Partner Reinsurance Company Ltd.

Consolidated Financial Statements and Independent Auditors' Report

December 31, 2019 and 2018

Ernst & Young Ltd.
3 Bermudiana Road
Hamilton HM 08
P.O. Box HM 463
Hamilton HM BX
BERMUDA

Tel: +1 441 295 7000
Fax: +1 441 295 5193
ey.com

Report of Independent Auditors

The Board of Directors and Shareholder
Partner Reinsurance Company Ltd.

We have audited the accompanying consolidated financial statements of Partner Reinsurance Company Ltd. (the Company), which comprise the consolidated balance sheets as of December 31, 2019 and 2018, and the related consolidated statements of operations and comprehensive income, shareholder's equity and cash flows for the years then ended, and the related notes to the consolidated financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in conformity with U.S. generally accepted accounting principles; this includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free of material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion

Opinion

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of Partner Reinsurance Company Ltd. at December 31, 2019 and 2018, and the consolidated results of its operations and its cash flows for the years then ended in conformity with U.S. generally accepted accounting principles.

Required Supplementary Information

Accounting principles generally accepted in the United States require that the net incurred losses and loss expenses, and net paid losses and loss expenses, for the year ending 2018 and prior and the average annual percentage payout of incurred claims by age, net of reinsurance disclosed on pages 31 through to 34 be presented to supplement the financial statements. Such information, although not a part of the financial statements, is required by the Financial Accounting Standards Board who considers it to be an essential part of financial reporting for placing the financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the financial statements, and other knowledge we obtained during our audit of the financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Ernst & Young Ltd.

Hamilton, Bermuda
April 29, 2020

Partner Reinsurance Company Ltd.

Consolidated Balance Sheets
(Expressed in thousands of U.S. dollars, except parenthetical share data)

	December 31, 2019	December 31, 2018
Assets		
Investments:		
Fixed maturities, at fair value (amortized cost: 2019, $3,246,521; 2018, $4,704,403)	**$ 3,309,970**	$ 4,746,959
Short-term investments, at fair value (amortized cost: 2019, $400,809; 2018, $348,032)	**400,708**	347,990
Equities, at fair value (cost: 2019, $735,498; 2018, $576,543)	**1,202,038**	648,785
Other invested assets	**2,027,642**	901,452
Total investments	**6,940,358**	6,645,186
Cash and cash equivalents	**554,031**	305,971
Accrued investment income	**29,269**	39,879
Reinsurance balances receivable	**1,791,982**	1,656,812
Reinsurance recoverable on paid and unpaid losses	**349,255**	481,959
Prepaid reinsurance premiums	**19,883**	24,782
Funds held by reinsured companies	**908,704**	807,324
Deferred acquisition costs	**444,411**	405,263
Deposit assets	**100,000**	—
Intercompany loans and balances receivable	**729,765**	813,611
Net tax assets	**5,126**	13,920
Goodwill	**26,014**	26,014
Intangible assets	**71,321**	73,152
Other assets	**11,285**	11,066
Total assets	**$ 11,981,404**	$ 11,304,939
Liabilities		
Non-life reserves	**$ 4,659,112**	$ 4,841,419
Life and health reserves	**1,401,934**	1,299,674
Unearned premiums	**1,065,601**	1,011,696
Other reinsurance balances payable	**287,586**	180,947
Intercompany loans and balances payable	**268,626**	234,243
Accounts payable, accrued expenses and other	**161,073**	107,127
Total liabilities	**7,843,932**	7,675,106
Shareholder's Equity		
Common shares (par value $1.00; issued: 2019 and 2018, 3,000 shares)	**3,000**	3,000
Additional paid-in capital	**1,643,886**	1,643,886
Accumulated other comprehensive loss	**(85,781)**	(117,624)
Retained earnings	**2,576,367**	2,100,571
Total shareholder's equity	**4,137,472**	3,629,833
Total liabilities and shareholder's equity	**$ 11,981,404**	$ 11,304,939

See accompanying Notes to Consolidated Financial Statements.

Partner Reinsurance Company Ltd.

Consolidated Statements of Operations and Comprehensive Income (Loss)
(Expressed in thousands of U.S. dollars)

	For the year ended December 31, 2019	For the year ended December 31, 2018
Revenues		
Gross premiums written	**$ 3,339,270**	$ 3,108,757
Net premiums written	**$ 3,173,323**	$ 2,917,674
Increase in unearned premiums	**(59,320)**	(20,967)
Net premiums earned	**3,114,003**	2,896,707
Net investment income	**193,864**	179,304
Interest income on intercompany loans	—	539
Net realized and unrealized investment gains (losses)	**607,448**	(140,740)
Other income	**10,206**	25,816
Total revenues	**3,925,521**	2,961,626
Expenses		
Losses and loss expenses	**2,247,519**	2,158,421
Acquisition costs	**772,648**	813,010
Other operating expenses	**29,400**	21,830
Amortization of intangible assets	**1,831**	7,160
Net foreign exchange gains	**(9,731)**	(184,913)
Total expenses	**3,041,667**	2,815,508
Income before taxes and interest in losses of equity investments	**883,854**	146,118
Income tax expense	**10,783**	1,316
Interest in losses of equity investments	**(7,275)**	(4,914)
Net income	**$ 865,796**	$ 139,888
Comprehensive income		
Net income	**$ 865,796**	$ 139,888
Change in net unrealized losses (gains) on investments, net of tax	**(1,755)**	691
Change in currency translation adjustment	**33,598**	(54,626)
Comprehensive income	**$ 897,639**	$ 85,953

See accompanying Notes to Consolidated Financial Statements.

Partner Reinsurance Company Ltd.

Consolidated Statements of Shareholder's Equity
(Expressed in thousands of U.S. dollars)

	For the year ended December 31, 2019	For the year ended December 31, 2018
Common shares		
Balance at beginning and end of year	**$ 3,000**	$ 3,000
Additional paid-in capital		
Balance at beginning and end of year	**1,643,886**	1,643,886
Accumulated other comprehensive loss		
Currency translation adjustment:		
Balance at beginning of year	**(117,624)**	(63,689)
Change in net unrealized gains or losses on investments, net of tax	**(1,755)**	691
Change in currency translation adjustment	**33,598**	(54,626)
Balance at end of year	**(85,781)**	(117,624)
Retained earnings		
Balance at beginning of year	2,100,571	1,960,683
Net income	865,796	139,888
Dividends on common shares	(390,000)	—
Balance at end of year	2,576,367	2,100,571
Total shareholder's equity	$ 4,137,472	$ 3,629,833

See accompanying Notes to Consolidated Financial Statements.

Partner Reinsurance Company Ltd.

Consolidated Statements of Cash Flows
(Expressed in thousands of U.S. dollars)

	For the year ended December 31, 2019	For the year ended December 31, 2018
Cash flows from operating activities		
Net income	**$ 865,796**	$ 139,888
Adjustments to reconcile net income to net cash provided by operating activities:		
Amortization of intangible assets	**1,905**	7,160
Amortization of deferred gains	**(7,093)**	(1,412)
Amortization of net discount on investments	**(2,092)**	960
Net realized and unrealized investment gains	**(607,448)**	140,740
Changes in:		
Reinsurance balances, net	**(46,237)**	(165,226)
Reinsurance recoverable on paid and unpaid losses, net of ceded premiums payable	**167,416**	(118,580)
Funds held by reinsured companies	**(97,124)**	(33,278)
Deferred acquisition costs	**(36,323)**	(4,607)
Net tax assets and liabilities	**8,531**	5,970
Unpaid losses and loss expenses including life policy benefits	**(98,561)**	350,745
Unearned premiums	**59,320**	20,967
Other net changes in operating assets and liabilities	**9,652**	(179,087)
Net cash provided by operating activities	**217,742**	164,240
Cash flows from investing activities		
Sales of fixed maturities	**7,917,484**	6,603,646
Redemptions of fixed maturities	**209,156**	127,700
Purchases of fixed maturities	**(6,468,100)**	(6,953,191)
Sales and redemptions of short-term investments	**1,560,349**	159,577
Purchases of short-term investments	**(1,611,603)**	(503,614)
Sales of equities	**64,610**	22,656
Purchases of equities	**(189,123)**	(73,860)
Net intercompany balances receivable(1)	**(139,605)**	216,715
Investments in other invested assets	**(972,508)**	(22,656)
Other, net	**(21,604)**	59,103
Net cash provided by (used in) investing activities	**349,056**	(363,924)
Cash flows from financing activities		
Cash dividends paid to Parent(1)	**(75,000)**	—
Payments on behalf of Parent	**(246,057)**	(94,416)
Net cash used in financing activities	**(321,057)**	(94,416)
Effect of foreign exchange rate changes on cash	**2,319**	12,538
Increase (decrease) in cash and cash equivalents	**248,060**	(281,562)
Cash and cash equivalents—beginning of year	**305,971**	587,533
Cash and cash equivalents—end of year	**$ 554,031**	$ 305,971
Supplemental cash flow information:		
Taxes paid	**$ 2,950**	$ 2,932

(1) The Company declared non-cash dividends to its Parent, PartnerRe Ltd., of $315 million for the year ended December 31, 2019. These dividends were paid by a reduction of intercompany loans and balances receivable.

See accompanying Notes to Consolidated Financial Statements.

1. Organization

Partner Reinsurance Company Ltd. (the Company) is a 100% owned subsidiary of PartnerRe Ltd. (the Parent). The Parent is a wholly-owned subsidiary of EXOR Nederland N.V. and, as such, a subsidiary of the ultimate parent company, EXOR N.V. The Company commenced operations in November 1993.

The Company predominantly provides reinsurance and certain specialty insurance lines on a worldwide basis. Non-life risks reinsured include agriculture, aviation/space, casualty, catastrophe, energy, engineering, financial risks, marine, motor, multiline, property and U.S health. Life and health risks include mortality, morbidity and longevity. Reinsurance of alternative risk products include weather and credit protection to financial, industrial and service companies on a worldwide basis. The Company also enters into reinsurance contracts with subsidiaries of the Parent, including a 65% quota-share agreement with Partner Reinsurance Europe SE (PartnerRe Europe), a 50% quota-share agreement with Partner Reinsurance Asia Pte. Ltd (PartnerRe Asia), a 90% quota-share agreement with PartnerRe Life Reinsurance Company of Canada (PartnerRe Canada) and stop loss agreements with PartnerRe America Insurance Company, PartnerRe Ireland Insurance dac, PartnerRe Asia and PartnerRe Canada (see Note 15).

On April 3, 2017, after receiving regulatory approvals, the Parent completed the acquisition of 100% of the outstanding ordinary shares of Aurigen Capital Limited (Aurigen Capital), a North American life reinsurance company. This acquisition enabled the Parent to expand its life reinsurance footprint in Canada and the U.S. with limited overlap in market coverage. Aurigen Capital owned 100% of Aurigen Reinsurance Limited (ARL), a Class C insurer licensed under the Insurance Act.

On April 13, 2018, Aurigen Capital merged into PartnerRe Ltd., with PartnerRe Ltd. being the sole survivor. Upon effecting this merger, ARL became a direct wholly-owned subsidiary of PartnerRe Ltd.

On November 26, 2018, Partner Re Ltd.’s share interest in ARL was transferred to the Company and ARL was then merged into Partner Reinsurance Life Company of Bermuda Ltd. (PartnerRe Life), a subsidiary of the Company, with PartnerRe Life being the sole survivor. This merger was effected after the Parent's shares in Aurigen were transferred to the Company and upon receiving regulatory approval (see also Note 2(h)).

2. Significant Accounting Policies

The Company’s Consolidated Financial Statements have been prepared in accordance with accounting principles generally accepted in the United States (U.S. GAAP). The Consolidated Financial Statements include the accounts of the Company and its subsidiaries. Intercompany accounts and transactions have been eliminated.

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. While management believes that the amounts included in the Consolidated Financial Statements reflect its best estimates and assumptions, actual results could differ from those estimates. The Company’s principal estimates include:

- Non-life reserves;
- Life and health reserves;
- Reinsurance recoverable for unpaid losses;
- Gross and net premiums written and net premiums earned;
- Recoverability of deferred acquisition costs;
- Recoverability of deferred tax assets;
- Valuation of certain investments that are measured using significant unobservable inputs; and
- Valuation of goodwill and intangible assets.

The following are the Company's significant accounting policies:

(a) Premiums

Gross premiums written and earned are based upon reports received from ceding companies, supplemented by the Company's own estimates of premiums written and earned for which ceding company reports have not been received. The determination of premium estimates requires a review of the Company's experience with cedants, familiarity with each market, an understanding of the characteristics of each line of business and management's assessment of the impact of various other factors on the volume of business written and ceded to the Company. Premium estimates are updated as new information is received from cedants and differences between such estimates and actual amounts are recorded in the period in which the estimates are changed or the actual amounts are determined. Net premiums written and earned are presented net of ceded premiums.

Premiums related to non-life business are earned on a basis that is consistent with the risks covered under the terms of the reinsurance contracts, which is generally one to two years. Reinstatement premiums are recognized as written and earned at the time a loss event occurs, where coverage limits for the remaining life of the contract are reinstated under pre-defined contract terms. The accrual of reinstatement premiums is based on management's estimate of losses and loss expenses associated with the loss event. Unearned premiums represent the portion of premiums written which is applicable to the unexpired risks under contracts in force.

