0 years
Insurance licenses		6,800	Indefinite
Gross identifiable intangible assets related to the acquisition of TMR, at March 22, 2019		18,000	
Accumulated amortization (from March 22, 2019 through December 31, 2021), net of foreign exchange		2,851	
Impairment loss on insurance licenses		6,800	
Net identifiable intangible assets related to the acquisition of TMR at December 31, 2021	$	8,349	

An explanation of the identifiable intangible assets is as follows:

- Top broker relationships - the value of TMR’s relationships with their top four brokers (Marsh & McLennan Companies, Inc., Aon plc, Willis Group Holdings Public Limited Company and Jardine Lloyd Thompson Group plc.) after taking into consideration the expectation of the renewal of these relationships and the associated expenses. These will be amortized on a straight-line basis over the economic useful life as of the acquisition date;
- Renewal rights - the value of policy renewal rights after taking into consideration written premiums on assumed retention ratios and the insurance cash flows and the associated equity cash flows from these renewal policies over the expected life of the renewals. These will be amortized on a straight-line basis over the economic useful life as of the acquisition date; and
- Insurance licenses - the value of acquired insurance licenses, which provide the ability to write reinsurance in all 50 states of the U.S. and the District of Columbia. During the year ended December 31, 2020, the Company recorded an impairment of $6.8 million related to the insurance licenses. See “Note 4. Goodwill and Other Intangible Assets” in the Company’s “Notes to the Consolidated Financial Statements” for additional information.

As part of the allocation of the purchase price, included in the adjustment to other assets in the table above is a deferred tax liability of $2.3 million related to the estimated fair value of the intangible assets recorded, as well as a net deferred tax liability of $2.6 million related to certain other adjustments to the fair values of the assets acquired, VOBA, liabilities assumed and shareholders’ equity. Other net deferred tax liabilities recorded primarily relate to differences between financial reporting and tax bases of the acquired assets and liabilities as of the acquisition date, March 22, 2019. The Company estimates that none of the goodwill that was recorded will be deductible for income tax purposes.

Financial Results

The following table summarizes the net contribution from the acquisition of TMR since March 22, 2019 that was included in the Company’s consolidated statements of operations and comprehensive income for the year ended December 31, 2019. Operating activities of TMR from the acquisition date, March 22, 2019, through December 31, 2019 are included in the Company’s consolidated statements of operations for the year ended December 31, 2019.

The unaudited net contribution of the acquisition and integration of TMR is provided for informational purposes only and is not necessarily, and should not be assumed to be, an indication of the results that may be achieved in the future. These results are not used as a part of management’s analysis of the financial performance of the Company’s business. These results primarily reflect items recorded directly by TMR through December 31, 2019, including: 1) net earned premium and net underwriting income on the in-force portfolio acquired with the acquisition of TMR and previously retained on TMR entities’ balance sheets; 2) net earned premium and net underwriting income for those contracts which renewed post-acquisition on one of the acquired TMR entities' balance sheets; 3) net investment income and net realized and unrealized gains recorded directly by TMR; and 4) certain direct costs incurred directly by TMR. In addition, these results, where possible, were adjusted for transaction and integration related costs incurred by the Company. However, these results do not reflect on-going operating costs incurred by the Company in supporting TMR unless such costs were incurred directly by TMR. These results also do not give consideration to the impact of possible revenue enhancements, expense efficiencies, synergies or asset dispositions that may be achieved in the future. These results involve significant estimates and are not indicative of the future results of the acquired TMR entities which have been, and will continue to be impacted by potential changes in targeted business mix, investment management strategies, and synergies recognized from changes in the combined entity's operating structure, as well as the impact of changes in other business and capital management strategies.

Since the acquisition date, a growing number of underlying policies have been underwritten onto different legal entities, staffing has been allocated to new activities, and reinsurance has been purchased to cover combined risks, only some of which would have been reflected in the underlying legacy TMR results. As a result, for the years ended December 31, 2021 and 2020, it is impracticable to produce summarized financial results, and any such information would not be indicative of the results of the acquired TMR entities, given the significant estimates involved and the nature and pace of the integration activities, which were substantially completed in 2019.

		Year ended December 31, 2019 (1)
Total revenues	$	922,727
Net income (loss) available (attributable) to RenaissanceRe common shareholders (2)	$	99,169

(1) Includes the net contribution from the acquisition of TMR since March 22, 2019 that has been included in the Company's consolidated statements of operations and comprehensive income through December 31, 2019.

(2) Includes $49.7 million of corporate expenses associated with the acquisition and integration of TMR for the year ended December 31, 2019.

Taxation

At the date of acquisition and in conjunction with the acquisition of TMR, the Company established a net deferred tax liability of $5.7 million and recorded a valuation allowance against TMR's deferred tax assets of $35.7 million in its consolidated financial statements. A predominant amount of the valuation allowance related to the U.S. operations of TMR was recorded by TMR prior to the acquisition.

Supplemental Pro Forma Information

The following table presents unaudited pro forma consolidated financial information for the years ended December 31, 2019 and 2018, respectively, and assumes the acquisition of TMR occurred on January 1, 2018. The unaudited pro forma consolidated financial information is provided for informational purposes only and is not necessarily, and should not be assumed to be, an indication of the results that would have been achieved had the transaction been completed as of January 1, 2018 or that may be achieved in the future. The unaudited pro forma consolidated financial information does not give consideration to the impact of possible revenue enhancements, expense efficiencies, synergies or asset dispositions that may result from the acquisition of TMR. In addition, unaudited pro forma consolidated financial information does not include the effects of costs associated with any restructuring or integration activities resulting from the acquisition of TMR, as they are nonrecurring.

Year ended December 31,		2019		2018
Total revenues	$	4,542,979	$	3,338,903
Net income (loss) available (attributable) to RenaissanceRe common shareholders	$	768,719	$	281,974

Among other adjustments, and in addition to the fair value adjustments and recognition of goodwill, VOBA and identifiable intangible assets noted above, other material nonrecurring pro forma adjustments directly attributable to the acquisition of TMR principally included certain adjustments to recognize transaction related costs, align accounting policies, and amortize fair value adjustments, VOBA, and identifiable definite lived intangible assets, net of related tax impacts.

Defined Benefit Pension Plan

The RREAG group entities have a contributory defined benefit pension plan for certain employees, which was not material to RenaissanceRe's results of operations, financial condition or cash flows for the year ended December 31, 2021.

The plan offers mandatory benefits as prescribed by the applicable law, as well as voluntary benefits. These mandatory benefits include guarantees regarding the level of interest paid annually on accrued pension savings. The RREAG group entities and the members of the plan contribute a defined percentage of salary to the pension arrangement and credit accumulation is granted on these contributions. At retirement, the accumulated contributions are converted into a pension. A full independent actuarial valuation is prepared annually.

At December 31, 2021, the net balance sheet liability was $4.3 million, comprising $19.4 million of projected benefit obligation and $15.2 million of plan assets at fair value (2020 - $6.4 million, $20.1 million and $13.6 million, respectively).

NOTE 4. GOODWILL AND OTHER INTANGIBLE ASSETS

The following tables show an analysis of goodwill and other intangible assets, net of foreign currency translation adjustments, included in goodwill and other intangible assets on the Company's consolidated balance sheets:

	Goodwill and Other Intangible Assets	
At December 31,	2021	2020
Goodwill, net	$ 210,920	$ 211,013
Other intangible assets, net	32,576	38,628
Total goodwill and other intangible assets	$ 243,496	$ 249,641

Included in goodwill and other intangible assets on the Company's consolidated balance sheet at December 31, 2021 was gross goodwill of $213.2 million (2020 - $213.3 million, 2019 - $213.0 million). Included in goodwill, net at December 31, 2021 was accumulated impairment losses of $2.3 million (2020 - $2.3 million).

In addition, the Company has also recorded goodwill and other intangible assets included in investments in other ventures, under equity method on the Company's consolidated balance sheets:

	Goodwill and Other Intangible Assets Included in Investments in Other Ventures, Under Equity Method	
At December 31,	2021	2020
Goodwill, net	$ 9,903	$ 10,598
Other intangible assets, net	8,716	12,368
Total goodwill and other intangible assets	$ 18,619	$ 22,966

Included in Investments and other ventures, under equity method on the Company's consolidated balance sheet at December 31, 2021 was gross goodwill of $14.4 million (2020 - $15.1 million, 2019 - $15.1 million). Included in goodwill, net at December 31, 2021 was accumulated impairment losses of $4.5 million (2020 - $4.5 million).

The following table shows a roll forward of goodwill included in goodwill and other intangible assets and goodwill included in investments in other ventures, under equity method on the Company's consolidated balance sheets:

	Goodwill	
	Goodwill and Other Intangible Assets	Goodwill and Other Intangible Assets Included in Investments in Other Ventures, Under Equity Method
Balance at December 31, 2019, net	$ 210,665	$ 10,598
Foreign currency translation	348	—
Balance at December 31, 2020, net	211,013	10,598
Acquired	—	(695)
Foreign currency translation	(93)	—
Balance at December 31, 2021, net	$ 210,920	$ 9,903

The gross carrying value, accumulated amortization and accumulated impairment losses by major category of other intangible assets included in goodwill and other intangible assets and investments in other ventures, under equity method on the Company's consolidated balance sheets are shown below:

	Other Intangible Assets			
At December 31, 2021	Gross Carrying Value	Accumulated Amortization	Accumulated Impairment Losses	Net
Customer relationships and customer lists	$ 108,742	$ (83,307)	$ (1,403)	$ 24,032
Licenses [(1)]	23,779	—	(6,800)	16,979
Value of business acquired	20,200	(20,200)	—	—
Software	12,230	(12,230)	—	—
Patents and intellectual property	4,500	(1,875)	(2,625)	—
Covenants not-to-compete	4,030	(4,030)	—	—
Trademarks and trade names	1,710	(1,429)	—	281
	$ 175,191	$ (123,071)	$ (10,828)	$ 41,292

(1) Licenses is comprised of $17.0 million of indefinite lived other intangible assets, included in other intangible assets, net, as of December 31, 2021

	Other Intangible Assets			
At December 31, 2020	Gross Carrying Value	Accumulated Amortization	Accumulated Impairment Losses	Net
Customer relationships and customer lists	$ 108,798	$ (76,118)	$ (1,403)	$ 31,277
Licenses [(1)]	26,214	—	(6,800)	19,414
Value of business acquired	20,200	(20,200)	—	—
Software	12,230	(12,230)	—	—
Patents and intellectual property	4,500	(1,875)	(2,625)	—
Covenants not-to-compete	4,030	(4,030)	—	—
Trademarks and trade names	1,710	(1,405)	—	305
	$ 177,682	$ (115,858)	$ (10,828)	$ 50,996

(1) Licenses is comprised of $19.4 million of indefinite lived other intangible assets, included in other intangible assets, net, as of December 31, 2020

During 2021, the Company recorded amortization expense of $7.2 million and an impairment loss of $Nil related to other intangible assets (2020 - $8.3 million and $6.8 million, respectively).

During the quarter ended March 31, 2019, the Company recognized goodwill of $13.1 million, based on foreign exchange rates on March 22, 2019, attributable to the excess of the purchase price over the fair value of the net assets acquired in the TMR Stock Purchase. In addition, the Company recognized identifiable finite lived intangible assets of $11.2 million and identifiable indefinite lived intangible assets of $6.8 million associated with TMR. Refer to “Note 3. Acquisition of Tokio Millennium Re” for additional information related to goodwill and other intangible assets associated with the acquisition of TMR.

In accordance with the Company’s established accounting policy, the Company performed goodwill and other intangible assets impairment tests during the fourth quarter. During 2020, the Company elected to renew certain reinsurance contracts, that had previously been written on one of the acquired TMR balance sheets, on other balance sheets within the consolidated group and placed the TMR entity into run-off. Accordingly and in connection with the Company’s impairment assessment performed during the fourth quarter of 2020, it was determined that the license associated with this acquired TMR entity, which was initially reflected as an indefinite lived intangible asset of $6.8 million at the time of the acquisition of TMR, should be written down to $Nil. The Company recorded an intangible asset impairment charge of $Nil during the year ended December 31, 2021.

In performing the impairment assessment, the Company first assessed qualitative factors to determine whether it was necessary to perform a quantitative impairment test. Based on its qualitative assessment, the Company determined it was not more likely than not that the fair value of the goodwill and other intangible assets in question were less than their respective carrying amounts. The qualitative assessment included the following factors which the Company determined had not significantly deteriorated given specific facts and circumstances: macroeconomic conditions; industry and market conditions; costs factors; and overall financial performance. Other than the goodwill and other intangible assets acquired and the intangible assets impaired as noted above and normal course amortization of intangible assets, in accordance with the Company’s established accounting policy, there were no adjustments to carried goodwill and other intangible assets during the year ended December 31, 2021.

The remaining useful life of intangible assets with finite lives ranges from 1.3 to 12.2 years, with a weighted-average amortization period of 5.5 years. Expected amortization of the other intangible assets, including other intangible assets recorded in investments in other ventures, under equity method, is shown below:

	Other Intangibles Assets	Other Intangible Assets Included in Investments in Other Ventures, Under Equity Method	Total
2022	$ 5,602	$ 997	$ 6,599
2023	5,173	606	5,779
2024	4,716	194	4,910
2025	1,976	24	2,000
2026	1,377	24	1,401
2027 and thereafter	3,465	159	3,624
Total remaining amortization expense	22,309	2,004	24,313
Indefinite lived	10,267	6,712	16,979
Total	$ 32,576	$ 8,716	$ 41,292

NOTE 5. INVESTMENTS

Fixed Maturity Investments Trading

The following table summarizes the fair value of fixed maturity investments trading:

At December 31,	2021	2020
U.S. treasuries	$ 6,247,779	$ 4,960,409
Agencies	361,684	368,032
Non-U.S. government	549,613	491,531
Non-U.S. government-backed corporate	474,848	338,014
Corporate	3,214,438	4,261,025
Agency mortgage-backed	721,955	1,113,792
Non-agency mortgage-backed	233,346	291,444
Commercial mortgage-backed	634,925	791,272
Asset-backed	1,068,543	890,984
Total fixed maturity investments trading	$ 13,507,131	$ 13,506,503

Contractual maturities of fixed maturity investments trading are described in the following table. 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.

At December 31, 2021	Amortized Cost	Fair Value
Due in less than one year	$ 363,795	$ 365,418
Due after one through five years	6,317,351	6,297,063
Due after five through ten years	3,911,221	3,877,715
Due after ten years	306,123	308,166
Mortgage-backed	1,584,871	1,590,226
Asset-backed	1,069,218	1,068,543
Total	$ 13,552,579	$ 13,507,131

Equity Investments Trading

The following table summarizes the fair value of equity investments trading:

At December 31,	2021	2020
Financials	$ 146,615	$ 452,765
Communications and technology	82,444	119,592
Consumer	51,083	44,477
Industrial, utilities and energy	26,645	43,380
Healthcare	28,796	35,140
Basic materials	5,092	7,263
Equity exchange traded funds	114,919	—
Fixed income exchange traded funds	90,422	—
Total	$ 546,016	$ 702,617

Pledged Investments

At December 31, 2021, $8.7 billion (2020 - $8.1 billion) of cash and investments at fair value were on deposit with, or in trust accounts for the benefit of, various counterparties, including with respect to the Company's letter of credit facilities. Of this amount, $1.8 billion (2020 - $2.5 billion) is on deposit with, or in trust accounts for the benefit of, U.S. state regulatory authorities.

Reverse Repurchase Agreements

At December 31, 2021, the Company held $5.1 million (2020 - $126.5 million) of reverse repurchase agreements. These loans are fully collateralized, are generally outstanding for a short period of time and are presented on a gross basis as part of short term investments on the Company's consolidated balance sheets. The required collateral for these loans typically includes high-quality, readily marketable instruments at a minimum amount of 102% of the loan principal. Upon maturity, the Company receives principal and interest income.

Net Investment Income

The components of net investment income are as follows:

Year ended December 31,	2021	2020	2019
Fixed maturity investments	$ 234,911	$ 278,215	$ 318,503
Short term investments	2,333	20,799	56,264
Equity investments	9,017	6,404	4,808
Other investments			
Catastrophe bonds	64,860	54,784	46,154
Other	28,811	9,417	8,447
Cash and cash equivalents	297	2,974	7,676
	340,229	372,593	441,852
Investment expenses	(20,750)	(18,555)	(17,645)
Net investment income	$ 319,479	$ 354,038	$ 424,207

Net Realized and Unrealized Gains (Losses) on Investments

Net realized and unrealized gains (losses) on investments are as follows:

Year ended December 31,	2021	2020	2019
Net realized gains (losses) on fixed maturity investments	$ 79,588	$ 276,901	$ 90,260
Net unrealized gains (losses) on fixed maturity investments trading	(389,376)	216,859	170,183
Net realized and unrealized gains (loss) on fixed maturity investments trading	(309,788)	493,760	260,443
Net realized and unrealized gains (losses) on investments-related derivatives (1)	(12,237)	68,608	58,891
Net realized gains (losses) on equity investments trading sold during the period	335,491	3,532	31,062
Net unrealized gains (losses) on equity investments trading still held at reporting date	(285,882)	262,064	64,087
Net realized and unrealized gains (losses) on equity investments trading	49,609	265,596	95,149
Net realized and unrealized gains (losses) on other investments - catastrophe bonds	(35,033)	(7,031)	(9,392)
Net realized and unrealized gains (losses) on other investments - other	89,315	(297)	9,018
Net realized and unrealized gains (losses) on investments	$ (218,134)	$ 820,636	$ 414,109

(1) Net realized and unrealized gains (losses) on investment-related derivatives includes fixed maturity investments related derivatives (interest rate futures, interest rate swaps, credit default swaps and total return swaps), and equity investments related derivatives (equity futures). See “Note 19. Derivative Instruments” for additional information.

Other Investments

The table below shows the fair value of the Company’s portfolio of other investments:

At December 31,	2021	2020
Catastrophe bonds	$ 1,104,034	$ 881,290
Direct private equity investments	88,373	79,807
Fund investments	725,802	295,851
Term loans	74,850	—
Total other investments	$ 1,993,059	$ 1,256,948

Included in net realized and unrealized gains (losses) on investments for 2021 is income of $7.0 million (2020 - a loss of $2.4 million, 2019 - loss of $5.5 million) representing the change in estimate during the period related to the difference between the Company’s estimated fair value for those funds for which the reported net asset values had not been received, as discussed in “Note 2. Significant Accounting Policies,” and the actual amount as reported in the final net asset values provided by the Company’s fund managers.

The Company has committed capital to direct private equity investments, fund investments, term loans and investments in other ventures of $2.7 billion, of which $1.3 billion has been contributed at December 31, 2021. The Company’s remaining commitments to these investments at December 31, 2021 totaled $1.4 billion. In the future, the Company may enter into additional commitments in respect of direct private equity investments, term loans or fund investment opportunities.

Catastrophe bonds

Catastrophe bonds are non-investment grade bonds issued by unrelated third parties that generally mature within one to five years.

Direct private equity investments

Direct private equity investments are the Company's direct equity investments in companies that are not traded on any nationally recognized equity markets.

Fund investments

Fund investments are limited partnership or similar interests in private equity funds, private credit funds and hedge funds managed by unrelated third parties.

Term loans

Term loans represent the Company's loan participation interest in an underwritten term loan facility. The Company has committed to a loan participation interest of $100 million and as of December 31, 2021 had funded $75 million of its commitment. This facility pays interest, has a 5-year maturity and is fully secured by a diversified pool of primarily private equity assets.

Investments in Other Ventures, under Equity Method

The table below shows the Company's portfolio of investments in other ventures, under equity method:

	2021			2020		
At December 31,	Ownership %	Carrying Value		Ownership %	Carrying Value	
Tower Hill Companies [1]	2.0% - 25.0%		25,575	2.0% - 25.0%		30,470
Top Layer Re	50.0%		25,903	50.0%		26,958
Other	22.4%		46,590	25.0%		40,945
Total investments in other ventures, under equity method		$	98,068		$	98,373

(1) The Company has equity interests in Bluegrass Insurance Management, LLC, Tower Hill Claims Service, LLC, Tower Hill Holdings, Inc., Tower Hill Insurance Group, LLC, Tower Hill Insurance Managers, LLC, Tower Hill Re Holdings, Inc., Tower Hill Signature Insurance Holdings, Inc., Tower Hill Risk Management LLC and Tomoka Re Holdings, Inc. (collectively, the "Tower Hill Companies").

The table below shows the Company's equity in earnings of other ventures, under equity method:

Year ended December 31,	2021		2020		2019	
Top Layer Re	$	8,286	$	9,595	$	8,801
Tower Hill Companies		(2,073)		3,104		10,337
Other		6,096		4,495		4,086
Total equity in earnings of other ventures, under equity method	$	12,309	$	17,194	$	23,224

During 2021, the Company received $33.9 million of distributions from its investments in other ventures, under equity method (2020 – $30.0 million, 2019 – $36.5 million). Except for Top Layer Re, which is recorded on a current quarter basis, the equity in earnings of the Company's investments in other ventures are reported one quarter in arrears.

NOTE 6. FAIR VALUE MEASUREMENTS

The use of fair value to measure certain assets and liabilities with resulting unrealized gains or losses is pervasive within the Company's consolidated financial statements. Fair value is defined under accounting guidance currently applicable to the Company as the price that would be received upon the sale of an asset or paid to transfer a liability in an orderly transaction between open market participants at the measurement date. The Company recognizes the change in unrealized gains or losses arising from changes in fair value in its consolidated statements of operations.

FASB ASC Topic *Fair Value Measurements and Disclosures* prescribes a fair value hierarchy that prioritizes the inputs to the respective valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to valuation techniques that use at least one significant input that is unobservable (Level 3). The three levels of the fair value hierarchy are described below:

- Fair values determined by Level 1 inputs utilize unadjusted quoted prices obtained from active markets for identical assets or liabilities for which the Company has access at the measurement date. The fair value is determined by multiplying the quoted price by the quantity held by the Company;
- Fair values determined by Level 2 inputs utilize inputs (other than quoted prices included in Level 1) that are observable for the asset or liability, either directly or indirectly. Level 2 inputs include quoted prices for similar assets and liabilities in active markets, and inputs other than quoted prices that are observable for the asset or liability, such as interest rates and yield curves that are observable at commonly quoted intervals, broker quotes and certain pricing indices; and
- Level 3 inputs are based all or in part on significant unobservable inputs for the asset or liability, and include situations where there is little, if any, market activity for the asset or liability. In these cases, significant management assumptions can be used to establish management's best estimate of the assumptions used by other market participants in determining the fair value of the asset or liability.

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 in its entirety falls has been determined based on the lowest level input that is significant to the fair value measurement of the asset or liability. The Company's assessment of the significance of a particular input to the fair value measurement in its entirety requires judgment, and the Company considers factors specific to the asset or liability.

In order to determine if a market is active or inactive for a security, the Company considers a number of factors, including, but not limited to, the spread between what a seller is asking for a security and what a buyer is bidding for the same security, the volume of trading activity for the security in question, the price of the security compared to its par value (for fixed maturity investments), and other factors that may be indicative of market activity.

There have been no material changes in the Company's valuation techniques, nor have there been any transfers between Level 1 and Level 2, or Level 2 and Level 3 during the period represented by these consolidated financial statements.

Below is a summary of the assets and liabilities that are measured at fair value on a recurring basis and also represents the carrying amount on the Company's consolidated balance sheets:

At December 31, 2021	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Fixed maturity investments				
U.S. treasuries	$ 6,247,779	$ 6,247,779	$ —	$ —
Agencies	361,684	—	361,684	—
Non-U.S. government	549,613	—	549,613	—
Non-U.S. government-backed corporate	474,848	—	474,848	—
Corporate	3,214,438	—	3,214,438	—
Agency mortgage-backed	721,955	—	721,955	—
Non-agency mortgage-backed	233,346	—	233,346	—
Commercial mortgage-backed	634,925	—	634,925	—
Asset-backed	1,068,543	—	1,068,543	—
Total fixed maturity investments	13,507,131	6,247,779	7,259,352	—
Short term investments	5,298,385	—	5,298,385	—
Equity investments trading	546,016	546,016	—	—
Other investments				
Catastrophe bonds	1,104,034	—	1,104,034	—
Direct private equity investments	88,373	—	—	88,373
Term loans	74,850			74,850
	1,267,257	—	1,104,034	163,223
Fund investments (1)	725,802			
Total other investments	1,993,059	—	1,104,034	163,223
Other assets and (liabilities)				
Assumed and ceded (re)insurance contracts (2)	(4,727)	—	—	(4,727)
Derivative assets (3)	17,889	1,067	16,822	—
Derivatives liabilities (3)	(16,954)	(1,598)	(15,356)	—
Total other assets and (liabilities)	(3,792)	(531)	1,466	(4,727)
	$ 21,340,799	$ 6,793,264	$ 13,663,237	$ 158,496

(1) Fund investments, which are comprised of private equity funds, private credit funds, and hedge funds are measured at fair value using the net asset value per share (or its equivalent) as a practical expedient and have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the consolidated balance sheet.

(2) Included in assumed and ceded (re)insurance contracts at December 31, 2021 was $6.1 million of other assets and $10.8 million of other liabilities.

(3) Refer to "Note 19. Derivative Instruments" for additional information related to the fair value, by type of contract, of derivatives entered into by the Company.

At December 31, 2020	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Fixed maturity investments				
U.S. treasuries	$ 4,960,409	$ 4,960,409	$ —	$ —
Agencies	368,032	—	368,032	—
Non-U.S. government	491,531	—	491,531	—
Non-U.S. government-backed corporate	338,014	—	338,014	—
Corporate	4,261,025	—	4,261,025	—
Agency mortgage-backed	1,113,792	—	1,113,792	—
Non-agency mortgage-backed	291,444	—	291,444	—
Commercial mortgage-backed	791,272	—	791,272	—
Asset-backed	890,984	—	890,984	—
Total fixed maturity investments	13,506,503	4,960,409	8,546,094	—
Short term investments	4,993,735	—	4,993,735	—
Equity investments trading	702,617	702,617	—	—
Other investments				
Catastrophe bonds	881,290	—	881,290	—
Direct private equity investments (1)	79,807	—	—	79,807
	961,097	—	881,290	79,807
Fund investments (1)	295,851			
Total other investments	1,256,948	—	881,290	79,807
Other assets and (liabilities)				
Assumed and ceded (re)insurance contracts (2)	(6,211)	—	—	(6,211)
Derivative assets	45,233	156	45,077	—
Derivative liabilities (3)	(22,360)	(567)	(21,793)	—
Total other assets and (liabilities)	16,662	(411)	23,284	(6,211)
	$ 20,476,465	$ 5,662,615	$ 14,444,403	$ 73,596

(1) Fund investments, which are comprised of private equity funds, private credit funds, and hedge funds are measured at fair value using the net asset value per share (or its equivalent) as a practical expedient and have not been classified in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the consolidated balance sheet.

(2) Included in assumed and ceded (re)insurance contracts at December 31, 2020 was $1.4 million of other assets and $7.6 million of other liabilities.

(3) Refer to "Note 19. Derivative Instruments" for additional information related to the fair value, by type of contract, of derivatives entered into by the Company.

Level 1 and Level 2 Assets and Liabilities Measured at Fair Value

Fixed Maturity Investments

Fixed maturity investments included in Level 1 consist of the Company's investments in U.S. treasuries. Fixed maturity investments included in Level 2 are agencies, non-U.S. government, non-U.S. government-backed corporate, corporate, agency mortgage-backed, non-agency mortgage-backed, commercial mortgage-backed and asset-backed.

The Company's fixed maturity investments are primarily priced using pricing services, such as index providers and pricing vendors, as well as broker quotations. In general, the pricing vendors provide pricing for a high volume of liquid securities that are actively traded. For securities that do not trade on an exchange, the pricing services generally utilize market data and other observable inputs in matrix pricing models to determine month end prices. Observable inputs include benchmark yields, reported trades, broker-dealer quotes, issuer spreads, bids, offers, reference data and industry and economic events. Index pricing generally relies on market traders as the primary source for pricing; however, models are also utilized to provide prices for all index eligible securities. The models use a variety of observable inputs such as benchmark yields, transactional data, dealer runs, broker-dealer quotes and corporate actions. Prices are generally verified using third-party data. Securities which are priced by an index provider are generally included in the index.

In general, broker-dealers value securities through their trading desks based on observable inputs. The methodologies include mapping securities based on trade data, bids or offers, observed spreads, and performance on newly issued securities. Broker-dealers also determine valuations by observing secondary trading of similar securities. Prices obtained from broker quotations are considered non-binding, however they are based on observable inputs and by observing secondary trading of similar securities obtained from active and non-distressed markets.

The Company considers these broker quotations to be Level 2 inputs as they are corroborated with other market observable inputs. The techniques generally used to determine the fair value of the Company's fixed maturity investments are detailed below by asset class.

U.S. Treasuries

Level 1 - At December 31, 2021, the Company's U.S. treasuries fixed maturity investments were primarily priced by pricing services and had a weighted average yield to maturity of 1.1% and a weighted average credit quality of AA (2020 - 0.4% and AA, respectively). When pricing these securities, the pricing services utilize daily data from many real time market sources, including active broker-dealers. Certain data sources are regularly reviewed for accuracy to attempt to ensure the most reliable price source is used for each issue and maturity date.

Agencies

Level 2 - At December 31, 2021, the Company's agency fixed maturity investments had a weighted average yield to maturity of 1.2% and a weighted average credit quality of AA (2020 - 0.9% and AA, respectively). The issuers of the Company's agency fixed maturity investments primarily consist of the Federal National Mortgage Association, the Federal Home Loan Mortgage Corporation and other agencies. Fixed maturity investments included in agencies are primarily priced by pricing services. When evaluating these securities, the pricing services gather information from market sources and integrate other observations from markets and sector news. Evaluations are updated by obtaining broker-dealer quotes and other market information including actual trade volumes, when available. The fair value of each security is individually computed using analytical models which incorporate option adjusted spreads and other daily interest rate data.

Non-U.S. Government

Level 2 - At December 31, 2021, the Company's non-U.S. government fixed maturity investments had a weighted average yield to maturity of 1.2% and a weighted average credit quality of AA (2020 - 0.5% and AAA, respectively). The issuers of securities in this sector are non-U.S. governments and their respective agencies as well as supranational organizations. Securities held in these sectors are primarily priced by pricing services that employ proprietary discounted cash flow models to value the securities. Key quantitative inputs for these models are daily observed benchmark curves for treasury, swap and high issuance credits. The pricing services then apply a credit spread for each security which is developed by in-depth and real time market analysis. For securities in which trade volume is low, the pricing services utilize data from more frequently traded securities with similar attributes. These models may also be supplemented by daily market and credit research for international markets.

Non-U.S. Government-backed Corporate

Level 2 - At December 31, 2021, the Company's non-U.S. government-backed corporate fixed maturity investments had a weighted average yield to maturity of 1.4% and a weighted average credit quality of AA (2020 - 1.0% and AA, respectively). Non-U.S. government-backed corporate fixed maturity investments are primarily priced by pricing services that employ proprietary discounted cash flow models to value the securities. Key quantitative inputs for these models are daily observed benchmark curves for treasury, swap and high quality credits. The pricing services then apply a credit spread to the respective curve for each security which is developed by in-depth and real time market analysis. For securities in which trade volume is low, the pricing services utilize data from more frequently traded securities with similar attributes. These models may also be supplemented by daily market and credit research for international markets.

Corporate

Level 2 - At December 31, 2021, the Company's corporate fixed maturity investments principally consisted of U.S. and international corporations and had a weighted average yield to maturity of 2.8% and a weighted average credit quality of BBB (2020 - 2.2% and BBB, respectively). The Company's corporate fixed maturity investments are primarily priced by pricing services. When evaluating these securities, the pricing services gather information from market sources regarding the issuer of the security and obtain credit data, as well as other observations, from markets and sector news. Evaluations are updated by obtaining broker-dealer quotes and other market information including actual trade volumes, when available. The pricing services also consider the specific terms and conditions of the securities, including any specific features which may influence risk. In certain instances, securities are individually evaluated using a spread which is added to the U.S. treasury curve or a security specific swap curve as appropriate.

Agency Mortgage-backed

Level 2 - At December 31, 2021, the Company's agency mortgage-backed fixed maturity investments included agency residential mortgage-backed securities with a weighted average yield to maturity of 1.9%, a weighted average credit quality of AA and a weighted average life of 5.6 years (2020 - 1.0%, AA and 3.8 years, respectively). The Company's agency mortgage-backed fixed maturity investments are primarily priced by pricing services using a mortgage pool specific model which utilizes daily inputs from the active to-be-announced market which is very liquid, as well as the U.S. treasury market. The model also utilizes additional information, such as the weighted average maturity, weighted average coupon and other available pool level data which is provided by the sponsoring agency. Valuations are also corroborated with active market quotes.

Non-agency Mortgage-backed

Level 2 - At December 31, 2021, the Company's non-agency mortgage-backed fixed maturity investments had a weighted average yield to maturity of 3.2%, a weighted average credit quality of non-investment grade and a weighted average life of 5.7 years (December 31, 2020 - 3.0%, non-investment grade and 5.2 years, respectively). Securities held in these sectors are primarily priced by pricing services using an option adjusted spread model or other relevant models, which principally utilize inputs including benchmark yields, available trade information or broker quotes, and issuer spreads. The pricing services also review collateral prepayment speeds, loss severity and delinquencies among other collateral performance indicators for the securities valuation, when applicable.

Commercial Mortgage-backed

Level 2 - At December 31, 2021, the Company's commercial mortgage-backed fixed maturity investments had a weighted average yield to maturity of 1.9%, a weighted average credit quality of AA, and a weighted average life of 4.1 years (2020 - 1.5%, AAA and 5.0 years, respectively). Securities held in these sectors are primarily priced by pricing services. The pricing services apply dealer quotes and other available trade information such as bids and offers, prepayment speeds which may be adjusted for the underlying collateral or current price data, the U.S. treasury curve and swap curve as well as cash settlement. The pricing services discount the expected cash flows for each security held in this sector using a spread adjusted benchmark yield based on the characteristics of the security.

Asset-backed

Level 2 - At December 31, 2021, the Company’s asset-backed fixed maturity investments had a weighted average yield to maturity of 1.8%, a weighted average credit quality of AA and a weighted average life of 5.4 years (2020 - 1.8%, AA and 3.2 years, respectively). The underlying collateral for the Company’s asset-backed fixed maturity investments primarily consists of collateralized loan obligations and other receivables. Securities held in these sectors are primarily priced by pricing services. The pricing services apply dealer quotes and other available trade information such as bids and offers, prepayment speeds which may be adjusted for the underlying collateral or current price data, the U.S. treasury curve and swap curve as well as cash settlement. The pricing services determine the expected cash flows for each security held in this sector using historical prepayment and default projections for the underlying collateral and current market data. In addition, a spread is applied to the relevant benchmark and used to discount the cash flows noted above to determine the fair value of the securities held in this sector.

Short Term Investments

Level 2 - At December 31, 2021, the Company’s short term investments had a weighted average yield to maturity of 0.1% and a weighted average credit quality of AAA (2020 - 0.1% and AAA, respectively). The fair value of the Company’s portfolio of short term investments is generally determined using amortized cost which approximates fair value and, in certain cases, in a manner similar to the Company’s fixed maturity investments noted above.

Equity Investments, Classified as Trading

Level 1 - The fair value of the Company’s portfolio of equity investments, classified as trading is primarily priced by pricing services, reflecting the closing price quoted for the final trading day of the period. When pricing these securities, the pricing services utilize daily data from many real time market sources, including applicable securities exchanges. All data sources are regularly reviewed for accuracy to attempt to ensure the most reliable price source was used for each security.

Other Investments

Catastrophe Bonds

Level 2 - The Company’s other investments include investments in catastrophe bonds which are recorded at fair value based on broker or underwriter bid indications.

Other Assets and Liabilities

Derivatives

Level 1 and Level 2 - Other assets and liabilities include certain derivatives entered into by the Company. The fair value of these transactions includes certain exchange traded futures contracts which are considered Level 1, and foreign currency contracts and certain credit derivatives, determined using standard industry valuation models and considered Level 2, as the inputs to the valuation model are based on observable market inputs. For credit derivatives, these inputs include credit spreads, credit ratings of the underlying referenced security, the risk free rate and the contract term. For foreign currency contracts, these inputs include spot rates and interest rate curves.

Level 3 Assets and Liabilities Measured at Fair Value

Below is a summary of quantitative information regarding the significant unobservable inputs (Level 3) used in determining the fair value of assets and liabilities measured at fair value on a recurring basis:

At December 31, 2021	Fair Value (Level 3)	Valuation Technique	Unobservable Inputs	Low	High	Weighted Average or Actual
Other investments						
Direct private equity investments	$ 88,373	Internal valuation model	Discount rate	n/a	n/a	7.5 %
			Liquidity discount	n/a	n/a	15.0 %
Term loans	74,850	Yield analysis	Transaction yield	n/a	n/a	2.78 %
Total other investments	163,223					
Other assets and (liabilities)						
Assumed and ceded (re)insurance contracts	(4,727)	Internal valuation model	Net undiscounted cash flows	n/a	n/a	$ 14,920
			Expected loss ratio	n/a	n/a	14.7 %
			Discount rate	n/a	n/a	1.3 %
Total other assets and (liabilities)	(4,727)					
Total other assets and (liabilities) measured at fair value on a recurring basis using Level 3 inputs	$ 158,496					

At December 31, 2020	Fair Value (Level 3)	Valuation Technique	Unobservable Inputs	Low	High	Weighted Average or Actual
Other investments						
Private equity investment	$ 79,807	Internal valuation model	Discount rate	n/a	n/a	9.0 %
			Liquidity discount	n/a	n/a	15.0 %
Total other investments	79,807					
Other assets and (liabilities)						
Assumed and ceded (re)insurance contracts	(190)	Internal valuation model	Bond price	n/a	n/a	$ 99.31
			Liquidity discount	n/a	n/a	1.3 %
Assumed and ceded (re)insurance contracts	(7,395)	Internal valuation model	Net undiscounted cash flows	n/a	n/a	$ 12,514
			Expected loss ratio	n/a	n/a	24.0 %
			Discount rate	n/a	n/a	0.4 %
Assumed and ceded (re)insurance contracts	1,374	Internal valuation model	Expected loss ratio	n/a	n/a	0.0 %
Total other assets and (liabilities)	(6,211)					
Total other assets and (liabilities) measured at fair value on a recurring basis using Level 3 inputs	$ 73,596					

Below is a reconciliation of the beginning and ending balances, for the periods shown, of assets and liabilities measured at fair value on a recurring basis using Level 3 inputs. Interest and dividend income are included in net investment income and are excluded from the reconciliation.

	Other Investments		Other Assets and (Liabilities)	Total
	Direct private equity investments	Term loans		
Balance - January 1, 2021	$ 79,807	$ —	$ (6,211)	$ 73,596
Total realized and unrealized gains (losses)				
Included in net realized and unrealized gains (losses) on investments	(159)	—	—	(159)
Included in other income	—	—	2,624	2,624
Total foreign exchange gains	(3)	—	—	(3)
Purchases	9,676	74,850	(1,140)	83,386
Sales	(948)	—	—	(948)
Settlements	—	—	—	—
Balance - December 31, 2021	$ 88,373	$ 74,850	$ (4,727)	$ 158,496

	Other Investments		Other Assets and (Liabilities)	Total
	Direct private equity investments	Term loans		
Balance - January 1, 2020	$ 74,634	$ —	$ 4,731	$ 79,365
Total realized and unrealized gains (losses)				
Included in net realized and unrealized gains (losses) on investments	(5,662)	—	—	(5,662)
Included in other income	—	—	(3,191)	(3,191)
Total foreign exchange gains	10	—	—	10
Purchases	20,962	—	(2,012)	18,950
Sales	(10,137)	—	—	(10,137)
Settlements	—	—	(5,739)	(5,739)
Balance - December 31, 2020	$ 79,807	$ —	$ (6,211)	$ 73,596

Other Investments

Direct private equity investments

Level 3 - At December 31, 2021, the Company’s other investments included $88.4 million of direct private equity investments which are recorded at fair value, with the fair value obtained through the use of internal valuation models. The Company measured the fair value of these investments using multiples of net tangible book value of the underlying entity. The significant unobservable inputs used in the fair value measurement of these investments are liquidity discount rates applied to each of the net tangible book value multiples used in the internal valuation models, and discount rates applied to the expected cash flows of the underlying entity in various scenarios. These unobservable inputs in isolation can cause significant increases or decreases in fair value. Generally, an increase in the liquidity discount rate or discount rates would result in a decrease in the fair value of these private equity investments.

Term loans

Level 3 - At December 31, 2021, the Company’s other investments included a $74.9 million investment in a term loan which is recorded at fair value. The fair value is measured through yield analysis using the discounted cash flow method. The significant inputs using the discounted cash flow method are generally transaction yield, which may be adjusted for market movements implied by transactions of similar or related assets, loan-to-value, tenor, liquidity, credit risk adjustment or other risk factors. Assumptions used in the valuation process may significantly impact the resulting fair value.

Other Assets and Liabilities

Assumed and Ceded (Re)insurance Contracts

Level 3 - At December 31, 2021, the Company had a $4.7 million net liability related to assumed and ceded (re)insurance contracts accounted for at fair value, with the fair value obtained through the use of an internal valuation model. The inputs to the internal valuation model are principally based on proprietary data as observable market inputs are generally not available. The most significant unobservable inputs include the assumed and ceded expected net cash flows related to the contracts, including the expected premium, acquisition expenses and losses; the expected loss ratio and the relevant discount rate used to present value the net cash flows. The contract period and acquisition expense ratio are considered an observable input as each is defined in the contract. Generally, an increase in the net expected cash flows and expected term of the contract and a decrease in the discount rate, expected loss ratio or acquisition expense ratio, would result in an increase in the expected profit and ultimate fair value of these assumed and ceded (re)insurance contracts.

Financial Instruments Disclosed, But Not Carried, at Fair Value

The Company uses various financial instruments in the normal course of its business. The Company’s (re)insurance contracts are excluded from the fair value of financial instruments accounting guidance, unless the Company elects the fair value option, and therefore, are not included in the amounts discussed herein. The carrying values of cash and cash equivalents, accrued investment income, receivables for investments sold, certain other assets, payables for investments purchased, certain other liabilities, and other financial instruments not included herein approximated their fair values.

Debt

Included on the Company’s consolidated balance sheet at December 31, 2021 were debt obligations of $1.2 billion (2020 - $1.1 billion). At December 31, 2021, the fair value of the Company’s debt obligations was $1.3 billion (2020 – $1.3 billion).

The fair value of the Company’s debt obligations is determined using indicative market pricing obtained from third-party service providers, which the Company considers Level 2 in the fair value hierarchy. There have been no changes during the period in the Company’s valuation technique used to determine the fair value of the Company’s debt obligations. Refer to “Note 9. Debt and Credit Facilities” for additional information related to the Company’s debt obligations.

The Fair Value Option for Financial Assets and Financial Liabilities

The Company has elected to account for certain financial assets and financial liabilities at fair value using the guidance under FASB ASC Topic *Financial Instruments* as the Company believes it represents the most meaningful measurement basis for these assets and liabilities. Below is a summary of the balances the Company has elected to account for at fair value:

At December 31,		2021		2020
Other investments	$	1,993,059	$	1,256,948
Other assets	$	6,100	$	8,982
Other liabilities	$	10,827	$	15,193

Included in net realized and unrealized gains on investments for 2021 was net unrealized gains of $41.7 million related to the changes in fair value of other investments (2020 – losses of $4.7 million, 2019 – gains of $3.8 million).

Measuring the Fair Value of Other Investments Using Net Asset Valuations

The table below shows the Company's portfolio of other investments measured using net asset valuations as a practical expedient:

At December 31, 2021		Fair Value		Unfunded Commitments	Redemption Frequency	Redemption Notice Period (Minimum Days)	Redemption Notice Period (Maximum Days)
Private equity funds	$	241,297	$	458,566	See below	See below	See below
Private credit funds		473,112		868,571	See below	See below	See below
Hedge funds		11,394		—	See below	See below	See below
Total other investments measured using net asset valuations	$	725,803	$	1,327,137			

At December 31, 2020		Fair Value		Unfunded Commitments	Redemption Frequency	Redemption Notice Period (Minimum Days)	Redemption Notice Period (Maximum Days)
Private equity funds	$	140,743	$	286,893	See below	See below	See below
Private credit funds		144,556		692,425	See below	See below	See below
Hedge funds		10,553		—	See below	See below	See below
Total other investments measured using net asset valuations	$	295,852	$	979,318			

Private Equity Funds

The Company's investments in private equity funds include limited partnership or similar interests that invest in certain private equity asset classes including U.S. and global leveraged buyouts. The Company generally has no right to redeem its interest in any of these private equity funds in advance of dissolution of the applicable limited partnerships. Instead, distributions are received by the Company in connection with the exit from the underlying private equity investments of the fund. It is estimated that the majority of the underlying assets of the limited partnerships would liquidate over 5 to 10 years from inception of the limited partnership.

Private Credit Funds

The Company’s investments in private credit funds include limited partnership or similar interests that invest in certain private credit asset classes, including senior secured bank loan funds, U.S. direct lending funds, secondaries, mezzanine investments and distressed securities. The Company generally has no right to redeem its interest in any of these private credit funds in advance of dissolution of the applicable limited partnerships. Instead, distributions are received by the Company in connection with the liquidation or maturity of the underlying private credit assets of the fund. It is estimated that the majority of the underlying assets of the limited partnerships would liquidate over 5 to 10 years from inception of the limited partnership.

Hedge Funds

At December 31, 2021, the Company had $11.4 million (2020 - $10.6 million) of investment in a hedge fund that is primarily focused on global credit opportunities which are generally redeemable at the option of the limited partnership interest holder. As of December 31, 2021, the Company received notice that the fund is to be liquidated and is expected to dissolve in the coming months.

Limited partnerships entities

The Company’s fund investments represent variable interests in limited partnerships entities with unaffiliated fund managers in the normal course of business. The Company determined that certain of these limited partnership interests represent investments in the VIEs and that it is not required to consolidate these investments because it is not the primary beneficiary of these VIEs. The Company’s maximum exposure to loss with respect to these VIEs is limited to the carrying amounts reported in the Company’s consolidated balance sheet and any unfunded commitment.

The following table summarizes the aggregate carrying amount of the unconsolidated fund investments in VIEs, as well as our maximum exposure to loss associated with these VIEs:

			Maximum Exposure to Loss			
At December 31, 2021		**Carrying amount**		**Unfunded Commitments**		**Total**
Other investments	$	539,866	$	1,282,451	$	1,822,317
At December 31, 2020						
Other investments	$	240,058	$	659,119	$	899,177

NOTE 7. REINSURANCE

The Company purchases reinsurance and other protection to manage its risk portfolio and to reduce its exposure to large losses. The Company currently has in place contracts that provide for recovery of a portion of certain claims and claim expenses, generally in excess of various retentions or on a proportional basis. In addition to loss recoveries, certain of the Company’s ceded reinsurance contracts provide for payments of additional premiums, for reinstatement premiums and for lost no-claims bonuses, which are incurred when losses are ceded to the respective reinsurance contracts. The Company remains liable to the extent that any reinsurer fails to meet its obligations.

The following table sets forth the effect of reinsurance and retrocessional activity on premiums written and earned and on net claims and claim expenses incurred:

Year ended December 31,	2021	2020	2019
Premiums Written			
Direct	$ 994,286	$ 612,172	$ 461,409
Assumed	6,839,512	5,193,993	4,346,341
Ceded	(1,894,423)	(1,709,832)	(1,426,257)
Net premiums written	$ 5,939,375	$ 4,096,333	$ 3,381,493
Premiums Earned			
Direct	$ 799,717	$ 536,595	$ 404,525
Assumed	6,257,814	5,078,682	4,348,261
Ceded	(1,863,350)	(1,662,815)	(1,414,383)
Net premiums earned	$ 5,194,181	$ 3,952,462	$ 3,338,403
Claims and Claim Expenses			
Gross claims and claim expenses incurred	$ 5,905,616	$ 3,893,204	$ 3,221,778
Claims and claim expenses recovered	(2,029,529)	(968,595)	(1,124,757)
Net claims and claim expenses incurred	$ 3,876,087	$ 2,924,609	$ 2,097,021

In assessing an allowance for reinsurance assets, which includes premiums receivable and reinsurance recoverable, the Company considers historical information, financial strength of reinsurers, collateralization amounts, and ratings to determine the appropriateness of the allowance. In assessing future default for reinsurance assets, the Company evaluates the provision for current expected credit losses under the probability of default and loss given default method. The Company utilizes its internal capital and risk models, which use counterparty ratings from major rating agencies, and assesses the current market conditions for the likelihood of default. The Company updates its internal capital and risk models for counterparty ratings and current market conditions on a periodic basis. Historically, the Company has not experienced material credit losses from reinsurance assets.

Premiums receivable reflect premiums written based on contract and policy terms and include estimates based on information received from both insureds and ceding companies, supplemented by our own judgment, including our estimates of premiums that are written but not reported. Due to the nature of reinsurance, ceding companies routinely report and remit premiums to us subsequent to the contract coverage period, although the time lag involved in the process of reporting and collecting premiums is typically shorter than the lag in reporting losses.

At December 31, 2021, the Company’s premiums receivable balance was $3.8 billion (2020 - $2.9 billion). Of the Company’s premiums receivable balance as of December 31, 2021, the majority are receivable from highly rated counterparties. The provision for current expected credit losses on the Company’s premiums receivable was $2.8 million at December 31, 2021 (2020 - $6.0 million). The following table provides a roll forward of the provision for current expected credit losses of the Company’s premiums receivable:

Year ended December 31,	2021
Beginning balance	$ 5,961
Provision for allowance	(3,185)
Ending balance	$ 2,776

Reinsurance recoverable reflects amounts due from reinsurers based on the claim liabilities associated with the reinsured policy. The Company accrues amounts that are due from assuming companies based on estimated ultimate losses applicable to the contracts.

At December 31, 2021, the Company’s reinsurance recoverable balance was $4.3 billion (2020 - $2.9 billion). Of the Company’s reinsurance recoverable balance at December 31, 2021, 46.9% is fully collateralized by our reinsurers, 52.1% is recoverable from reinsurers rated A- or higher by major rating agencies and 1.0% is recoverable from reinsurers rated lower than A- by major rating agencies (2020 - 45.2%, 53.4% and 1.4%, respectively). The reinsurers with the three largest balances accounted for 19.9%, 8.4% and 4.3%, respectively, of the Company's reinsurance recoverable balance at December 31, 2021 (2020 - 15.3%, 10.8% and 6.7%, respectively). The provision for current expected credit losses was $8.3 million at December 31, 2021 (2020 - $6.3 million). The three largest company-specific components of the provision for current expected credit losses represented 18.0%, 13.9% and 11.2%, respectively, of the Company's total provision for current expected credit losses at December 31, 2021 (2020 - 13.2%, 13.0% and 6.7%, respectively). The following table provides a roll forward of the provision for current expected credit losses of the Company's reinsurance recoverable:

Year ended December 31,	2021
Beginning balance	$ 6,334
Provision for allowance	2,010
Ending balance	$ 8,344

NOTE 8. RESERVE FOR CLAIMS AND CLAIM EXPENSES

The Company believes the most significant accounting judgment made by management is its estimate of claims and claim expense reserves. Claims and claim expense reserves represent estimates, including actuarial and statistical projections at a given point in time, of the ultimate settlement and administration costs for unpaid claims and claim expenses arising from the insurance and reinsurance contracts the Company sells. The Company establishes its claims and claim expense reserves by taking claims reported to the Company by insureds and ceding companies, but which have not yet been paid ("case reserves"), adding estimates for the anticipated cost of claims incurred but not yet reported to the Company, or incurred but not enough reported to the Company (collectively referred to as "IBNR") and, if deemed necessary, adding costs for additional case reserves which represent the Company's estimates for claims related to specific contracts previously reported to the Company which it believes may not be adequately estimated by the client as of that date, or adequately covered in the application of IBNR. The Company's reserving committee, which includes members of the Company's senior management, reviews, discusses, and assesses the reasonableness and adequacy of the reserving estimates included in our audited financial statements.

The following table summarizes the Company's claims and claim expense reserves by segment, allocated between case reserves, additional case reserves and IBNR:

At December 31, 2021	Case Reserves	Additional Case Reserves	IBNR	Total
Property	$ 1,555,210	$ 1,996,760	$ 2,825,718	$ 6,377,688
Casualty and Specialty	1,784,334	128,065	5,004,543	6,916,942
Total	$ 3,339,544	$ 2,124,825	$ 7,830,261	$ 13,294,630
At December 31, 2020				
Property	$ 1,127,909	$ 1,617,003	$ 1,627,541	$ 4,372,453
Casualty and Specialty	1,651,150	133,843	4,223,692	6,008,685
Total	$ 2,779,059	$ 1,750,846	$ 5,851,233	$ 10,381,138

Activity in the liability for unpaid claims and claim expenses is summarized as follows:

Year ended December 31,		2021		2020		2019
Reserve for claims and claim expenses, net of reinsurance recoverable, as of beginning of period	$	7,455,128	$	6,593,052	$	3,704,050
Net incurred related to:						
Current year		4,125,557		3,108,421		2,123,876
Prior years		(249,470)		(183,812)		(26,855)
Total net incurred		3,876,087		2,924,609		2,097,021
Net paid related to:						
Current year		574,230		412,172		265,649
Prior years		1,649,872		1,592,456		832,405
Total net paid		2,224,102		2,004,628		1,098,054
Foreign exchange (1)		(81,152)		97,273		31,260
Amounts disposed (2)		—		(155,178)		—
Amounts acquired (3)		—		—		1,858,775
Reserve for claims and claim expenses, net of reinsurance recoverable, as of end of period		9,025,961		7,455,128		6,593,052
Reinsurance recoverable as of end of period		4,268,669		2,926,010		2,791,297
Reserve for claims and claim expenses as of end of period	$	13,294,630	$	10,381,138	$	9,384,349

(1) Reflects the impact of the foreign exchange revaluation of the reserve for claims and claim expenses, net of reinsurance recoverable, denominated in non-U.S. dollars as at the balance sheet date.

(2) Represents the fair value of RenaissanceRe UK's reserve for claims and claim expenses, net of reinsurance recoverable, disposed of on August 18, 2020.

(3) Represents the fair value of TMR's reserve for claims and claim expenses, net of reinsurance recoverable, acquired at March 22, 2019. Refer to "Note 3. Acquisition of Tokio Millennium Re" for additional information related to the acquisition of TMR.

The Company's reserving methodology for each line of business uses a loss reserving process that calculates a point estimate for its ultimate settlement and administration costs for claims and claim expenses. The Company does not calculate a range of estimates and does not discount any of its reserves for claims and claim expenses. The Company uses this point estimate, along with paid claims and case reserves, to record its best estimate of additional case reserves and IBNR in its consolidated financial statements. Under GAAP, the Company is not permitted to establish estimates for catastrophe claims and claim expense reserves until an event occurs that gives rise to a loss.

Reserving involves other uncertainties, such as the dependence on information from ceding companies, the time lag inherent in reporting information from the primary insurer to the Company or to the Company's ceding companies, and differing reserving practices among ceding companies. The information received from ceding companies is typically in the form of bordereaux, broker notifications of loss and/or discussions with ceding companies or their brokers. This information may be received on a monthly, quarterly or transactional basis and normally includes paid claims and estimates of case reserves. The Company sometimes also receives an estimate or provision for IBNR. This information is updated and adjusted periodically during the loss settlement period as new data or facts in respect of initial claims, client accounts, industry or event trends may be reported or emerge in addition to changes in applicable statutory and case laws.

The Company's estimates of large losses are based on factors including currently available information derived from claims information from certain customers and brokers, industry assessments of losses, proprietary models, and the terms and conditions of the Company's contracts. The uncertainty of the Company's estimates for large losses is also impacted by the preliminary nature of the information available, the magnitude and relative infrequency of the events, the expected duration of the respective claims development period, inadequacies in the data provided to the relevant date by industry participants and the potential for further reporting lags or insufficiencies; and in certain large losses, significant uncertainty as to the form of the claims and legal issues, under the relevant terms of insurance and reinsurance contracts. In addition, a significant portion of the net claims and claim expenses associated with certain large losses can be concentrated with a few large clients and therefore the loss estimates for these large losses may vary significantly based on the claims experience of those clients. The contingent nature of business interruption and other exposures will also impact losses in a meaningful way, which may give rise to significant complexity in respect of claims handling, claims adjustment and other coverage issues, over time. Given the magnitude of certain events, there can be meaningful uncertainty regarding total covered losses for the insurance industry and, accordingly, several of the key assumptions underlying the Company's loss estimates. Loss reserve estimation in respect of the Company's retrocessional contracts poses further challenges compared to directly assumed reinsurance. In addition, the Company's actual net losses from these events may increase if the Company's reinsurers or other obligors fail to meet their obligations.

The Company reevaluates its actuarial reserving techniques on a periodic basis. Typically, the quarterly review procedures include reviewing paid and reported claims in the most recent reporting period, reviewing the development of paid and reported claims from prior periods, and reviewing the Company's overall experience by underwriting year and in the aggregate. The Company monitors its expected ultimate claims and claim expense ratios and expected claims reporting assumptions on a quarterly basis and compares them to its actual experience. These actuarial assumptions are generally reviewed annually, based on input from the Company's actuaries, underwriters, claims personnel and finance professionals, although adjustments may be made more frequently if needed. Assumption changes are made to adjust for changes in the pricing and terms of coverage the Company provides, changes in industry results for similar business, as well as its actual experience to the extent the Company has enough data to rely on its own experience. If the Company determines that adjustments to an earlier estimate are appropriate, such adjustments are recorded in the period in which they are identified.

Because of the inherent uncertainties discussed above, the Company has developed a reserving philosophy that attempts to incorporate prudent assumptions and estimates, and the Company has generally experienced favorable development on prior accident years net claims and claim expenses in the last several years. However, there is no assurance that this favorable development on prior accident years net claims and claim expenses will occur in future periods.

The Company establishes a provision for unallocated loss adjustment expenses ("ULAE") when the related reserve for claims and claim expenses is established. ULAE are expenses that cannot be associated with a specific claim but are related to claims paid or in the process of settlement, such as internal costs of the claims function, and are included in the reserve for claims and claim expenses. The determination of the ULAE provision is subject to judgment.

Incurred and Paid Claims Development and Reserving Methodology

The information provided herein about incurred and paid accident year claims development for the years ended prior to December 31, 2021 on a consolidated basis and by segment is presented as supplementary information. The Company has applied a retrospective approach with respect to its acquisitions, presenting all relevant historical information for all periods presented. In addition, included in the incurred claims and claim expenses and cumulated paid claims and claim expenses tables below are reconciling items that represents the unamortized balance of fair value adjustments recorded in connection with the acquisitions of Platinum Underwriters Holdings, Ltd. ("Platinum") and TMR to reflect an increase in net claims and claim expenses due to the addition of a market based risk margin that represented the cost of capital required by a market participant to assume the net claims and claim expenses of Platinum and TMR, partially offset by a decrease from discounting in connection with the acquisitions of Platinum and TMR, to reflect the time value of money.

For incurred and paid accident year claims denominated in currencies other than USD, the Company used the current year-end balance sheet foreign exchange rate for all periods provided, thereby eliminating the effects of changes in foreign currency translation rates from the incurred and paid accident year claims development information included in the tables below.

The following table details the Company’s consolidated incurred claims and claim expenses and cumulative paid claims and claim expenses as of December 31, 2021, net of reinsurance, as well as IBNR plus additional case reserve (“ACR”) included within the net incurred claims amounts.