Premiums related to life and annuity business are recorded over the premium-paying period on the underlying policies. Premiums on contracts for which there is no significant mortality or critical illness risk are accounted for in a manner consistent with accounting for interest-bearing financial instruments and are not reported as revenues, but rather as direct deposits to the contract. Amounts assessed against annuity and universal life policyholders are recognized as revenue in the period assessed.

(b) Losses and Loss Expenses

The reserves for non-life business include amounts determined from loss reports on individual treaties (case reserves), additional case reserves when the Company's loss estimate is higher than reported by the cedants (ACRs) and amounts for losses incurred but not yet reported to the Company (IBNR). Such reserves are estimated by management based upon reports received from ceding companies, supplemented by the Company's own actuarial estimates of reserves for which ceding company reports have not been received, and based on the Company's own historical experience. To the extent that the Company's own historical experience is inadequate for estimating reserves, such estimates may be determined based upon industry experience and management's judgment. The estimates are regularly reviewed and the ultimate liability may be materially in excess of, or less than, the amounts provided. Any adjustments are reflected in the periods in which they are determined, which may affect the Company's operating results in future periods. See Note 7(a) for further details.

The life and health reserves have been established based upon information reported by ceding companies, supplemented by the Company's actuarial estimates, which for life include mortality, morbidity, critical illness, persistency and future investment income, with appropriate provision to reflect uncertainty. For traditional and limited payment long-duration contracts, the assumptions are locked in at contract inception and are subject to annual loss recognition testing. Future policy benefit reserves for annuity and universal life contracts are carried at their accumulated values. Reserves for policy claims and benefits include both mortality, morbidity and critical illness claims in the process of settlement, and claims that have been incurred but not yet reported. See Note 7(b) for further details.

(c) Deferred Acquisition Costs

Acquisition costs, comprising primarily incremental brokerage fees, commissions and excise taxes, which vary directly with, and are related to, the acquisition of reinsurance contracts, are capitalized and charged to expense as the related premium is earned. All other acquisition related costs, including indirect costs, are expensed as incurred. Acquisition costs are shown net of commissions earned on ceded reinsurance.

Acquisition costs related to individual life and annuity contracts are deferred and amortized over the premium-paying periods in proportion to anticipated premium income, allowing for lapses, terminations and anticipated investment income. Acquisition costs related to universal life and single premium annuity contracts for which there is no significant mortality or critical illness risk are deferred and amortized over the lives of the contracts as a percentage of the estimated gross profits expected to be realized on the contracts.

The Company establishes a premium deficiency reserve to the extent the deferred acquisition costs are insufficient to cover the excess of expected losses and loss expenses, settlement costs and deferred acquisition costs over the related unearned premiums. Actual and anticipated losses and loss expenses, other costs, and investment income related to underlying premiums are considered in determining the recoverability of deferred acquisition costs for the Company’s short-duration contracts. Actual and anticipated loss experience, together with the present value of future gross premiums, the present value of future benefits, and settlement and maintenance costs are considered in determining the recoverability of deferred acquisition costs related to the Company’s life and annuity business.

(d) Reinsurance

The Company purchases retrocessional contracts to reduce its exposure to risk of losses on reinsurance assumed. Ceded premiums, which represent the cost of retrocessional protection purchased by the Company, are expensed over the coverage period. Prepaid reinsurance premiums represent the portion of premiums ceded applicable to the unexpired term of policies in force.

Reinsurance recoverable on paid and unpaid losses involves actuarial estimates consistent with those used to establish the associated liabilities for non-life and life and health reserves and are recorded net of a valuation allowance for estimated uncollectible recoveries.

Retroactive reinsurance reimburses a ceding company for liabilities incurred as a result of past insurable events covered under contracts subject to the reinsurance. Premiums payable for retroactive reinsurance coverage meeting the conditions of reinsurance accounting are reported as reinsurance recoverables to the extent that those amounts do not exceed recorded liabilities relating to underlying reinsurance contracts. To the extent that recorded liabilities on an underlying reinsurance contract exceed premiums payable for retroactive coverage, a deferred gain is recognized in the Company's Consolidated Balance Sheets.

(e) Funds Held by Reinsured Companies

The Company writes certain business on a funds held basis. Under such contractual arrangements, the cedant retains the premiums that would have otherwise been paid to the Company and the Company is credited with investment income on these funds. The Company generally earns investment income on the funds held balances based upon a predetermined interest rate, either fixed contractually at the inception of the contract or based upon a recognized index (e.g. LIBOR). However, in certain circumstances, the Company may receive an investment return based upon either the result of a pool of assets held by the cedant, generally used to collateralize the funds held balance, or the investment return earned by the cedant on its entire investment portfolio. In these arrangements, gross investment returns are typically reflected in net investment income in the Company’s Consolidated Statements of Operations. In these arrangements, the Company is exposed, to a limited extent, to the underlying credit risk of the pool of assets inasmuch as the underlying policies may have guaranteed minimum returns. In such cases, an embedded derivative exists and its fair value is recorded by the Company as an increase or decrease to the funds held balance.

(f) Deposit Assets and Liabilities

In the normal course of its operations, the Company writes certain contracts that do not meet the risk transfer provisions of U.S. GAAP. While these contracts do not meet risk transfer provisions for accounting purposes, there is a remote possibility that the Company will suffer a loss. The Company accounts for these contracts using the deposit accounting method originally recording deposit assets or liabilities for an amount equivalent to the consideration paid or received, respectively. The difference between the consideration received and the estimated liability for unpaid losses is determined upon entering into the contract and, if a loss, recognized into income immediately, and if a gain, the gain is deferred and earned over the expected settlement period of the contract, with the unearned portion recorded as a component of deposit liabilities. Also included in Deposit assets are receivables included as an element of certain life reinsurance agreements that do not meet risk transfer.

(g) Investments

The Company elects the fair value option for Fixed maturities and Equities with changes in fair value recorded in Net realized and unrealized investment gains or losses in the Consolidated Statements of Operations.

Short-term investments, which comprise securities with a maturity greater than three months but less than one year from the date of purchase, are recorded at fair value by electing either the fair value option with changes in fair value recorded in Net realized and unrealized gains or losses included in the Consolidated Statements of Operations, or by designating as available-for-sale with changes in fair value recorded in Other comprehensive income or loss.

The Company recognizes Other invested assets at fair value, except for those that are accounted for using the equity method of accounting. Other invested assets consist of equity investments in non-publicly traded companies; privately placed corporate loans, notes and loans receivable and notes securitization; and derivative financial instruments. Non-publicly traded entities in which the Company has significant influence, including an ownership of more than 20% and less than 50% of the voting rights, and limited partnerships in which the Company has more than a minor interest (typically more than 3 to 5%), are accounted for using either the equity method or the fair value option. Where the equity method is used, the Company's share of profits or losses of the investee are recorded in Interest in earnings or losses of equity method investees in the Consolidated Statements of Operations. Where the fair value option is elected, the investment is recognized in the Consolidated Balance Sheets at fair value with changes in fair value recorded in Net realized and unrealized investment gains or losses in the Consolidated Statements of Operations. See Note 2(n) below for significant accounting policy for derivatives.

Net investment income includes interest and dividend income, amortization of premiums and discounts on fixed maturities and short-term investments, and is net of investment expenses and withholding taxes. Investment income is recognized when earned and accrued to the balance sheet date. Realized gains or losses on the disposal of investments are determined on a first-in, first-out basis. Investment purchases and sales are recorded on a trade-date basis.

The Company defines fair value as the price received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The Company measures the fair value of financial instruments according to a fair value hierarchy that prioritizes the information used to measure fair value into three broad levels. The Company’s policy is to recognize transfers between the hierarchy levels at the beginning of the period. Refer to Note 3 for the valuation techniques used by the Company.

(h) Cash and Cash Equivalents

Cash equivalents are carried at fair value and include fixed income securities that, from the date of purchase, have a maturity of three months or less.

(i) Business Combinations

As discussed in Note 1 above, on November 26, 2018, Partner Re Life, a subsidiary of the Company, merged with ARL, with the PartnerRe Life remaining the sole survivor. The results of operations for the Company for the year ended December 31, 2018 include the results of ARL as of the beginning of the year in accordance with US GAAP guidance ASC 805-50 on mergers of entities under common control.

(j) Goodwill

Goodwill represents the excess of the purchase price over the fair value of net assets acquired in a historical acquisition by PartnerRe Europe, which was re-allocated from PartnerRe Europe to the Company during 2012. The Company assesses the appropriateness of its valuation of goodwill on an annual basis (as of December 31) or more frequently if events or changes in circumstances indicate that the carrying amount may not be recoverable. If, as a result of the assessment, the Company determines that the value of its goodwill is impaired, goodwill will be written down in the period in which the determination is made.

(k) Intangible Assets

Intangible assets represent the fair value adjustments related to value of life business acquired (life VOBA) by the Parent and transferred to the Company upon merger with ARL. This intangible asset is being amortized over its expected life of 100 years (see Note 6) and the amortization expense is recorded in the Consolidated Statement of Operations.

(l) Income Taxes

Certain subsidiaries and a branch of the Company operate in jurisdictions where they are subject to taxation. Current and deferred income taxes are charged or credited to Net income or loss or, in certain cases, to Accumulated other comprehensive income or loss, based upon enacted tax laws and rates applicable in the relevant jurisdiction in the period in which the tax becomes accruable or realizable. Deferred income taxes are provided for all temporary differences between the bases of assets and liabilities used in the Consolidated Balance Sheets and those used in the various jurisdictional tax returns. When management's assessment indicates that it is more likely than not that deferred tax assets will not be realized, a valuation allowance is recorded against the deferred tax assets. Where appropriate, the valuation allowance assessment considers tax planning strategies.

The Company recognizes a tax benefit relating to uncertain tax positions only where the position is more likely than not to be sustained assuming examination by tax authorities. A liability is recognized for any tax benefit (along with any interest and penalty, if applicable) claimed in a tax return in excess of the amount recognized in the financial statements under U.S. GAAP. Any changes in amounts recognized are recorded in the period in which they are determined.

(m) Foreign Exchange

In recording foreign currency transactions, revenue and expense items in a currency other than the functional currency are converted into the functional currency at the average rates of exchange for the period. Monetary assets and liabilities originating in currencies other than the functional currency are remeasured into the functional currency at the rates of exchange in effect at the balance sheet dates. The resulting foreign exchange transaction gains or losses are included in Net foreign exchange gains or losses in the Consolidated Statements of Operations.

The reporting currency of the Company is the U.S. dollar. The functional currency of the Company's subsidiaries and branch is generally their national currency or the U.S. dollar, except for the Company's wholly owned subsidiary, Partner Reinsurance Life Company of Bermuda Ltd., whose functional currency is the Canadian dollar. In translating the financial statements of those subsidiaries or branch whose functional currency is other than the U.S. dollar, assets and liabilities are converted into U.S. dollars using the rates of exchange in effect at the balance sheet dates, and revenues and expenses are converted using the average foreign exchange rates for the period. The effect of translation adjustments are reported in the Consolidated Balance Sheets as Currency translation adjustment, a separate component of Accumulated other comprehensive income or loss. The change in currency translation adjustment is reflected in Other comprehensive income or loss.

(n) Derivatives

The Company's investment strategy allows for the use of derivative instruments, subject to strict limitations. The Company may use derivative financial instruments such as foreign exchange forward contracts, foreign currency option contracts, futures contracts, to-be-announced mortgage-backed securities (TBAs), total return swaps, interest rate swaps, insurance-linked securities, and credit default swaps for the purpose of managing overall currency risk, market exposures and portfolio duration, for hedging certain investments, or for enhancing investment performance that would be allowed under the Company's investment policy if implemented in other ways.

On the date the Company enters into a derivative contract, management determines whether or not the derivative is to be used and designated as a hedge of an identified underlying risk exposure (a designated hedge). The Company's derivative instruments are recorded in Other invested assets in the Consolidated Balance Sheets at fair value, with gains and losses associated with changes in fair value recognized in either Net realized and unrealized investment gains or losses or Net foreign exchange gains or losses in the Consolidated Statements of Operations, or in Other comprehensive income, depending on the nature and designation of the derivative instrument (see also Note 5).

The Company formally documents all relationships between designated hedging instruments and hedged items, as well as its risk management objectives and strategy for undertaking various hedge transactions. In this documentation, the Company specifically identifies the asset or liability that has been designated as a hedged item and states how the hedging instrument is expected to hedge the risks related to the hedged item. The Company formally measures effectiveness of its designated hedging relationships both at the hedge inception and on an ongoing basis. For its derivatives designated as hedges at December 31, 2018 the Company's method for assessing the effectiveness of the designated hedge was a qualitative assessment, as the Company determined that the hedging instrument (the designated foreign currency forward contracts) and the hedged assets (the available-for sale foreign currency denominated short-term investments) were perfectly aligned as they related to the hedged risk, the foreign currency exchange rate risk exposure. These hedges were settled during 2019, and there were no derivatives designated as hedges at December 31, 2019.

The Company will discontinue hedge accounting prospectively if it is determined that the derivative is no longer effective in hedging the exposure to variability in expected future cash flows that is attributable to the risk it was meant to hedge; if the derivative instrument expires, is sold, or is otherwise terminated; or if the Company removes the designation of the hedge. To the extent that the Company discontinues hedge accounting because, based on management’s assessment, the derivative no longer qualifies as an effective hedge, or the Company otherwise de-designates the hedge, the derivative will continue to be carried in the Consolidated Balance Sheet at its fair value, with changes in its fair value recognized in in the Consolidated Statements of Operations, or in Other comprehensive income, depending on the type of derivative held.