	Incurred Claims and Claim Expenses, Net of Reinsurance										
	For the year ended December 31,										At December 31, 2021
Accident Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	IBNR and ACR
	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)		
2012	$ 1,138,478	$ 1,022,338	$ 958,667	$ 927,397	$ 899,241	$ 901,147	$ 907,765	$ 911,821	$ 894,228	$ 893,612	$ 28,520
2013	—	912,458	887,176	836,813	790,498	766,453	747,939	726,212	720,503	726,277	16,529
2014	—	—	1,002,755	974,640	965,706	941,733	922,659	932,269	897,645	888,622	57,970
2015	—	—	—	1,139,588	1,144,947	1,161,202	1,130,597	1,105,473	1,117,250	1,111,987	73,388
2016	—	—	—	—	1,418,381	1,464,953	1,447,703	1,420,715	1,366,532	1,373,871	59,360
2017	—	—	—	—	—	2,954,415	2,748,704	2,664,387	2,603,328	2,559,381	342,654
2018	—	—	—	—	—	—	2,198,790	2,342,952	2,297,920	2,188,749	371,723
2019	—	—	—	—	—	—	—	2,255,467	2,213,257	2,154,462	834,344
2020	—	—	—	—	—	—	—	—	3,090,954	3,076,722	1,562,397
2021	—	—	—	—	—	—	—	—	—	4,080,591	3,091,130
Total										$ 19,054,274	$ 6,438,015

	Cumulative Paid Claims and Claim Expenses, Net of Reinsurance									
	For the year ended December 31,									
Accident Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	
2012	$ 267,808	$ 417,140	$ 522,714	$ 597,103	$ 648,754	$ 723,431	$ 754,527	$ 785,271	$ 792,519	$ 808,734
2013	—	132,207	341,769	434,633	497,296	556,485	589,784	617,109	633,689	648,716
2014	—	—	231,084	435,331	557,091	633,294	694,155	741,271	767,927	788,590
2015	—	—	—	262,301	496,234	660,456	775,007	870,708	934,337	982,966
2016	—	—	—	—	287,753	625,995	831,642	973,074	1,087,441	1,184,679
2017	—	—	—	—	—	747,272	1,073,216	1,370,642	1,735,535	1,905,621
2018	—	—	—	—	—	—	590,671	800,773	1,172,692	1,452,144
2019	—	—	—	—	—	—	—	285,660	692,429	986,835
2020	—	—	—	—	—	—	—	—	410,482	1,023,330
2021	—	—	—	—	—	—	—	—	—	572,076
Total										$ 10,353,691
Outstanding liabilities from accident year 2011 and prior, net of reinsurance										341,797
Adjustment for unallocated loss adjustment expenses										61,251
Unamortized fair value adjustments recorded in connection with acquisitions										(77,670)
Liability for claims and claim expenses, net of reinsurance										$ 9,025,961

Property Segment

Within the Property segment, the Company writes property catastrophe excess of loss reinsurance contracts to insure insurance and reinsurance companies against natural and man-made catastrophes. Under these contracts, the Company indemnifies an insurer or reinsurer when its aggregate paid claims and claim expenses from a single occurrence of a covered peril exceeds the attachment point specified in the contract, up to an amount per loss specified in the contract. Generally, the Company’s most significant exposure is to losses from hurricanes, earthquakes and other windstorms, although the Company is also exposed to claims arising from other man-made and natural catastrophes, such as tsunamis, winter storms, freezes, floods, fires, tornadoes, explosions and acts of terrorism. The Company’s predominant exposure under such coverage is to property damage. However, other risks, including business interruption and other non-property losses, may also be covered under the Company’s catastrophe contracts when arising from a covered peril. The Company’s coverages are offered on either a worldwide basis or are limited to selected geographic areas.

Coverage can also vary from “all property” perils to limited coverage on selected perils, such as “earthquake only” coverage. The Company also enters into retrocessional contracts that provide property catastrophe coverage to other reinsurers or retrocedants. This coverage is generally in the form of excess of loss retrocessional contracts and may cover all perils and exposures on a worldwide basis or be limited in scope to selected geographic areas, perils and/or exposures. The exposures the Company assumes from retrocessional business can change within a contract term as the underwriters of a retrocedant may alter their book of business after the retrocessional coverage has been bound. The Company also offers dual trigger reinsurance contracts which require the Company to pay claims based on claims incurred by insurers and reinsurers in addition to the estimate of insured industry losses as reported by referenced statistical reporting agencies.

Also included in the Property segment is property per risk, property (re)insurance, delegated authority arrangements and regional U.S. multi-line reinsurance. The Company’s predominant exposure under such coverage is to property damage. However, other risks, including business interruption and other non-property losses, may also be covered when arising from a covered peril. The Company’s coverages are offered on either a worldwide basis or are limited to selected geographic areas. Principally all of the business is reinsurance, although the Company also writes insurance business primarily through delegated authority arrangements. The Company offers these products principally through proportional reinsurance coverage or in the form of delegated authority arrangements. In a proportional reinsurance arrangement (also referred to as quota share reinsurance or pro rata reinsurance), the reinsurer shares a proportional part of the original premiums and losses of the reinsured.

Claims and claim expenses in the Company’s Property segment are generally characterized by losses of low frequency and high severity. Initial reporting of paid and incurred claims in general, tends to be relatively prompt, particularly for less complex losses. The Company considers this business “short-tail” as compared to the reporting of claims for “long-tail” products, which tends to be slower. However, the timing of claims payment and reporting also varies depending on various factors, including: whether the claims arise under reinsurance of primary insurance companies or reinsurance of other reinsurance companies; the nature of the events (*e.g.*, hurricanes, earthquakes or terrorism); the geographic area involved; post-event inflation which may cause the cost to repair damaged property to increase significantly from current estimates, or for property claims to remain open for a longer period of time, due to limitations on the supply of building materials, labor and other resources; complex policy coverage and other legal issues; and the quality of each client’s claims management and reserving practices. Management’s judgments regarding these factors are reflected in the Company’s reserve for claims and claim expenses.

Reserving for most of the Company’s Property segment generally does not involve the use of traditional actuarial techniques. Rather, claims and claim expense reserves are estimated by management by completing an in-depth analysis of the individual contracts which may potentially be impacted by the loss. The in-depth analysis generally involves: 1) estimating the size of insured industry losses; 2) reviewing reinsurance contract portfolios to identify contracts which are exposed; 3) reviewing information reported or otherwise provided by customers and brokers; 4) discussing the loss with customers and brokers; and 5) estimating the ultimate expected cost to settle all claims and administrative costs arising from the loss on a contract-by-contract basis and in aggregate for the event. Once a loss has occurred, during the then current reporting period, the Company records its best estimate of the ultimate expected cost to settle all claims arising from the loss. The Company’s estimate of claims and claim expense reserves is then determined by deducting cumulative paid losses from its estimate of the ultimate expected loss. The Company’s estimate of IBNR is determined by deducting cumulative paid losses, case reserves and additional case reserves from its estimate of the ultimate expected loss. Once the Company receives a valid notice of loss or payment request under a catastrophe reinsurance contract, it is generally able to process and pay such claims promptly.

Because losses from which claims arise under policies written within the Property segment are typically prominent, public events such as hurricanes and earthquakes, the Company is often able to use independent reports as part of its loss reserve estimation process. The Company also reviews catastrophe bulletins published by various statistical reporting agencies to assist in determining the size of the industry loss, although these reports may not be available for some time after an event.

For smaller events including localized severe weather events such as windstorms, hail, ice, snow, flooding, freezing and tornadoes, which are not necessarily prominent, public occurrences, the Company initially places greater reliance on catastrophe bulletins published by statistical reporting agencies to assist in determining what events occurred during the reporting period than the Company does for large events. This includes reviewing catastrophe bulletins published by Property Claim Services for U.S. catastrophes. The Company sets its initial estimates of reserves for claims and claim expenses for these smaller events based on a combination of its historical market share for these types of losses and the estimate of the total insured industry property losses as reported by statistical reporting agencies, although management may make significant adjustments based on the Company’s current exposure to the geographic region involved as well as the size of the loss and the peril involved. This approach supplements the Company’s approach for estimating losses for larger catastrophes, which as discussed above, includes discussions with brokers and ceding companies and reviewing individual contracts impacted by the event. Approximately one year from the date of loss for these small events, the Company typically estimates IBNR for these events by using the paid Bornhuetter-Ferguson actuarial method. The loss development factors for the paid Bornhuetter-Ferguson actuarial method are selected based on a review of the Company’s historical experience. There were no significant changes to the Company's paid loss development factors over the last three years.

In general, reserves for the Company’s more recent large losses are subject to greater uncertainty and, therefore, greater potential variability, and are likely to experience material changes from one period to the next. This is due to the uncertainty as to the size of the industry losses, uncertainty as to which contracts have been exposed, uncertainty due to complex legal and coverage issues that can arise out of large or complex losses, and uncertainty as to the magnitude of claims incurred by the Company’s customers. As the Company’s claims age, more information becomes available and the Company believes its estimates become more certain.

The following table details the Company’s Property segment incurred claims and claim expenses and cumulative paid claims and claim expenses as of December 31, 2021, net of reinsurance, as well as IBNR plus ACR included within the net incurred claims amounts.

	Incurred Claims and Claim Expenses, Net of Reinsurance										
	For the year ended December 31,										At December 31, 2021
Accident Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	IBNR and ACR
	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)		
2012	$ 560,348	$ 429,885	$ 395,605	$ 375,439	$ 358,509	$ 346,756	$ 338,877	$ 334,347	$ 325,042	$ 322,871	$ 1,180
2013	—	318,033	294,315	272,191	250,014	238,734	235,016	235,356	238,404	240,779	1,113
2014	—	—	302,158	278,813	265,569	260,542	259,379	256,845	250,647	247,708	372
2015	—	—	—	372,338	357,065	334,099	323,211	311,964	305,847	295,081	71
2016	—	—	—	—	455,503	469,120	452,922	434,706	415,572	411,698	16,889
2017	—	—	—	—	—	1,644,982	1,461,953	1,350,684	1,328,419	1,273,461	217,210
2018	—	—	—	—	—	—	938,309	1,020,102	979,598	857,217	105,483
2019	—	—	—	—	—	—	—	992,526	956,445	898,472	254,099
2020	—	—	—	—	—	—	—	—	1,580,564	1,600,743	585,134
2021	—	—	—	—	—	—	—	—	—	2,370,891	1,552,621
Total										$ 8,518,921	$ 2,734,172

	Cumulative Paid Claims and Claim Expenses, Net of Reinsurance									
	For the year ended December 31,									
Accident Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	
2012	$ 165,951	$ 205,814	$ 254,000	$ 280,519	$ 291,901	$ 306,718	$ 309,133	$ 314,418	$ 314,720	$ 318,295
2013	—	80,397	156,204	192,225	207,963	215,758	218,446	221,255	226,035	226,353
2014	—	—	106,781	184,711	223,197	234,933	241,266	244,721	243,885	246,690
2015	—	—	—	126,972	226,722	260,858	278,452	288,678	292,033	294,651
2016	—	—	—	—	120,506	259,131	327,034	351,523	374,160	384,932
2017	—	—	—	—	—	534,631	663,381	820,148	946,934	972,239
2018	—	—	—	—	—	—	434,358	439,783	611,268	638,149
2019	—	—	—	—	—	—	—	160,141	364,761	526,314
2020	—	—	—	—	—	—	—	—	255,268	676,472
2021	—	—	—	—	—	—	—	—	—	499,796
Total										$ 4,783,891
Outstanding liabilities from accident year 2011 and prior, net of reinsurance										89,538
Adjustment for unallocated loss adjustment expenses										16,266
Unamortized fair value adjustments recorded in connection with acquisitions										(11,642)
Liability for claims and claim expenses, net of reinsurance										$ 3,829,192

Casualty and Specialty Segment

The Company offers its casualty and specialty reinsurance products principally on a proportional basis, and it also provides excess of loss coverage. The Company offers casualty and specialty reinsurance products to insurance and reinsurance companies and provides coverage for specific geographic regions or on a worldwide basis. Principally all of the business is reinsurance, although the Company also writes insurance business.

As with the Company’s Property segment, its Casualty and Specialty segment reinsurance contracts can include coverage for relatively large limits or exposures. As a result, the Company’s casualty and specialty reinsurance business can be subject to significant claims volatility. In periods of low claims frequency or severity, the Company’s results will generally be favorably impacted while in periods of high claims frequency or severity the Company’s results will generally be negatively impacted.

The Company’s processes and methodologies in respect of loss estimation for the coverages offered through its Casualty and Specialty segment differ from those used for its Property segment. For example, the Company’s casualty and specialty coverages are more likely to be impacted by factors such as long-term inflation and changes in the social and legal environment, which the Company believes gives rise to greater uncertainty in its reserves for claims and claim expenses. Moreover, in many lines of business the Company does not have the benefit of a significant amount of its own historical experience and may have little or no related corporate reserving history in many of its newer or growing lines of business. The Company believes this makes its Casualty and Specialty segment reserving subject to greater uncertainty than its Property segment.

The Company calculates multiple point estimates for claims and claim expense reserves using a variety of actuarial reserving techniques for many, but not all, of its classes of business for each underwriting year within the Casualty and Specialty segment. The Company does not believe that these multiple point estimates are, or should be considered, a range. Rather, the Company considers each class of business and determines the most appropriate point estimate for each underwriting year based on the characteristics of the particular class including: (1) loss development patterns derived from historical data; (2) the credibility of the selected loss development pattern; (3) the stability of the loss development patterns; (4) how developed the underwriting year is; and (5) the observed loss development of other underwriting years for the same class. The Company also considers other relevant factors, including: (1) historical ultimate loss ratios; (2) the presence of individual large losses; and (3) known occurrences that have not yet resulted in reported losses. The Company makes determinations of the most appropriate point estimate of loss for each class based on an evaluation of relevant information and does not ascribe any particular portion of the estimate to a particular factor or consideration. In addition, the Company believes that a review of individual contract information improves the loss estimates for some classes of business.

When developing claims and claims expense reserves for its Casualty and Specialty segment, the Company considers several actuarial techniques such as the expected loss ratio method, the Bornhuetter-Ferguson actuarial method and the paid and reported chain ladder actuarial method.

For classes of business and underwriting years where the Company has limited historical claims experience, estimates of ultimate losses are generally initially determined based on the loss ratio method applied to each underwriting year and to each class of business. Unless the Company has credible claims experience or unfavorable development, it generally selects an ultimate loss based on its initial expected loss ratio. The selected ultimate losses are determined by multiplying the initial expected loss ratio by the earned premium. The initial expected loss ratios are key inputs that involve management judgment and are based on a variety of factors, including: (1) contract by contract expected loss ratios developed during the Company’s pricing process; (2) historical loss ratios and combined ratios adjusted for rate change and trend; and (3) industry benchmarks for similar business. These judgments take into account management’s view of past, current and future factors that may influence ultimate losses, including: (1) market conditions; (2) changes in the business underwritten; (3) changes in timing of the emergence of claims; and (4) other factors that may influence ultimate loss ratios and losses.

The determination of when reported losses are sufficient and credible to warrant selection of an ultimate loss ratio different from the initial expected loss ratio also requires judgment. The Company generally makes adjustments for reported loss experience indicating unfavorable variances from initial expected loss ratios sooner than reported loss experience indicating favorable variances. This is because the reporting of losses in excess of expectations tends to have greater credibility than an absence or lower than expected level of reported losses. Over time, as a greater number of claims are reported and the credibility of reported losses improves, actuarial estimates of IBNR are typically based on the Bornhuetter-Ferguson actuarial method or the reported chain ladder actuarial method.

The Bornhuetter-Ferguson method allows for greater weight to be applied to expected results in periods where little or no actual experience is available, and, hence, is less susceptible to the potential pitfall of being excessively swayed by experience of actual paid and/or reported loss data, compared to the chain ladder actuarial method. The Bornhuetter-Ferguson method uses the initial expected loss ratio to estimate IBNR, and it assumes that past experience is not fully representative of the future. As the Company’s reserves for claims and claim expenses age, and actual claims experience becomes available, this method places less weight on expected experience and places more weight on actual experience. This experience, which represents the difference between expected reported claims and actual reported claims, is reflected in the respective reporting period as a change in estimate. The utilization of the Bornhuetter-Ferguson method requires the Company to estimate an expected ultimate claims and claim expense ratio and select an expected loss reporting pattern. The Company selects its estimates of the expected ultimate claims and claim expense ratios as described above and selects its expected loss reporting patterns by utilizing actuarial analysis, including management's judgment, and historical patterns of paid losses and reporting of case reserves to the Company, as well as industry loss development patterns. The estimated expected claims and claim expense ratio may be modified to the extent that reported losses at a given point in time differ from what would be expected based on the selected loss reporting pattern.

The reported chain ladder actuarial method utilizes actual reported losses and a loss development pattern to determine an estimate of ultimate losses that is independent of the initial expected ultimate loss ratio and earned premium. The Company believes this technique is most appropriate when there are a large number of reported losses with significant statistical credibility and a relatively stable loss development pattern. Information that may cause future loss development patterns to differ from historical loss development patterns is considered and reflected in the Company's selected loss development patterns as appropriate. For certain reinsurance contracts, historical loss development patterns may be developed from ceding company data or other sources.

In addition, certain specialty coverages may be impacted by natural and man-made catastrophes. The Company estimates reserves for claim and claim expenses for these losses, following a process that is similar to its Property segment described above.

The following table details the Company’s Casualty and Specialty segment incurred claims and claim expenses and cumulative paid claims and claim expenses as of December 31, 2021, net of reinsurance, as well as IBNR plus ACR included within the net incurred claims amounts.

	Incurred Claims and Claim Expenses, Net of Reinsurance										
	For the year ended December 31,										At December 31, 2021
Accident Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	IBNR and ACR
	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)		
2012	$ 578,130	$ 592,453	$ 563,062	$ 551,958	$ 540,732	$ 554,391	$ 568,888	$ 577,474	$ 569,186	$ 570,741	$ 27,340
2013	—	594,425	592,861	564,622	540,484	527,719	512,923	490,856	482,099	485,498	15,416
2014	—	—	700,597	695,827	700,137	681,191	663,280	675,424	646,998	640,914	57,598
2015	—	—	—	767,250	787,882	827,103	807,386	793,509	811,403	816,906	73,317
2016	—	—	—	—	962,878	995,833	994,781	986,009	950,960	962,173	42,471
2017	—	—	—	—	—	1,309,433	1,286,751	1,313,703	1,274,909	1,285,920	125,444
2018	—	—	—	—	—	—	1,260,481	1,322,850	1,318,322	1,331,532	266,240
2019	—	—	—	—	—	—	—	1,262,941	1,256,812	1,255,990	580,245
2020	—	—	—	—	—	—	—	—	1,510,390	1,475,979	977,263
2021	—	—	—	—	—	—	—	—	—	1,709,700	1,538,509
Total										$ 10,535,353	$ 3,703,843

	Cumulative Paid Claims and Claim Expenses, Net of Reinsurance									
	For the year ended December 31,									
Accident Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	(unaudited)	
2012	$ 101,857	$ 211,326	$ 268,714	$ 316,584	$ 356,853	$ 416,713	$ 445,394	$ 470,853	$ 477,799	$ 490,439
2013	—	51,810	185,565	242,408	289,333	340,727	371,338	395,854	407,654	422,363
2014	—	—	124,303	250,620	333,894	398,361	452,889	496,550	524,042	541,900
2015	—	—	—	135,329	269,512	399,598	496,555	582,030	642,304	688,315
2016	—	—	—	—	167,247	366,864	504,608	621,551	713,281	799,747
2017	—	—	—	—	—	212,641	409,835	550,494	788,601	933,382
2018	—	—	—	—	—	—	156,313	360,990	561,424	813,995
2019	—	—	—	—	—	—	—	125,519	327,668	460,521
2020	—	—	—	—	—	—	—	—	155,214	346,858
2021	—	—	—	—	—	—	—	—	—	72,280
Total										$ 5,569,800
Outstanding liabilities from accident year 2011 and prior, net of reinsurance										252,259
Adjustment for unallocated loss adjustment expenses										44,985
Unamortized fair value adjustments recorded in connection with acquisitions										(66,028)
Liability for claims and claim expenses, net of reinsurance										$ 5,196,769

Prior Year Development of the Reserve for Net Claims and Claim Expenses

The Company’s estimates of claims and claim expense reserves are not precise in that, among other things, they are based on predictions of future developments and estimates of future trends and other variable factors. Some, but not all, of the Company’s reserves are further subject to the uncertainty inherent in actuarial methodologies and estimates. Because a reserve estimate is simply an insurer's estimate at a point in time of its ultimate liability, and because there are numerous factors that affect reserves and claims payments that cannot be determined with certainty in advance, the Company’s ultimate payments will vary, perhaps materially, from its estimates of reserves. If the Company determines in a subsequent period that adjustments to its previously established reserves are appropriate, such adjustments are recorded in the period in which they are identified. On a net basis, the Company’s cumulative favorable or unfavorable development is generally reduced by offsetting changes in its reinsurance recoverable, as well as changes to loss related premiums such as reinstatement premiums and redeemable noncontrolling interest, all of which generally move in the opposite direction to changes in the Company's ultimate claims and claim expenses.

The following table details the Company's prior year net development by segment of its liability for net unpaid claims and claim expenses:

Year ended December 31,	2021		2020		2019	
	(Favorable) adverse development		(Favorable) adverse development		(Favorable) adverse development	
Property	$	(233,373)	$	(157,049)	$	(2,973)
Casualty and Specialty		(16,097)		(26,763)		(23,882)
Total net (favorable) adverse development of prior accident years net claims and claim expenses	$	(249,470)	$	(183,812)	$	(26,855)

Changes to prior year estimated net claims reserves increased net income by $249.5 million during 2021 (2020 - increased net income by $183.8 million, 2019 - increased net income by $26.9 million), excluding the consideration of changes in reinstatement, adjustment or other premium changes, profit commissions, redeemable noncontrolling interest - DaVinciRe and Vermeer and income tax.

Property Segment

The following tables detail the development of the Company's liability for net unpaid claims and claim expenses for its Property segment, allocated between large and small catastrophe net claims and claim expenses and attritional net claims and claim expenses, included in the other line item:

Year ended December 31,	2021	
	(Favorable) adverse development	
Catastrophe net claims and claim expenses		
Large catastrophe events		
2020 Weather-Related Large Loss Events	$	17,140
2019 Large Loss Events		(61,634)
2018 Large Loss Events		(101,096)
2017 Large Loss Events		(49,090)
Other		(9,392)
Total large catastrophe events		(204,072)
Small catastrophe events and attritional loss movements		
Other small catastrophe events and attritional loss movements		(34,751)
Total small catastrophe events and attritional loss movements		(34,751)
Total catastrophe and attritional net claims and claim expenses		(238,823)
Actuarial assumption changes		5,450
Total net (favorable) adverse development of prior accident years net claims and claim expenses	$	(233,373)

The net favorable development of prior accident years net claims and claim expenses within the Company's Property segment in 2021 of $233.4 million was primarily comprised of net favorable development on prior year accident years net claims and claim expenses associated with the following large catastrophe events:

- $17.1 million of net adverse development associated with Hurricanes Laura, Sally, Isaias, Delta, Zeta and Eta, the California, Oregon and Washington wildfires, Typhoon Maysak, the August 2020 Derecho, and losses associated with aggregate loss contracts (collectively, the "2020 Weather-Related Large Loss Events").
- $61.6 million of net favorable development associated with Hurricane Dorian and Typhoons Faxai and Hagibis and certain losses associated with aggregate loss contracts (collectively, the "2019 Large Loss Events");

- $101.1 million of net favorable development associated with Typhoons Jebi, Mangkhut and Trami, Hurricane Florence, the wildfires in California during the third and fourth quarters of 2018, Hurricane Michael and certain losses associated with aggregate loss contracts (collectively, the “2018 Large Loss Events”); and
- $49.1 million of net favorable development associated with Hurricanes Harvey, Irma and Maria, the Mexico City Earthquake, the wildfires in California during the fourth quarter of 2017 and certain losses associated with aggregate loss contracts (collectively, the “2017 Large Loss Events”).

The Company’s Property segment also experienced net favorable development of $34.8 million associated with a number of other small catastrophe events as well as attritional loss movements related to lines of business where the Company principally estimates net claims and claim expenses using traditional actuarial methods. Partially offsetting these net favorable developments was net adverse development of $5.5 million related to actuarial assumption changes.

Year ended December 31,	**2020** (Favorable) adverse development
Catastrophe net claims and claim expenses	
Large catastrophe events	
2019 Large Loss Events	$ (44,389)
2018 Large Loss Events	(43,991)
2017 Large Loss Events	(32,649)
Other	124
Total large catastrophe events	(120,905)
Small catastrophe events and attritional loss movements	
Other small catastrophe events and attritional loss movements	(41,589)
Total small catastrophe events and attritional loss movements	(41,589)
Total catastrophe and attritional net claims and claim expenses	(162,494)
Actuarial assumption changes	5,445
Total net (favorable) adverse development of prior accident years net claims and claim expenses	$ (157,049)

The net favorable development of prior accident years net claims and claim expenses within the Company’s Property segment in 2020 of $157.0 million was primarily comprised of net favorable development on prior year accident years net claims and claim expenses associated with the following large catastrophe events:

- $44.4 million associated with the 2019 Large Loss Events;
- $44.0 million associated with the 2018 Large Loss Events; and
- $32.6 million associated with the 2017 Large Loss Events.

The Company’s Property segment also experienced net favorable development of $41.6 million associated with a number of other small catastrophe events as well as attritional loss movements related to lines of business where the Company principally estimates net claims and claim expenses using traditional actuarial methods. Partially offsetting these net favorable developments was net adverse development of $5.4 million related to actuarial assumption changes.

Year ended December 31,	2019
	(Favorable) adverse development
Catastrophe net claims and claim expenses	
Large catastrophe events	
2017 Large Loss Events	$ (101,572)
New Zealand Earthquake (2011)	(7,497)
Tohoku Earthquake and Tsunami (2011)	(5,198)
New Zealand Earthquake (2010)	47,071
2018 Large Loss Events	81,555
Other	(31,916)
Total large catastrophe events	(17,557)
Small catastrophe events and attritional loss movements	
Other small catastrophe events and attritional loss movements	5,339
Total small catastrophe events and attritional loss movements	5,339
Total catastrophe and attritional net claims and claim expenses	(12,218)
Actuarial assumption changes	9,245
Total net (favorable) adverse development of prior accident years net claims and claim expenses	$ (2,973)

The net favorable development of prior accident years net claims and claim expenses within the Company's Property segment in 2019 of $3.0 million was comprised of net favorable development of $17.6 million related to large catastrophe events, net adverse development of $5.3 million related to small catastrophe events and attritional loss movements and $9.2 million of net adverse development associated with actuarial assumption changes. Included in net favorable development of prior accident years net claims and claim expenses from large events was $101.6 million of decreases in the net estimated ultimate losses associated with the 2017 Large Loss Events, partially offset by $81.6 million of increases in the net estimated ultimate losses associated with the 2018 Large Loss Events and $47.1 million of net increases in the estimated ultimate losses associated with the 2010 New Zealand Earthquake.

Casualty and Specialty Segment

The following table details the development of the Company's liability for unpaid claims and claim expenses for its Casualty and Specialty segment:

Year ended December 31,	2021	2020	2019
	(Favorable) adverse development	(Favorable) adverse development	(Favorable) adverse development
Actuarial methods - actual reported claims less than expected claims	$ (19,078)	$ (29,280)	$ (52,796)
Actuarial assumption changes	2,981	2,517	28,914
Total net (favorable) adverse development of prior accident years net claims and claim expenses	$ (16,097)	$ (26,763)	$ (23,882)

The net favorable development of prior accident years net claims and claim expenses within the Company's Casualty and Specialty segment in 2021, 2020, and 2019 was due to reported losses generally coming in lower than expected on attritional net claims and claim expenses across a number of lines of business, partially offset by net adverse development associated with certain actuarial assumption changes.

Reconciliation of the Disclosure of Incurred and Paid Claims Development to the Reserve for Claims and Claim Expenses

The reconciliation of the net incurred and paid claims development tables to the reserve for claims and claim expenses in the consolidated balance sheet is as follows:

At December 31, 2021		
Net Reserve for Claims and Claim Expenses		
Property	$	3,829,192
Casualty and Specialty		5,196,769
Other		—
Total net reserve for claims and claim expenses		9,025,961
Reinsurance Recoverable		
Property	$	2,548,496
Casualty and Specialty		1,720,173
Other		—
Total reinsurance recoverable		4,268,669
Total reserve for claims and claim expenses	$	13,294,630

Historical Claims Duration

The following is unaudited supplementary information about average historical claims duration by segment:

	Average Annual Percentage Payout of Incurred Claims by Age, Net of Reinsurance (Number of Years)									
At December 31, 2021	1	2	3	4	5	6	7	8	9	10
Property	29.2 %	19.4 %	15.7 %	6.8 %	3.0 %	2.3 %	0.6 %	1.6 %	0.1 %	1.1 %
Casualty and Specialty	12.4 %	17.0 %	12.8 %	14.2 %	9.8 %	8.1 %	5.0 %	3.2 %	2.1 %	2.2 %

Claims Frequency

Each of the Company’s reportable segments are broadly considered to be assumed reinsurance, where multiple claims are often aggregated, perhaps multiple times through retrocessional reinsurance, before ultimately being ceded to the Company. In addition, the nature, size, terms and conditions of contracts entered into by the Company changes from one accident year to the next and the quantum of contractual or policy limits, and accordingly the potential amount of claims and claim expenses associated with a reported claim, can range from nominal, to significant. These factors can impact the amount and timing of the claims and claim expenses to be recorded and accordingly, developing claim frequency information is highly subjective and is not prepared or utilized for internal purposes. In addition, the Company does not have direct access to claim frequency information underlying certain of its proportional contracts given the nature of that business. As a result, the Company does not believe providing claim frequency information is practicable as it relates to its proportional contracts.

Notwithstanding the factors noted above, the Company has developed claims frequency information associated with its excess of loss reinsurance contracts. As each accident year develops, the Company would expect the cumulative number of reported claims to increase in certain of its excess of loss reinsurance contracts, most notably in its Casualty and Specialty segment. In determining claims frequency for its excess of loss reinsurance contracts, the Company has made the following assumptions:

- Claims below the insured layer of a contract are excluded;
- If an insured loss event results in claims associated with a number of layers of a contract, the Company would consider this to be a single claim; and

- If an insured loss event results in claims associated with a number of the Company's operating subsidiaries, the Company considers each operating subsidiary to have a reported claim.

The following table details the Company's cumulative number of reported claims for its excess of loss reinsurance contracts allocated by segment:

	At December 31, 2021	
	Cumulative Number of Reported Claims	
Accident Year	Property	Casualty and Specialty
2012	922	2,559
2013	812	3,030
2014	762	3,914
2015	783	4,419
2016	1,206	5,164
2017	2,596	4,753
2018	2,516	3,921
2019	1,704	3,392
2020	2,298	1,777
2021	1,203	725

Assumed Reinsurance Contracts Classified As Deposit Contracts

Net claims and claim expenses incurred were reduced by $0.2 million during 2021 (2020 – $0.4 million, 2019 – $Nil) related to income earned on assumed reinsurance contracts that were classified as deposit contracts with underwriting risk only. Other income was increased by $Nil during 2021 (2020 – $1.0 million, 2019 – $1.3 million) related to premiums and losses incurred on assumed reinsurance contracts that were classified as deposit contracts with timing risk only. Deposit liabilities of $4.2 million are included in reinsurance balances payable at December 31, 2021 (2020 – $7.5 million). At December 31, 2021 and 2020, there were no deposit assets in other assets associated with these contracts.

NOTE 9. DEBT AND CREDIT FACILITIES

Debt Obligations

A summary of the Company's debt obligations on its consolidated balance sheets is set forth below:

	December 31, 2021		December 31, 2020	
	Fair Value	Carrying Value	Fair Value	Carrying Value
3.600% Senior Notes due 2029	$ 432,316	$ 393,305	$ 453,932	$ 392,391
3.450% Senior Notes due 2027	321,204	297,281	329,661	296,787
3.700% Senior Notes due 2025	318,852	298,798	315,273	298,428
4.750% Senior Notes due 2025 (DaVinciRe) (1)	166,071	148,969	162,203	148,659
Total senior notes	1,238,443	1,138,353	1,261,069	1,136,265
Medici Revolving Credit Facility (2)	30,000	30,000	—	—
Total debt	$ 1,268,443	$ 1,168,353	$ 1,261,069	$ 1,136,265

(1) RenaissanceRe owns a noncontrolling economic interest in its joint venture DaVinciRe. Because RenaissanceRe controls a majority of DaVinciRe's outstanding voting rights, the consolidated financial statements of DaVinciRe are included in the consolidated financial statements of RenaissanceRe. However, RenaissanceRe does not guarantee or provide credit support for DaVinciRe and RenaissanceRe's financial exposure to DaVinciRe is limited to its investment in DaVinciRe's shares and counterparty credit risk arising from reinsurance transactions.

(2) RenaissanceRe owns a noncontrolling economic interest in Medici. Because RenaissanceRe controls all of Medici's outstanding voting rights, the financial statements of Medici are included in RenaissanceRe's consolidated financial statements.

3.600% Senior Notes Due 2029

On April 2, 2019, RenaissanceRe issued $400.0 million principal amount of its 3.600% Senior Notes due April 15, 2029, with interest on the notes payable on April 15 and October 15 of each year, commencing on October 15, 2019. The notes are redeemable at the applicable redemption price, subject to the terms described in the indenture for the notes. However, the notes may not be redeemed prior to April 15, 2022 without approval from the Bermuda Monetary Authority (the "BMA") and may not be redeemed at any time prior to their maturity if enhanced capital requirements, as established by the BMA, would be breached immediately before or after giving effect to the redemption of such notes, unless, in each case, RenaissanceRe replaces the capital represented by the notes to be redeemed with capital having equal or better capital treatment as the notes under applicable BMA rules. The notes contain various covenants including limitations on mergers and consolidations, and restrictions as to the disposition of, and the placing of liens on, the stock of designated subsidiaries. The net proceeds from this offering were used to repay, in full, the $200.0 million outstanding under the Company's revolving credit facility at March 31, 2019, which the Company used to partially fund the purchase price for the TMR Stock Purchase, and the remainder of the net proceeds was used for general corporate purposes. Refer to "Note 3. Acquisition of Tokio Millennium Re" for additional information related to the acquisition of TMR.

3.450% Senior Notes due 2027 of RenaissanceRe Finance Inc.

On June 29, 2017, RenaissanceRe Finance Inc. ("RenaissanceRe Finance") issued $300.0 million principal amount of its 3.450% Senior Notes due July 1, 2027, with interest on the notes payable on July 1 and January 1 of each year. The notes are fully and unconditionally guaranteed by RenaissanceRe and may be redeemed by RenaissanceRe Finance prior to maturity, subject to the payment of a "make-whole" premium if the notes are redeemed prior to April 1, 2027. The notes contain various covenants, including limitations on mergers and consolidations, and restrictions as to the disposition of, and the placing of liens on, stock of designated subsidiaries.

3.700% Senior Notes due 2025 of RenaissanceRe Finance

On March 24, 2015, RenaissanceRe Finance issued $300.0 million principal amount of its 3.700% Senior Notes due April 1, 2025, with interest on the notes payable on April 1 and October 1 of each year. The notes are fully and unconditionally guaranteed by RenaissanceRe and may be redeemed by RenaissanceRe Finance prior to maturity, subject to the payment of a "make-whole" premium if the notes are redeemed prior to January 1, 2025. The notes contain various covenants, including limitations on mergers and consolidations, and restrictions as to the disposition of, and the placing of liens on, stock of designated subsidiaries.

The net proceeds from the offering of the notes (together with cash on hand) were applied by RenaissanceRe to repay in full a $300.0 million bridge loan that Barclays Bank PLC provided to RenaissanceRe on February 25, 2015 in order to finance a portion of the cash consideration paid by RenaissanceRe in connection with the acquisition of Platinum.

5.75% *Senior Notes due 2020 of RenRe North America Holdings Inc. and RenaissanceRe Finance*

On March 17, 2010, RenRe North America Holdings Inc. ("RRNAH") issued $250.0 million principal amount of its 5.75% Senior Notes due March 15, 2020 (the "RRNAH Notes"), with interest on the notes payable on March 15 and September 15 of each year. RenaissanceRe Finance became a co-obligor of the notes as of July 3, 2015. On March 15, 2020, the Company repaid in full at maturity the aggregate principal amount of $250.0 million, plus applicable accrued interest, of the 5.75% Senior Notes due 2020 of RenRe North America Holdings Inc. and RenaissanceRe Finance. The notes, which were senior obligations, were fully and unconditionally guaranteed by RenaissanceRe.

DaVinciRe Senior Notes

On May 4, 2015, DaVinciRe issued $150.0 million principal amount of its 4.750% Senior Notes due May 1, 2025, with interest on the notes payable on May 1 and November 1, commencing with November 1, 2015 (the "DaVinciRe Senior Notes"). The DaVinciRe Senior Notes, which are senior obligations, may be redeemed prior to maturity, subject to the payment of a "make-whole" premium if the notes are redeemed before February 1, 2025. The DaVinciRe Senior Notes contain various covenants including restrictions as to the disposition of, and the placing of liens on, the stock of designated subsidiaries, limitations on mergers, amalgamations and consolidations, limitations on third-party investor redemptions, a leverage covenant and a covenant to maintain certain ratings. The net proceeds from this offering were used to repay, in full, $100.0 million outstanding under the loan agreement, dated as of March 30, 2011, between DaVinciRe and RenaissanceRe, and the remainder of the net proceeds were used for general corporate purposes.

Scheduled Debt Maturity

The following table sets forth the scheduled maturity of the Company's aggregate amount of its debt obligation reflected on its consolidated balance sheet at December 31, 2021:

2022	$	30,000
2023		—
2024		—
2025		450,000
2026		—
After 2026		700,000
Unamortized fair value adjustments		—
Unamortized discount and debt issuance expenses		(11,647)
	$	1,168,353

Credit Facilities

The outstanding amounts issued or drawn under each of the Company's significant credit facilities is set forth below:

At December 31, 2021		Issued or Drawn
Revolving Credit Facility (1)	$	—
Medici Revolving Credit Facility (2)		30,000
Bilateral Letter of Credit Facilities		
Secured		410,440
Unsecured		369,324
Funds at Lloyd's Letter of Credit Facility		275,000
	$	1,084,764

(1) At December 31, 2021, no amounts were issued or drawn under this facility.

(2) RenaissanceRe owns a noncontrolling economic interest in Medici. Because RenaissanceRe controls all of Medici's outstanding voting rights, the financial statements of Medici are included in RenaissanceRe's consolidated financial statements. The drawn amount of the Medici revolving credit facility is included on the Company's consolidated balance sheets under debt.

RenaissanceRe Revolving Credit Facility

RenaissanceRe, Renaissance Reinsurance, RenaissanceRe Specialty U.S., Renaissance Reinsurance U.S. and RREAG are parties to a second amended and restated credit agreement dated November 9, 2018 (as amended, the "Revolving Credit Agreement") with various banks, financial institutions and Wells Fargo Bank, National Association ("Wells Fargo") as administrative agent, which amended and restated a previous credit agreement. The Revolving Credit Agreement provides for a revolving commitment to RenaissanceRe of $500.0 million, with a right, subject to satisfying certain conditions, to increase the size of the facility to $700.0 million. Amounts borrowed under the Revolving Credit Agreement bear interest at a rate selected by RenaissanceRe equal to the Base Rate or LIBOR (each as defined in the Revolving Credit Agreement) plus a margin. In addition to revolving loans, the Revolving Credit Agreement provides that the entire facility will also be available for the issuance of standby letters of credit, subject to the terms and conditions set forth therein, and swingline loans, which are capped at $50.0 million for each of the swingline lenders. At December 31, 2021, RenaissanceRe had $Nil outstanding under the Revolving Credit Agreement.

The Revolving Credit Agreement contains representations, warranties and covenants customary for bank loan facilities of this type, including limits on the ability of RenaissanceRe and its subsidiaries to merge, consolidate, sell a substantial amount of assets, incur liens and declare or pay dividends under certain circumstances. The Revolving Credit Agreement also contains certain financial covenants which generally provide that the ratio of consolidated debt to capital shall not exceed 0.35:1 and that the consolidated net worth of RenaissanceRe shall equal or exceed approximately $2.9 billion, subject to an annual adjustment.

If certain events of default occur, in some circumstances the lenders' obligations to make loans may be terminated and the outstanding obligations of RenaissanceRe under the Revolving Credit Agreement may be accelerated. The scheduled commitment maturity date of the Revolving Credit Agreement is November 9, 2023.

RRNAH and RenaissanceRe Finance guarantee RenaissanceRe's obligations under the Revolving Credit Agreement. Subject to certain exceptions, additional subsidiaries of RenaissanceRe are required to become guarantors if such subsidiaries issue or incur certain types of indebtedness.

Bilateral Letter of Credit Facilities

<u>Uncommitted, Secured Standby Letter of Credit Facility with Wells Fargo</u>

RenaissanceRe and certain of its subsidiaries and affiliates, including Renaissance Reinsurance, DaVinci, Renaissance Reinsurance U.S. and RREAG are parties to an Amended and Restated Standby Letter of Credit Agreement dated June 21, 2019, as amended, with Wells Fargo, which provides for a secured, uncommitted facility under which letters of credit may be issued from time to time for the respective accounts of the subsidiaries. Pursuant to the agreement, the applicants may request secured letter of credit issuances, and also have an option to request the issuance of up to $100.0 million of unsecured letters of credit (outstanding on such request date). RenaissanceRe has unconditionally guaranteed the payment obligations of the applicants other than DaVinci.

The agreement contains representations, warranties and covenants that are customary for facilities of this type. Under the agreement, each applicant is required to pledge eligible collateral having a value sufficient to cover all of its obligations under the agreement with respect to secured letters of credit issued for its account. In the case of an event of default under the agreement, Wells Fargo may exercise certain remedies, including conversion of collateral of a defaulting applicant into cash.

At December 31, 2021, there were $97.0 million of secured letters of credit outstanding and $Nil of unsecured letters of credit outstanding under this agreement.

<u>Secured Letter of Credit Facility with Citibank Europe</u>

Certain subsidiaries and affiliates of RenaissanceRe, including Renaissance Reinsurance, DaVinci, Renaissance Reinsurance of Europe Unlimited Company, RenaissanceRe Specialty U.S., Renaissance Reinsurance U.S. and RREAG, are parties to a facility letter, dated September 17, 2010, as amended, with Citibank Europe plc ("Citibank Europe"), pursuant to which Citibank Europe has established a letter of credit facility under which Citibank Europe provides a commitment to issue letters of credit for the accounts of the participants in multiple currencies. Effective December 21, 2021, the aggregate commitment amount was increased from $300.0 million to $350.0 million, subject to a sublimit of $25.0 million for letters of credit issued for the account of Renaissance Reinsurance U.S.

The letter of credit facility is scheduled to expire on December 31, 2023. At all times during which it is a party to the facility, each participant is obligated to pledge to Citibank Europe securities with a value that equals or exceeds the aggregate face amount of its then-outstanding letters of credit. In the case of an event of default under the facility with respect to a participant, Citibank Europe may exercise certain remedies, including terminating its commitment to such participant and taking certain actions with respect to the collateral pledged by such participant (including the sale thereof). In the facility letter, each participant makes representations and warranties that are customary for facilities of this type and agrees that it will comply with certain informational and other undertakings.

At December 31, 2021, $301.9 million aggregate face amount of letters of credit was outstanding and, subject to the sublimits described above, $48.1 million remained unused and available to the participants under this facility.

Uncommitted, Unsecured Letter of Credit Facility with Citibank Europe

Renaissance Reinsurance, RenaissanceRe Specialty U.S., Renaissance Reinsurance U.S. and RREAG are parties to a Master Agreement for Issuance of Payment Instruments and a Facility Letter for Issuance of Payment Instruments with Citibank Europe dated March 22, 2019, as amended, which established an uncommitted, unsecured letter of credit facility pursuant to which Citibank Europe or one of its correspondents may issue standby letters of credit or similar instruments in multiple currencies for the account of one or more of the applicants. The obligations of the applicants under this facility are guaranteed by RenaissanceRe.

Pursuant to the master agreement, each applicant makes representations and warranties that are customary for facilities of this type and agrees that it will comply with certain informational and other customary undertakings. The master agreement contains events of default customary for facilities of this type. In the case of an event of default under the facility, Citibank Europe may exercise certain remedies, including requiring that the relevant applicant pledge cash collateral in an amount equal to the maximum actual and contingent liability of the issuing bank under the letters of credit and similar instruments issued for such applicant under the facility, and taking certain actions with respect to the collateral pledged by such applicant (including the sale thereof). In addition, Citibank Europe may require that the relevant applicant pledge cash collateral if certain minimum ratings are not satisfied.

At December 31, 2021, the aggregate face amount of the payment instruments issued and outstanding under this facility was $298.3 million.

Unsecured Letter of Credit Facility with Credit Suisse

RREAG, Renaissance Reinsurance and RenaissanceRe are parties to a letter of credit facility agreement with Credit Suisse (Switzerland) Ltd. (“Credit Suisse”) dated December 16, 2021, which replaced the previous amended and restated letter of credit facility agreement with Credit Suisse dated March 22, 2019, and which provides for a $200.0 million committed, unsecured letter of credit facility pursuant to which Credit Suisse (or any other fronting bank acting on behalf of Credit Suisse) may issue letters of credit or similar instruments in multiple currencies for the account of RREAG or Renaissance Reinsurance. The obligations of RREAG and Renaissance Reinsurance under the agreement are guaranteed by RenaissanceRe. The facility is scheduled to expire on December 31, 2024.

In the agreement, RREAG, Renaissance Reinsurance and RenaissanceRe make representations, warranties and covenants that are customary for facilities of this type, and agree to comply with certain informational and other customary undertakings. The agreement also contains certain financial covenants applicable to the RenaissanceRe, including the requirement to maintain the ratio of consolidated debt to capital of not more than 0.35:1, to maintain a minimum consolidated net worth initially of approximately $3.0 billion, subject to an annual adjustment, and to maintain RenaissanceRe’s credit rating with S&P and A.M. Best of at least A-.

The agreement contains events of default customary for facilities of this type. At any time on or after the occurrence of an event of default, Credit Suisse may exercise remedies, including canceling the commitment, requiring that RREAG or Renaissance Reinsurance pledge cash collateral in an amount equal to the maximum liability of the issuing bank under the letters of credit and similar instruments issued under the agreement, and demanding that RREAG or Renaissance Reinsurance procure the release by the beneficiaries of the letters of credit and similar instruments issued under the agreement.

At December 31, 2021, letters of credit issued by Credit Suisse under the agreement were outstanding in the face amount of $71.0 million.

Vermeer Letter of Credit Facility with Citibank Europe

Vermeer is party to an uncommitted, secured letter of credit facility pursuant to which Citibank Europe or one of its correspondents may issue standby letters of credit or similar instruments in multiple currencies for the account of the applicant. The obligations of Vermeer under this facility are not guaranteed by RenaissanceRe. At December 31, 2021, the aggregate face amount of letters of credit outstanding under this facility was $11.5 million.

Funds at Lloyd's Letter of Credit Facility

Renaissance Reinsurance is party to an Amended and Restated Letter of Credit Reimbursement Agreement dated November 7, 2019, as amended, with Bank of Montreal, Citibank Europe and ING Bank N.V., which provides a facility under which letters of credit may be issued from time to time to support business written by Renaissance Reinsurance's Lloyd's syndicate, Syndicate 1458. Effective November 3, 2021, the stated amount of the outstanding Funds at Lloyd's letter of credit increased from $225.0 million to $275.0 million. Renaissance Reinsurance may request that the outstanding letter of credit be amended to increase the stated amount or that a new letter of credit denominated in U.S. dollars be issued, in an aggregate amount for all such increases or issuances not to exceed $140.0 million. The facility terminates four years from the date of notice from the lenders to the beneficiary of the letter of credit, unless extended.

Generally, Renaissance Reinsurance is not required to post any collateral for letters of credit issued pursuant to this facility. However, following the occurrence of a partial collateralization event or a full collateralization event, as provided in the agreement, Renaissance Reinsurance is required to pledge eligible securities with a collateral value of at least 60% or 100%, respectively, of the aggregate amount of its then-outstanding letters of credit. The latest date upon which Renaissance Reinsurance will become obligated to collateralize the facility at 100% is December 31, 2022.

In the agreement, Renaissance Reinsurance makes representations and warranties that are customary for facilities of this type and agrees that it will comply with certain informational undertakings and other covenants, including maintaining a minimum net worth. In the case of an event of default under the FAL facility, the lenders may exercise certain remedies, including declaring all outstanding obligations of Renaissance Reinsurance under the agreement and related credit documents due and payable and taking certain actions with respect to the collateral pledged by Renaissance Reinsurance (including the sale thereof).

At December 31, 2021, the face amount of the outstanding letter of credit issued under the FAL facility was $275.0 million.

Medici

RenaissanceRe Medici Fund Limited and RenaissanceRe Fund Management Limited are parties to a revolving credit facility pursuant to which National Australia Bank Limited provides for a revolving commitment to RenaissanceRe Medici Fund Limited of $40.0 million. The obligations of RenaissanceRe Medici Fund Limited and Renaissance Re Fund Management Limited under this facility are not guaranteed by RenaissanceRe.

Top Layer Re

Renaissance Reinsurance is party to a collateralized letter of credit and reimbursement agreement in the amount of $37.5 million that supports the Company's Top Layer Re joint venture. Renaissance Reinsurance is obligated to make a mandatory capital contribution of up to $50.0 million in the event that a loss reduces Top Layer Re's capital below a specified level.

NOTE 10. NONCONTROLLING INTERESTS

A summary of the Company's redeemable noncontrolling interests on its consolidated balance sheets is set forth below:

At December 31,	2021	2020
Redeemable noncontrolling interest - DaVinciRe	$ 1,499,451	$ 1,560,693
Redeemable noncontrolling interest - Medici	856,820	717,999
Redeemable noncontrolling interest - Vermeer	1,197,782	1,109,627
Redeemable noncontrolling interests	$ 3,554,053	$ 3,388,319

A summary of the Company’s redeemable noncontrolling interests on its consolidated statements of operations is set forth below:

Year ended December 31,	2021	2020	2019
Redeemable noncontrolling interest - DaVinciRe	$ (102,932)	$ 113,671	$ 127,084
Redeemable noncontrolling interest - Medici	1,492	55,970	25,759
Redeemable noncontrolling interest - Vermeer	38,155	61,012	48,626
Net income (loss) attributable to redeemable noncontrolling interests	$ (63,285)	$ 230,653	$ 201,469

Redeemable Noncontrolling Interest – DaVinciRe

RenaissanceRe owns a noncontrolling economic interest in DaVinciRe; however, because RenaissanceRe controls a majority of DaVinciRe’s outstanding voting rights, the consolidated financial statements of DaVinciRe are included in the consolidated financial statements of the Company and all significant intercompany transactions have been eliminated. The portion of DaVinciRe’s earnings owned by third parties is recorded in the consolidated statements of operations as net income attributable to redeemable noncontrolling interests. The Company’s noncontrolling economic ownership in DaVinciRe was 28.7% at December 31, 2021 (2020 - 21.4%).

DaVinciRe shareholders are party to a shareholders agreement which provides DaVinciRe shareholders, excluding RenaissanceRe, with certain redemption rights that enable each shareholder to notify DaVinciRe of such shareholder’s desire for DaVinciRe to repurchase up to half of such shareholder’s initial aggregate number of shares held, subject to certain limitations, such as limiting the aggregate of all share repurchase requests to 25% of DaVinciRe’s capital in any given year and satisfying all applicable regulatory requirements. If total shareholder requests exceed 25% of DaVinciRe’s capital, the number of shares repurchased will be reduced among the requesting shareholders pro-rata, based on the amounts desired to be repurchased. Shareholders desiring to have DaVinci repurchase their shares must notify DaVinciRe before March 1 of each year. The repurchase price will be based on GAAP book value as of the end of the year in which the shareholder notice is given, and the repurchase will be effective as of January 1 of the following year. The repurchase price is generally subject to a true-up for potential development on outstanding loss reserves after settlement of claims relating to the applicable years. Similarly, when shares are issued by DaVinci and sold to DaVinci shareholders, the sale price is based on GAAP book value as of the end of the period preceding the sale and can be subject to a true-up for potential development on outstanding loss reserves.

2021

During the twelve months ended December 31, 2021, DaVinciRe completed an equity capital raise of $250.0 million, comprised of $150.9 million from third-party investors and $99.1 million from RenaissanceRe. In addition, RenaissanceRe sold an aggregate of $40.0 million of its shares in DaVinciRe to third-party investors and purchased an aggregate of $156.7 million of shares from third-party investors. The Company’s noncontrolling economic ownership in DaVinciRe subsequent to these transactions was 28.7%.

Refer to “Note 22. Subsequent Events” for additional information related to the Company’s noncontrolling economic ownership in DaVinciRe subsequent to December 31, 2021.

2020

Effective January 1, 2020, the Company sold an aggregate of $10 million of its shares in DaVinciRe to an existing third-party investor. The Company’s noncontrolling economic ownership in DaVinciRe subsequent to this transaction was 21.4%.

The Company expects its noncontrolling economic ownership in DaVinciRe to fluctuate over time.

The activity in redeemable noncontrolling interest – DaVinciRe is detailed in the table below:

Year ended December 31,	2021	2020
Beginning balance	$ 1,560,693	$ 1,435,581
Redemption of shares from redeemable noncontrolling interests, net of adjustments	(157,864)	1,450
Sale of shares to redeemable noncontrolling interests	199,554	9,991
Net income (loss) attributable to redeemable noncontrolling interests	(102,932)	113,671
Ending balance	$ 1,499,451	$ 1,560,693

Redeemable Noncontrolling Interest - Medici

RenaissanceRe owns a noncontrolling economic interest in Medici; however, because RenaissanceRe controls all of Medici's outstanding voting rights, the financial statements of Medici are included in the consolidated financial statements of the Company. The portion of Medici's earnings owned by third parties is recorded in the consolidated statements of operations as net income attributable to redeemable noncontrolling interests. Any shareholder may redeem all or any portion of its shares as of the last day of any calendar month, upon at least 30 calendar days' prior irrevocable written notice to Medici.

2021

During 2021, third-party investors subscribed for $201.5 million and redeemed $64.2 million of the participating, non-voting common shares of Medici. As a result of these net subscriptions, the Company's noncontrolling economic ownership in Medici was 14.7% at December 31, 2021.

Refer to "Note 22. Subsequent Events" for additional information related to the Company's noncontrolling economic ownership in Medici subsequent to December 31, 2021.

2020

During 2020, third-party investors subscribed for $137.3 million and redeemed $107.4 million of the participating, non-voting common shares of Medici. As a result of these net subscriptions, the Company's noncontrolling economic ownership in Medici was 15.7%, at December 31, 2020.

The Company expects its noncontrolling economic ownership in Medici to fluctuate over time.

The activity in redeemable noncontrolling interest – Medici is detailed in the table below:

Year ended December 31,	2021	2020
Beginning balance	$ 717,999	$ 632,112
Redemption of shares from redeemable noncontrolling interests, net of adjustments	(64,191)	(107,386)
Sale of shares to redeemable noncontrolling interests	201,520	137,303
Net income (loss) attributable to redeemable noncontrolling interests	1,492	55,970
Ending balance	$ 856,820	$ 717,999

Redeemable Noncontrolling Interest – Vermeer

RenaissanceRe owns 100% of the voting non-participating shares of Vermeer, while the sole third-party investor, PFZW, owns 100% of the non-voting participating shares of Vermeer and retains all of the economic benefits. Vermeer is managed by RUM in return for a management fee. The Company has concluded that Vermeer is a VIE as it has voting rights that are not proportional to its participating rights, and the Company is the primary beneficiary of Vermeer. As a result, the Company consolidates Vermeer and all significant inter-company transactions have been eliminated. As PFZW owns all of the economics of Vermeer, all of Vermeer's earnings are allocated to PFZW in the consolidated statement of operations as net income attributable to redeemable noncontrolling interests. The Company has not provided any financial or other support to Vermeer that it was not contractually required to provide.

2021

During 2021, PFZW subscribed for $50.0 million of the participating, non-voting common shares of Vermeer.

2020

During 2020, PFZW subscribed for $45.0 million of the participating, non-voting common shares of Vermeer.

The Company does not expect its noncontrolling economic ownership in Vermeer to fluctuate over time.

The activity in redeemable noncontrolling interest – Vermeer is detailed in the table below:

Year ended December 31,	2021	2020
Beginning balance	$ 1,109,627	$ 1,003,615
Sale of shares to redeemable noncontrolling interest	50,000	45,000
Net income (loss) attributable to redeemable noncontrolling interest	38,155	61,012
Ending balance	$ 1,197,782	$ 1,109,627

NOTE 11. VARIABLE INTEREST ENTITIES

Upsilon RFO

RenaissanceRe indirectly owns a portion of the participating non-voting preference shares of Upsilon RFO and all of Upsilon RFO’s voting Class A shares. The shareholders (other than the voting Class A shareholder) participate in all of the profits or losses of Upsilon RFO while their shares remain outstanding. The shareholders (other than the voting Class A shareholder) indemnify Upsilon RFO against losses relating to insurance risk and therefore these shares have been accounted for as prospective reinsurance under FASB ASC Topic *Financial Services - Insurance*.

Upsilon RFO is considered a VIE as it has insufficient equity capital to finance its activities without additional financial support. The Company is the primary beneficiary of Upsilon RFO as it has the power over the activities that most significantly impact the economic performance of Upsilon RFO and has the obligation to absorb expected losses and the right to receive expected benefits that could be significant to Upsilon RFO, in accordance with the accounting guidance. As a result, the Company consolidates Upsilon RFO and all significant inter-company transactions have been eliminated. Other than its equity investment in Upsilon RFO, the Company has not provided financial or other support to Upsilon RFO that it was not contractually required to provide.

2021

During 2021, $544.6 million of Upsilon RFO non-voting preference shares were issued to existing investors, including $32.3 million to the Company. Also during 2021 and following the release of collateral that was previously held by cedants associated with prior years' contracts, Upsilon RFO returned $571.9 million of capital to its investors, including $45.0 million to the Company. At December 31, 2021, the Company’s participation in the risks assumed by Upsilon RFO was 13.7%.

At December 31, 2021, the Company's consolidated balance sheet included total assets and total liabilities of Upsilon RFO of $3.9 billion and $3.9 billion, respectively (December 31, 2020 - $3.8 billion and $3.8 billion, respectively). Of the total assets and liabilities, a net amount of $238.0 million is attributable to the Company, and $1.5 billion is attributable to third-party investors.

See “Note 22. Subsequent Events” for additional information related to Upsilon RFO’s non-voting preference shares subsequent to December 31, 2021.

2020

During 2020, $835.9 million of Upsilon RFO non-voting preference shares were issued to existing investors, including $98.1 million to the Company. In addition, during 2021 and following the release of collateral that was previously held by cedants associated with prior years' contracts, Upsilon RFO returned $586.0 million of capital to its investors, including $102.9 million to the Company. At December 31, 2020, the Company's participation in the risks assumed by Upsilon RFO was 13.8%.

At December 31, 2020, the Company's consolidated balance sheet included total assets and total liabilities of Upsilon RFO of $3.8 billion and $3.8 billion, respectively. Of the total assets and liabilities, a net amount of $270.0 million is attributable to the Company, and $1.7 billion is attributable to third-party investors.

Vermeer

Vermeer provides capacity focused on risk remote layers in the U.S. property catastrophe market. Refer to "Note 10. Noncontrolling Interests" for additional information regarding Vermeer.

At December 31, 2021, the Company's consolidated balance sheet included total assets and total liabilities of Vermeer of $1.3 billion and $69.9 million, respectively (2020 - $1.1 billion and $36.7 million, respectively). In addition, the Company's consolidated balance sheet included redeemable noncontrolling interests associated with Vermeer of $1.2 billion at December 31, 2021 (2020 - $1.1 billion).

Mona Lisa Re Ltd.

Mona Lisa Re provides reinsurance capacity to subsidiaries of RenaissanceRe through reinsurance agreements which are collateralized and funded by Mona Lisa Re through the issuance of one or more series of principal-at-risk variable rate notes to third-party investors.

Upon issuance of a series of notes by Mona Lisa Re, all of the proceeds from the issuance are deposited into collateral accounts, separated by series, to fund any potential obligation under the reinsurance agreements entered into with Renaissance Reinsurance and/or DaVinci underlying such series of notes. The outstanding principal amount of each series of notes generally will be returned to holders of such notes upon the expiration of the risk period underlying such notes, unless an event occurs which causes a loss under the applicable series of notes, in which case the amount returned will be reduced by such noteholder's pro rata share of such loss, as specified in the applicable governing documents of such notes. In addition, holders of such notes are generally entitled to interest payments, payable quarterly, as determined by the applicable governing documents of each series of notes.

The Company concluded that Mona Lisa Re meets the definition of a VIE as it does not have sufficient equity capital to finance its activities. The Company evaluated its relationship with Mona Lisa Re and concluded it not the primary beneficiary of Mona Lisa Re as it does not have the power over the activities that most significantly impact the economic performance of Mona Lisa Re, in accordance with the accounting guidance. As a result, the financial position and results of operations of Mona Lisa Re are not consolidated by the Company.