(o) Variable Interest Entities

The Company is involved in the normal course of business with variable interest entities (VIEs). An assessment is performed as of the date the Company becomes initially involved in the VIE followed by a reassessment upon certain events related to its involvement in the VIE. The Company consolidates a VIE when it is the primary beneficiary having a controlling financial interest as a result of having the power to direct the activities that most significantly impact the economic performance of the VIE and the obligation to absorb losses, or right to receive benefits, that could potentially be significant to the VIE.

(p) Recent Accounting Pronouncements

Adopted during 2019

In February 2016, the Financial Accounting Standards Board (FASB) issued updated guidance on the accounting for leases. The guidance requires, among other items, lessees to recognize right-of-use assets and lease liabilities on the balance sheet, and expands required disclosures. The guidance does not significantly change the lessees’ recognition, measurement and presentation of expenses and cash flows for operating leases. The company early adopted this guidance effective January 1, 2019 using the modified retrospective transition method, and as a result, the Company’s reporting for comparative periods including related disclosures prior to adoption continue to be presented in the Consolidated Financial Statements in accordance with the previous lease accounting guidance. The Company elected the "package of practical expedients" permitted under the guidance and also elected the hindsight practical expedient in determining the lease term for the Company's existing leases at transition. The adoption of this standard resulted in the recognition of operating lease right-of-use assets of $2.8 million included in Other assets and lease liabilities of $2.8 million included in Accounts payable, accrued expenses and other on the Consolidated Balance Sheet as of December 31, 2019. The Company determined it was not required to record a cumulative effect adjustment to opening retained earnings as of January 1, 2019. See Note 13(b) for further details.

Not yet adopted

In January and April 2017, the FASB issued updated guidance on the accounting for goodwill impairment. This update removes the second step of the goodwill impairment test and requires entities to apply a one-step quantitative test and record the amount of goodwill impairment as the excess of a reporting unit's carrying amount over its fair value, not to exceed the total amount of goodwill allocated to the reporting unit. The new guidance does not amend the optional qualitative assessment of goodwill impairment. The guidance is effective for annual impairment tests in fiscal years beginning after December 15, 2020, with early adoption permitted. The Company does not expect the adoption of this guidance to have a significant impact on its Consolidated Financial Statements and disclosures.

In June 2016, the FASB issued updated guidance on the recognition of credit losses by replacing the incurred loss impairment methodology with new accounting models related to how credit losses on financial instruments are determined. The new guidance is applicable to financial assets measured at amortized cost such as loans, reinsurance receivables, trade receivables, debt securities, off-balance sheet credit exposures, and other financial assets that have a contractual right to receive cash. The Company's investments, except for certain Other invested assets that are accounted for using the equity method of accounting, are measured at fair value through net income, and therefore those investments would not be impacted by the adoption of this guidance. The guidance is effective for annual periods beginning after December 15, 2020, with early adoption permitted. The Company is currently evaluating the impact of this guidance and does not expect the adoption to have a material impact on its Consolidated Financial Statements and disclosures required to be adopted for the year ended December 31, 2021.

In August 2018, the FASB issued updated guidance to the disclosure requirements for fair value measurement as part of the disclosure framework project. The updated guidance allows for the removal and modification of certain disclosures to improve the effectiveness of disclosures in the notes to financial statements. This guidance is effective for fiscal years beginning after December 15, 2019. The Company is currently evaluating the impact of this guidance on its Consolidated Financial Statements and disclosures required to be adopted for the year ended December 31, 2020.

In August 2018, the FASB issued updated guidance to improve financial reporting for insurance companies that issue long duration contracts such as life insurance and annuities. The objective of the new guidance is to improve, simplify, and enhance the financial reporting of long-duration contracts by providing financial statement users with useful information in a timely and transparent manner. This guidance is effective for annual periods beginning after December 15, 2021. The Company is currently evaluating the impact of this guidance on its Consolidated Financial Statements and disclosures required to be adopted for the year ended December 31, 2022. This guidance could have a material impact on the measurement recognition of long duration contracts and will result in additional disclosures once adopted.

3. Fair Value

(a) Fair Value of Financial Instrument Assets

The fair value hierarchy prioritizes the inputs to valuation techniques used to measure fair value by maximizing the use of observable inputs and minimizing the use of unobservable inputs by requiring that the most observable inputs be used when available. Observable inputs are inputs that market participants would use in pricing an asset or liability based on market data obtained from sources independent of the Company. Unobservable inputs are inputs that reflect the Company's assumptions about what market participants would use in pricing the asset or liability based on the best information available in the circumstances. The level in the hierarchy within which a given fair value measurement falls is determined based on the lowest level input that is significant to the measurement.

The Company determines the appropriate level in the hierarchy for each financial instrument that it measures at fair value. In determining fair value, the Company uses various valuation approaches, including market, income and cost approaches. The hierarchy is broken down into three levels based on the observability of inputs as follows:

- Level 1 inputs—Unadjusted, quoted prices in active markets for identical assets or liabilities that the Company has the ability to access.

  The Company's financial instruments that it measures at fair value using Level 1 inputs generally include: equities listed on a major exchange and exchange traded derivatives, including futures that are actively traded.

- Level 2 inputs—Quoted prices in active markets for similar assets or liabilities, quoted prices for identical or similar assets or liabilities in inactive markets and significant directly or indirectly observable inputs, other than quoted prices, used in industry accepted models.

  The Company's financial instruments that it measures at fair value using Level 2 inputs generally include: U.S. government issued bonds; U.S. government sponsored enterprises bonds; U.S. state, territory and municipal entities bonds; non-U.S. sovereign government, supranational and government related bonds; investment grade and high yield corporate bonds; asset-backed securities; mortgage-backed securities; short-term investments; certain common and preferred equities; notes and loans receivable; foreign exchange forward contracts, interest rate swaps and TBAs.

- Level 3 inputs—Unobservable inputs.

  The Company's financial instruments that it measures at fair value using Level 3 inputs generally include: privately placed corporate loans, inactively traded fixed maturities including U.S. state, territory and municipal bonds; special purpose financing asset-backed bonds; unlisted or private equities; certain other mutual fund or exchange traded fund equities; notes and loans receivables; notes securitizations included in Other invested assets; and certain other derivatives, including weather derivatives, longevity insurance-linked securities and total return swaps included in other invested assets.

At December 31, 2019 and 2018, the Company's financial instruments measured at fair value were classified between Levels 1, 2 and 3 as follows (in thousands of U.S. dollars):

December 31, 2019	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Total
Fixed maturities				
U.S. government and government sponsored enterprises	$ —	$ 243,669	$ —	$ 243,669
U.S. states, territories and municipalities	—	1,519	143,427	144,946
Non-U.S. sovereign government, supranational and government related	—	1,072,088	—	1,072,088
Corporate bonds	—	1,007,258	18,687	1,025,945
Asset-backed securities	—	0	18,228	18,228
Residential mortgage-backed securities	—	805,093	—	805,093
Other mortgage-backed securities	—	1	—	1
Fixed maturities	$ —	$ 3,129,628	$ 180,342	$ 3,309,970
Short-term investments	$ —	$ 400,708	$ —	$ 400,708
Equities				
Finance	$ 18,007	$ —	$ —	$ 18,007
Insurance	—	273	—	273
Consumer cyclical	8,912			8,912
Mutual funds and exchange traded funds			1,174,846	1,174,846
Equities	$ 26,919	$ 273	$ 1,174,846	$ 1,202,038
Other invested assets				
Derivative assets				
Foreign exchange forward contracts	$ —	$ 3,102	$ —	$ 3,102
Insurance-linked securities	—	—	2,728	2,728
Foreign currency option contracts	—	266	—	266
Total return swaps	—	—	1,448	1,448
Other				
Corporate Loans[(1)]	—	—	864,718	864,718
Notes and loan receivables and notes securitization	—	—	3,085	3,085
Private equities	—	—	413,468	413,468
Derivative liabilities				
Interest rate swaps	—	(12,378)	—	(12,378)
Insurance-linked securities	—	—	(1,871)	(1,871)
Foreign exchange forward contracts	—	(4,896)	—	(4,896)
Total return swaps	—	—	(2,962)	(2,962)
Other invested assets	$ —	$ (13,906)	$ 1,280,614	$ 1,266,708
Total	$ 26,919	$ 3,516,703	$ 2,635,802	$ 6,179,424

(1) Corporate loans include a portfolio of third-party, individually managed privately issued corporate loans that are managed under an externally managed mandate with a fair value of $758.9 million at December 31, 2019. The mandate primarily invests in U.S. floating rate, first lien, senior secured broadly syndicated loans with a focus on facility sizes greater than $300 million. Corporate loans also include $105.8 million of other privately issued corporate loans at December 31, 2019.

December 31, 2018	Quoted prices in active markets for identical assets (Level 1)	Significant other observable inputs (Level 2)	Significant unobservable inputs (Level 3)	Total
Fixed maturities				
U.S. government and government sponsored enterprises	$ —	$ 479,729	$ —	$ 479,729
U.S. states, territories and municipalities	—	9,066	120,898	129,964
Non-U.S. sovereign government, supranational and government related	—	697,995	—	697,995
Corporate bonds	—	2,560,572	21,470	2,582,042
Asset-backed securities	—	40,439	17,596	58,035
Residential mortgage-backed securities	—	799,190	—	799,190
Other mortgage-backed securities	—	4	—	4
Fixed maturities	$ —	$ 4,586,995	$ 159,964	$ 4,746,959
Short-term investments(1)	$ —	$ 347,990	$ —	$ 347,990
Equities				
Finance		$ —	$ 13,581	$ 13,581
Technology		—	12,256	12,256
Insurance	—	1,189	—	1,189
Mutual funds and exchange traded funds			621,759	621,759
Equities	$ —	$ 1,189	$ 647,596	$ 648,785
Other invested assets				
Derivative assets				
Foreign exchange forward contracts	$ —	$ 17,820	$ —	$ 17,820
Insurance-linked securities	—	—	2,824	2,824
Futures contracts	—	—	—	—
Total return swaps	—	—	1,697	1,697
Interest rate swaps	—	10	—	10
Other				
Notes and loan receivables and notes securitization	—	—	6,507	6,507
Private equities	—	—	265,651	265,651
Derivative liabilities				
Interest rate swaps	—	(9,193)	—	(9,193)
Insurance-linked securities	—	—	(2,568)	(2,568)
Foreign exchange forward contracts	—	(2,738)	—	(2,738)
Total return swaps	—	—	(3,232)	(3,232)
TBAs	—	—	—	—
Other invested assets	$ —	$ 5,899	$ 270,879	$ 276,778
Total	$ —	$ 4,942,073	$ 1,078,439	$ 6,020,512

(1) Short-term investments include $229 million of available-for-sale securities with readily determinable fair values. These securities were purchased in 2018 and were recorded at fair value, which approximated amortized cost given the short term to maturity of approximately three to four months.

At December 31, 2019 and 2018, the aggregate carrying amounts of items included in Other invested assets that the Company did not measure at fair value were $760.9 million and $624.7 million, respectively, which related to the Company's investments that are accounted for using the equity method of accounting.

At December 31, 2019 and 2018, the carrying value of accrued investment income approximated fair value due to its short-term nature.

During the year ended December 31, 2019, an equity security issued by a financial services company valued at $14 million was transferred from Level 3 to Level 1 due to the availability of quoted prices in active markets. During the year ended December 31, 2018, a corporate longevity bond valued at $25.4 million was transferred from Level 2 to Level 3 due to the lack of multiple independent pricing services (see in table below). Transfers into Level 3 during 2018 also included four private equity securities valued at $31.1 million that were previously held at cost and were measured to fair value upon adoption of new accounting guidance. During the years ended December 31, 2019 and 2018, there were no transfers between Level 1 and Level 2.

Disclosures about the fair value of financial instruments that the Company does not measure at fair value exclude insurance contracts and certain other financial instruments. At December 31, 2019 and 2018, the fair values of financial instrument assets recorded in the Consolidated Balance Sheets not described above approximate their carrying values.