The only transactions related to Mona Lisa Re that are recorded in the Company's consolidated financial statements are the ceded reinsurance agreements entered into by Renaissance Reinsurance and DaVinci which are accounted for as prospective reinsurance under FASB ASC Topic *Financial Services - Insurance,* and the fair value of the principal-at-risk variable rate notes owned by the Company. Other than its investment in the principal-at-risk variable rate notes of Mona Lisa Re, the Company has not provided financial or other support to Mona Lisa Re that it was not contractually required to provide.

Renaissance Reinsurance and DaVinci have together entered into ceded reinsurance contracts with Mona Lisa Re with ceded premiums written of $39.5 million and $9.9 million, respectively, during 2021 (2020 - $$24.3 million and $6.7 million, respectively, 2019 - $Nil and $Nil, respectively). In addition, Renaissance Reinsurance and DaVinci recognized ceded premiums earned related to the ceded reinsurance contracts with Mona Lisa Re of $32.5 million and $8.1 million, respectively, during 2021 (2020 - $24.3 million and $6.7 million, respectively, 2019 - $Nil and $Nil, respectively).

Effective June 29, 2021, Mona Lisa Re issued a series of principal-at-risk variable rate notes to investors for a total principal amount of $250.0 million. Effective January 10, 2020, Mona Lisa Re issued two series of principal-at-risk variable rate notes to investors for principal amounts of $250.0 million and $150.0 million. At December 31, 2021, the total assets and total liabilities of Mona Lisa Re were $650.5 million and $650.5 million, respectively (2020 - $400.3 million and $400.3 million, respectively).

The fair value of the Company's investment in the principal-at-risk variable rate notes of Mona Lisa Re is included in other investments. Net of third-party investors, the fair value of the Company's investment in Mona Lisa Re was $6.5 million at December 31, 2021 (2020 - $3.7 million).

Fibonacci Re

Fibonacci Re provides collateralized capacity to Renaissance Reinsurance and its affiliates.

The Company concluded that Fibonacci Re meets the definition of a VIE as it does not have sufficient equity capital to finance its activities. The Company evaluated its relationship with Fibonacci Re and concluded it is not the primary beneficiary of Fibonacci Re as it does not have power over the activities that most significantly impact the economic performance of Fibonacci Re. As a result, the Company does not consolidate the financial position or results of operations of Fibonacci Re. The Company has not provided financial or other support to Fibonacci Re that it was not contractually required to provide.

Renaissance Reinsurance had no outstanding balances with Fibonacci Re as of December 31, 2021 and 2020, and there was no material impact on the Company's consolidated statements of operations for the years ended December 31, 2021 and 2020.

Langhorne

The Company and Reinsurance Group of America, Incorporated formed Langhorne, an initiative to source third-party capital to support reinsurers targeting large in-force life and annuity blocks. In connection with Langhorne, as of December 31, 2021 the Company has invested $2.3 million in Langhorne Holdings (2020 - $2.0 million), a company that owns and manages certain reinsurance entities within Langhorne. In addition, as of December 31, 2021 the Company has invested $0.1 million in Langhorne Partners (2020 - $0.1 million), the general partner for Langhorne and the entity which manages the third-party investors investing into Langhorne Holdings.

The Company concluded that Langhorne Holdings meets the definition of a VIE as the voting rights are not proportional with the obligations to absorb losses and rights to receive residual returns. The Company evaluated its relationship with Langhorne Holdings and concluded it is not the primary beneficiary of Langhorne Holdings, as it does not have power over the activities that most significantly impact the economic performance of Langhorne Holdings. As a result, the Company does not consolidate the financial position or results of operations of Langhorne Holdings. The Company separately evaluated Langhorne Partners and concluded that it was not a VIE. The Company accounts for its investments in Langhorne Holdings and Langhorne Partners under the equity method of accounting, one quarter in arrears.

The Company anticipates that its absolute investment in Langhorne will increase, perhaps materially, as in-force life and annuity blocks of businesses are written. The Company expects its absolute and relative ownership in Langhorne Partners to remain stable. Other than its current and committed future equity investment in Langhorne, the Company has not provided financial or other support to Langhorne that it was not contractually required to provide.

Shima Re

Shima Re was acquired on March 22, 2019 in connection with the acquisition of TMR. Refer to "Note 3. Acquisition of Tokio Millennium Re" for additional information related to the acquisition of TMR. Shima Re is a Bermuda domiciled Class 3 insurer. Shima Re is registered as a segregated accounts company and provides third-party investors with access to reinsurance risk. The maximum remaining exposure of each segregated account is fully collateralized and is funded by cash or investments as prescribed by the participant thereto. Shima Re no longer writes new business and the last in-force contract written by Shima Re expired on December 31, 2019. The Company ceased providing management services to Shima Re effective December 1, 2020.

Shima Re is considered a VIE as it has voting rights that are not proportional to its participating rights. The Company evaluated its relationship with Shima Re and concluded it is not the primary beneficiary of any segregated account, as it does not have power over the activities that most significantly impact the economic performance of any segregated account. As a result, the Company does not consolidate the financial position or results of operations of Shima Re or its segregated accounts. The Company has not provided any financial or other support to any segregated account of Shima Re that it was not contractually required to provide.

Norwood Re

Until December 1, 2020, Norwood Re was managed by a subsidiary of RREAG that the Company acquired in the acquisition of TMR. Refer to "Note 3. Acquisition of Tokio Millennium Re" for additional information related to the acquisition of TMR. Norwood Re is a Bermuda domiciled SPI registered as a segregated accounts company formed to provide solutions for reinsurance-linked asset investors. Norwood Re is wholly owned by the Norwood Re Purpose Trust. Risks assumed by the segregated accounts of Norwood Re were fronted by, or ceded from, only one cedant - RREAG and/or its insurance affiliates. The obligations of each segregated account are funded through the issuance of non-voting preference shares to third-party investors. The maximum exposure of each segregated account is fully collateralized and is funded by cash and term deposits or investments as prescribed by the participant thereto. Norwood Re no longer writes new business, and the last in-force contract written by Norwood Re expired on June 30, 2020. The Company ceased providing management services to Norwood Re effective December 1, 2020.

Norwood Re is considered a VIE as it has voting rights that are not proportional to its participating rights. The Company evaluated its relationship with Norwood Re and concluded it is not the primary beneficiary of Norwood Re and its segregated accounts, as it does not have power over the activities that most significantly impact the economic performance of Norwood Re and its segregated accounts. As a result, the Company does not consolidate the financial position or results of operations of Norwood Re and its segregated accounts. The Company has not provided any financial or other support to Norwood Re that it was not contractually required to provide.

Fund Investments

The Company's fund investments represent variable interests in limited partnerships entities with unaffiliated fund managers in the normal course of business. Refer to "Note 6. Fair Value Measurements" for additional information.

NOTE 12. SHAREHOLDERS' EQUITY

Authorized Capital

The aggregate authorized capital of RenaissanceRe is 325 million shares consisting of 225 million common shares and 100 million preference shares. The following table is a summary of changes in common shares issued and outstanding:

Year ended December 31, (thousands of shares)	2021	2020	2019
Beginning balance	50,811	44,148	42,207
Issuance of shares	—	6,777	1,739
Repurchase of shares	(6,579)	(406)	—
Exercise of options and issuance of restricted stock awards	213	292	202
Ending balance	44,445	50,811	44,148

Common Shares

On June 5, 2020, the Company issued 6,325,000 of its common shares in an underwritten public offering at a public offering price of $166.00 per share. Concurrently with the public offering, the Company raised $75.0 million through the issuance of 451,807 of its common shares at a price of $166.00 per share to State Farm Mutual Automobile Insurance Company ("State Farm"), one of the Company's existing stockholders, in a private placement. The total net proceeds from the offerings were $1.1 billion.

On March 22, 2019, in connection with the closing of the TMR Stock Purchase, the Company issued 1,739,071 of its common shares to Tokio as part of the aggregate consideration payable to Tokio under the TMR Stock Purchase Agreement. Refer to “Note 3. Acquisition of Tokio Millennium Re” for additional information related to the acquisition of TMR. On January 9, 2020, Tokio completed a secondary public offering of these common shares, which represented all of Tokio’s remaining ownership in the Company. The Company did not receive any proceeds from Tokio’s sale of its common shares.

Preference Shares

Series F Preference Shares

In June 2018, RenaissanceRe raised $250.0 million through the issuance of 10,000 shares of its 5.75% Series F Preference Shares, $1.00 par value and liquidation preference $25,000 per share (equivalent to 10,000 Depositary Shares, each of which represents a 1/1,000th interest in a 5.75% Series F Preference Share). The 5.75% Series F Preference Shares may be redeemed at a redemption price of $25,000 per share (equivalent to $25.00 per Depositary Share), plus declared and unpaid dividends, at RenaissanceRe’s option on or after June 30, 2023, provided that no redemption may occur prior to June 30, 2028 unless certain redemption requirements are met.

Series G Preference Shares

In July 2021, RenaissanceRe raised $500.0 million through the issuance of 20,000 shares of its 4.20% Series G Preference Shares, $1.00 par value and liquidation preference $25,000 per share (equivalent to 20,000,000 Depositary Shares, each of which represents a 1/1,000th interest in a 4.20% Series G Preference Share). The 4.20% Series G Preference Shares have no stated maturity date and may be redeemed at a redemption price of $25,000 per share (equivalent to $25.00 per Depositary Share), plus declared and unpaid dividends, at RenaissanceRe’s option on or after July 15, 2026, provided that no redemption may occur prior to July 15, 2026 unless certain redemption requirements are met.

Series C 6.08% Preference Shares Redemption

In March 2004, RenaissanceRe raised $250.0 million through the issuance of 10 million Series C Preference Shares at $25 per share. On June 27, 2013, RenaissanceRe redeemed 5 million Series C Preference Shares for $125.0 million plus accrued and unpaid dividends thereon. The remaining Series C 6.08% Preference Shares were redeemed on March 26, 2020 for $125.0 million plus accrued and unpaid dividends thereon. Following the redemption, no Series C 6.08% Preference Shares remain outstanding.

Series E 5.375% Preference Shares Redemption

May 2013, RenaissanceRe raised $275.0 million through the issuance of 11 million Series E Preference Shares at $25 per share. The Series E 5.375% Preference Shares were redeemed on August 11, 2021 for $275.0 million plus accrued and unpaid dividends thereon. Following the redemption, no Series E 5.375% Preference Shares remain outstanding.

The preference shares have no stated maturity and are not convertible into any other securities of RenaissanceRe. Generally, the preference shares have no voting rights. Whenever dividends payable on the preference shares are in arrears (whether or not such dividends have been earned or declared) in an amount equivalent to dividends for six full dividend periods (whether or not consecutive), the holders of the preference shares, voting as a single class regardless of class or series, will have the right to elect two directors to the Board of Directors of RenaissanceRe.

Dividends

The Board of Directors of RenaissanceRe declared dividends of $0.36 per common share, payable to common shareholders of record on March 13, 2021, June 15, 2021 and September 15, 2021, and the Company paid the dividends on March 31, 2021, June 30, 2021, September 30, 2021, and December 31, 2021, respectively.

The Board of Directors approved the payment of quarterly dividends on each of the series of RenaissanceRe’s several series of preference shares to preference shareholders of record in the amounts and on the quarterly record dates and dividend payment dates set forth in the prospectus supplement and

Certificate of Designation for the applicable series of preference shares, unless and until further action is taken by the Board of Directors. The dividend payment dates for the preference shares will be the first day of March, June, September and December of each year (or if this date is not a business day, on the business day immediately following this date). The record dates for the preference share dividends are one day prior to the dividend payment dates.

The amount of the dividend on the 5.750% Series F Preference Shares is an amount per share equal to 5.750% of the liquidation preference per annum (the equivalent to $1,437.50 per 5.750% Series F Preference Share per annum, or $359.375 per 5.750% Series F Preference Share per quarter, or $1.4375 per Depositary Share per annum, or $0.359375 per Depositary Share per quarter). The amount of the dividend on the 4.20% Series G Preference Shares is an amount per share equal to 4.20% of the liquidation preference per annum (the equivalent to $1,050 per 4.20% Series G Preference Share per annum, or $262.50 per 4.20% Series G Preference Share per quarter, or $1.05 per Depositary Share per annum, or $0.2625 per quarter).

The amount of the dividend on the Series C 6.08% Preference Shares was an amount per share equal to 6.08% of the liquidation preference per annum (the equivalent to $1.52 per share per annum, or $0.38 per share per quarter), and was paid prior to the redemption in full of the Series C 6.08% shares on March 26, 2020. The amount of the dividend on the Series E 5.375% Preference Shares was an amount per share equal to 5.375% of the liquidation preference per annum (the equivalent to $1.34375 per share per annum, or $0.3359375 per share per quarter), and was paid prior to the redemption in full of the Series E 5.375% Preference Shares on August 11, 2021.

During 2021, the Company paid $33.3 million in preference share dividends (2020 - $30.9 million, 2019 - $36.8 million) and $67.8 million in common share dividends (2020 - $68.5 million, 2019 - $59.4 million).

Share Repurchases

The Company’s share repurchase program may be effected from time to time, depending on market conditions and other factors, through open market purchases and privately negotiated transactions. On November 11, 2021, RenaissanceRe’s Board of Directors approved a renewal of its authorized share repurchase program for an aggregate amount of up to $500.0 million. Unless terminated earlier by RenaissanceRe’s Board of Directors, the program will expire when the Company has repurchased the full value of the common shares authorized. During 2021, pursuant to the publicly announced share repurchase program, the Company repurchased 6,578,133 common shares at an aggregate cost of $1.0 billion and an average price of $156.78 per common share. At December 31, 2021, $306.6 million remained available for repurchase under the share repurchase program. In the future, the Company may authorize additional purchase activities under the currently authorized share repurchase program, increase the amount authorized under the share repurchase program, or adopt additional trading plans.The Company’s decision to repurchase common shares will depend on, among other matters, the market price of the common shares and the capital requirements of the Company.

Refer to “Note 22. Subsequent Events” for additional information related to common share repurchases subsequent to December 31, 2021.

NOTE 13. EARNINGS PER SHARE

The following table sets forth the computation of basic and diluted earnings per common share:

Year ended December 31, (common shares in thousands)		2021		2020		2019
Numerator:						
Net income (loss) available (attributable) to RenaissanceRe common shareholders	$	(73,421)	$	731,482	$	712,042
Amount allocated to participating common shareholders (1)		(727)		(8,968)		(8,545)
Net income (loss) allocated to RenaissanceRe common shareholders	$	(74,148)	$	722,514	$	703,497
Denominator:						
Denominator for basic income (loss) per RenaissanceRe common share - weighted average common shares		47,171		47,103		43,119
Per common share equivalents of non-vested shares		—		75		56
Denominator for diluted income (loss) per RenaissanceRe common share - adjusted weighted average common shares and assumed conversions		47,171		47,178		43,175
Net income (loss) available (attributable) to RenaissanceRe common shareholders per common share – basic	$	(1.57)	$	15.34	$	16.32
Net income (loss) available (attributable) to RenaissanceRe common shareholders per common share – diluted	$	(1.57)	$	15.31	$	16.29

(1) Represents earnings and dividends attributable to holders of unvested shares issued pursuant to the Company's stock compensation plans.

NOTE 14. RELATED PARTY TRANSACTIONS AND MAJOR CUSTOMERS

Tower Hill

The Company has entered into reinsurance and other arrangements with certain subsidiaries and affiliates of Tower Hill and has also entered into reinsurance arrangements with respect to business produced by the Tower Hill Companies.

During 2021, the Company recorded $69.8 million (2020 - $55.5 million, 2019 - $39.8 million) of gross premiums written assumed from the Tower Hill Companies and its subsidiaries and affiliates. Gross premiums earned totaled $63.0 million (2020 - $51.4 million, 2019 - $40.7 million) and expenses incurred were $11.3 million (2020 - $7.9 million, 2019 - $6.1 million) for 2021. The Company had a net related outstanding receivable balance of $21.7 million as of December 31, 2021 (2020 - receivable of $18.3 million). During 2021, the Company assumed net claims and claim expenses of $28.5 million (2020 - assumed net claims and claim expenses of $13.2 million, 2019 - assumed net claims and claim expenses of $37.7 million) and, as of December 31, 2021, had a net reserve for claims and claim expenses of $68.0 million (2020 - $69.5 million).

In addition, the Company received distributions of $15.0 million from the Tower Hill Companies during 2021 (2020 - $9.5 million, 2019 - $13.4 million).

Top Layer Re

During 2021, the Company received distributions from Top Layer Re of $9.3 million (2020 - $18.0 million, 2019 - $20.0 million), and recorded a management fee of $2.5 million (2020 - $2.4 million, 2019 - $2.3 million). The management fee reimburses the Company for services it provides to Top Layer Re.

Broker Concentration

During 2021, the Company received 78.0% of its gross premiums written (2020 - 79.6%, 2019 - 79.6%) from three brokers. Subsidiaries and affiliates of Aon plc, Marsh & McLennan Companies, Inc. and Arthur J. Gallagher accounted for 35.8%, 30.0% and 12.2%, respectively, of gross premiums written in 2021.

On December 1, 2021, Arthur J. Gallagher completed its acquisition of Willis Re, a subsidiary of Willis Towers Watson Public Limited Company. The percentage of gross premiums written for Arthur J. Gallagher in 2021, as reflected above, includes gross premiums written which were generated through Willis Re, a subsidiary of Willis Towers Watson Public Limited Company. Subsidiaries and affiliates of Aon plc, Marsh & McLennan Companies, Inc. and Willis Towers Watson Public Limited Company accounted for 42.8%, 24.5% and 12.3%, respectively, of gross premiums written in 2020 and 41.7%, 27.1% and 10.8%, respectively, of gross premiums written in 2019.

NOTE 15. TAXATION

Under current Bermuda law, RenaissanceRe and its Bermuda subsidiaries are not subject to any income or capital gains taxes. In the event that such taxes are imposed, RenaissanceRe and its Bermuda subsidiaries would be exempted from any such tax until March 2035 pursuant to the Bermuda Exempted Undertakings Tax Protection Act 1966, and Amended Acts of 1987 and 2011, respectively.

RenaissanceRe Finance and its subsidiaries are subject to income taxes imposed by U.S. federal and state authorities and file a consolidated U.S. federal income tax return. Should the U.S. subsidiaries pay a dividend to RenaissanceRe, withholding taxes would apply to the extent of current year or accumulated earnings and profits at an expected tax rate of 5.0%. The Company also has operations in Ireland, the U.K., Singapore, Switzerland and Australia which are subject to income taxes imposed by the respective jurisdictions in which they operate. Withholding taxes would not be expected to apply to dividends paid to RenaissanceRe from its subsidiaries in Ireland, the U.K., Singapore, Switzerland and Australia.

The following is a summary of the Company’s income (loss) before taxes allocated between domestic and foreign operations:

Year ended December 31,	2021	2020	2019
Domestic			
Bermuda	$ 156,031	$ 1,122,261	$ 861,068
Foreign			
Singapore	4,420	16,416	(6,334)
Ireland	101	1,315	(388)
U.S.	(92,335)	286	102,724
Australia	7,148	(1,689)	3,390
Switzerland	(106,249)	(40,502)	14,255
U.K.	(83,224)	(102,167)	(7,233)
Income (loss) before taxes	$ (114,108)	$ 995,920	$ 967,482

Income tax (expense) benefit is comprised as follows:

	Current	Deferred	Total
Year ended December 31, 2021			
Total income tax (expense) benefit	$ (992)	$ 11,660	$ 10,668
Year ended December 31, 2020			
Total income tax (expense) benefit	$ (6,313)	$ 3,451	$ (2,862)
Year ended December 31, 2019			
Total income tax (expense) benefit	$ (2,128)	$ (15,087)	$ (17,215)

The Company’s expected income tax provision computed on pre-tax income (loss) at the weighted average tax rate has been calculated as the sum of the pre-tax income (loss) in each jurisdiction multiplied by that jurisdiction’s applicable statutory tax rate. Statutory tax rates of 0.0% in Bermuda, 21.0% in the U.S., 12.5% in Ireland, 19.0% in the U.K., 17.0% in Singapore, 19.7% in Switzerland and 30.0% in Australia have been used.

The Company’s effective income tax rate, which it calculates as income tax expense divided by net income before taxes, may fluctuate significantly from period to period depending on the geographic distribution of pre-tax net income (loss) in any given period between different jurisdictions with comparatively higher tax rates and those with comparatively lower tax rates. The geographic distribution of pre-tax net income (loss) can vary significantly between periods due to, but not limited to, the following factors: the business mix of net premiums written and earned; the geographic location, the size and the nature of net claims and claim expenses incurred; the amount and geographic location of operating expenses, net investment income, net realized and unrealized gains (losses) on investments; outstanding debt and related interest expense; and the amount of specific adjustments to determine the income tax basis in each of the Company's operating jurisdictions. In addition, a significant portion of the Company's gross and net premiums are currently written and earned in Bermuda, which does not have a corporate income tax, including the majority of the Company's catastrophe business, which can result in significant volatility to its pre-tax net income in any given period.

A reconciliation of the difference between the provision for income taxes and the expected tax provision at the weighted average tax rate is as follows:

Year ended December 31,	2021	2020	2019
Expected income tax benefit (expense)	$ 53,093	$ 25,489	$ (22,874)
Nondeductible expenses	(334)	5,074	(7,059)
Reinsurance adjustment	(4,604)	—	—
Income tax audit adjustment	—	3,424	—
Effect of change in tax rate	14,904	3,055	(262)
Transfer pricing	224	206	2,503
GAAP to statutory accounting difference	—	—	6,553
U.S. base erosion and anti-abuse tax	(1,725)	(36)	—
Withholding tax	(1,013)	(1,822)	(665)
Non-taxable loss on sale of RenaissanceRe UK	—	(6,091)	—
Change in valuation allowance	(42,819)	(13,003)	(5,481)
Foreign branch adjustments	(5,491)	(17,821)	7,315
Other	(1,567)	(1,337)	2,755
Income tax benefit (expense)	$ 10,668	$ (2,862)	$ (17,215)

The tax effects of temporary differences that give rise to significant portions of the deferred tax assets and deferred tax liabilities are presented below:

At December 31,	2021	2020
Deferred tax assets		
Tax loss and credit carryforwards	$ 149,739	$ 128,561
Unearned premiums	36,962	20,854
Reserve for claims and claim expenses	22,611	14,983
Deferred finance charges	17,962	11,427
Deferred underwriting results	12,483	7,228
Accrued expenses	1,788	4,826
Amortization and depreciation	6,969	—
	248,514	187,879
Deferred tax liabilities		
Investments	(2,180)	(23,598)
Deferred acquisition expenses	(49,661)	(23,040)
Intangible assets	(4,242)	(1,142)
Amortization and depreciation	—	(1,130)
VOBA	—	(1,017)
	(56,083)	(49,927)
Net deferred tax asset (liability) before valuation allowance	192,431	137,952
Valuation allowance	(131,507)	(88,688)
Net deferred tax asset (liability)	$ 60,924	$ 49,264

The Company's net deferred tax asset is included in other assets on its consolidated balance sheets.

During 2021, the Company recorded a net increase to the valuation allowance of $42.8 million (2020 – increase of $13.0 million, 2019 – increase of $40.4 million). The Company's net deferred tax asset primarily relates to net operating loss carryforwards and GAAP versus tax basis accounting differences relating to unearned premiums, reserves for claims and claim expenses, deferred finance charges, deferred underwriting results, accrued expenses, investments, deferred acquisition expenses, intangible assets, amortization and depreciation and VOBA. The Company's valuation allowance assessment is based on all available information including projections of future GAAP taxable income from each tax-paying component in each tax jurisdiction.

A valuation allowance has been provided against deferred tax assets in the U.S., Ireland, the U.K., Singapore and Switzerland. These deferred tax assets relate primarily to net operating loss carryforwards.

In the U.S. and Switzerland, the Company has net operating loss carryforwards of $333.7 million and $476.2 million respectively. Under applicable law, the U.S. and Swiss net operating loss carryforwards will begin to expire in 2031 and 2022 respectively. The Company has net operating loss carryforwards of $142.2 million in the U.K., $13.6 million in Singapore, $6.5 million in Ireland and $1.3 million in Australia. Under applicable law, the U.K., Singapore, Irish and Australia net operating losses can be carried forward for an indefinite period.

The Company had a net refund for U.S. federal, Irish, U.K., Singapore, Switzerland and Australia income taxes of $(4.3) million for the year ended 2021 (2020 – net payment of $5.7 million, 2019 – net payment of $9.7 million).

The Company has unrecognized tax benefits of $Nil as of December 31, 2021 (2020 – $Nil). Interest and penalties related to unrecognized tax benefits would be recognized in income tax expense. At December 31, 2021, interest and penalties accrued on unrecognized tax benefits were $Nil (2020 – $Nil). The following filed income tax returns are open for examination with the applicable tax authorities: tax years 2018 through 2020 with the IRS; 2017 through 2020 with Ireland; 2019 through 2020 with the U.K.; 2017 through 2020 with Singapore; 2019 and 2020 with Switzerland; and 2017 through 2020 with Australia. The

Company does not expect the resolution of these open years to have a significant impact on its consolidated statements of operations and financial condition.

NOTE 16. SEGMENT REPORTING

The Company’s reportable segments are defined as follows: (1) Property, which is comprised of catastrophe and other property (re)insurance written on behalf of the Company’s operating subsidiaries, joint ventures and managed funds, and (2) Casualty and Specialty, which is comprised of casualty and specialty (re)insurance written on behalf of the Company’s operating subsidiaries, joint ventures and managed funds. In addition to its reportable segments, the Company has an Other category, which primarily includes its strategic investments, investments unit, corporate expenses, capital servicing costs, noncontrolling interests and certain expenses related to acquisitions and dispositions.

The Company’s Property segment is managed by the Chief Underwriting Officer - Property and the Casualty and Specialty segment is managed by the Chief Underwriting Officer - Casualty and Specialty, each of whom operate under the direction of the Company’s Group Chief Underwriting Officer, who in turn reports to the Company’s President and Chief Executive Officer.

The Company does not manage its assets by segment; accordingly, net investment income and total assets are not allocated to the segments.

A summary of the significant components of the Company’s revenues and expenses by segment is as follows:

Year ended December 31, 2021	Property	Casualty and Specialty	Other	Total
Gross premiums written	$ 3,958,724	$ 3,875,074	$ —	$ 7,833,798
Net premiums written	$ 2,868,002	$ 3,071,373	$ —	$ 5,939,375
Net premiums earned	$ 2,608,298	$ 2,585,883	$ —	$ 5,194,181
Net claims and claim expenses incurred	2,163,016	1,713,071	—	3,876,087
Acquisition expenses	487,178	727,680	—	1,214,858
Operational expenses	143,608	68,576	—	212,184
Underwriting income (loss)	$ (185,504)	$ 76,556	$ —	(108,948)
Net investment income			319,479	319,479
Net foreign exchange gains (losses)			(41,006)	(41,006)
Equity in earnings of other ventures			12,309	12,309
Other income (loss)			10,880	10,880
Net realized and unrealized gains (losses) on investments			(218,134)	(218,134)
Corporate expenses			(41,152)	(41,152)
Interest expense			(47,536)	(47,536)
Income (loss) before taxes and redeemable noncontrolling interests				(114,108)
Income tax (expense) benefit			10,668	10,668
Net (income) loss attributable to redeemable noncontrolling interests			63,285	63,285
Dividends on preference shares			(33,266)	(33,266)
Net income (loss) available (attributable) to RenaissanceRe common shareholders				$ (73,421)
Net claims and claim expenses incurred – current accident year	$ 2,396,389	$ 1,729,168	$ —	$ 4,125,557
Net claims and claim expenses incurred – prior accident years	(233,373)	(16,097)	—	(249,470)
Net claims and claim expenses incurred – total	$ 2,163,016	$ 1,713,071	$ —	$ 3,876,087
Net claims and claim expense ratio – current accident year	91.9 %	66.9 %		79.4 %
Net claims and claim expense ratio – prior accident years	(9.0)%	(0.7)%		(4.8)%
Net claims and claim expense ratio – calendar year	82.9 %	66.2 %		74.6 %
Underwriting expense ratio	24.2 %	30.8 %		27.5 %
Combined ratio	107.1 %	97.0 %		102.1 %

Year ended December 31, 2020	Property	Casualty and Specialty	Other	Total
Gross premiums written	$ 2,999,142	$ 2,807,023	$ —	$ 5,806,165
Net premiums written	$ 2,037,200	$ 2,059,133	$ —	$ 4,096,333
Net premiums earned	$ 1,936,215	$ 2,016,247	$ —	$ 3,952,462
Net claims and claim expenses incurred	1,435,947	1,488,662	—	2,924,609
Acquisition expenses	353,700	543,977	—	897,677
Operational expenses	135,547	71,140	—	206,687
Underwriting income (loss)	$ 11,021	$ (87,532)	$ —	(76,511)
Net investment income			354,038	354,038
Net foreign exchange gains (losses)			27,773	27,773
Equity in earnings of other ventures			17,194	17,194
Other income (loss)			213	213
Net realized and unrealized gains (losses) on investments			820,636	820,636
Corporate expenses			(96,970)	(96,970)
Interest expense			(50,453)	(50,453)
Income (loss) before taxes and redeemable noncontrolling interests				995,920
Income tax (expense) benefit			(2,862)	(2,862)
Net (income) loss attributable to redeemable noncontrolling interests			(230,653)	(230,653)
Dividends on preference shares			(30,923)	(30,923)
Net income (loss) available (attributable) to RenaissanceRe common shareholders				$ 731,482
Net claims and claim expenses incurred – current accident year	$ 1,592,996	$ 1,515,425	$ —	$ 3,108,421
Net claims and claim expenses incurred – prior accident years	(157,049)	(26,763)	—	(183,812)
Net claims and claim expenses incurred – total	$ 1,435,947	$ 1,488,662	$ —	$ 2,924,609
Net claims and claim expense ratio – current accident year	82.3 %	75.2 %		78.6 %
Net claims and claim expense ratio – prior accident years	(8.1)%	(1.4)%		(4.6)%
Net claims and claim expense ratio – calendar year	74.2 %	73.8 %		74.0 %
Underwriting expense ratio	25.2 %	30.5 %		27.9 %
Combined ratio	99.4 %	104.3 %		101.9 %

Year ended December 31, 2019	Property	Casualty and Specialty	Other	Total
Gross premiums written	$ 2,430,985	$ 2,376,765	$ —	$ 4,807,750
Net premiums written	$ 1,654,259	$ 1,727,234	$ —	$ 3,381,493
Net premiums earned	$ 1,627,494	$ 1,710,909	$ —	$ 3,338,403
Net claims and claim expenses incurred	965,384	1,131,637	—	2,097,021
Acquisition expenses	313,554	448,678	—	762,232
Operational expenses	138,187	84,546	—	222,733
Underwriting income (loss)	$ 210,369	$ 46,048	$ —	256,417
Net investment income			424,207	424,207
Net foreign exchange gains (losses)			(2,938)	(2,938)
Equity in earnings of other ventures			23,224	23,224
Other income (loss)			4,949	4,949
Net realized and unrealized gains (losses) on investments			414,109	414,109
Corporate expenses			(94,122)	(94,122)
Interest expense			(58,364)	(58,364)
Income (loss) before taxes and redeemable noncontrolling interests				967,482
Income tax (expense) benefit			(17,215)	(17,215)
Net (income) loss attributable to redeemable noncontrolling interests			(201,469)	(201,469)
Dividends on preference shares			(36,756)	(36,756)
Net income (loss) available (attributable) to RenaissanceRe common shareholders				$ 712,042
Net claims and claim expenses incurred – current accident year	$ 968,357	$ 1,155,519	$ —	$ 2,123,876
Net claims and claim expenses incurred – prior accident years	(2,973)	(23,882)	—	(26,855)
Net claims and claim expenses incurred – total	$ 965,384	$ 1,131,637	$ —	$ 2,097,021
Net claims and claim expense ratio – current accident year	59.5 %	67.5 %		63.6 %
Net claims and claim expense ratio – prior accident years	(0.2)%	(1.4)%		(0.8)%
Net claims and claim expense ratio – calendar year	59.3 %	66.1 %		62.8 %
Underwriting expense ratio	27.8 %	31.2 %		29.5 %
Combined ratio	87.1 %	97.3 %		92.3 %

The following is a summary of the Company's gross premiums written allocated to the territory of coverage exposure:

Year ended December 31,	2021	2020	2019
Property			
U.S. and Caribbean	$ 2,257,088	$ 1,683,538	$ 1,368,205
Worldwide	1,188,737	889,917	643,744
Europe	253,678	189,587	182,544
Japan	114,981	102,228	90,328
Worldwide (excluding U.S.) [(1)]	34,742	62,058	79,393
Australia and New Zealand	69,188	40,243	32,203
Other	40,310	31,571	34,568
Total Property	3,958,724	2,999,142	2,430,985
Casualty and Specialty			
Worldwide	1,746,450	1,315,386	935,626
U.S. and Caribbean	1,721,663	1,248,981	1,071,170
Europe	217,721	121,369	227,178
Worldwide (excluding U.S.) [(1)]	108,376	56,225	25,291
Australia and New Zealand	29,001	12,429	34,053
Other	51,863	52,633	83,447
Total Casualty and Specialty	3,875,074	2,807,023	2,376,765
Total gross premiums written	$ 7,833,798	$ 5,806,165	$ 4,807,750

(1) The category "Worldwide (excluding U.S.)" consists of contracts that cover more than one geographic region (other than the U.S.).

NOTE 17. STOCK INCENTIVE COMPENSATION AND EMPLOYEE BENEFIT PLANS

Stock Incentive Compensation Plans and Awards

The Company is authorized to issue restricted stock awards, restricted stock units, performance share awards, stock options and other share-based awards to its employees and directors pursuant to various stock incentive compensation plans.

On May 16, 2016, the Company's shareholders approved the Company's 2016 Long-Term Incentive Plan (the "2016 Long-Term Incentive Plan"). Pursuant to the 2016 Long-Term Incentive Plan, the Company is authorized to issue up to 1,625,000 common shares plus the number of shares that were subject to awards outstanding under the Company's 2001 Stock Incentive Plan, as amended (the "2001 Stock Incentive Plan") and the Company's 2010 Performance-Based Equity Incentive Plan, as amended (the "2010 Performance Plan") as of the effective date of the 2016 Long-Term Incentive Plan that are forfeited, canceled, settled in cash, or otherwise terminated without delivery after the effective date. The 2016 Long-Term Incentive Plan permits the grant of restricted stock awards, restricted stock units, performance share awards (including cash-based performance awards), stock options and other share-based awards to employees, officers, non-employee directors and consultants or advisors of the Company and its affiliates.

The 2001 Stock Incentive Plan, which permitted the grant of stock options, restricted stock awards and other share-based awards to employees of RenaissanceRe and its subsidiaries, expired in accordance with its terms on February 6, 2016 and no additional awards may be made under this plan. All awards made under the 2001 Stock Incentive Plan vested no later than March 1, 2020. The terms and conditions of outstanding awards granted under the 2001 Share Incentive Plan and the 2010 Performance Plan were not affected by the respective expiration and termination of these plans.

In 2010, the Company instituted a cash settled restricted stock unit ("CSRSU") plan, the 2010 Restricted Stock Unit Plan, which allowed for the issuance of equity awards in the form of CSRSUs. In November 2016, the 2010 Restricted Stock Plan was terminated and replaced with a new cash settled restricted stock unit plan, the 2016 Restricted Stock Unit Plan. The terms and conditions of CSRSU awards outstanding under the 2010 Restricted Stock Unit Plan at the time of termination were not affected, but no additional awards will be made under the 2010 Restricted Stock Unit Plan. All outstanding awards made under the 2010 Restricted Stock Unit Plan vested no later than March 1, 2020. Further, all outstanding awards made under the 2016 Restricted Stock Unit Plan vested no later than March 1, 2021.

Restricted Stock Awards

Restricted stock awards granted periodically under the 2016 Long-Term Incentive Plan generally vest ratably over a four-year period. The Company has also granted restricted stock awards to non-employee directors, which generally vest ratably over a three-year period.

Performance Share Awards

Performance share awards have been granted periodically to certain of the Company's executive officers pursuant to the 2016 Long-Term Incentive Plan. Outstanding performance share awards are subject to vesting conditions based on both continued service and the attainment of pre-established performance goals. If performance goals are achieved, the performance share awards will vest up to a maximum of 200% of target. Performance share awards generally cliff vest at the end of a three-year vesting period based on the attainment of annual performance goals over the vesting period.

Performance Share Awards Granted in March 2019

Performance share awards granted in March 2019 have a performance condition, which is the percentage change in the Company's tangible book value per common share plus change in accumulated dividends, or, in the event of a change in control, a market condition, which is the Company's total shareholder return relative to its peer group.

Performance Share Awards Granted in March 2020 and March 2021

Performance share awards granted in March 2020 and March 2021 have a performance condition, which is the percentage change in the Company's book value per common share plus change in accumulated dividends over three years and three-year average underwriting expense ratio rank compared to peers, or, in the event of a change in control, a market condition, which is the Company's total shareholder return relative to its peer group.

The percentage change in tangible book value per share plus change in accumulated dividends, percentage change in book value per share plus change in accumulated dividends, and average underwriting expense ratio rank are calculated in accordance with the terms of the applicable award agreement.

Cash Settled Restricted Stock Units

CSRSUs are liability awards with fair value measurement based on the fair market value of the Company's common shares at the end of each reporting period. CSRSUs granted periodically pursuant to the 2016 Restricted Stock Unit Plan generally vest ratably over 4 years.

Valuation Assumptions

Performance Share Awards Granted in March 2019

For performance share awards granted in March 2019, the performance metric relates to the percentage change in tangible book value per share plus change in accumulated dividends which is classified as a performance condition under FASB ASC Topic *Compensation - Stock Compensation*. As a result, the fair value of the performance share awards is determined based on the fair market value of RenaissanceRe's common shares on the grant date. The estimated fair value of performance share awards is amortized as an expense over the requisite service period.

Performance Share Awards Granted in March 2020 and March 2021

For performance share awards granted in March 2020 and March 2021, the performance metrics relates to (i) the percentage change in book value per share plus change in accumulated dividends and (ii) average underwriting expense ratio rank compared to peers, both of which are classified as performance conditions under FASB ASC Topic *Compensation - Stock Compensation*. As a result, the fair value of the performance share awards is determined based on the fair market value of RenaissanceRe’s common shares on the grant date. The estimated fair value of performance share awards is amortized as an expense over the requisite service period.

Restricted Stock Awards

The fair value of restricted stock awards is determined based on the fair market value of RenaissanceRe’s common shares on the grant date. The estimated fair value of restricted stock awards is amortized as an expense over the requisite service period. The Company has elected to recognize forfeitures as they occurred rather than estimating service-based forfeitures over the requisite service period.

Cash Settled Restricted Stock Units

CSRSUs are revalued at the end of each quarterly reporting period based on the then fair market value of RenaissanceRe’s common shares. The total cost is adjusted each quarter for unvested CSRSUs to reflect the current share price, and this total cost is amortized as an expense over the requisite service period. The Company has elected to recognize forfeitures as they occurred rather than estimating service-based forfeitures over the requisite service period.

Summary of Stock Compensation Activity

Cash Settled Restricted Stock Units

	Number of Shares
Nonvested at December 31, 2018	146,917
Awards granted	—
Awards vested	(80,012)
Awards forfeited	(3,161)
Nonvested at December 31, 2019	63,744
Awards granted	—
Awards vested	(44,734)
Awards forfeited	(529)
Nonvested at December 31, 2020	18,481
Awards granted	—
Awards vested	(18,481)
Awards forfeited	—
Nonvested at December 31, 2021	—

Performance Share Awards

	Number of Shares (1)		Weighted Average Grant Date Fair Value
Nonvested at December 31, 2018	152,451	$	57.21
Awards granted	58,050		146.1
Awards vested	(21,730)		49.9
Awards forfeited	(43,924)		—
Nonvested at December 31, 2019	144,847	$	94.70
Awards granted	65,840		170.40
Awards vested	(48,997)		61.48
Awards forfeited	(9,976)		—
Nonvested at December 31, 2020	151,714	$	140.96
Awards granted	55,876		162.61
Awards vested	(49,792)		130.73
Awards forfeited	(16,730)		—
Nonvested at December 31, 2021	141,068	$	163.98

(1) For performance share awards, the number of shares is stated at the maximum number that can be attained if the performance conditions are fully met. Forfeitures represent shares forfeited due to vesting below the maximum attainable as a result of the Company not fully meeting the performance conditions.

Restricted Stock Awards

	Employee Restricted Stock Awards			Non-Employee Director Restricted Stock Awards			Total Restricted Stock Awards		
	Number of Shares		Weighted Average Grant Date Fair Value	Number of Shares		Weighted Average Grant Date Fair Value	Number of Shares		Weighted Average Grant Date Fair Value
Nonvested at December 31, 2018	447,740	$	130.37	22,534	$	132.29	470,274	$	130.46
Awards granted	242,832		146.92	11,444		147.43	254,276		146.94
Awards vested	(165,245)		124.71	(12,972)		131.88	(178,217)		125.23
Awards forfeited	(14,467)		136.16	—		—	(14,467)		136.16
Nonvested at December 31, 2019	510,860	$	139.91	21,006	$	140.79	531,866	$	139.94
Awards granted	309,892		145.03	9,970		170.40	319,862		145.82
Awards vested	(213,488)		138.35	(10,316)		141.12	(223,804)		138.47
Awards forfeited	(14,517)		140.11	—		—	(14,517)		140.11
Nonvested at December 31, 2020	592,747	$	143.14	20,660	$	155.03	613,407	$	143.54
Awards granted	252,625		167.92	10,452		162.61	263,077		167.71
Awards vested	(207,264)		142.52	(10,511)		147.72	(217,775)		142.77
Awards forfeited	(14,776)		158.97	—		—	(14,776)		158.97
Nonvested at December 31, 2021	623,332	$	153.02	20,601	$	162.60	643,933	$	152.32

There were 0.8 million shares available for issuance under the 2016 Long-Term Incentive Plan at December 31, 2021.

The aggregate fair value of restricted stock awards, performance share awards and CSRSUs vested during 2021 was $46.3 million (2020 – $54.7 million, 2019 – $41.6 million). In connection with share vestings, there was a $0.2 million excess windfall tax benefit realized by the Company in 2021 (2020 – $0.3 million, 2019 – $0.2 million). RenaissanceRe issues new shares upon the exercise of an option.

The total stock compensation expense recognized in the Company’s consolidated statements of operations during 2021 was $40.0 million (2020 – $43.7 million, 2019 – $41.4 million). As of December 31, 2021, there was $66.7 million of total unrecognized compensation cost related to restricted stock awards and $4.9 million related to performance share awards, which will be recognized on a weighted average basis during the next 1.7 and 1.7 years, respectively.

All of the Company’s employees are eligible for defined contribution pension plans. Contributions are primarily based upon a percentage of eligible compensation. The Company contributed $7.5 million to its defined contribution pension plans in 2021 (2020 – $6.7 million, 2019 – $4.9 million).

NOTE 18. STATUTORY REQUIREMENTS

The Company’s (re)insurance operations are subject to insurance laws and regulations in the jurisdictions in which they operate, the most significant of which currently include Bermuda, Switzerland, the U.K. and the U.S. These regulations include certain restrictions on the amount of dividends or other distributions, such as loans or cash advances, available to shareholders without prior approval of the respective regulatory authorities.

The statutory capital and surplus, required minimum statutory capital and surplus and unrestricted net assets of the Company’s regulated insurance operations in its most significant regulatory jurisdictions are detailed below:

	Bermuda (1)		Switzerland (2)		U.K. (3)		U.S. (4)	
At December 31,	2021	2020	2021	2020	2021	2020	2021	2020
Statutory capital and surplus	$ 7,462,710	$ 6,698,377	$ 874,665	$ 814,837	$ 983,449	$ 874,170	$ 819,811	$ 722,721
Required statutory capital and surplus	1,753,078	1,391,621	780,000	587,300	983,449	874,170	716,118	474,622
Unrestricted net assets	1,575,526	1,705,739	300,438	232,917	—	—	81,981	72,272

(1) Includes Renaissance Reinsurance, DaVinci, RenaissanceRe Specialty U.S. and Vermeer. The Company's Bermuda-domiciled insurance subsidiaries’ capital and surplus is based on the relevant insurer’s statutory financial statements and required statutory capital and surplus is based on the minimum solvency margin.

(2) Includes RREAG and its branches in Australia, Bermuda, the U.K. and the U.S. RREAG’s statutory capital and surplus and required statutory capital and surplus incorporate a full year of statutory net loss and risk capital, respectively.

(3) Includes Syndicate 1458. With respect to statutory capital and surplus and required statutory capital and surplus, and as described below, underwriting capacity of a member of Lloyd’s must be supported by providing a deposit in the form of cash, securities or letters of credit, which are referred to as Funds at Lloyd’s (“FAL”). FAL is determined by Lloyd’s and is based on Syndicate 1458’s solvency and capital requirements as calculated through its internal model. Syndicate 1458 is capitalized by its FAL, with the related assets not held on its balance sheet. As such, unrestricted net assets is not applicable to Syndicate 1458; however, the Company can make an application to obtain approval from Lloyd’s to have funds released to RenaissanceRe from Syndicate 1458, subject to passing a Lloyd’s release test.

(4) Includes Renaissance Reinsurance U.S.

Statutory net income (loss) of the Company’s regulated insurance operations in its most significant regulatory jurisdictions are detailed below:

	Statutory Net Income (Loss)			
	Bermuda (1)	Switzerland (2)	U.K. (3)	U.S. (4)
Year ended December 31, 2021	$ (89,267)	$ 80,500	$ (46,352)	$ 10,465
Year ended December 31, 2020	836,707	71,829	(37,427)	17,403
Year ended December 31, 2019	705,808	(52,699)	(667)	37,827

(1) Includes Renaissance Reinsurance, DaVinci, RenaissanceRe Specialty U.S. and Vermeer.

(2) Includes RREAG and its branches in Australia, Bermuda, the U.K. and the U.S.

(3) Includes Syndicate 1458.

(4) Includes Renaissance Reinsurance U.S.

The difference between statutory financial statements and statements prepared in accordance with GAAP varies by jurisdiction; however, the primary difference is that for the Company's regulated entities the statutory financial statements generally do not reflect goodwill and intangible assets. Also, in the U.S., fixed maturity investments are generally recorded at amortized cost and deferred income tax is charged directly to equity. In the U.S. and Bermuda, deferred acquisition costs are generally not reflected in the statutory financial statements. In Switzerland, currency translation adjustment losses are directly charged to net income or loss, while translation gains are not admissible and reflected as translation reserve on the statutory balance sheet. In addition, fixed maturity investments are carried at the lower of amortized cost and market value and recognition of equalization reserves is allowed. The prudence principle standard also allows for valuating certain assets below their nominal value. None of the Company's insurance subsidiaries used permitted practices that prevented the trigger of a regulatory event during the years ended December 31, 2021, 2020 and 2019.

Dividend Restrictions of RenaissanceRe

As a Bermuda-domiciled holding company, RenaissanceRe has limited operations of its own. Its assets consist primarily of investments in subsidiaries and cash and securities. As a result, the Company relies primarily on dividends and distributions (and other statutorily permissible payments) from its subsidiaries, investment income and fee income to meet its liquidity requirements, which primarily include making principal and interest payments on its debt, and dividend payments to its preference and common shareholders.

The payment of dividends by the Company's subsidiaries is, under certain circumstances, limited by the applicable laws and regulations in the various jurisdictions in which the subsidiaries operate, including Bermuda, the U.S., the U.K., Switzerland, Australia, Singapore and Ireland. In addition, insurance laws require our insurance subsidiaries to maintain certain measures of solvency and liquidity.

Bermuda

RenaissanceRe Specialty U.S. and Vermeer are registered as Class 3B general business insurers and Renaissance Reinsurance and DaVinci are registered as Class 4 general business insurers under the Insurance Act 1978, amendments thereto and related regulations of Bermuda (collectively, the "Insurance Act"). Class 3A, Class 3B and Class 4 insurers are required to maintain available statutory economic capital and surplus at a level at least equal to their enhanced capital requirement ("ECR") and may be adjusted if the BMA concludes that the insurer's risk profile deviates significantly from the assumptions underlying its ECR or the insurer's assessment of its risk management policies and practices used to calculate the ECR. The BMA has established a target capital level which is set at 120% of the ECR. Unlike other (re)insurers, special purpose insurers and collateralized insurers are fully funded to meet their (re)insurance obligations.

Class 3, Class 3A, Class 3B and Class 4 insurers are prohibited from declaring or paying any dividends if in breach of the required minimum solvency margin or minimum liquidity ratio, or if the declaration or payment of such dividend would cause the insurer to fail to meet the required minimum solvency margin or minimum liquidity ratio. Further, Class 3A, Class 3B and Class 4 insurers are prohibited from declaring or paying in any financial year dividends of more than 25% of total statutory capital and surplus unless the insurer file an affidavit with the BMA stating that it will continue to meet the required minimum solvency margin or minimum liquidity ratio. Class 3, Class 3A, Class 3B and Class 4 insurers must obtain the BMA's prior approval for a reduction by 15% or more of the total statutory capital as set forth in its previous year's financial statements. These restrictions on declaring or paying dividends and distributions under the Insurance Act are in addition to the solvency requirements under the Companies Act 1981 which apply to all Bermuda companies.

Switzerland

The minimum capital requirement for a Swiss reinsurance company under the Insurance Supervisory Act for reinsurance license class C1 is CHF 10 million. Being a Swiss domiciled reinsurance company, RREAG must further maintain adequate solvency and provide for sufficient free and unencumbered capital in relation to its entire activities in accordance with the Swiss Solvency Test. The SST adopts a risk-based and total balance sheet approach whereby reinsurance companies are required to provide a market-consistent assessment of the value of their assets and liabilities. The solvency requirement is met if the available risk-bearing capital exceeds the required target capital. It is then assessed whether the identified available capital can meet the SST requirements and is sufficient to cover the company's obligations in less favorable scenarios. RREAG maintains branch operations in Australia, Bermuda, U.K. and the U.S., each in accordance with applicable local regulations, which may include statutory capital requirements.

RREAG may only distribute dividends out of its retained earnings or distributable reserves based on the audited annual accounts of the company. Any distribution of dividends remains subject to the approval of FINMA (as a change of the regulatory business plan) if they have a bearing on the solvency of the reinsurer and/or the interests of the insured. The solvency and capital requirements must still be met following any distribution. At December 31, 2020, we believe RREAG exceeded the minimum solvency and capital requirements required to be maintained under Swiss law. RREAG was required to prepare an FCR for the year ended December 31, 2020, which is available on our website.

U.K.

The underwriting capacity of a member of Lloyd's must be supported by providing a deposit, referred to as "Funds at Lloyd's" or "FAL," in the form of cash, securities or letters of credit in an amount determined under the capital adequacy regime of the PRA. The amount of such deposit is calculated for each member through the completion of an annual capital adequacy exercise. Under these requirements, Lloyd's must demonstrate that each member has sufficient assets to meet its underwriting liabilities plus a required solvency margin. The amount of FAL for Syndicate 1458 is determined by Lloyd's and is based on Syndicate 1458's solvency and capital requirement as calculated through its internal model.

Dividends from a Lloyd's managing agent and a Lloyd's corporate member can be declared and paid provided the relevant company has sufficient profits available for distribution.

U.S.

Renaissance Reinsurance U.S. is required to meet certain minimum statutory capital and surplus requirements under Maryland law. Renaissance Reinsurance U.S. is also subject to risk-based capital ("RBC") requirements under Maryland law, and must file an annual report of its RBC levels. If the report shows Renaissance Reinsurance U.S.'s statutory capital and surplus or total adjusted capital is below certain levels, Renaissance Reinsurance U.S. may be required to take certain corrective action or the Maryland Insurance Administration ("MIA") may be permitted or required to take certain regulatory action.

Maryland law places limitations on the amounts of dividends or distributions payable by Renaissance Reinsurance U.S. At December 31, 2021, Renaissance Reinsurance U.S. had an ordinary dividend capacity of $82.0 million which can be paid in 2022. Payment of ordinary dividends by Renaissance Reinsurance U.S. requires notice to the MIA. Declaration of an extraordinary dividend, which must be paid out of earned surplus, generally requires thirty days' prior notice to and approval or non-disapproval of the MIA. An extraordinary dividend includes any dividend whose fair market value together with that of other dividends or distributions made within the preceding twelve months exceeds the lesser of (1) ten percent of the insurer's surplus as regards policyholders as of December 31 of the preceding year or (2) the insurer's net investment income, excluding realized capital gains (as determined under statutory accounting principles), for the twelve month period ending December 31 of the preceding year and pro rata distributions of any class of the insurer's own securities, plus any amounts of net investment income (subject to the foregoing exclusions), in the three calendar years prior to the preceding year which have not been distributed.

Multi-Beneficiary Reinsurance Trusts

Each of Renaissance Reinsurance and DaVinci was approved as a Trusteed Reinsurer in the state of New York and established a multi-beneficiary reinsurance trust ("MBRT") to collateralize its (re)insurance liabilities associated with U.S. domiciled cedants. The MBRTs are subject to the rules and regulations of the state of New York and the respective deed of trust, including but not limited to certain minimum capital funding requirements, investment guidelines, capital distribution restrictions and regulatory reporting requirements. Assets held under trust at December 31, 2021 with respect to the MBRTs totaled $1.2 billion and $272.0 million for Renaissance Reinsurance and DaVinci, respectively (2020 – $1.3 billion and $289.6 million, respectively), compared to the minimum amount required under U.S. state regulations of $531.8 million and $182.3 million, respectively (2020 – $878.2 million and $270.5 million, respectively).

Multi-Beneficiary Reduced Collateral Reinsurance Trusts

Each of Renaissance Reinsurance, RREAG and DaVinci has been approved as a “certified reinsurer” eligible for collateral reduction in certain states, and are authorized to provide reduced collateral equal to 20%, 20% and 50%, respectively, of their net outstanding insurance liabilities to insurers domiciled in each of those states. Each of Renaissance Reinsurance, RREAG and DaVinci has established a multi-beneficiary reduced collateral reinsurance trust to collateralize its (re)insurance liabilities associated with cedants domiciled in those states. Because these reduced collateral reinsurance trusts were established in New York, they are subject to the rules and regulations of the state of New York including but not limited to certain minimum capital funding requirements, investment guidelines, capital distribution restrictions and regulatory reporting requirements. Assets held under trust at December 31, 2021 with respect to such reduced collateral reinsurance trusts totaled $136.3 million, $168.1 million, and $86.6 million for Renaissance Reinsurance, DaVinci and RREAG respectively (2020 - $74.4 million, $90.1 million and $Nil respectively), compared to the minimum amount required under U.S. state regulations of $128.1 million, $164.5 million and $75.8 million, respectively (2020 - $70.0 million, $86.5 million and $Nil respectively).

NOTE 19. DERIVATIVE INSTRUMENTS

From time to time, the Company may enter into derivative instruments such as futures, options, swaps, forward contracts and other derivative contracts primarily to manage its foreign currency exposure, obtain exposure to a particular financial market, for yield enhancement, or for trading and to assume risk. The Company’s derivative instruments can be exchange traded or over-the-counter, with over-the-counter derivatives generally traded under International Swaps and Derivatives Association master agreements, which establish the terms of the transactions entered into with the Company’s derivative counterparties. In the event a party becomes insolvent or otherwise defaults on its obligations, a master agreement generally permits the non-defaulting party to accelerate and terminate all outstanding transactions and net the transactions’ marked-to-market values so that a single sum in a single currency will be owed by, or owed to, the non-defaulting party. Effectively, this contractual close-out netting reduces credit exposure from gross to net exposure. Where the Company has entered into master netting agreements with counterparties, or the Company has the legal and contractual right to offset positions, the derivative positions are generally netted by counterparty and are reported accordingly in other assets and other liabilities.

The Company is not aware of the existence of any credit-risk related contingent features that it believes would be triggered in its derivative instruments that are in a net liability position at December 31, 2021.

The tables below show the gross and net amounts of recognized derivative assets and liabilities at fair value, including the location on the consolidated balance sheets of the Company's principal derivative instruments:

At December 31, 2021	Gross Amounts of Recognized Assets	Gross Amounts Offset in the Balance Sheet	Net Amounts of Assets Presented in the Balance Sheet	Balance Sheet Location	Collateral	Net Amount
	Derivative Assets					
Derivative Instruments Not Designated as Hedges						
Interest rate futures	$ 1,068	$ —	$ 1,068	Other assets	$ —	$ 1,068
Foreign currency forward contracts (1)	13,730	—	13,730	Other assets	—	13,730
Foreign currency forward contracts (2)	1,247	—	1,247	Other assets	—	1,247
Credit default swaps	478	—	478	Other assets	—	478
Equity futures	—	—	—	Other assets	—	—
Total derivative instruments not designated as hedges	16,523	—	16,523		—	16,523
Derivative Instruments Designated as Hedges						
Foreign currency forward contracts (3)	1,366	—	1,366	Other assets	—	1,366
Total	$ 17,889	$ —	$ 17,889		$ —	$ 17,889

At December 31, 2021	Gross Amounts of Recognized Liabilities	Gross Amounts Offset in the Balance Sheet	Net Amounts of Liabilities Presented in the Balance Sheet	Balance Sheet Location	Collateral Pledged	Net Amount
	Derivative Liabilities					
Derivative Instruments Not Designated as Hedges						
Interest rate futures	$ 1,426	$ —	$ 1,426	Other liabilities	$ 1,426	$ —
Foreign currency forward contracts (1)	7,880	—	7,880	Other liabilities	—	7,880
Foreign currency forward contracts (2)	3,412	—	3,412	Other assets	—	3,412
Credit default swaps	—	—	—	Other liabilities	—	—
Equity futures	173	—	173	Other liabilities	173	—
Total derivative instruments not designated as hedges	12,891	—	12,891		1,599	11,292
Derivative Instruments Designated as Hedges						
Foreign currency forward contracts (3)	4,063	—	4,063	Other liabilities	—	4,063
Total	$ 16,954	$ —	$ 16,954		$ 1,599	$ 15,355

(1) Contracts used to manage foreign currency risks in underwriting and non-investment operations.

(2) Contracts used to manage foreign currency risks in investment operations.

(3) Contracts designated as hedges of net investments in foreign operations.

At December 31, 2020	Derivative Assets					
	Gross Amounts of Recognized Assets	Gross Amounts Offset in the Balance Sheet	Net Amounts of Assets Presented in the Balance Sheet	Balance Sheet Location	Collateral	Net Amount
Derivative Instruments Not Designated as Hedges						
Interest rate futures	$ 1,019	$ 863	$ 156	Other assets	$ —	$ 156
Interest rate swaps	22	—	22	Other assets	—	22
Foreign currency forward contracts (1)	23,055	184	22,871	Other assets	—	22,871
Foreign currency forward contracts (2)	2,232	69	2,163	Other assets	—	2,163
Credit default swaps	68	—	68	Other assets	—	68
Total derivative instruments not designated as hedges	26,396	1,116	25,280		—	25,280
Derivative Instruments Designated as Hedges						
Foreign currency forward contracts (3)	19,953	—	19,953	Other assets	—	19,953
Total	$ 46,349	$ 1,116	$ 45,233		$ —	$ 45,233

At December 31, 2020	Derivative Liabilities					
	Gross Amounts of Recognized Liabilities	Gross Amounts Offset in the Balance Sheet	Net Amounts of Liabilities Presented in the Balance Sheet	Balance Sheet Location	Collateral Pledged	Net Amount
Derivative Instruments Not Designated as Hedges						
Interest rate futures	$ 1,430	$ 863	$ 567	Other liabilities	$ 567	$ —
Foreign currency forward contracts (1)	12,791	—	12,791	Other liabilities	—	12,791
Foreign currency forward contracts (2)	3,919	69	3,850	Other liabilities	1,053	2,797
Total derivative instruments not designated as hedges	18,140	932	17,208		1,620	15,588
Derivative Instruments Designated as Hedges						
Foreign currency forward contracts (3)	5,152	—	5,152	Other liabilities	—	5,152
Total	$ 23,292	$ 932	$ 22,360		$ 1,620	$ 20,740

(1) Contracts used to manage foreign currency risks in underwriting and non-investment operations.
(2) Contracts used to manage foreign currency risks in investment operations.
(3) Contracts designated as hedges of net investments in foreign operations.

Refer to “Note 5. Investments” for information on reverse repurchase agreements.