The reconciliations of the beginning and ending balances for all financial instruments measured at fair value using Level 3 inputs for the years ended December 31, 2019 and 2018, were as follows (in thousands of U.S. dollars):

For the year ended December 31, 2019	Balance at beginning of year	Realized and unrealized investment gains (losses) included in net income	Purchases	Settlements and sales [(1)]	Net transfers into/ (out of) Level 3	Balance at end of year	Change in unrealized investment gains (losses) relating to assets held at end of year
Fixed maturities							
U.S. states, territories and municipalities	$ 120,898	$ 12,959	$ 10,455	$ (885)	$ —	$ 143,427	$ 12,951
Corporate Bonds	21,470	157	—	(2,940)	—	18,687	157
Asset-backed securities	17,596	1,274	—	(642)	—	18,228	1,274
Fixed maturities	$ 159,964	$ 14,390	$ 10,455	$ (4,467)	$ —	$ 180,342	$ 14,382
Equities							
Finance	$ 13,582	$ 102	$ —	$ —	$ (13,684)	$ —	$ —
Technology	12,255	(1,537)	—	(10,718)	—	—	—
Mutual funds and exchange traded funds	621,759	388,023	181,685	(16,621)	—	1,174,846	385,317
Equities	$ 647,596	$ 386,588	$ 181,685	$ (27,339)	$ (13,684)	$ 1,174,846	$ 385,317
Other invested assets							
Derivatives, net	$ (1,279)	$ 115	$ —	$ 507	$ —	$ (657)	$ (111)
Corporate loans	—	(1,071)	942,601	(76,812)	—	864,718	$ (1,117)
Notes and loan receivables and notes securitization	6,507	(717)	—	(2,705)	—	3,085	139
Private equities	265,651	56,428	102,676	(11,287)	—	413,468	44,482
Other invested assets	$ 270,879	$ 54,755	$ 1,045,277	$ (90,297)	$ —	$ 1,280,614	$ 43,393
Total	$ 1,078,439	$ 455,733	$ 1,237,417	$ (122,103)	$ (13,684)	$ 2,635,802	$ 443,092

(1) *Settlements and sales of Equities and Other invested assets include sales of $27.3 million, and $53.8 million, respectively. Sales of Other invested assets of $53.8 million included sales of corporate loans of $40.6 million, private equities of $11.3 million, notes and loan receivables and notes securitization of $1.7 million and derivatives of $0.2 million.*

For the year ended December 31, 2018	Balance at beginning of year	Realized and unrealized investment (losses) gains included in net income	Purchases	Settlements and sales [(1)]	Net transfers into/ (out of) Level 3	Balance at end of year	Change in unrealized investment (losses) gains relating to assets held at end of year
Fixed maturities							
U.S. states, territories and municipalities	$ 128,806	$ (4,417)	$ —	$ (3,491)	$ —	$ 120,898	$ (4,320)
Corporate Bonds	—	(139)	—	(3,745)	25,354	21,470	(139)
Asset-backed securities	20,738	(2,552)	—	(590)	—	17,596	(2,552)
Fixed maturities	$ 149,544	$ (7,108)	$ —	$ (7,826)	$ 25,354	$ 159,964	$ (7,011)
Equities							
Finance	$ 21,792	$ 5,071	$ —	$ (13,281)	$ —	$ 13,582	$ (3,539)
Technology	10,960	1,295	—	—	—	12,255	1,295
Mutual funds and exchange traded funds	558,736	10,996	55,027	(3,000)	—	621,759	10,996
Equities	$ 591,488	$ 17,362	$ 55,027	$ (16,281)	$ —	$ 647,596	$ 8,752
Other invested assets							
Derivatives, net	$ 11,221	$ 5,038	$ (1,623)	$ (15,915)	$ —	$ (1,279)	$ 372
Notes and loan receivables and notes securitization	108,563	(4,054)	—	(98,002)	—	6,507	(3,884)
Private equities	213,038	15,684	31,981	(26,132)	31,080	265,651	13,058
Other invested assets	$ 332,822	$ 16,668	$ 30,358	$ (140,049)	$ 31,080	$ 270,879	$ 9,546
Total	$ 1,073,854	$ 26,922	$ 85,385	$ (164,156)	$ 56,434	$ 1,078,439	$ 11,287

(1) *Settlements and sales of Equities and Other invested assets include sales of $16.3 million, and $138.5 million, respectively. Sales of Other invested assets of $138.5 million included sales of derivatives of $16.0 million, notes and loan receivables and notes securitization of $96.0 million, and private equities of $26.1 million.*

The significant unobservable inputs used in the valuation of financial instruments measured at fair value using Level 3 inputs at December 31, 2019 and 2018 were as follows (fair value in thousands of U.S. dollars):

December 31, 2019	Fair value	Valuation techniques	Unobservable inputs	Range (Weighted average)
Fixed maturities				
U.S. states, territories and municipalities	$143,427	Discounted cash flow	Credit spreads	-0.1% – 9.6% (3.5%)
Asset-backed securities	18,228	Discounted cash flow	Credit spreads	4.7% (4.7%)
Other invested assets				
Total return swaps, net	(1,514)	Discounted cash flow	Credit spreads	2.3% – 24.0% (16.9%)
Insurance-linked securities - longevity swaps	2,728	Discounted cash flow	Credit spreads	1.9% (1.9%)
Insurance-linked securities - pandemic swaps	(1,871)	Discounted cash flow	Credit spreads	56.2% (56.2%)
Notes and loan receivables	2,153	Discounted cash flow	Credit spreads	17.5% (17.5%)
			Gross revenue/fair value	1.1 (1.1)
Notes securitization	932	Discounted cash flow	Credit spreads	1.2% (1.2%)
Private equity – funds	122,854	Lag reported market value	Net asset value, as reported	100.0% (100.0%)
			Market adjustments	1.9% – 15.0% (9.0%)

December 31, 2018	Fair value	Valuation techniques	Unobservable inputs	Range (Weighted average)
Fixed maturities				
U.S. states, territories and municipalities	$120,898	Discounted cash flow	Credit spreads	0.2% – 10.2% (4.3%)
Asset-backed securities	17,596	Discounted cash flow	Credit spreads	6.7% (6.7%)
Equities				
Finance [(1)]	13,581	Lag reported market value	Transaction price	12.0 (12.0)
Technology	12,256	Reported market value	Tangible book value multiple	1.0 (1.0)
Other invested assets				
Total return swaps, net	(1,535)	Discounted cash flow	Credit spreads	2.5% – 23.0% (16.0%)
Insurance-linked securities - longevity swaps	2,824	Discounted cash flow	Credit spreads	2.6% (2.6%)
Insurance-linked securities - pandemic swaps	(1,301)	Discounted cash flow	Credit spreads	27.3% (27.3%)
Insurance-linked securities - weather index swap	(1,267)	Proprietary option model	Index value (temperature)	80.7 - 3,293.8 (175.3)
Notes and loan receivables	2,660	Discounted cash flow	Credit spreads	41.5%-41.9% (41.5%)
Notes and loan receivables	2,688	Discounted cash flow	Credit spreads	17.5% (17.5%)
			Gross revenue/fair value	1.1 (1.1)
Notes securitization	1,159	Discounted cash flow	Credit spreads	0.8% (0.8%)

(1) During 2018, the Company sold a portion of its investment and used the arm's length transaction price as an estimate of the fair value of the remaining holdings.

The tables above do not include financial instruments that are measured using unobservable inputs (Level 3) where the unobservable inputs were obtained from external sources and used without adjustment. These financial instruments include corporate bonds (included within Fixed maturities), mutual fund and exchange traded fund investments (included within

Equities), certain private equity funds (private equity funds included within Other invested assets), privately placed corporate loans (included within Other invested assets), and certain derivatives (included within Other invested assets).

The Parent has established a Valuation Committee which is responsible for determining the invested asset valuation procedures for the Parent and its subsidiaries, including the Company, reviewing significant changes in the fair value measurements of securities classified as Level 3 and ensuring that there is an appropriate oversight, on at least an annual basis, on the fair value measurements of significant securities that are classified as Level 3.The Valuation Committee is comprised of members of the Parent's senior management team.

Changes in the fair value of the Company's financial instruments subject to the fair value option during the years ended December 31, 2019 and 2018 were as follows (in thousands of U.S. dollars):

	2019	2018
Fixed maturities and short-term investments	**$ 18,453**	$ (100,814)
Equities	**394,300**	4,299
Other invested assets	**48,749**	26,761
Total	**$ 461,502**	$ (69,754)

Substantially all of the above changes in fair value are included in the Consolidated Statements of Operations under the caption Net realized and unrealized investment gains (losses). The change in the fair value of Other invested assets subject to the fair value option does not include certain derivatives.

The following methods and assumptions were used by the Company in estimating the fair value of each class of financial instrument recorded in the Consolidated Balance Sheets. There have been no material changes in the Company's valuation techniques during the periods presented.

Fixed maturities

- *U.S. government and government sponsored enterprises*—consists primarily of bonds issued by the U.S. Treasury and corporate debt securities issued by government sponsored enterprises and federally owned or established corporations. These securities are generally priced by independent pricing services. The independent pricing services may use actual transaction prices for securities that have been actively traded. For securities that have not been actively traded, each pricing source has its own proprietary method to determine the fair value, which may incorporate option adjusted spreads (OAS), interest rate data and market news. The Company generally classifies these securities in Level 2.
- *U.S. states, territories and municipalities*—consists primarily of bonds issued by U.S. states, territories and municipalities and the Federal Home Loan Mortgage Corporation. Certain of the bonds that are issued by municipal housing authorities and the Federal Home Loan Mortgage Corporation are not actively traded and are priced based on internal models using unobservable inputs (credit spreads). Accordingly, the Company classifies these securities in Level 3. A significant increase (decrease) in credit spreads in isolation could result in a significantly lower (higher) fair value measurement. The remaining securities are generally priced by independent pricing services using the techniques described for U.S. government and government sponsored enterprises above. The Company generally classifies these securities in Level 2.
- *Non-U.S. sovereign government, supranational and government related*—consists primarily of bonds issued by non-U.S. national governments and their agencies, non-U.S. regional governments and supranational organizations. These securities are generally priced by independent pricing services using the techniques described for U.S. government and government sponsored enterprises above. The Company generally classifies these securities in Level 2.
- *Corporate bonds*—consists primarily of bonds issued by U.S. and foreign corporations covering a variety of industries and issuing countries. Corporate securities also include real estate investment trusts, catastrophe bonds, longevity and mortality bonds and government guaranteed corporate debt. These securities are generally priced by independent pricing services and brokers. The pricing provider incorporates information including credit spreads, interest rate data and market news into the valuation of each security. The Company generally classifies

these securities in Level 2. When a corporate security is inactively traded or the valuation model uses unobservable inputs, the Company classifies the security in Level 3.

- *Asset-backed securities*—consists primarily of bonds issued by U.S. and foreign corporations that are predominantly backed by student loans, automobile loans, credit card receivables, equipment leases, and special purpose financing. With the exception of special purpose financing securities, these asset-backed securities are generally priced by independent pricing services and brokers. The pricing provider applies dealer quotes and other available trade information, prepayment speeds, yield curves and credit spreads to the valuation. The Company generally classifies these securities in Level 2. Special purpose financing securities are generally inactively traded and are priced based on valuation models using unobservable inputs (credit spreads). The Company generally classifies these securities in Level 3. The significant unobservable input used in the fair value measurement of these asset-backed securities classified as Level 3 is credit spreads. A significant increase (decrease) in credit spreads in isolation could result in a significantly lower (higher) fair value measurement.
- *Residential mortgage-backed securities*—consists primarily of bonds issued by the Government National Mortgage Association, the Federal National Mortgage Association, the Federal Home Loan Mortgage Corporation, as well as private, non-agency issuers. These residential mortgage-backed securities are generally priced by independent pricing services and brokers. When current market trades are not available, the pricing provider or the Company will employ proprietary models with observable inputs including other trade information, prepayment speeds, yield curves and credit spreads. The Company generally classifies these securities in Level 2.
- *Other mortgage-backed securities*—consists primarily of commercial mortgage-backed securities. These securities are generally priced by independent pricing services and brokers. The pricing provider applies dealer quotes and other available trade information, prepayment speeds, yield curves and credit spreads to the valuation. The Company generally classifies these securities in Level 2.

In general, the methods employed by the independent pricing services to determine the fair value of the securities that have not been actively traded primarily involve the use of "matrix pricing" in which the independent pricing source applies the credit spread for a comparable security that has traded recently to the current yield curve to determine a reasonable fair value. The Company generally uses one pricing source per security and uses a pricing service ranking to consistently select the most appropriate pricing service in instances where it receives multiple quotes on the same security. When fair values are unavailable from these independent pricing sources, quotes are obtained directly from broker-dealers who are active in the corresponding markets. Most of the Company's fixed maturities are priced from the pricing services or dealer quotes. The Company will typically not make adjustments to prices received from pricing services or dealer quotes; however, in instances where the quoted external price for a security uses significant unobservable inputs, the Company will classify that security as Level 3. The methods used to develop and substantiate the unobservable inputs used are based on the Company's valuation policy and are dependent upon the facts and circumstances surrounding the individual investments which are generally transaction specific. The Company's inactively traded fixed maturities are classified as Level 3. For all fixed maturity investments, the bid price is used for estimating fair value.

To validate prices, the Company compares the fair value estimates to its knowledge of the current market and will investigate prices that it considers not to be representative of fair value. The Company also reviews an internally generated fixed maturity price validation report which converts prices received for fixed maturity investments from the independent pricing sources and from broker-dealers quotes and plots OAS and duration on a sector and rating basis. The OAS is calculated using established algorithms developed by an independent risk analytics platform vendor. The OAS on the fixed maturity price validation report are compared for securities in a similar sector and having a similar rating, and outliers are identified and investigated for price reasonableness. In addition, the Company completes quantitative analyses to compare the performance of each fixed maturity investment portfolio to the performance of an appropriate benchmark, with significant differences identified and investigated.

Short-term investments

Short-term investments are valued in a manner similar to the Company's fixed maturity investments and are generally classified in Level 2. At December 31, 2018, short-term investments included investments in foreign currency denominated bonds issued by a foreign government with durations to maturity of three to four months, as discussed in footnote (1) to the fair value table above, which matured during 2019. See also Notes 2(g) and 2(n) for further details.