The location and amount of the gain (loss) recognized in the Company's consolidated statements of operations related to its principal derivative instruments are shown in the following table:

Year ended December 31,	Location of gain (loss) recognized on derivatives	Amount of gain (loss) recognized on derivatives 2021	2020	2019
Derivative Instruments Not Designated as Hedges				
Interest rate futures (4)	Net realized and unrealized gains (losses) on investments	$ (15,846)	$ 103,102	$ 16,848
Interest rate swaps (4)	Net realized and unrealized gains (losses) on investments	(1,184)	2,334	1,488
Foreign currency forward contracts (1)	Net foreign exchange gains (losses)	(19,151)	24,309	12,617
Foreign currency forward contracts (2)	Net foreign exchange gains (losses)	(1,521)	(4,450)	(1,605)
Credit default swaps (4)	Net realized and unrealized gains (losses) on investments	3,479	(1,304)	7,043
Total return swaps (4)	Net realized and unrealized gains (losses) on investments	1,314	(5,479)	12,155
Equity futures (5)	Net realized and unrealized gains (losses) on investments	—	(30,045)	21,357
Total derivative instruments not designated as hedges		(32,909)	88,467	69,903
Derivative instruments designated as hedges				
Foreign currency forward contracts (3)	Accumulated other comprehensive income (loss)	(4,535)	11,685	959
Total derivative instruments designated as hedges		(4,535)	11,685	959
Total		$ (37,444)	$ 100,152	$ 70,862

(1) Contracts used to manage foreign currency risks in underwriting and non-investment operations.

(2) Contracts used to manage foreign currency risks in investment operations.

(3) Contracts designated as hedges of net investments in foreign operations.

(4) Fixed income related derivatives included in net realized and unrealized gains (losses) on investment-related derivatives. See "Note 5. Investments" for additional information.

(5) Equity related derivatives included in net realized and unrealized gains (losses) on investment-related derivatives. See "Note 5. Investments" for additional information.

The Company is not aware of the existence of any credit-risk related contingent features that it believes would be triggered in its derivative instruments that are in a net liability position at December 31, 2021.

Derivative Instruments Not Designated as Hedges

Interest Rate Derivatives

The Company uses interest rate futures and swaps within its portfolio of fixed maturity investments to manage its exposure to interest rate risk, which may result in increasing or decreasing its exposure to this risk.

Interest Rate Futures

The fair value of interest rate futures is determined using exchange traded prices. At December 31, 2021, the Company had $2.2 billion of notional long positions and $0.5 billion of notional short positions of primarily Eurodollar and U.S. treasury futures contracts (2020 – $2.0 billion and $1.0 billion, respectively).

Interest Rate Swaps

The fair value of interest rate swaps is determined using the relevant exchange traded price where available or a discounted cash flow model based on the terms of the contract and inputs, including, where applicable, observable yield curves. At December 31, 2021, the Company had $Nil of notional positions paying a fixed rate and $Nil receiving a fixed rate denominated in U.S. dollar swap contracts (2020 - $Nil and $23.5 million, respectively).

Foreign Currency Derivatives

The Company's functional currency is the U.S. dollar. The Company writes a portion of its business in currencies other than U.S. dollars and may, from time to time, experience foreign exchange gains and losses in the Company's consolidated financial statements. The impact of changes in exchange rates on the Company's assets and liabilities denominated in currencies other than the U.S. dollar, excluding non-monetary assets and liabilities, are recognized in the Company's consolidated statements of operations.

Underwriting and Non-investments Operations Related Foreign Currency Contracts

The Company's foreign currency policy with regard to its underwriting operations is generally to enter into foreign currency forward and option contracts for notional values that approximate the foreign currency liabilities, including claims and claim expense reserves and reinsurance balances payable, net of any cash, investments and receivables held in the respective foreign currency. The Company's use of foreign currency forward and option contracts is intended to minimize the effect of fluctuating foreign currencies on the value of non-U.S. dollar denominated assets and liabilities associated with its underwriting operations. The Company may determine not to match a portion of its projected underwriting related assets or liabilities with underlying foreign currency exposure with investments in the same currencies, which would increase its exposure to foreign currency fluctuations and potentially increase the impact and volatility of foreign exchange gains and losses on its results of operations. The fair value of the Company's underwriting operations related foreign currency contracts is determined using indicative pricing obtained from counterparties or broker quotes. At December 31, 2021, the Company had outstanding underwriting related foreign currency contracts of $915.0 million in notional long positions and $329.3 million in notional short positions, denominated in U.S. dollars (2020 – $0.7 billion and $504.2 million, respectively).

Investment Portfolio Related Foreign Currency Forward Contracts

The Company's investment operations are exposed to currency fluctuations through its investments in non-U.S. dollar fixed maturity investments, short term investments and other investments. From time to time, the Company may employ foreign currency forward contracts in its investment portfolio to either assume foreign currency risk or to economically hedge its exposure to currency fluctuations from these investments. The fair value of the Company's investment portfolio related foreign currency forward contracts is determined using an interpolated rate based on closing forward market rates. At December 31, 2021, the Company had outstanding investment portfolio related foreign currency contracts of $245.8 million in notional long positions and $131.0 million in notional short positions, denominated in U.S. dollars (2020 – $269.5 million and $117.5 million, respectively).

Credit Derivatives

The Company's exposure to credit risk is primarily due to its fixed maturity investments, short term investments, premiums receivable and reinsurance recoverable. From time to time, the Company may purchase credit derivatives to manage its exposures in the insurance industry, and to assist in managing the credit risk associated with ceded reinsurance. The Company also employs credit derivatives in its investment portfolio to either assume credit risk or manage its credit exposure.

Credit Default Swaps

The fair value of the Company credit default swaps is determined using industry valuation models, broker bid indications or internal pricing valuation techniques. The fair value of these credit default swaps can change based on a variety of factors including changes in credit spreads, default rates and recovery rates, the correlation of credit risk between the referenced credit and the counterparty, and market rate inputs such as interest rates. At December 31, 2021, the Company had outstanding credit default swaps of $Nil in notional positions to hedge credit risk and $218.5 million in notional positions to assume credit risk, denominated in U.S. dollars (2020 – $Nil and $96.8 million, respectively).

Total Return Swaps

From time to time, the Company uses total return swaps as a means to manage spread duration and credit exposure in its investment portfolio. The fair value of the Company's total return swaps is determined using broker-dealer bid quotations, market-based prices from pricing vendors or valuation models. At December 31, 2021 and December 31, 2020, the Company had no outstanding total return swaps, respectively.

Equity Derivatives

Equity Futures

From time to time, the Company uses equity derivatives in its investment portfolio to either assume equity risk or hedge its equity exposure. The fair value of the Company's equity futures is determined using market-based prices from pricing vendors. At December 31, 2021, the Company had a $74.3 million notional long position of equity futures, denominated in U.S. dollars (2020 - $Nil).

Derivative Instruments Designated as Hedges of Net Investments in Foreign Operations

Foreign Currency Derivatives

Hedges of Net Investments in Foreign Operations

Certain of the Company's subsidiaries use non-U.S. dollar functional currencies. The Company, from time to time, enters into foreign exchange forwards to hedge currencies, which, as of December 31, 2021 and 2020, includes the Australian dollar and Euro net investment in foreign operations, on an after-tax basis, from changes in the exchange rate between the U.S. dollar and these currencies.

The Company utilizes foreign exchange forward contracts to hedge the fair value of its net investment in a foreign operation. The Company has entered into foreign exchange forward contracts that were formally designated as hedges of its investment in subsidiaries with non-U.S. dollar functional currencies. There was no ineffectiveness in these transactions.

The table below provides a summary of derivative instruments designated as hedges of net investments in foreign operations, including the weighted average U.S. dollar equivalent of foreign denominated net (liabilities) assets that were hedged and the resulting derivative gain that are recorded in foreign currency translation adjustments, net of tax, within accumulated other comprehensive loss on the Company's consolidated statements of changes in shareholders' equity:

Year ended December 31,	2021	2020
Weighted average of U.S. dollar equivalent of foreign denominated net assets (liabilities)	$ (66,438)	$ (45,803)
Derivative gains (losses) (1)	$ (4,535)	$ 11,685

(1) Derivative gains (losses) from derivative instruments designated as hedges of the net investment in a foreign operation are recorded in foreign currency translation adjustments, net of tax, within accumulated other comprehensive income (loss) on the Company's consolidated statements of changes in shareholders' equity.

NOTE 20. COMMITMENTS, CONTINGENCIES AND OTHER ITEMS

Concentration of Credit Risk

Instruments which potentially subject the Company to concentration of credit risk consist principally of investments, including the Company's equity method investments, cash, premiums receivable and reinsurance balances. The Company limits the amount of credit exposure to any one financial institution and, except for the securities of the U.S. Government and U.S. Government related entities, and money market securities, none of the Company's fixed-maturity and short-term investments exceeded 10% of shareholders' equity at December 31, 2021. Refer to "Note 7. Reinsurance," for information with respect to reinsurance recoverable.

Employment Agreements

The Board of Directors has authorized the execution of employment agreements between the Company and certain officers. These agreements provide for, among other things, severance payments under certain circumstances, as well as accelerated vesting of options and certain restricted stock grants, upon a change in control, as defined in the employment agreements and the Company's stock incentive plan.

Letters of Credit and Other Commitments

At December 31, 2021, the Company's banks have issued secured and unsecured letters of credit totaling $1.1 billion in favor of certain ceding companies. In connection with the Company's Top Layer Re joint venture, Renaissance Reinsurance has committed $37.5 million of collateral to support a letter of credit and is obligated to make a mandatory capital contribution of up to $50.0 million in the event that a loss reduces Top Layer Re's capital and surplus below a specified level.

Refer to "Note 9. Debt and Credit Facilities" for additional information related to the Company's debt and credit facilities.

Investment Commitments

The Company has committed capital to direct private equity investments, fund investments, term loans and investments in other ventures of $2.7 billion, of which $1.3 billion has been contributed at December 31, 2021. The Company's remaining commitments to these investments at December 31, 2021 totaled $1.4 billion. These commitments do not have a defined contractual commitment date.

Indemnifications and Warranties

In the ordinary course of its business, the Company may enter into contracts or agreements that contain indemnifications or warranties. Future events could occur that lead to the execution of these provisions against the Company. Based on past experience, management currently believes that the likelihood of such an event is remote.

Leases

The Company's operating leases primarily relate to office space for its global underwriting platforms principally in Bermuda, Australia, Ireland, Singapore, Switzerland, the U.K. and the U.S. These leases expire at various dates through 2031 with a weighted average lease term of 4.7 years. Included in other assets and other liabilities at December 31, 2021 is a right-to-use asset of $22.9 million and a lease liability of $23.1 million, respectively, associated with the Company's operating leases and reflected as a result of the Company's adoption of FASB ASC Topic *Leases* (2020 - $29.8 million and $29.9 million, respectively). During 2021, the Company recorded an operating lease expense of $8.4 million included in operating expenses (2020 - $9.8 million).

The Company's financing leases primarily relate to office space in Bermuda with an initial lease term of 20 years, ending in 2028, and a bargain renewal option for an additional 30 years. Included in other assets and other liabilities at December 31, 2021 is a right-to-use asset of $28.0 million and a lease liability of $22.5 million, respectively, associated with the Company's finance leases (2020 - $18.0 million and $22.9 million, respectively). During 2021, the Company recorded interest expense of $2.3 million associated with its finance leases (2020 - $2.3 million) included in other income and amortization of its finance leases right-to-use asset of $0.5 million included in operating expenses (2020 - $0.5 million).

Future minimum lease payments under existing operating and finance leases are detailed below, excluding the bargain renewal option on the finance lease related to office space in Bermuda:

	Future Minimum Lease Payments	
	Operating Leases	Finance Leases
2022	$ 8,515	$ 2,661
2023	7,440	2,661
2024	6,186	2,661
2025	5,998	2,661
2026	5,588	2,661
After 2026	21,143	4,807
Future minimum lease payments under existing leases	$ 54,870	$ 18,112

Legal Proceedings

The Company and its subsidiaries are subject to lawsuits and regulatory actions in the normal course of business that do not arise from or directly relate to claims on reinsurance treaties or contracts or direct surplus lines insurance policies. In the Company's industry, business litigation may involve allegations of underwriting or claims-handling errors or misconduct, disputes relating to the scope of, or compliance with, the terms of delegated underwriting agreements, employment claims, regulatory actions or disputes arising from the Company's business ventures. The Company's operating subsidiaries are subject to claims litigation involving, among other things, disputed interpretations of policy coverages. Generally, the Company's direct surplus lines insurance operations are subject to greater frequency and diversity of claims and claims-related litigation than its reinsurance operations and, in some jurisdictions, may be subject to direct actions by allegedly injured persons or entities seeking damages from policyholders. These lawsuits, involving or arising out of claims on policies issued by the Company's subsidiaries which are typical to the insurance industry in general and in the normal course of business, are considered in its loss and loss expense reserves. In addition, the Company may from time to time engage in litigation or arbitration related to its claims for payment in respect of ceded reinsurance, including disputes that challenge the Company's ability to enforce its underwriting intent. Such matters could result, directly or indirectly, in providers of protection not meeting their obligations to the Company or not doing so on a timely basis. The Company may also be subject to other disputes from time to time, relating to operational or other matters distinct from insurance or reinsurance claims. Any litigation or arbitration, or regulatory process, contains an element of uncertainty, and the value of an exposure or a gain contingency related to a dispute is difficult to estimate. The Company believes that no individual litigation or arbitration to which it is presently a party is likely to have a material adverse effect on its financial condition, business or operations.

NOTE 21. SALE OF RENAISSANCERE UK

On February 4, 2020, RenaissanceRe Specialty Holdings (UK) Limited entered into an agreement to sell its wholly owned subsidiary, RenaissanceRe UK, a U.K. run-off company, to an investment vehicle managed by AXA Liabilities Managers, an affiliate of AXA XL. The sale received regulatory approval on July 17, 2020 and closed on August 18, 2020. The Company recognized a pre-tax loss on the sale of RenaissanceRe UK of $30.2 million, which is included in corporate expenses in the Company's consolidated statements of operations for 2020. The loss on sale includes amounts related to prior purchase GAAP adjustments and cumulative currency translation adjustments recorded since the acquisition of RenaissanceRe UK. The financial results of RenaissanceRe UK for the period from January 1, 2020 through August 18, 2020, are recorded in the Company's consolidated statements of operations as part of net income available to RenaissanceRe common shareholders for 2020. Prior to the sale, the underwriting activities of RenaissanceRe UK were principally all within the Company's Casualty and Specialty segment.

NOTE 22. SUBSEQUENT EVENTS

Effective January 1, 2022, DaVinciRe completed an equity capital raise of $500.0 million, comprised of $284.8 million from third-party investors and $215.2 million from RenaissanceRe. In addition, RenaissanceRe sold an aggregate of $102.9 million of its shares in DaVinciRe to third-party investors and purchased an aggregate of $87.4 million of shares from third-party investors. At December 31, 2021, $387.8 million, representing the net amount received from investors other than the Company prior to December 31, 2021, is included in other liabilities on the Company's consolidated balance sheet, and also included in other operating cash flows on the Company's consolidated statements of cash flows for the year ended December 31, 2021. The Company’s noncontrolling economic ownership in DaVinciRe subsequent to these transactions was 30.9%, effective January 1, 2022.

Effective January 1, 2022, Upsilon RFO issued $89.0 million of non-voting preference shares to investors, including $10.0 million to the Company. At December 31, 2021, $79.0 million, representing the amount received from investors other than the Company prior to December 31, 2021, is included in other liabilities on the Company’s consolidated balance sheet, and also included in other operating cash flows on the Company’s consolidated statements of cash flows for the year ended December 31, 2021. Effective January 1, 2022, the Company’s participation in the risks assumed by Upsilon RFO was 13.6%.

Effective January 1, 2022, Medici issued $73.7 million of non-voting preference shares to investors, including $nil to the Company. At December 31, 2021, $73.7 million, representing the amount received from investors other than the Company prior to December 31, 2021, is included in other liabilities on the Company’s consolidated balance sheet, and also included in other operating cash flows on the Company’s consolidated statements of cash flows for the year ended December 31, 2021. The Company’s noncontrolling economic ownership in Medici subsequent to these transactions was 13.7%, effective January 1, 2022.

Subsequent to December 31, 2021 and through the period ended February 2, 2022, the Company repurchased 462,350 common shares at an aggregate cost of $76.1 million and an average price of $164.52 per common share. On February 4, 2022, the Company’s Board of Directors approved a renewal of the authorized share repurchase program to an aggregate amount of up to $500.0 million.

RENAISSANCERE HOLDINGS LTD. AND SUBSIDIARIES

INDEX TO SCHEDULES TO CONSOLIDATED FINANCIAL STATEMENTS

Schedules other than those listed above are omitted for the reason that they are not applicable.

Report of Independent Registered Public Accounting Firm

To the Shareholders and the Board of Directors of RenaissanceRe Holdings Ltd.

We have audited the consolidated financial statements of RenaissanceRe Holdings Ltd. and subsidiaries (the Company) as of December 31, 2021 and 2020, for each of the three years in the period ended December 31, 2021, and have issued our report thereon dated February 4, 2022 included elsewhere in this Form 10-K. Our audits of the consolidated financial statements included the financial statement schedules listed in Item 15 of this Form 10-K (the schedules). These schedules are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's schedules, based on our audits.

In our opinion, the schedules present fairly, in all material respects, the information set forth therein when considered in conjunction with the consolidated financial statements.

/s/ Ernst & Young Ltd.

Hamilton, Bermuda
February 4, 2022

SCHEDULE I

RENAISSANCERE HOLDINGS LTD. AND SUBSIDIARIES

SUMMARY OF INVESTMENTS
OTHER THAN INVESTMENTS IN RELATED PARTIES
(THOUSANDS OF UNITED STATES DOLLARS)

	December 31, 2021		
	Amortized Cost or Cost	Fair Value	Amount at Which Shown in the Balance Sheet
Type of investment:			
Fixed maturity investments			
U.S. treasuries	$ 6,302,313	$ 6,247,779	$ 6,247,779
Agencies	364,429	361,684	361,684
Non-U.S. government	552,935	549,613	549,613
Non-U.S. government-backed corporate	476,200	474,848	474,848
Corporate	3,202,614	3,214,438	3,214,438
Agency mortgage-backed	721,711	721,955	721,955
Non-agency mortgage-backed	232,144	233,346	233,346
Commercial mortgage-backed	631,016	634,925	634,925
Asset-backed	1,069,217	1,068,543	1,068,543
Total fixed maturity investments	$ 13,552,579	13,507,131	13,507,131
Short term investments		5,298,385	5,298,385
Equity investments		546,016	546,016
Catastrophe bonds		1,104,034	1,104,034
Direct private equity investments		88,373	88,373
Fund investments		725,802	725,802
Term loans		74,850	74,850
Total other investments		1,993,059	1,993,059
Investments in other ventures, under equity method		98,068	98,068
Total investments		$ 21,442,659	$ 21,442,659

SCHEDULE II

RENAISSANCERE HOLDINGS LTD.
CONDENSED FINANCIAL INFORMATION OF REGISTRANT

RENAISSANCERE HOLDINGS LTD.
BALANCE SHEETS
AT DECEMBER 31, 2021 AND 2020
(PARENT COMPANY)
(THOUSANDS OF UNITED STATES DOLLARS)

	At December 31,	
	2021	**2020**
Assets		
Fixed maturity investments trading, at fair value - amortized cost $0 at December 31, 2021 (2020 - $14,840)	$ —	$ 14,790
Short term investments, at fair value	46,503	125,392
Cash and cash equivalents	35,834	29,830
Investments in subsidiaries	6,137,229	6,757,962
Due from subsidiaries	9,468	2,435
Accrued investment income	6	34
Receivable for investments sold	3	18
Other assets	859,176	932,153
Goodwill and other intangible assets	108,261	112,110
Total assets	$ 7,196,480	$ 7,974,724
Liabilities and Shareholders' Equity		
Liabilities		
Notes and bank loans payable	$ 393,306	$ 392,391
Due to subsidiaries	156,353	—
Other liabilities	22,540	22,085
Total liabilities	572,199	414,476
Shareholders' Equity		
Preference shares: $1.00 par value – 30,000 shares issued and outstanding at December 31, 2021 (2020 – 11,010,000)	750,000	525,000
Common shares: $1.00 par value – 44,444,831 shares issued and outstanding at December 31, 2021 (2020 – 50,810,618)	44,445	50,811
Additional paid-in capital	608,121	1,623,206
Accumulated other comprehensive income (loss)	(10,909)	(12,642)
Retained earnings	5,232,624	5,373,873
Total shareholders' equity	6,624,281	7,560,248
Total liabilities and shareholders' equity	$ 7,196,480	$ 7,974,724

SCHEDULE II

RENAISSANCERE HOLDINGS LTD.
CONDENSED FINANCIAL INFORMATION OF REGISTRANT – CONTINUED

RENAISSANCERE HOLDINGS LTD.
STATEMENTS OF OPERATIONS
FOR THE YEARS ENDED DECEMBER 31, 2021, 2020 AND 2019
(PARENT COMPANY)
(THOUSANDS OF UNITED STATES DOLLARS)

	Year ended December 31,		
	2021	2020	2019
Revenues			
Net investment income	$ 38,347	$ 40,502	$ 39,629
Net foreign exchange gains (losses)	(10,740)	10,729	7,342
Net realized and unrealized gains (losses) on investments	6,212	(4,556)	12,393
Total revenues	33,819	46,675	59,364
Expenses			
Interest expense	15,315	15,583	18,086
Operational expenses	12,043	8,016	7,506
Corporate expenses	35,946	47,223	58,393
Total expenses	63,304	70,822	83,985
Income (loss) before equity in net income of subsidiaries	(29,485)	(24,147)	(24,621)
Equity in net income (loss) of subsidiaries	(10,670)	786,552	773,419
Net income (loss)	(40,155)	762,405	748,798
Dividends on preference shares	(33,266)	(30,923)	(36,756)
Net income (loss) available (attributable) to RenaissanceRe common shareholders	$ (73,421)	$ 731,482	$ 712,042

RENAISSANCERE HOLDINGS LTD.
STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
FOR THE YEARS ENDED DECEMBER 31, 2021, 2020 AND 2019
(PARENT COMPANY)
(THOUSANDS OF UNITED STATES DOLLARS)

	Year ended December 31,		
	2021	2020	2019
Comprehensive income (loss)			
Net income (loss)	$ (40,155)	$ 762,405	$ 748,798
Change in net unrealized gains (losses) on investments, net of tax	(2,492)	606	2,173
Foreign currency translation adjustments, net of tax	4,225	(11,309)	(2,679)
Comprehensive income (loss) attributable to RenaissanceRe	$ (38,422)	$ 751,702	$ 748,292

SCHEDULE II

RENAISSANCERE HOLDINGS LTD.
CONDENSED FINANCIAL INFORMATION OF REGISTRANT – CONTINUED

RENAISSANCERE HOLDINGS LTD.
STATEMENTS OF CASH FLOWS
FOR THE YEARS ENDED DECEMBER 31, 2021, 2020 AND 2019
(PARENT COMPANY)
(THOUSANDS OF UNITED STATES DOLLARS)

	Year ended December 31,		
	2021	2020	2019
Cash flows provided by (used in) operating activities:			
Net income (loss)	$ (40,155)	$ 762,405	$ 748,798
Less: equity in net income of subsidiaries	10,670	(786,552)	(773,419)
	(29,485)	(24,147)	(24,621)
Adjustments to reconcile net income (loss) to net cash provided by (used in) operating activities			
Net realized and unrealized (gains) losses on investments	4,898	4,556	(12,393)
Other	59,873	37,782	34,153
Net cash provided by (used in) operating activities	35,286	18,191	(2,861)
Cash flows provided by (used in) investing activities:			
Proceeds from maturities and sales of fixed maturity investments trading	436,122	370,905	306,579
Purchases of fixed maturity investments trading	(421,323)	(384,415)	(66,740)
Net sales (purchases) of short term investments	78,904	64,209	(116,499)
Dividends and return of capital from subsidiaries	1,104,831	827,626	1,400,944
Contributions to subsidiaries	(351,548)	(1,623,708)	(1,165,607)
Due (to) from subsidiary	50,472	(65,438)	(625,924)
Net cash provided by (used in) investing activities	897,458	(810,821)	(267,247)
Cash flows provided by (used in) financing activities:			
Dividends paid – RenaissanceRe common shares	(67,828)	(68,490)	(59,368)
Dividends paid – preference shares	(32,889)	(30,923)	(36,756)
Issuance of debt, net of expenses	—	—	396,411
RenaissanceRe common share repurchases	(1,027,505)	(62,621)	—
RenaissanceRe common share issuance	—	1,095,507	—
Redemption of preference shares	(275,000)	(125,000)	—
Issuance of preference shares, net of expenses	488,653	—	—
Taxes paid on withholding shares	(12,171)	(12,330)	(7,253)
Net cash provided by (used in) financing activities	(926,740)	796,143	293,034
Effect of exchange rate changes on foreign currency cash	—	(143)	—
Net increase (decrease) in cash and cash equivalents	6,004	3,370	22,926
Cash and cash equivalents, beginning of year	29,830	26,460	3,534
Cash and cash equivalents, end of year	$ 35,834	$ 29,830	$ 26,460

SCHEDULE III

RENAISSANCERE HOLDINGS LTD. AND SUBSIDIARIES

SUPPLEMENTARY INSURANCE INFORMATION
(THOUSANDS OF UNITED STATES DOLLARS)

	December 31, 2021			Year ended December 31, 2021					
	Deferred Policy Acquisition Costs	Future Policy Benefits, Losses, Claims and Loss Expenses	Unearned Premiums	Premium Revenue	Net Investment Income	Benefits, Claims, Losses and Settlement Expenses	Amortization of Deferred Policy Acquisition Costs	Other Operating Expenses	Net Written Premiums
Property	$ 195,423	$ 6,377,688	$ 931,938	$ 2,608,298	$ —	$ 2,163,016	$ 487,178	$ 143,608	$ 2,868,002
Casualty and Specialty	653,737	6,916,942	2,599,275	2,585,883		1,713,071	727,680	68,576	3,071,373
Other	—	—	—	—	319,479	—	—	—	—
Total	$ 849,160	$ 13,294,630	$ 3,531,213	$ 5,194,181	$ 319,479	$ 3,876,087	$ 1,214,858	$ 212,184	$ 5,939,375

	December 31, 2020			Year ended December 31, 2020					
	Deferred Policy Acquisition Costs	Future Policy Benefits, Losses, Claims and Loss Expenses	Unearned Premiums	Premium Revenue	Net Investment Income	Benefits, Claims, Losses and Settlement Expenses	Amortization of Deferred Policy Acquisition Costs	Other Operating Expenses	Net Written Premiums
Property	$ 118,327	$ 4,372,453	$ 659,236	$ 1,936,215	$ —	$ 1,435,947	$ 353,700	$ 135,547	$ 2,037,200
Casualty and Specialty	515,194	6,008,685	2,104,363	2,016,247	—	1,488,662	543,977	71,140	2,059,133
Other	—	—	—	—	354,038	—	—	—	—
Total	$ 633,521	$ 10,381,138	$ 2,763,599	$ 3,952,462	$ 354,038	$ 2,924,609	$ 897,677	$ 206,687	$ 4,096,333

	December 31, 2019			Year ended December 31, 2019					
	Deferred Policy Acquisition Costs	Future Policy Benefits, Losses, Claims and Loss Expenses	Unearned Premiums	Premium Revenue	Net Investment Income	Benefits, Claims, Losses and Settlement Expenses	Amortization of Deferred Policy Acquisition Costs	Other Operating Expenses	Net Written Premiums
Property	$ 79,795	$ 4,074,290	$ 539,183	$ 1,627,494	$ —	$ 965,384	$ 313,554	$ 138,187	$ 1,654,259
Casualty and Specialty	584,196	5,310,059	1,991,792	1,710,909	—	1,131,637	448,678	84,546	1,727,234
Other	—	—	—	—	424,207	—	—	—	—
Total	$ 663,991	$ 9,384,349	$ 2,530,975	$ 3,338,403	$ 424,207	$ 2,097,021	$ 762,232	$ 222,733	$ 3,381,493

SCHEDULE IV

RENAISSANCERE HOLDINGS LTD. AND SUBSIDIARIES

SUPPLEMENTAL SCHEDULE OF REINSURANCE PREMIUMS
(THOUSANDS OF UNITED STATES DOLLARS)

	Gross Amounts	Ceded to Other Companies	Assumed From Other Companies	Net Amount	Percentage of Amount Assumed to Net
Year ended December 31, 2021					
Property and liability premiums earned	$ 799,717	$ 1,863,350	$ 6,257,814	$ 5,194,181	120 %
Year ended December 31, 2020					
Property and liability premiums earned	$ 536,595	$ 1,662,815	$ 5,078,682	$ 3,952,462	128 %
Year ended December 31, 2019					
Property and liability premiums earned	$ 404,525	$ 1,414,383	$ 4,348,261	$ 3,338,403	130 %

SCHEDULE VI

RENAISSANCERE HOLDINGS LTD. AND SUBSIDIARIES

SUPPLEMENTARY INSURANCE INFORMATION CONCERNING
PROPERTY-CASUALTY INSURANCE OPERATIONS
(THOUSANDS OF UNITED STATES DOLLARS)

Affiliation with Registrant	Deferred Policy Acquisition Costs	Reserves for Unpaid Claims and Claim Adjustment Expenses	Discount, if any, Deducted	Unearned Premiums	Earned Premiums	Net Investment Income
Consolidated Subsidiaries						
Year ended December 31, 2021	$ 849,160	$ 13,294,630	$ —	$ 3,531,213	$ 5,194,181	$ 319,479
Year ended December 31, 2020	$ 633,521	$ 10,381,138	$ —	$ 2,763,599	$ 3,952,462	$ 354,038
Year ended December 31, 2019	$ 663,991	$ 9,384,349	$ —	$ 2,530,975	$ 3,338,403	$ 424,207

	Claims and Claim Adjustment Expenses Incurred Related to		Amortization of Deferred Policy Acquisition Costs	Paid Claims and Claim Adjustment Expenses	Net Premiums Written
Affiliation with Registrant	Current Year	Prior Year			
Consolidated Subsidiaries					
Year ended December 31, 2021	$ 4,125,557	$ (249,470)	$ 1,214,858	$ 2,224,102	$ 5,939,375
Year ended December 31, 2020	$ 3,108,421	$ (183,812)	$ 897,677	$ 2,004,628	$ 4,096,333
Year ended December 31, 2019	$ 2,123,876	$ (26,855)	$ 762,232	$ 1,098,054	$ 3,381,493

DESCRIPTION OF THE REGISTRANT'S SECURITIES REGISTERED PURSUANT TO SECTION 12 OF THE SECURITIES EXCHANGE ACT OF 1934

The following description sets forth certain material terms and provisions of our securities that are registered under Section 12 of the Securities Exchange Act of 1934, as amended. This description also summarizes certain provisions of our Memorandum of Association (the "Memorandum") and Amended and Restated Bye-Laws (the "Bye-Laws"), and the applicable Certificate of Designation, Preferences and Rights for our Series F Preference Shares and Series G Preference Shares. Because this summary is not complete, you should refer to our Memorandum and Bye-Laws and the applicable certificate of designation for complete information regarding the provisions of these governing documents, including the definitions of some of the terms used below. Copies of these governing documents are incorporated by reference as exhibits to the Annual Report on Form 10-K of which this Exhibit 4.6 is a part. Whenever we refer to particular sections or defined terms of the Memorandum, the Bye-Laws or the certificates of designation, such sections or defined terms are incorporated herein by reference and the statement in connection with such reference is made is qualified in its entirety by such reference. References to "we," "us" or "our" mean RenaissanceRe Holdings Ltd., excluding, unless otherwise expressly stated or the context requires, our subsidiaries.