Equities

Equity securities include U.S. and foreign common and preferred stocks, real estate investment trusts and mutual funds. Publicly traded equities are generally classified in Level 1 as the Company uses prices received from independent pricing sources based on quoted prices in active markets. Equities classified as Level 2 are generally mutual funds invested in fixed income securities, where the net asset value of the fund is provided on a daily basis, and certain common and preferred equities. Equities classified as Level 3 are generally mutual funds invested in securities other than the common stock of publicly traded companies, where the net asset value is not provided on a daily basis, and inactively traded common stocks. The significant unobservable inputs used in the fair value measurement of inactively traded common stocks classified as Level 3 include market return information, weighted using management's judgment, from comparable selected publicly traded companies in the same industry, in a similar region and of a similar size, including transactional prices and tangible book value multiples. Significant increases (decreases) in any of these inputs could result in a significantly higher (lower) fair value measurement. Significant unobservable inputs used in measuring the fair value measurement of inactively traded common stocks also include a liquidity discount. A significant increase (decrease) in the liquidity discount could result in a significantly lower (higher) fair value measurement.

To validate prices, the Company completes quantitative analyses to compare the performance of each equity investment portfolio to the performance of an appropriate benchmark, with significant differences identified and investigated.

Other invested assets

The Company's foreign exchange forward contracts, foreign currency option contracts, interest rate swaps and TBAs are generally classified as Level 2 within the fair value hierarchy and are priced by independent pricing services.

Included in the Company's Level 3 classification, in general, are privately placed corporate loans, certain derivatives, including weather derivative insurance-linked securities and total return swaps; notes and loan receivables and notes securitizations; and private equities. For Level 3 instruments, the Company will generally (i) receive a price based on a manager's or trustee's valuation for the asset; (ii) develop an internal discounted cash flow model to measure fair value; or (iii) use market return information, adjusted if necessary and weighted using management's judgment, from comparable selected publicly traded equity funds in a similar region and of a similar size. Where the Company receives prices from the manager or trustee, these prices are based on the manager's or trustee's estimate of fair value for the assets and are generally audited on an annual basis. Where the Company develops its own discounted cash flow models, the inputs will be specific to the asset in question, based on appropriate historical information, adjusted as necessary, and using appropriate discount rates. The significant unobservable inputs used in the fair value measurement of other invested assets classified as Level 3 include variation in regional temperatures, credit spreads, gross revenue to fair value ratios and other valuation ratios. Significant increases (decreases) in any of these inputs in isolation could result in a significantly lower (higher) fair value measurement. Significant unobservable inputs used in the fair value measurement of other invested assets classified as Level 3 also include an assessment of the recoverability of intangible assets and market return information, weighted using management's judgment, from comparable selected publicly traded companies in the same industry, in a similar region and of a similar size. Significant increases (decreases) in these inputs in isolation could result in a significantly higher (lower) fair value measurement. As part of the Company's modeling to determine the fair value of an investment, the Company considers counterparty credit risk as an input to the model, however, the majority of the Company's counterparties are investment grade rated institutions and the failure of any one counterparty would not have a significant impact on the Company's consolidated financial statements.

To validate prices, the Company will compare them to benchmarks, where appropriate, or to the business results generally within that asset class and specifically to those particular assets.

(b) Fair Value of Financial Instrument Liabilities

At December 31, 2019 and 2018, the carrying values of financial instrument liabilities recorded in the Consolidated Balance Sheets approximate their fair values. Disclosures about the fair value of financial instrument liabilities exclude insurance contracts and certain other financial instruments.

4. Investments

(a) Net Realized and Unrealized Investment Gains (Losses)

The components of the net realized and unrealized investment gains (losses) for the years ended December 31, 2019 and 2018 were as follows (in thousands of U.S. dollars):

	2019	2018
Net realized investment gains (losses) on fixed maturities and short-term investments	**$ 149,710**	$ (88,755)
Net realized investment gains on equities	**5,392**	13,107
Net realized (losses) gains on other invested assets	**(4,709)**	17,087
Change in net unrealized gains on other invested assets	**44,302**	14,336
Change in net unrealized investment gains (losses) on fixed maturities and short-term investments	**18,453**	(100,814)
Change in net unrealized investment gains on equities	**394,300**	4,299
Total net realized and unrealized investment gains (losses)	**$ 607,448**	$ (140,740)

(b) Net Investment Income

The components of net investment income for the years ended December 31, 2019 and 2018 were as follows (in thousands of U.S. dollars):

	2019	2018
Fixed maturities	**$ 153,682**	$ 171,316
Short-term investments, cash and cash equivalents	**15,098**	7,440
Equities	**(6,227)**	3,176
Funds held and other(1)	**50,432**	16,077
Investment expenses	**(19,121)**	(18,705)
Net investment income	**$ 193,864**	$ 179,304

(1) The Company generally earns investment income on funds held by reinsured companies, including the 65% quota-share agreement with PartnerRe Europe (see Note 16), based upon a predetermined interest rate, either fixed contractually at the inception of the contract or based upon a recognized index (e.g., LIBOR). Interest rates ranged from 0.3% to 4.6% for the year ended December 31, 2019 and from 0.3% to 4.6% for the year ended December 31, 2018.

(c) Pledged and Restricted Assets

At December 31, 2019 and 2018, approximately $182.0 million and $54.3 million, respectively, of cash and cash equivalents and approximately $2,083.6 million and $1,802.6 million, respectively, of securities were deposited, pledged, held in trust or escrow accounts in favor of ceding companies and other counterparties or government authorities to comply with reinsurance contract provisions and insurance laws.

The Company operates a multi-beneficiary U.S. reinsurance trust (the trust) to enable its U.S. cedants to take statutory financial statement credit without the need to post contract-specific security. The trust is required to maintain sufficient assets to support both its liabilities related to some of its U.S. cedants, for contracts incepting after June 2010, and a minimum surplus of $20.0 million. At December 31, 2019 and 2018, assets held by the trust exceeded liabilities and minimum surplus by $401.7 million and $22.5 million, respectively. The Company is currently approved to utilize the trust in all U.S. jurisdictions.

(d) Net (Payable)/Receivable for Securities Purchased/Sold

Gross payable balances for securities purchased and gross receivable balances for securities sold were as follows at December 31, 2019 and 2018 were amounts of (in thousands of U.S. dollars):

	2019	2018
Payable for securities purchased	**$ (89,854)**	$ (43,721)
Receivable for securities sold	**10,345**	15,458
Net payable for securities purchased	**$ (79,509)**	$ (28,263)

(e) Variable Interest Entities

The Company holds variable interests in VIEs including certain limited liability companies or partnerships, fixed maturity investments and asset-backed securities. The holdings in these VIEs are reported within fixed maturities and other invested assets in the Company's Consolidated Balance Sheets. The Company's involvement in these entities is, for the most part, passive in nature. The Company's maximum exposure to loss with respect to these investments is limited to the amounts invested in and advanced to the VIEs, and any unfunded commitments.

(f) Significant Equity Method Investee

In March 2016, the Company purchased from Exor S.A. a 36% shareholding in the privately held United Kingdom real estate investment and development group, Almacantar Group S.A. (Almacantar). At December 31, 2019 and 2018, the total carrying value of this investment, accounted for under the equity, method was $483 million and $498 million, respectively, included within other invested assets in the Consolidated Balance Sheets.

5. Derivatives

The Company's objectives for holding or issuing derivatives are as follows:

Foreign Exchange Forward Contracts—The Company utilizes foreign exchange forward contracts as part of its overall currency risk management and investment strategies. At December 31, 2018, the Company specifically designated certain foreign exchange forward contracts as a highly effective hedge of certain foreign currency denominated short-term investments, which were settled during 2019.

Futures Contracts and Foreign Currency Option Contracts —The Company uses exchange traded treasury note futures contracts to manage portfolio duration and equity futures to hedge certain investments. The Company utilizes foreign currency option contracts to mitigate foreign currency risk.

Insurance-linked Securities—The Company enters into various derivatives for which the underlying risks reference parametric weather risks and pandemic outbreaks, in addition to longevity total return swaps for which the underlying risks reference longevity risks.

Total Return and Interest Rate Swaps—The Company enters into total return swaps referencing certain investments in Other invested assets. The Company enters into interest rate swaps to mitigate the interest rate risk on certain of the total return swaps and certain fixed maturity investments.

TBAs—The Company utilizes TBAs as part of its overall investment strategy and to enhance investment performance.

The net fair values of derivatives included in Other invested assets within the Company's Consolidated Balance Sheets and the related net notional exposures at December 31, 2019 and 2018 were as follows (in thousands of U.S. dollars):

December 31, 2019	Asset derivatives at fair value	Liability derivatives at fair value	Net derivatives Fair value	Net derivatives Net notional exposure
Derivatives not designated as hedges				
Foreign exchange forward contracts	**$ 3,102**	**$ (4,896)**	**$ (1,794)**	**$ 3,091,754**
Foreign currency option contracts	**266**	**—**	**$ 266**	**—**
Insurance-linked securities [1]	**2,728**	**(1,871)**	**857**	**44,250**
Total return swaps	**1,448**	**(2,962)**	**(1,514)**	**31,641**
Interest rate swaps [2]		**(12,378)**	**(12,378)**	**—**
Total derivatives not designated as hedges	**$ 7,544**	**$ (22,107)**	**$ (14,563)**	
Total derivatives	**$ 7,544**	**$ (22,107)**	**$ (14,563)**	

December 31, 2018	Asset derivatives at fair value	Liability derivatives at fair value	Net derivatives Fair value	Net derivatives Net notional exposure
Derivatives designated as hedges				
Foreign exchange forward contracts	$ —	$ (2,464)	$ (2,464)	$ 226,019
Total derivatives designated as hedges	$ —	$ (2,464)	$ (2,464)	
Derivatives not designated as hedges				
Foreign exchange forward contracts	$ 17,820	$ (273)	$ 17,547	$ 3,018,165
Insurance-linked securities (1)	2,824	(2,568)	256	59,257
Total return swaps	1,697	(3,232)	(1,535)	41,980
Interest rate swaps (2)	10	(9,194)	(9,184)	1,840
Total derivatives not designated as hedges	$ 22,351	$ (15,267)	$ 7,084	
Total derivatives	$ 22,351	$ (17,731)	$ 4,620	

(1) Insurance-linked securities include longevity swaps for which the notional amounts are not reflective of the overall potential exposure of the swaps. The net notional exposure above included the Company's best estimate of the present value of future expected claims.

(2) The Company enters into interest rate swaps to mitigate notional exposures on certain total return swaps and certain fixed maturities. The net notional exposure for interest rate swaps above relates to fixed maturities.

The fair value of derivatives is recorded in Other invested assets in the Company's Consolidated Balance Sheets. At December 31, 2018, the Company held foreign exchange forward contracts which were designated as highly effective hedges of the Japanese Yen foreign exchange rate risk exposure against the U.S. dollar related to specific Japanese government issued bonds recorded in Short-term investments. At December 31, 2018, there was less than $2 million of gains related to foreign exchange forward contracts designated as cash flow hedges recognized in Accumulated other comprehensive loss. These gains were reclassified to income upon settlement of the hedges and maturity of the bonds during 2019 and, as a result, there are no hedge related balances recorded in Accumulated other comprehensive loss at December 31, 2019. There were no derivatives designated as hedges at December 31, 2019.

The gains and (losses) in the Consolidated Statements of Operations for derivatives not designated as hedges for the years ended December 31, 2019 and 2018 were as follows (in thousands of U.S. dollars):

	2019	2018
Foreign exchange forward contracts	**$ (4,293)**	$ 92,395
Total included in net foreign exchange gains and losses	**$ (4,293)**	$ 92,395
Futures contracts	**(7,952)**	11,043
Credit default swaps (protection purchased)	**(67)**	—
Insurance-linked securities	**(4,381)**	6,134
Interest rate swaps	**(5,230)**	2,332
TBAs	**—**	(4,095)
Other	**530**	—
Total included in net realized and unrealized investment gains and losses	**$ (17,100)**	$ 15,414
Total (losses) gains on derivatives not designated as hedges	**$ (21,393)**	$ 107,809

Offsetting of Derivatives

The gross and net fair values of derivatives that are subject to offsetting in the Consolidated Balance Sheets at December 31, 2019 and 2018 were as follows (in thousands of U.S. dollars):

				Gross amounts not offset in the balance sheet		
December 31, 2019	**Gross amounts recognized (1)**	**Gross amounts offset in the balance sheet**	**Net amounts of assets / liabilities presented in the balance sheet**	**Financial instruments**	**Cash collateral received / pledged**	**Net amount**
Total derivative assets	**$ 7,544**	**$ —**	**$ 7,544**	**$ —**	**$ (19,537)**	**$ (11,993)**
Total derivative liabilities	**$ (22,107)**	**$ —**	**$ (22,107)**	**$ —**	**$ 2,391**	**$ (19,716)**
December 31, 2018						
Total derivative assets	$ 22,351	$ —	$ 22,351	$ —	$ (24,704)	$ (2,353)
Total derivative liabilities	$ (17,731)	$ —	$ (17,731)	$ —	$ 1,290	$ (16,441)

(1) *Amounts include all derivative instruments, irrespective of whether there is a legally enforceable master netting arrangement in place.*

6. Goodwill and Intangible Assets

The Company's goodwill re-allocated from PartnerRe Europe (see Note 2(i)) and intangible asset related to the merger of ARL with PartnerRe Life, subsequent to the merger of Aurigen Capital with the Parent (see Note 2(g) and (i)),were as follows at December 31, 2019 and 2018 (in thousands of U.S. dollars):

	Goodwill	Intangible assets
Balance at January 1, 2019	$ 26,014	$ 73,152
Intangible assets amortization[1]	n/a	(1,831)
Balance at December 31, 2019	$ 26,014	$ 71,321

	Goodwill	Intangible assets
Balance at January 1, 2018	$ 26,014	$ 80,229
Write-off of VOBA related to novated business[2]	n/a	(4,476)
Intangible assets amortization[1]	n/a	(2,601)
Balance at December 31, 2018	$ 26,014	$ 73,152

(1) The life VOBA is a definite-lived intangible asset which is being amortized over 100 years from the date of acquisition of Aurigen Capital by PartnerRe Ltd. on April 3, 2017.

(2) On October 23, 2018, prior to the merger, ARL novated a portion of its U.S. life business and recorded a reduction in intangible assets of $4.5 million for the VOBA related to this novated business with an offsetting amount included in intangible assets amortization during the year ended December 31, 2018. ARL received a ceding commission of $12.5 million related to this novated business which is included within other income in the Consolidated Statement of Operations for the year ended December 31, 2018.

7. Non-life and Life and Health Reserves

(a) Non-life Reserves

Non-life reserves are categorized into three types of reserves: case reserves, ACRs and IBNR reserves. Case reserves represent unpaid losses reported by the Company's cedants and recorded by the Company. ACRs are established for particular circumstances where, on the basis of individual loss reports, the Company estimates that the particular loss or collection of losses covered by a treaty may be greater than those advised by the cedant. IBNR reserves represent a provision for claims that have been incurred but not yet reported to the Company, as well as future loss development on losses already reported, in excess of the case reserves and ACRs.

The reconciliation of the beginning and ending gross and net liability for unpaid losses and loss expenses, excluding policy benefits for life and annuity contracts, for the years ended December 31, 2019 and 2018 was as follows (in thousands of U.S. dollars):

	2019	2018
Gross liability at beginning of year	**$ 4,841,419**	$ 4,606,631
Reinsurance recoverable at beginning of year	**484,284**	364,954
Net liability at beginning of year	**4,357,135**	4,241,677
Net incurred losses related to:		
Current year	**1,505,952**	1,723,433
Prior years	**(37,260)**	(162,606)
	1,468,692	1,560,827
Net paid losses related to:		
Current year	**199,302**	140,286
Prior years	**1,269,385**	1,193,699
	1,468,687	1,333,985
Effects of foreign exchange rate changes and other(1)	**(3,544)**	(111,384)
Net liability at end of year	**4,353,596**	4,357,135
Reinsurance recoverable at end of year	**305,516**	484,284
Gross liability at end of year	**$ 4,659,112**	$ 4,841,419

(1) In 2018, U.S. health business was reallocated from Life and Health to Non-life as part of an internal organizational change. The net impact of this reallocation was $48 million for the year ended December 31, 2018.

During the years ended December 31, 2019 and 2018, the Company's Non-life business reported net adverse loss development of $37.3 million and net favorable loss development of $162.6 million for prior accident years, respectively.

Reported net favorable loss development for prior accident years during the year ended December 31, 2019 was driven by favorable loss emergence in the P&C segment, which was partially offset by adverse loss emergence for the Specialty segment. Aggregate losses reported in 2019 for the P&C segment were better than Company's expectations as losses for most lines of business continue to emerge below expectations. This was partially offset by adverse activity primarily in U.S. casualty and U.S. multiline business. Aggregate losses reported in 2019 for the Specialty segment were worse than Company's expectations as losses for most underwriting years were worse than expected. The worse than expected loss emergence within the Specialty segment was predominantly driven by engineering, multiline and aviation but partially offset by favorable emergence primarily in agriculture and financial risks exposures. The Company reflected this experience by adjusting the selected loss ratios accordingly for these lines of business.

Losses reported by cedants during 2018 regarding prior accident years were lower than the Company expected in most lines of business, which led the Company to decrease its expected ultimate loss ratios and estimates.

Asbestos and Environmental Claims

The Company's net non-life reserves at December 31, 2019 and 2018 included $23 million and $24 million, respectively, related to asbestos and environmental claims.

Ultimate loss estimates for such claims cannot be estimated using traditional reserving techniques and there are significant uncertainties in estimating the Company's potential losses for these claims. In view of the legal and tort environment that affect the development of such claims, the uncertainties inherent in estimating asbestos and environmental claims are not likely to be resolved in the near future. There can be no assurance that the reserves established by the Company will not be adversely affected by development of other latent exposures, and further, there can be no assurance that the reserves established by the Company will be adequate. The Company does, however, actively evaluate potential exposure to asbestos and environmental claims and establishes additional reserves as appropriate. The Company believes that it has made a reasonable provision for these exposures and is unaware of any specific issues that would materially affect its unpaid losses and loss expense reserves related to this exposure.

Non-life Reserving methods

The reserving methods commonly employed by the Company are summarized as follows:

Chain Ladder (CL) Development Methods (Reported or Paid)

These methods use the underlying assumption that losses reported (paid) for each underwriting year at a particular development stage follow a stable pattern. The CL development method assumes that on average, every underwriting year will display the same percentage of ultimate liabilities reported by the Company's cedants at 24 months after the inception of the underwriting year. The percentages reported (paid) are established for each development stage after examining historical averages from the loss development data. These are sometimes supplemented by external benchmark information. Ultimate liabilities are estimated by multiplying the actual reported (paid) losses by the reciprocal of the assumed reported (paid) percentage. Reserves are then calculated by subtracting paid claims from the estimated ultimate liabilities.

Expected Loss Ratio (ELR) Method

This method estimates ultimate losses for an underwriting year by applying an estimated loss ratio to the earned premium for that underwriting year. Although the method is insensitive to actual reported or paid losses, it can often be useful at the early stages of development when very few losses have been reported or paid, and the principal sources of information available to the Company consist of information obtained during pricing and qualitative information supplied by the cedant. However, the lack of sensitivity to reported or paid losses means that the method is usually inappropriate at later stages of development.

Bornhuetter-Ferguson (B-F) Methods (Reported or Paid)

These methods aim to address the variability at early stages of development and incorporates external information such as pricing. The B-F methods are more sensitive to reported and paid losses than the ELR method, and can be seen as a blend of the ELR and CL development methods. Unreported (unpaid) claims are calculated using an expected reporting (payment) pattern and an externally determined estimate of ultimate liabilities (usually determined by multiplying an a priori loss ratio with estimates of premium volume). The accuracy of the a priori loss ratio is a critical assumption in this method. Usually a priori loss ratios are initially determined on the basis of pricing information, but may also be adjusted to reflect other information that subsequently emerges about underlying loss experience.

Loss Event Specific Method

The ultimate losses estimated under this method are derived from estimates of specific events based on reported claims, client and broker discussions, review of potential exposures, market loss estimates, modeled analysis and other event specific criteria.

Method Weights

In determining the loss reserves, the Company often relies on a blend of the results from two or more methods (e.g., weighted averages). The judgment as to which of the above method(s) is most appropriate for a particular underwriting year and reserving cell could change over time as new information emerges regarding underlying loss activity and other data issues. Furthermore, as each line is typically composed of several reserving cells, it is likely that the reserves for the line will be dependent on several reserving methods. This is because reserves for a line are the result of aggregating the reserves for each constituent reserving cell and that a different method could be selected for each reserving cell.

The principal reserving methods used for Specialty business and P&C business were ELR, Reported/Paid B-F, and Reported/Paid CL, with the exception of catastrophe risks within P&C where the principal reserving methods used were ELR based on exposure analysis and loss event specific methods.

(b) Life and Health Reserves

The reconciliation of the beginning and ending gross and net liability for life and health reserves for the years ended December 31, 2019 and 2018 was as follows (in thousands of U.S. dollars):

	2019	2018
Gross and net liability at beginning of period	**$ 1,299,674**	$ 1,373,348
Net incurred losses	**778,827**	597,594
Net losses paid	**(663,381)**	(512,402)
Effects of foreign exchange rate changes and other[1]	**(13,186)**	(158,866)
Gross and net liability at end of period	**$ 1,401,934**	$ 1,299,674

(1) In 2018, U.S. health business was reallocated from Life and Health to Non-life as part of an internal organizational change. The net impact of this reallocation was $48 million for the year ended December 31, 2018.

The Company used interest rate assumptions to estimate its liabilities for policy benefits for life and annuity contracts which ranged from 0% to 7% at December 31, 2019 and 2018.

Life and health reserving methods

The reserving methods commonly employed by the Company are summarized as follows:

Mortality

The reserves for the short-term mortality/morbidity business consist of case reserves calculated at the treaty level based upon cedant information. IBNR is calculated at the segment level using the ELR method described above for Non-life business.

The reserves for the traditional and limited payment long-duration contracts are established based upon accepted actuarial valuation methods which require us to make certain assumptions regarding future claims and policy benefits and includes a provision for adverse deviation. The provision for adverse deviation contemplates reasonable deviations from the best estimate assumptions for the key risk elements relevant to the product being evaluated, including mortality, disability, critical illness, expenses, and discount rates. The assumptions are locked in at contract inception and are subject to annual loss recognition testing (LRT). LRT occurs at the product group level, based on the manner of acquiring, servicing and measuring profitability of the reinsurance contracts. The LRT framework incorporates deferred acquisition cost (DAC) recoverability testing and involves determining an LRT reserve by re-measuring the policy benefit liabilities using current best estimate actuarial assumptions and current discount rates without any provisions for adverse deviation. If the aggregate LRT reserve is higher than the carrying amount of future policy benefit liabilities, net of DAC and VOBA, for a particular product grouping then a loss recognition event occurs. The DAC and VOBA asset balances for the given product grouping are first reduced, and if the balances are fully written off, the reserves will be increased, such that the current best estimate assumptions become the new locked-in basis.

The reserves for the guaranteed minimum death benefit (GMDB) reinsurance business are established similar to provisions for universal life contracts. Key actuarial assumptions for this business are mortality, lapses, interest rates, expected returns on cash and bonds and stock market performance. For the latter parameter, a stochastic option pricing approach is used and the benefits used in calculating the liabilities are based on the average benefits payable over a range of scenarios. The assumptions of investment performance and volatility are consistent with expected future experience of the respective underlying funds available for policyholder investment options. Recorded reserves for GMDB reflect management's best estimate based upon actuarial indications.

Longevity

Reserves for the annuity portfolio of reinsurance contracts within the longevity book are established using the reserving methodology discussed above for long-term traditional mortality.

(c) Losses and Loss Expenses

Losses and loss expenses in the Consolidated Statements of Operations for the years ended December 31, 2019 and 2018 was as follows (in thousands of U.S. dollars):

	2019	2018
Net incurred losses related to:		
Non-life	**$ 1,468,692**	$ 1,560,827
Life and health	**778,827**	597,594
Losses and loss expenses	**$ 2,247,519**	$ 2,158,421

Non-life net incurred and paid losses and loss expense development

The net incurred and paid losses and loss expenses development by accident year for each of the years ended December 31, 2012 through 2019, and the total of IBNR plus expected development on reported claims included within the net incurred claims amounts, as at each of the years ended December 31, 2012 through 2019, are presented in the tables below (in thousands of U.S. dollars).

The information presented below for incurred and paid claims development and the average annual percentage payout of incurred claims by age, net of reinsurance, for each of the years ended December 31, 2012 through 2018 is presented as supplementary information and is unaudited.

NET INCURRED LOSSES AND LOSS EXPENSES DEVELOPMENT TABLE - NON-LIFE

	For the year ended December 31,								December 31, 2019
Accident year	2012	2013	2014	2015	2016	2017	2018	2019	Total of IBNR plus expected development on reported claims
2012	$ 1,184,596	$ 1,063,413	$ 981,765	$ 929,634	$ 913,761	$ 909,051	$ 894,790	$ 881,201	$ 25,165
2013		1,293,466	1,196,911	1,117,900	1,091,015	1,068,099	1,051,251	1,048,852	50,194
2014			1,294,298	1,185,456	1,133,893	1,119,011	1,121,053	1,119,127	69,606
2015				1,320,081	1,179,242	1,131,941	1,125,344	1,121,673	102,390
2016					1,341,811	1,228,646	1,181,931	1,180,769	117,590
2017						1,768,579	1,739,273	1,692,992	261,084
2018							1,641,747	1,721,711	636,995
2019								1,509,850	1,106,240
Total								**$10,276,175**	**$ 2,369,264**

NET PAID LOSSES AND LOSS EXPENSES DEVELOPMENT TABLE - NON-LIFE

	For the year ended December 31,							
Accident year	2012	2013	2014	2015	2016	2017	2018	2019
2012	$ 131,716	$ 462,761	$ 616,195	$ 684,449	$ 724,062	$ 758,769	$ 778,569	$ 801,920
2013		116,557	568,742	728,918	817,711	870,813	907,819	932,930
2014			147,612	611,396	750,892	840,593	899,033	941,535
2015				142,739	551,890	735,112	835,311	902,756
2016					148,504	609,215	781,022	905,242
2017						262,995	936,459	1,183,855
2018							139,071	746,612
2019								193,722
Total								**$ 6,608,572**

Net reserves for Accident Years and exposures included in the triangles	3,667,603
All outstanding liabilities before Accident Year 2012, net of reinsurance	640,023
Total outstanding net liabilities for unpaid claims	**$ 4,307,626**

AVERAGE ANNUAL PERCENTAGE PAYOUT OF INCURRED CLAIMS BY AGE, NET OF REINSURANCE - NON-LIFE

Years	1	2	3	4	5	6	7	8
Non-life	12%	39%	15%	9%	5%	4%	2%	3%

(1) The table above (and each of the three tables below for property, casualty and specialty) reflects losses incurred and paid losses translated to U.S. dollars at the exchange rate as of the balance sheet date whereas the losses and loss expenses in the Consolidated Statement of Operations reflected losses incurred at the average exchange rate for the period.