COMMON SHARES

Our Common Shares are listed on the New York Stock Exchange under the symbol "RNR." The Common Shares currently issued and outstanding are fully paid and nonassessable within the meaning of applicable Bermuda law. We have authorized the issuance of 225,000,000 Common Shares. There are no provisions of Bermuda law or our Memorandum and Bye-Laws which impose any limitation on the rights of shareholders to hold or vote Common Shares by reason of their not being residents of Bermuda.

Holders of Common Shares have no pre-emptive, redemption, conversion or sinking fund rights. Subject to the voting restrictions set forth below, holders of Common Shares are entitled to one vote per share on all matters submitted to a vote of holders of Common Shares and do not have any cumulative voting rights. In the event of a liquidation, dissolution, or winding-up of the Company, the holders of Common Shares are entitled to share equally and ratably in the assets of the Company, if any, remaining after the payment of all debts and liabilities of the Company and the liquidation preference of any outstanding preference shares. Authorized but unissued Common Shares may be issued at any time and at the discretion of the board of directors of the Company (the "Board") without the approval of the shareholders of the Company with such rights, preferences and limitations as the Board may determine. Holders of Common Shares have one vote for each Common Share held on all matters submitted to a vote on a poll of such holders. Most matters to be approved by holders of Common Shares require approval by a simple majority vote. All matters relating to a liquidation or sale of all or substantially all of the assets of the Company shall require the affirmative vote of a majority of the voting rights attached to all issued and outstanding capital shares of the Company entitled to vote thereon. All matters relating to an amalgamation or other reorganization of the Company with or into another company (other than "short-form" amalgamations pursuant to section 107 of the Companies Act 1981 of Bermuda) shall require the affirmative vote of a majority of all issued and outstanding capital shares of the Company. All matters relating to a merger by the Company into another company (other than “short-form” mergers pursuant to section 107 of the Companies Act 1981 of Bermuda) shall require the approval of the holders of three-fourths of the Common Shares present in person or by proxy at a meeting and voting thereon.

The holders of Common Shares will receive such dividends, if any, as may be declared by the Board out of funds legally available for such purposes. Under Bermuda law, a company may not declare or pay a dividend, or make a distribution out of contributed surplus, if there are reasonable grounds for believing that (i) the company is, or would after the payment be, unable to pay its liabilities as they become due or (ii) the realizable value of the company’s assets would thereby be less than the aggregate of its liabilities and its issued share capital and share premium accounts.

Our registrar and transfer agent for our Common Shares is Computershare Shareowner Services LLC.

SERIES F PREFERENCE SHARES

Currently, 10,000 of our 5.750% Series F Preference Shares (equivalent to 10,000,000 Depositary Shares) are outstanding. The 10,000,000 Depositary Shares, each representing 1/1,000th of an interest in a share of 5.750% Series F Preference Shares, are listed on the New York Stock Exchange under the symbol “RNRPRF.” The Series F Preference Shares (and the Depositary Shares) currently issued and outstanding are fully paid and nonassessable within the meaning of applicable Bermuda law.

Because the following summary of the terms of the Series F Preference Shares is not complete, you should refer to the Memorandum, the Bye-Laws and the applicable Certificate of Designation, Preferences and Rights for complete information regarding the terms of the Series F Preference Shares.

General. The holders of Series F Preference Shares have no preemptive rights with respect to any of our common shares or any of our other securities convertible into or carrying rights or options to purchase any such shares. The Series F Preference Shares are not subject to any sinking fund or other obligation on our part to redeem or retire the Series F Preference Shares. Unless we redeem them, the Series F Preference Shares will have a perpetual term with no maturity. The Series F Preference Shares rank pari passu to our Series G Preference Shares and senior to our common shares with respect to payment of dividends and amounts upon liquidation, dissolution or winding-up.

Dividends. Dividends on the Series F Preference Shares (and the Depositary Shares) are payable from the date of original issuance on a non-cumulative basis, only when, as and if declared by our Board of Directors, quarterly in arrears, in an amount per share equal to 5.750% of the liquidation preference per annum.

No dividends will be paid upon any shares of any class or series of our shares ranking on a parity with the Series F Preference Shares with respect to the payment of dividends and amounts upon our liquidation, dissolution or winding up (for purposes of this section, “Parity Shares”) (other than partial dividends to be shared pro rata by the holders of Parity Shares and Series F Preference Shares) for any period unless there will have been paid or declared and set apart for payment dividends to be paid to the holders of the Series F Preference Shares for the current dividend period. No dividends will be paid upon any class or series of our shares ranking junior to the Series F Preference Shares with respect to either the payment of dividends or amounts upon our liquidation, dissolution or winding up (for purposes of this section, "Junior Shares") for any period unless there will have been paid or declared and set apart for payment dividends to be paid to the holders of the Series F Preference Shares and Parity Shares for the current dividend period, subject to certain exceptions.

Liquidation. In case of our voluntary or involuntary liquidation, dissolution or winding up, the holders of Series F Preference Shares will be entitled to receive from our assets legally available for distribution to shareholders a liquidation preference of $25,000 per 5.750% Series F Preference Share (equivalent to $25 per Depositary Share), plus declared and unpaid dividends, if any, to the date of liquidation, without accumulation of any undeclared dividends and without interest.

It is possible that, in case of our voluntary or involuntary liquidation, dissolution or winding up, our assets could be insufficient to pay the holders of all of the classes or series of preference shares then outstanding the full, or any, amounts to which they may be entitled. In that circumstance, the holders of Series F Preference Shares and any Parity Shares will share ratably in such assets in accordance with the respective amounts that would be payable on such Series F Preference Shares and such Parity Shares if all amounts payable thereon were paid in full.

Our amalgamation, consolidation or merger with or into any other corporation, or a sale of all or substantially all of our assets, or a statutory share exchange, will not be deemed to constitute a liquidation, dissolution or winding up.

Redemption. On and after June 30, 2023, we may redeem the Series F Preference Shares, in whole or in part, at any time upon not less than 30 nor more than 60 days' written notice, at a redemption price of $25,000 per 5.750% Series F Preference Share (equivalent to $25 per Depositary Share), plus an amount equal to the portion of the quarterly dividend attributable to the then-current dividend period to, but excluding, the date of redemption; provided that no redemption may occur prior to June 30, 2028 unless (1) we have sufficient funds in order to meet the Bermuda Monetary Authority's (the "BMA") Enhanced Capital Requirement and the BMA (or its successor, if any) approves of the redemption or (2) we replace the capital represented by preference shares to be redeemed with capital having equal or better capital treatment as the preference shares under the Enhanced Capital Requirement. The Series F Preference Shares have no stated maturity, are not subject to any sinking fund or mandatory redemption and are not convertible into or exchangeable for any of our other securities. We may not redeem the Series F Preference Shares before June 30, 2023, except that we may redeem the Series F Preference Shares before that date at a redemption price of $26,000 per share (equivalent to $26 per Depositary Share), plus declared and unpaid dividends, if any, to, but excluding, the date of redemption, without accumulation of any undeclared dividends and without interest, if we submit a proposal to our common shareholders concerning an amalgamation or submit any proposal for any other matter that requires, as a result of a change in Bermuda law, the approval of the holders of the Series F Preference Shares, whether voting as a separate series or together with any other series of preference shares as a single class. In addition, at any time upon not less than 30 nor more than 60 days' written notice following the occurrence of a "tax event" or within 90 days under certain circumstances following the occurrence of a “capital redemption trigger date,” we may redeem the Series F Preference Shares, in whole or in part, at a redemption price of $25,000 per 5.750% Series F Preference Share (equivalent to $25 per Depositary Share), plus declared and unpaid dividends, if any, to, but excluding, the date of redemption, without accumulation of any undeclared dividends and without interest.

Unless there will have been paid or declared and set apart for payment full dividends for the holders of the Series F Preference Shares and the holders of any Parity Shares for the latest completed dividend period:

(1) we may not purchase any Series F Preference Shares or Parity Shares except in accordance with a purchase offer made in writing to all holders of Series F Preference Shares and Parity Shares upon such terms as the Board, in its sole discretion after consideration of the respective annual dividend rate and other relative rights and preferences of the respective classes or series, will determine (which determination will be final and conclusive) will result in fair and equitable treatment among the respective classes or series; and

(2) we may not redeem, purchase or otherwise acquire, or permit any subsidiary to purchase or acquire, any Junior Shares, subject to certain exceptions.

Reissuance of Shares. Any Series F Preference Shares reacquired in any manner by us will have the status of authorized but unissued preference shares, and may be reissued as part of the same class or series or may be reclassified and reissued by the Board in the same manner as any other authorized and unissued preference shares.

Voting. Except as indicated below or as otherwise required by applicable law, the holders of Series F Preference Shares will have no voting rights.

Pursuant to the terms of the Certificate of Designation, Preferences and Rights of the Series F Preference Shares, whenever dividends payable on the Series F Preference Shares or on any Parity Shares are in arrears in an aggregate amount equivalent to six full quarterly dividends on all of such Series F Preference Shares or Parity Shares, as applicable, then outstanding, the holders of Series F Preference Shares, together with the holders of Parity Shares, will have the right, voting together as a single class regardless of class or series, to elect two directors of our Board. We will use our best efforts to increase the number of directors constituting the Board to the extent necessary to effectuate such right. Whenever all arrearages in dividends on the Series F Preference Shares and the Parity Shares shall have been paid and dividends thereon for the current quarterly dividend period shall have been declared and paid or set apart for payment, the rights of such holders of Series F Preference Shares and the Parity Shares to elect members of the Board will cease, subject to revesting in the event of each and every subsequent default in an aggregate amount equivalent to six full quarterly dividends.

Pursuant to the terms of the Certificate of Designation, Preferences and Rights of the Series F Preference Shares, the rights attached to the Series F Preference Shares may only be varied with the consent in writing of the holders of three-quarters of the outstanding Series F Preference Shares, or with the sanction of a special resolution approved by at least a majority of the votes cast by the holders of the Series F Preference Shares at a separate meeting in which a quorum is present; provided, however, that the terms of the Series F Preference Shares may also be varied under certain circumstances in connection with a “tax event” or a “capital redemption disqualification event”. The rights attached to Series F Preference Shares will not be deemed to be varied by the creation or issue of any shares or any securities convertible into or evidencing the right to purchase shares ranking prior to or equally with the Series F Preference Shares with respect to the payment of dividends or of assets upon liquidation, dissolution or winding up. Holders of Series F Preference Shares are not entitled to vote on any sale of all or substantially all of our assets.

On any item on which the holders of the Series F Preference Shares are entitled to vote pursuant to the terms of its Certificate of Designation, Preferences and Rights, such holders will be entitled to one vote for each Series F Preference Share held.

Currently, under Bermuda law each share (including preference shares) of an amalgamating or merging company carries the right to vote in respect of an amalgamation or merger whether or not it otherwise carries the right to vote. The provisions of Bermuda law, and thus these voting rights as to amalgamations and mergers, are subject to change at any time.

A more detailed description of the Series F Preference Shares is set forth in our registration statement filed under the Exchange Act on Form 8-A on June 18, 2018, including any amendment or report for the purpose of updating such description. If we issue preference shares in the future, they may, or may not, be on terms similar to the Series F Preference Shares.

SERIES G PREFERENCE SHARES

Currently, 20,000 of our 4.20% Series G Preference Shares (equivalent to 20,000,000 Depositary Shares) are outstanding. The 20,000,000 Depositary Shares, each representing 1/1,000th of an interest in a share of 4.20% Series G Preference Shares, are listed on the New York Stock Exchange under the symbol “RNRPRG.” The Series G Preference Shares (and the Depositary Shares) currently issued and outstanding are fully paid and nonassessable within the meaning of applicable Bermuda law.

Because the following summary of the terms of the Series G Preference Shares is not complete, you should refer to the Memorandum, the Bye-Laws and the applicable Certificate of Designation, Preferences and Rights for complete information regarding the terms of the Series G Preference Shares.

General. The holders of Series G Preference Shares have no preemptive rights with respect to any of our common shares or any of our other securities convertible into or carrying rights or options to purchase any such shares. The Series G Preference Shares are not subject to any sinking fund or other obligation on our part to redeem or retire the Series G Preference Shares. Unless we redeem them, the Series G Preference Shares will have a perpetual term with no maturity. The Series G Preference Shares rank pari passu to our Series F Preference Shares and senior to our common shares with respect to payment of dividends and amounts upon liquidation, dissolution or winding-up.

Dividends. Dividends on the Series G Preference Shares (and the Depositary Shares) are payable from the date of original issuance on a non-cumulative basis, only when, as and if declared by our Board of Directors, quarterly in arrears, in an amount per share equal to 4.20% of the liquidation preference per annum.

No dividends will be paid upon any shares of any class or series of our shares ranking on a parity with the Series G Preference Shares with respect to the payment of dividends and amounts upon our liquidation, dissolution or winding up (for purposes of this section, “Parity Shares”) (other than partial dividends to be shared pro rata by the holders of Parity Shares and Series G Preference Shares) for any period unless there will have been paid or declared and set apart for payment dividends to be paid to the holders of the Series G Preference Shares for the current dividend period. No dividends will be paid upon any class or series of our shares ranking junior to the Series G Preference Shares with respect to either the payment of dividends or amounts upon our liquidation, dissolution or winding up (for purposes of this section, “Junior Shares”) for any period unless there will have been paid or declared and set apart for payment dividends to be paid to the holders of the Series G Preference Shares and Parity Shares for the current dividend period, subject to certain exceptions.

Liquidation. In case of our voluntary or involuntary liquidation, dissolution or winding up, the holders of Series G Preference Shares will be entitled to receive from our assets legally available for distribution to shareholders a liquidation preference of $25,000 per 4.20% Series G Preference Share (equivalent to $25 per Depositary Share), plus declared and unpaid dividends, if any, to the date of liquidation, without accumulation of any undeclared dividends and without interest.

It is possible that, in case of our voluntary or involuntary liquidation, dissolution or winding up, our assets could be insufficient to pay the holders of all of the classes or series of preference shares then outstanding the full, or any, amounts to which they may be entitled. In that circumstance, the holders of Series G Preference Shares and any Parity Shares will share ratably in such assets in accordance with the respective amounts that would be payable on such Series G Preference Shares and such Parity Shares if all amounts payable thereon were paid in full.

Our amalgamation, consolidation or merger with or into any other corporation, or a sale of all or substantially all of our assets, or a statutory share exchange, will not be deemed to constitute a liquidation, dissolution or winding up.

Redemption. On and after July 15, 2026, we may redeem the Series G Preference Shares, in whole or in part, at any time upon not less than 30 nor more than 60 days’ written notice, at a redemption price of $25,000 per 4.20% Series G Preference Share (equivalent to $25 per Depositary Share), plus an amount equal to the portion of the quarterly dividend attributable to the then-current dividend period to, but excluding, the date of redemption.

The Series G Preference Shares have no stated maturity, are not subject to any sinking fund or mandatory redemption and are not convertible into or exchangeable for any of our other securities. We may not redeem the Series G Preference Shares before July 15, 2026, except that we may redeem the Series G Preference Shares in whole, but not in part, before that date at a redemption price of $26,000 per share (equivalent to $26 per Depositary Share), plus declared and unpaid dividends, if any, to, but excluding, the date of redemption, without accumulation of any undeclared dividends and without interest, if we submit a proposal to our common shareholders concerning an amalgamation or merger or submit any proposal for any other matter that requires, as a result of a change in Bermuda law, the approval of the holders of the Series G Preference Shares, whether voting as a separate series or together with any other series of preference shares as a single class. In addition, at any time upon not less than 30 nor more than 60 days' written notice following the occurrence of a "tax event" or within 90 days under certain circumstances following the occurrence of a "capital redemption trigger date," we may redeem the Series G Preference Shares, in whole or in part, at a redemption price of $25,000 per 4.20% Series G Preference Share (equivalent to $25 per Depositary Share), plus declared and unpaid dividends, if any, to, but excluding, the date of redemption, without accumulation of any undeclared dividends and without interest. Further, we may redeem the Series G Preference Shares at any time, in whole or in part, within 90 days after any "rating agency event," at a redemption price equal to $25,500 per 4.20% Series G Preference Share (equivalent to $25.50 per Depository Share), plus declared and unpaid dividends, if any, to, but excluding, the date of redemption, without accumulation of any undeclared dividends and without interest.

In general, the Series G Preference Shares may not be redeemed at any time unless (1) we have sufficient funds in order to meet the BMA's Enhanced Capital Requirement or we replace the capital represented by Series G Preference Shares to be redeemed with capital having equal or better capital treatment as the Series G Preference Shares under the BMA's Group Rules and (2) and the BMA (or its successor, if any) approves of the redemption.

Unless there will have been paid or declared and set apart for payment full dividends for the holders of the Series G Preference Shares and the holders of any Parity Shares for the latest completed dividend period:

(1) we may not purchase any Series G Preference Shares or Parity Shares except in accordance with a purchase offer made in writing to all holders of Series G Preference Shares and Parity Shares upon such terms as the Board, in its sole discretion after consideration of the respective annual dividend rate and other relative rights and preferences of the respective classes or series, will determine (which determination will be final and conclusive) will result in fair and equitable treatment among the respective classes or series; and

(2) we may not redeem, purchase or otherwise acquire, or permit any subsidiary to purchase or acquire, any Junior Shares, subject to certain exceptions.

Reissuance of Shares. Any Series G Preference Shares reacquired in any manner by us will have the status of authorized but unissued preference shares, and may be reissued as part of the same class or series or may be reclassified and reissued by the Board in the same manner as any other authorized and unissued preference shares.

Voting. Except as indicated below or as otherwise required by applicable law, the holders of Series G Preference Shares will have no voting rights.

Pursuant to the terms of the Certificate of Designation, Preferences and Rights of the Series G Preference Shares, whenever dividends payable on the Series G Preference Shares or on any Parity Shares are have not been paid in an aggregate amount equivalent to six full quarterly dividends on all of such Series G Preference Shares or Parity Shares, as applicable, then outstanding, the holders of Series G Preference Shares, together with the holders of Parity

Shares, will have the right, voting together as a single class regardless of class or series, to elect two directors of our Board. We will use our best efforts to increase the number of directors constituting the Board to the extent necessary to effectuate such right. Whenever all unpaid dividends on the Series G Preference Shares and the Parity Shares shall have been paid and dividends thereon for the current quarterly dividend period shall have been declared and paid or set apart for payment, the rights of such holders of Series G Preference Shares and the Parity Shares to elect members of the Board will cease, subject to revesting in the event of each and every subsequent default in an aggregate amount equivalent to six full quarterly dividends.

Pursuant to the terms of the Certificate of Designation, Preferences and Rights of the Series G Preference Shares, the rights attached to the Series G Preference Shares may only be varied with the consent in writing of the holders of three-quarters of the outstanding Series G Preference Shares, or with the sanction of a special resolution approved by at least a majority of the votes cast by the holders of the Series G Preference Shares at a separate meeting in which a quorum is present; provided, however, that the terms of the Series G Preference Shares may also be varied under certain circumstances in connection with a “tax event” or a “capital redemption disqualification event”. The rights attached to Series G Preference Shares will not be deemed to be varied by the creation or issue of any shares or any securities convertible into or evidencing the right to purchase shares ranking prior to or equally with the Series G Preference Shares with respect to the payment of dividends or of assets upon liquidation, dissolution or winding up. Holders of Series F Preference Shares are not entitled to vote on any sale of all or substantially all of our assets.

On any item on which the holders of the Series G Preference Shares are entitled to vote pursuant to the terms of its Certificate of Designation, Preferences and Rights, such holders will be entitled to one vote for each Series G Preference Share held.

Currently, under Bermuda law each share (including preference shares) of an amalgamating or merging company carries the right to vote in respect of an amalgamation or merger whether or not it otherwise carries the right to vote. The provisions of Bermuda law, and thus these voting rights as to amalgamations and mergers, are subject to change at any time.

A more detailed description of the Series G Preference Shares is set forth in our registration statement filed under the Exchange Act on Form 8-A on July 12, 2021, including any amendment or report for the purpose of updating such description. If we issue preference shares in the future, they may, or may not, be on terms similar to the Series G Preference Shares.

TRANSFER OF SHARES

Our Bye-Laws contain various provisions affecting the transferability of our shares. Under the Bye-Laws, the Board has absolute discretion to decline to register a transfer of shares:

(1) unless the appropriate instrument of transfer is submitted along with such evidence as the Board may reasonably require showing the right of the transferor to make the transfer; or

(2) unless all applicable consents and authorizations of any governmental body or agency in Bermuda have been obtained.

In addition, our Bye-laws provide that no Person shall be permitted to own or control our shares to the extent such ownership would result in such Person or any other any Person being considered to own or control Controlled Shares, as our Board may determine in its sole discretion, and such ownership of Controlled Shares (i) would render any Person a Ten Percent Shareholder, (ii) cause us to become a "controlled foreign corporation" within the meaning of section 957 of the U.S. Internal Revenue Code of 1986, as amended (the "Code"), or (iii) cause us to become a "foreign personal holding company" within the meaning of section 552 of the Code. Our Board has the right to waive these restrictions in its sole discretion and may decline to register any transfer of shares if the transfer, in the discretion of the Board, would have any of the effects described in clauses (i)-(iii) above. These limits may have the effect of deterring purchases of large blocks of common shares or proposals to acquire us, even if some or a majority of the shareholders might deem these purchases or acquisition proposals to be in their best interests.

"Controlled Shares" in reference to any Person means (i) all of our capital shares such Person is deemed to own directly, indirectly or by attribution (within the meaning of Section 958 of the Code) and (ii) all of our capital shares directly, indirectly or beneficially owned by such Person (within the meaning of section 13(d) of the Exchange Act).

"Ten Percent Shareholder" means a Person who our Board of Directors determines, in its sole and absolute discretion, owns or controls Controlled Shares representing more than 9.9% of the total voting rights of all of our issued and outstanding capital shares.

"Person" means an individual, partnership, joint-stock company, corporation, trust or unincorporated organization, limited liability company, a government, agency or political subdivision thereof, an entity or arrangement treated as one of the foregoing for U.S. income tax purposes, or a "group" within the meaning of section 13(d) of the Exchange Act.

Our Bermuda counsel has advised us that, while the precise form of the restrictions on transfers contained in the Bye-Laws is untested, as a matter of general principle, restrictions on transfers are enforceable under Bermuda law and are not uncommon.

Exhibit 21.1

SUBSIDIARIES OF RENAISSANCERE HOLDINGS LTD.

Name	Jurisdiction	Ownership Interest Held Directly or Indirectly by RenaissanceRe Holdings Ltd.
DaVinci Reinsurance Ltd.	Bermuda	(1)
DaVinciRe Holdings Ltd.	Bermuda	(1)
Renaissance Investment Holdings Ltd.	Bermuda	100%
Renaissance Investment Holdings II Ltd.	Bermuda	100%
Renaissance Investment Management Company Limited	Bermuda	100%
Renaissance Other Investments Holdings Ltd.	Bermuda	100%
Renaissance Other Investments Holdings II Ltd.	Bermuda	100%
Renaissance Other Investments Holdings III Ltd.	Bermuda	100%
Renaissance Reinsurance Ltd.	Bermuda	100%
Renaissance Reinsurance of Europe Unlimited Company	Ireland	100%
Renaissance Reinsurance U.S. Inc.	Maryland	100%
Renaissance Services of Europe Unlimited Company	Ireland	100%
Renaissance Underwriting Managers, Ltd.	Bermuda	100%
RenaissanceRe Corporate Capital (UK) Limited (2)	U.K.	100%
RenaissanceRe Europe AG	Switzerland	100%
RenaissanceRe Finance Inc.	Delaware	100%
RenaissanceRe Fund Holdings Ltd.	Bermuda	100%
RenaissanceRe Fund Management Ltd.	Bermuda	100%
RenaissanceRe Medici Fund Ltd.	Bermuda	(3)
RenaissanceRe Services Ltd.	Bermuda	100%
RenaissanceRe Specialty Holdings (UK) Limited	Bermuda	100%
RenaissanceRe Specialty U.S. Ltd.	Bermuda	100%
RenaissanceRe Syndicate Management Limited	U.K.	100%
RenaissanceRe Upsilon Co-Invest Ltd.	Bermuda	100%
RenaissanceRe Ventures Ltd.	Bermuda	100%
RenRe Insurance Holdings Ltd.	Bermuda	100%
RenRe North America Holdings Inc.	Delaware	100%
Top Layer Reinsurance Ltd.	Bermuda	50%
Upsilon RFO Re Ltd.	Bermuda	(4)
Vermeer Reinsurance Ltd.	Bermuda	(5)
RenaissanceRe Risk Sciences Inc.	Virginia	100%

(1) As of December 31, 2021, the Company owned 28.7% of the outstanding equity of DaVinciRe Holdings Ltd.'s ("DaVinciRe") but controlled a majority of DaVinciRe's outstanding voting power, and accordingly, DaVinciRe's financial results are consolidated in the Company's financial statements. DaVinci Reinsurance Ltd. is a wholly owned subsidiary of DaVinciRe.

(2) RenaissanceRe Corporate Capital (UK) Limited is the Lloyd's sponsor of RenaissanceRe Syndicate 1458.

(3) As of December 31, 2021, the Company owned 14.7% of the outstanding equity of RenaissanceRe Medici Fund Ltd.'s ("RenaissanceRe Medici Fund") but controlled a majority of RenaissanceRe Medici Fund's outstanding voting power, and accordingly, RenaissanceRe Medici Fund's financial results are consolidated in the Company's financial statements.

(4) Upsilon RFO Re Ltd. is considered a variable interest entity and the Company is considered the primary beneficiary of Upsilon RFO Re Ltd., as a result its financial results are consolidated in the Company's financial statements. As of December 31, 2021, the Company's participation in the risks assumed by Upsilon RFO Ltd. was 13.7%.

(5) Vermeer Reinsurance Ltd. ("Vermeer") is considered a variable interest entity and the Company is considered the primary beneficiary of Vermeer, as a result its financial results are consolidated in the Company's financial statements. The Company maintains a majority voting control of Vermeer, while the sole third-party investor retains all of the economic benefits.

The names of a number of the Company's subsidiaries and equity entities have been omitted because considered in the aggregate they would not constitute a single significant subsidiary.

Exhibit 22.1

Issuers of Registered Guaranteed Debt Securities

RenaissanceRe Finance Inc. ("RenaissanceRe Finance") is an indirect wholly owned subsidiary of RenaissanceRe Holdings Ltd. ("RenaissanceRe Holdings"). As of December 31, 2020, (i) RenaissanceRe Finance was the issuer of $300.0 million principal amount of its 3.450% Senior Notes due July 1, 2027 (the "2027 Notes") and (ii) RenaissanceRe Finance was the issuer of $300.0 million principal amount of its 3.700% Senior Notes due April 1, 2025 (the "2025 Notes"). Each of the 2027 Notes and the 2025 Notes are fully and unconditionally guaranteed by RenaissanceRe.

Exhibit 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

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

(1) Registration Statements (Form S-3 No. 333-235294; and Form S-3 No.333-231720, and Post-Effective Amendment No.1 and Post-Effective Amendment No. 2 thereto) of RenaissanceRe Holdings Ltd.

(2) Registration Statement (Form S-3 No. 333-231720-01, and Post-Effective Amendment No. 1 and Post-Effective Amendment No. 2 thereto) of RenRe North America Holdings Inc.

(3) Registration Statement (Form S-3 No. 333-231720-02, and Post-Effective Amendment No. 1 and Post-Effective Amendment No. 2 thereto) of RenaissanceRe Capital Trust II.

(4) Registration Statement (Form S-3 No. 333-231720-03, and Post-Effective Amendment No. 1 and Post-Effective Amendment No. 2 thereto) of RenaissanceRe Finance Inc.

(5) Registration Statement (Form S-8 No. 333-211398) pertaining to the RenaissanceRe Holdings Ltd. 2016 Long-Term Incentive Plan.

of our reports dated February 4, 2022, with respect to the consolidated financial statements, financial statement schedules and the effectiveness of internal control over financial reporting of RenaissanceRe Holdings Ltd., included in this Annual Report (Form 10-K) for the year ended December 31, 2021.

/s/ Ernst & Young Ltd.

Hamilton, Bermuda
February 4, 2022

Exhibit 31.1

CERTIFICATION

I, Kevin J. O'Donnell, certify that:

1. I have reviewed this Form 10-K of RenaissanceRe Holdings Ltd.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant’s other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
    c. Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
    d. Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and
5. The registrant’s other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):
    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and
    b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: February 4, 2022

/s/ Kevin J. O'Donnell

Kevin J. O'Donnell

Chief Executive Officer

Exhibit 31.2

CERTIFICATION

I, Robert Qutub, certify that:

1. I have reviewed this Form 10-K of RenaissanceRe Holdings Ltd.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
    a. Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
    b. Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
    c. Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
    d. Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
    a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
    b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 4, 2022

/s/ Robert Qutub
Robert Qutub
Chief Financial Officer

Exhibit 32.1

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Form 10-K of RenaissanceRe Holdings Ltd. (the “Company”) for the year ended December 31, 2021, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Kevin J. O'Donnell, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Kevin J. O'Donnell

Kevin J. O'Donnell
Chief Executive Officer
February 4, 2022

Exhibit 32.2

CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Form 10-K of RenaissanceRe Holdings Ltd. (the "Company") for the year ended December 31, 2021, as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Robert Qutub, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ Robert Qutub
Robert Qutub
Chief Financial Officer
February 4, 2022