NET INCURRED LOSSES AND LOSS EXPENSES DEVELOPMENT TABLE - PROPERTY

	For the year ended December 31,								December 31, 2019
Accident year	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**Total of IBNR plus expected development on reported claims**
2012	$ 305,853	$ 321,002	$ 269,053	$ 259,556	$ 253,054	$ 252,053	$ 244,677	$ 242,102	$ (3,733)
2013		383,232	317,242	302,918	294,186	290,579	284,036	282,954	(370)
2014			256,462	226,164	216,260	215,805	214,228	213,984	282
2015				288,199	258,794	247,021	240,405	238,518	2,894
2016					341,998	311,404	280,119	268,993	(5,123)
2017						722,096	732,333	664,627	(2,163)
2018							551,025	573,356	101,383
2019								431,411	313,012
Total								**$ 2,915,945**	**$ 406,182**

NET PAID LOSSES AND LOSS EXPENSES DEVELOPMENT TABLE - PROPERTY

	For the year ended December 31,							
Accident year	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
2012	$ 47,330	$ 163,984	$ 204,406	$ 221,497	$ 227,407	$ 231,627	$ 233,596	$ 237,856
2013		44,319	185,458	241,303	260,451	270,665	272,519	275,046
2014			40,100	154,750	186,242	199,836	204,995	207,835
2015				42,018	165,215	206,633	219,570	224,569
2016					55,983	198,684	233,119	250,017
2017						170,116	515,928	572,932
2018							32,984	364,411
2019								20,938
Total								**$ 2,153,604**

Net reserves for Accident Years and exposures included in the triangles	762,341
All outstanding liabilities before Accident Year 2012, net of reinsurance	79,189
Total outstanding net liabilities for unpaid claims	**$ 841,530**

AVERAGE ANNUAL PERCENTAGE PAYOUT OF INCURRED CLAIMS BY AGE, NET OF REINSURANCE - PROPERTY

Years	1	2	3	4	5	6	7	8
Property	16%	53%	14%	6%	3%	1%	1%	2%

NET INCURRED LOSSES AND LOSS EXPENSES DEVELOPMENT TABLE - CASUALTY

	For the year ended December 31,								December 31, 2019
Accident year	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**Total of IBNR plus expected development on reported claims**
2012	$ 239,424	$ 232,539	$ 227,428	$ 211,093	$ 203,201	$ 203,222	201,245	$ 194,756	$ 21,587
2013		289,165	293,299	278,301	270,976	264,701	261,219	259,689	39,972
2014			350,814	346,694	340,726	343,203	347,656	345,168	55,627
2015				356,299	338,896	331,058	342,153	338,401	76,319
2016					336,828	326,122	329,229	334,430	91,327
2017						345,584	330,862	338,877	127,966
2018							419,488	422,320	237,436
2019								322,230	255,100
Total								**$ 2,555,871**	**$ 905,334**

NET PAID LOSSES AND LOSS EXPENSES DEVELOPMENT TABLE - CASUALTY

For the year ended December 31,

Accident year	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
2012	$ 22,555	$ 55,663	$ 76,106	$ 96,122	$ 111,121	$ 128,992	138,626	146,135
2013		23,789	68,752	103,673	128,339	149,510	169,566	182,465
2014			32,271	92,707	130,322	164,454	195,594	220,497
2015				31,223	82,906	125,223	158,352	194,529
2016					14,137	68,099	105,088	146,814
2017						32,429	90,363	138,793
2018							37,252	114,027
2019								37,982
Total								**1,181,242**

Net reserves for Accident Years and exposures included in the triangles	1,374,629
All outstanding liabilities before Accident Year 2012, net of reinsurance	498,245
Total outstanding net liabilities for unpaid claims	1,872,874

AVERAGE ANNUAL PERCENTAGE PAYOUT OF INCURRED CLAIMS BY AGE, NET OF REINSURANCE - CASUALTY

Years	1	2	3	4	5	6	7	8
Casualty	9%	17%	12%	10%	9%	8%	5%	4%

NET INCURRED LOSSES AND LOSS EXPENSES DEVELOPMENT TABLE - SPECIALTY

	For the year ended December 31,								December 31, 2019
Accident year	2012	2013	2014	2015	2016	2017	2018	2019	Total of IBNR plus expected development on reported claims
2012	$ 639,319	$ 509,872	$ 485,284	$ 458,985	$ 457,506	$ 453,776	$ 448,868	$ 444,343	$ 7,311
2013		621,069	586,370	536,681	525,853	512,819	505,996	506,209	10,592
2014			687,022	612,598	576,907	560,003	559,169	559,975	13,697
2015				675,583	581,552	553,862	542,786	544,754	23,177
2016					662,985	591,120	572,583	577,346	31,386
2017						700,899	676,078	689,488	135,281
2018							671,234	726,035	298,176
2019								756,209	538,128
Total								**$ 4,804,359**	**$ 1,057,748**

NET PAID LOSSES AND LOSS EXPENSES DEVELOPMENT TABLE -SPECIALTY

	For the year ended December 31,							
Accident year	2012	2013	2014	2015	2016	2017	2018	2019
2012	$ 61,831	$ 243,114	$ 335,683	$ 366,830	$ 385,534	$ 398,150	$ 406,347	$ 417,929
2013		48,449	314,532	383,942	428,921	450,638	465,734	475,419
2014			75,241	363,939	434,328	476,303	498,444	513,203
2015				69,498	303,769	403,256	457,389	483,658
2016					78,384	342,432	442,815	508,411
2017						60,450	330,168	472,130
2018							68,835	268,174
2019								134,802
Total								**$ 3,273,726**

Net reserves for Accident Years and exposures included in the triangles	1,530,633
All outstanding liabilities before Accident Year 2012, net of reinsurance	62,589
Total outstanding net liabilities for unpaid claims	**$ 1,593,222**

AVERAGE ANNUAL PERCENTAGE PAYOUT OF INCURRED CLAIMS BY AGE, NET OF REINSURANCE - SPECIALTY

Years	1	2	3	4	5	6	7	8
Specialty	12%	42%	17%	9%	4%	3%	2%	3%

The Company is predominantly a reinsurer of primary insurers and does not have access to claim frequency information held by our cedants due to the majority of the Company’s business being written on a proportional basis. As such, the Company considers it impracticable to disclose information on the frequency of claims.

The Company has concluded that it is impracticable to provide net incurred and paid losses and loss expenses development data for 10 years and has therefore presented the data for 8 years. An additional year of data for each subsequent year will be included such that by 2021 a full 10 years of data will be disclosed.

The reconciliation of the net incurred and paid claims development information above to the Non-life reserves in the Consolidated Balance Sheet at December 31, 2019 was as follows (in thousands of U.S. dollars):

	December 31, 2019
Total outstanding liability for unpaid claims	
Property	841,530
Casualty	1,872,874
Specialty	1,593,222
Total outstanding liabilities for unpaid claims	**4,307,626**
U.S. health reserves (1)	2,967
Other liabilities (2)	43,003
Net liability at end of year	**4,353,596**
Reinsurance recoverable on unpaid claims	
Property	293,427
Casualty	—
Specialty	12,089
Reinsurance recoverable at end of year	**305,516**
Gross liability at end of year	**4,659,112**

(1) U.S. health business is not meaningful to include in the development tables as the estimated average duration of the health reserves is less than one year and substantially all claims are expected to be paid within two years, based on historical payout patterns.
(2) Other liabilities included in the reconciliation relate primarily to unallocated loss expenses.

8. Reinsurance

(a) Reinsurance Recoverable on Paid and Unpaid Losses

The Company uses retrocessional agreements to reduce its exposure to risk of loss on reinsurance assumed. These agreements provide for recovery from retrocessionaires of a portion of losses and loss expenses. The Company remains liable to its cedants to the extent that the retrocessionaires do not meet their obligations under these agreements, and therefore the Company evaluates the financial condition of its reinsurers and monitors concentration of credit risk on an ongoing basis. The Company actively manages its reinsurance exposures by generally selecting retrocessionaires having a credit rating of A- or higher. In certain cases where an otherwise suitable retrocessionaire has a credit rating lower than A-, the Company generally requires the posting of collateral, including escrow funds and letters of credit, as a condition to its entering into a retrocession agreement. The Company regularly reviews its reinsurance recoverable balances to estimate an allowance for uncollectible amounts based on quantitative and qualitative factors. There was no allowance for uncollectible reinsurance recoverable at December 31, 2019 and 2018 deemed necessary based on the quantitative and qualitative analysis as collectability was determined to be reasonably assured and given that any recoverables related to reinsurers with ratings below A- or unrated are collateralized.

(b) Ceded Reinsurance

Net premiums written, net premiums earned and losses and loss expenses and life policy benefits are reported net of reinsurance in the Company's Consolidated Statements of Operations. Assumed, ceded and net amounts for the years ended December 31, 2019 and 2018 were as follows (in thousands of U.S. dollars):

	Premiums Written	Premiums Earned	Losses and Loss Expenses
2019			
Assumed	**$ 3,339,270**	**$ 3,284,969**	**$ 2,326,490**
Ceded	**165,947**	**170,966**	**78,971**
Net	**$ 3,173,323**	**$ 3,114,003**	**$ 2,247,519**
2018			
Assumed	$ 3,108,757	$ 3,080,966	$ 2,273,578
Ceded	191,083	184,259	115,157
Net	$ 2,917,674	$ 2,896,707	$ 2,158,421

9. Shareholder's Equity

At December 31, 2019 and 2018, the total authorized and issued shares of the Company were 3,000,000 shares with a par value of $1.00 per share.

10. Dividend Restrictions and Statutory Requirements

The Company is licensed as a Class 4 and Class E insurer and is therefore authorized to carry on general and long-term insurance business in Bermuda. The Insurance Act 1978, amendments thereto and related regulations, regulates insurance business in Bermuda and requires the Company to maintain minimum levels of solvency and liquidity and to comply with risk-based capital requirements and licensing rules. As at December 31, 2019, the Company's solvency, liquidity and risk-based capital levels were in excess of the minimum levels required.

The Company may declare dividends subject to it continuing to meet these minimum levels of solvency, liquidity, and its risk-based capital requirement, which is to hold statutory capital and surplus equal to or exceeding the Target Capital Level (equivalent to 120% of the Enhanced Capital Requirement (ECR)). The ECR is calculated using the Bermuda Solvency Capital Requirement model which is a risk-based capital model. At December 31, 2019, the maximum dividend that PartnerRe Bermuda could pay out of retained earnings was approximately $1,058 million.

The Company is required to file annual statements with the Bermuda Monetary Authority (BMA) on an accounting basis as prescribed by the BMA. The typical adjustments to insurance statutory basis amounts to convert to U.S. GAAP include recognition of goodwill, intangible assets and deferred income taxes, and presentation of ceded reinsurance balances gross of assumed balances. The statutory financial return and capital and solvency return of the Company as at, and for the year ended, December 31, 2019 are due to be submitted to the BMA by April 30, 2020. The statutory financial return and capital and solvency return are subject to the review and final approval of the BMA.

The required and actual statutory capital and surplus of the Company at December 31, 2019 and 2018 was as follows (in millions of U.S. dollars):

	2019	2018
Required statutory capital and surplus	**$ 2,213**	$ 2,145
Actual statutory capital and surplus	**4,902**	4,233

In addition to the required statutory capital and surplus requirements in the table above, the Company assesses its own solvency capital needs taking into account factors which may not be fully reflected in statutory requirements. The Company's solvency capital requirements determined under these self assessments may impact the level of dividends paid to its Parent.

11. Taxation

The Company is not subject to Bermuda income or capital gains tax under current Bermuda law. In the event that there is a change in current law such that taxes on income or capital gains are imposed, the Company would be exempt from such tax until March 2035 pursuant to the Bermuda Exempted Undertakings Tax Protection Act of 1966.

The Company has subsidiaries and branches that operate in various other jurisdictions around the world that are subject to tax in the jurisdictions in which they operate. The significant jurisdictions in which the Company's subsidiaries and branches are subject to tax are Canada and the United States.

Income tax returns are open for examination for the tax years 2015 - 2019 in Canada and the United States. As a global organization, the Company may be subject to a variety of transfer pricing or permanent establishment challenges by taxing authorities in various jurisdictions. While management believes that adequate provision has been made in the Consolidated Financial Statements for any potential assessments that may result from tax examinations for all open tax years, the completion of tax examinations for open years may result in changes to the amounts recognized in the Consolidated Financial Statements.

Income tax expense for the years ended December 31, 2019 and 2018 was as follows (in thousands of U.S. dollars):

	2019	2018
Current income tax expense	**$ 5,852**	$ 2,849
Deferred income tax expense (benefit)	**4,931**	(1,533)
Total income tax expense	**$ 10,783**	$ 1,316

The reconciliation of the actual income tax rate for the years ended December 31, 2019 and 2018 to the amount computed by applying the effective tax rate of 0% under Bermuda law to net (loss) income before taxes was as follows (in thousands of U.S. dollars):

	2019	2018
Net income	**$ 865,796**	$ 139,888
Income tax expense	**10,783**	1,316
Net income before taxes	**$ 876,579**	$ 141,204
Reconciliation of effective tax rate (% of income before taxes)		
Expected tax rate	**0.0%**	0.0%
Foreign taxes at local expected tax rates	**1.5**	3.4
Tax exempt income	**(0.3)**	(1.9)
Ceding commission	**(0.2)**	(1.0)
Tax reassessment	**(0.1)**	—
Other	**0.3**	0.4
Actual tax rate	**1.2%**	0.9%

On December 22, 2017, the United States enacted the Tax Cuts and Jobs Act ("TCJA") to reduce the corporate income tax rate from 35% to 21% effective for taxable years beginning after December 31, 2017. As a result, deferred tax assets and liabilities in the United States were revalued at December 31, 2017, resulting in an income tax benefit of $3 million for the year ended December 31, 2017. During 2018, the Company completed its review of income tax enactment-date effects, including the revaluation of December 31, 2017 deferred tax assets and liabilities in the United States, and determined no significant measurement period adjustments were required.

The net tax assets (liabilities) and their components at December 31, 2019 and 2018 were as follows (in thousands of U.S. dollars):

	2019	2018
Net current tax assets	**$ 12,578**	$ 16,215
Net deferred tax liabilities	**(7,452)**	(2,295)
Net tax assets	**$ 5,126**	$ 13,920

Deferred tax liabilities reflect the tax impact of temporary differences between the carrying amounts of assets (liabilities) for financial reporting and income tax purposes. Net deferred tax liabilities of $7.5 million and $2.3 million at December 31, 2019 and 2018, respectively, primarily relate to life and health reserves, deductible expenses and net unrealized gains on investments; partially offset by tax loss carryforwards and tax credits.

The total amount of unrecognized tax benefits for the years ended December 31, 2019 and 2018 was $nil.

12. Retirement Benefit Arrangements

For employee retirement benefits, the Company maintains certain defined contribution plans. Contributions are made by the Company, and in some locations, these contributions are supplemented by the local plan participants. Contributions are based on a percentage of the participant's base salary depending upon competitive local market practice and vesting provisions meeting legal compliance standards and market trends. The accumulated benefits for the majority of these plans vest immediately or over a two-year period. As required by law, certain retirement plans also provide for death and disability benefits and lump sum indemnities to employees upon retirement.

The Company incurred expenses for these defined contribution arrangements of $0.5 million and $0.6 million for the years ended December 31, 2019 and 2018, respectively, within Other Operating Expenses in the Consolidated Statements of Operations and Comprehensive Income.

13. Commitments and Contingencies

(a) Concentration of Credit Risk

Fixed maturities

The Company's investment portfolio is managed following prudent standards of diversification and a prudent investment philosophy. The Company is not exposed to any significant credit concentration risk on its investments, except for debt securities issued by the U.S. government and other highly rated non-U.S. sovereign governments' securities. At December 31, 2019 and 2018, other than the U.S. and Canadian governments, the Company's fixed maturity investment portfolio did not contain exposure to any non-U.S. sovereign government or any other issuer that accounted for more than 10% of the Company's shareholder's equity. The Company keeps cash and cash equivalents in several banks and ensures that there are no significant concentrations of credit risk in any one bank..

Equities

In 2017, the Company invested $500 million in two Exor managed equity funds. At December 31, 2019 and 2018, the carrying value of these investments totaled $948 million and $563 million, respectively. These investments are recorded at fair value and are included within Equities in the Consolidated Balance Sheets. Net realized and unrealized investment gains related to these funds of $385 million and $12 million were recorded in the Consolidated Statements of Operations for the years ended December 31, 2019 and 2018, respectively. These investments are recorded at fair value and are included within Equities in the Consolidated Balance Sheets (see Note 15(d)).

Other Invested Assets

In March 2016, the Company purchased from Exor S.A. a 36% shareholding in the privately held United Kingdom real estate investment and development group, Almacantar Group S.A. (Almacantar). At December 31, 2019 and 2018, the total carrying value of this investment, accounted for under the equity, method was $483 million and $498 million, respectively, included within other invested assets in the Consolidated Balance Sheets. See Note 16(d).

Derivatives

The Company's investment strategy allows for the use of derivative instruments, subject to strict limitations. Derivative instruments may be used to replicate investment positions and for the purpose of managing overall currency risk, market exposures and portfolio duration, for hedging certain investments, or for enhancing investment performance that would be allowed under the Company's investment policy if implemented in other ways. The Company is exposed to credit risk in the event of non-performance by the counterparties to the Company's derivative contracts. However, the Company diversifies the counterparties to its derivative contracts to reduce credit risk, and because the counterparties to these contracts are high credit quality international banks, the Company does not anticipate non-performance. These contracts are generally of short duration and settle on a net basis. The difference between the contract amounts and the related market value represents the Company's maximum credit exposure.

Underwriting operations

The Company is also exposed to credit risk in its underwriting operations, most notably in the credit/surety line. Loss experience in these lines of business is cyclical and is affected by the state of the general economic environment. The Company provides its clients in these lines of business with reinsurance protection against credit deterioration, defaults or other types of financial non-performance of or by the underlying credits that are the subject of the reinsurance provided and, accordingly, the Company is exposed to the credit risk of those credits. The Company mitigates the risks associated with these credit-sensitive lines of business through the use of risk management techniques such as risk diversification, careful monitoring of risk aggregations and accumulations and, at times, through the use of retrocessional reinsurance protection and the purchase of credit default, total return and interest rate swaps.

The Company has exposure to credit risk as it relates to its business written through brokers, if any of the Company's brokers is unable to fulfill their contractual obligations with respect to payments to the Company. In addition, in some jurisdictions, if the broker fails to make payments to the insured under the Company's policy, the Company might remain liable to the insured for the deficiency. The Company's exposure to such credit risk is somewhat mitigated in certain jurisdictions by contractual terms.

The Company has exposure to credit risk related to reinsurance balances receivable and reinsurance recoverable on paid and unpaid losses. The credit risk exposure related to these balances is mitigated by several factors, including but not limited to, credit checks performed as part of the underwriting process, monitoring of aged receivable balances and the contractual right to offset premiums receivable or funds held balances against non-life reserves. The Company regularly reviews its reinsurance recoverable balances to estimate an allowance for uncollectible amounts based on quantitative and qualitative factors. At December 31, 2019 and 2018, the Company has recorded a provision for uncollectible premiums receivable of $2.1 million and $1.5 million, respectively. See also Note 7 for discussion of credit risk related to reinsurance recoverable on paid and unpaid losses.

The Company is also subject to the credit risk of its cedants in the event of insolvency or the cedant's failure to honor the value of funds held balances for any other reason. However, the Company's credit risk in some jurisdictions is mitigated by a mandatory right of offset of amounts payable by the Company to a cedant against amounts due to the Company. In certain other jurisdictions the Company is able to mitigate this risk, depending on the nature of the funds held arrangements, to the extent that the Company has the contractual ability to offset any shortfall in the payment of the funds held balances with amounts owed by the Company to cedants for losses payable and other amounts contractually due. The majority of the funds held balances are intercompany or collateralized with cash.

(b) Lease Arrangements

The Company adopted a new lease accounting standard on January 1, 2019 (see Note 2(p)). The Company leases office space under an operating lease expiring in 2023. At the lease commencement, the Company determines the classification of each lease as either a finance lease or an operating lease. The Company currently has a lease classified as operating and the lease expense is recognized on a straight-line basis over the lease term. Operating lease right-of-use assets and operating lease liabilities are recognized at the commencement date of the lease based on the present value of lease payments over the lease term. Variable lease payments are excluded from these lease payments to the extent they are not based on consumer price index or a market index and are recognized in the period in which the obligation for those payments is incurred.

The lease is renewable at the option of the Company under certain circumstances and is reflected in the lease measurement only if the Company is reasonably certain of exercising those options. The Company's lease agreement does not contain any material residual value guarantees or material restrictive covenants.

The Company's lease agreement has lease and non-lease components, such as common-area maintenance costs. The Company has elected the practical expedient to account for lease components together with non-lease components as a single lease component for all real estate leases.

As most leases do not provide an implicit rate, the Company uses its incremental borrowing rate based on the information available at the lease commencement date in determining the present value of lease payments.

The following table summarizes the balances related to the Company's total lease expense and provides supplemental other information related to its operating lease for the year ended December 31, 2019 (in thousands of U.S. dollars):

	2019
Operating lease costs	$ 751
Variable lease costs	247
Sublease income	(499)
Total lease costs	**$ 499**
Other Information:	
Operating lease right-of-use assets [(1)]	$ 2,784
Operating lease liabilities [(2)]	$ 2,784
Operating lease right-of-use assets obtained in exchange for lease obligations, non-cash [(3)]	$ 3,353
Operating cash outflows from operating leases	$ 751
Weighted-average remaining lease term on operating leases [(4)]	3.8 Yrs
Weighted-average discount rate on operating leases [(5)]	4.3%

[(1)] Included in Other assets in the Consolidated Balance Sheet
[(2)] Included in Accounts payable, accrued expenses and other in the Consolidated Balance Sheet
[(3)] Includes transition amounts related to the adoption of the new lease guidance in 2019
[(4)] Weighted-average remaining lease term is calculated on the basis of the remaining lease term and the lease liability balance
[(5)] Weighted-average discount rate is calculated on the basis of the discount rate for the lease that was used to calculate the lease liability balance as of the reporting date and the remaining balance of the lease payments as of the reporting date

The following table shows the contractual maturities of the Company's operating lease liability at December 31, 2019 (in thousands of U.S. dollars):

Period	Amount
2020	$ 766
2021	781
2022	797
2023	675
Discount	(235)
Total discounted operating lease liabilities	$ 2,784

Included in the above discounted operating lease liabilities is a lease that is contractually payable by the Company, while a portion of the lease expense is paid for by the Parent. Rent expense for the years ended December 31, 2019 and 2018 was $0.8 million.

(c) Other Agreements

The Company has entered into strategic investments with unfunded capital commitments. In the next five years, the Company expects to fund capital commitments totaling $370.5 million, with $160.7 million, $129.4 million, $67.5 million, $12.9 million and $nil to be paid during 2020, 2021, 2022, 2023 and 2024, respectively.

The Company has committed to a 10 year structured letter of credit facility issued by a high credit quality international bank which has a final maturity of December 29, 2024. At December 31, 2019 and 2018, the Company's participation in the facility was $69 and $67 million, respectively. At December 31, 2019, the letter of credit facility has not been drawn down and can only be drawn down in the event of certain specific scenarios, which the Company considers remote. Unless canceled by the bank, the credit facility automatically extends for one year, each year until maturity.

On December 31, 2013, the Company entered into an agreement to guarantee the financial obligations of an affiliated company in the event of non-performance on ceded reinsurance agreements. At December 31, 2019, there were no cedants in default.

On June 2, 2017, the Company entered into an agreement to guarantee and indemnify any and all of the obligations of an affiliated company under reinsurance agreements with third party cedents, in the event of non-payment or non-performance. There were no amounts due under this guarantee at December 31, 2019.

(d) Legal Proceedings

Litigation

The Company and its subsidiaries and branch, and the insurance and reinsurance industry in general, are subject to litigation and arbitration in the normal course of their business operations. In addition to claims litigation, the Company and its subsidiaries and branch may be 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. This category of business litigation typically involves, among other things, allegations of underwriting errors or omissions, employment claims or regulatory activity. While the outcome of business litigation cannot be predicted with certainty, the Company will dispute all allegations against the Company and/or its subsidiaries and branch that management believes are without merit.

In March 2019, a cedant (“the Cedant”) brought a motion for a declaratory judgment against the Company in the Québec Superior Court seeking a declaration that the Cedant had properly exercised its right, pursuant to an agreement between the parties, to recapture certain portfolios of life reinsurance contracts that the Cedant had retroceded to the Company. The Cedant alleges that such recapture entitles it to a payment from the Company of approximately CAD $144.7 million (approximately U.S. $110 million). The Company believes it has strong defenses to the Cedant’s claim, including that the Cedant failed to unconditionally exercise its alleged recapture right within the specified contractual parameters, and that even if the Cedant had done so, the recapture payment requested is overstated. If the Cedant's claim prevails in its entirety, the Company could incur a loss, calculated as the value of the recapture payment reduced by the net reserves recorded by the Company related to the in-force business subject to recapture. However, the Company cannot predict the result of this matter. As the Company believes that it is not probable that a loss has been or is expected to be incurred for this litigation, no accrual for a contingent liability has been made as at December 31, 2019.

At December 31, 2019, the Company was not a party to any litigation or arbitration that it believes could have a material effect on the financial condition, results of operations or liquidity of the Company.

14. Credit Agreements

In the normal course of its operations, the Parent enters into agreements with financial institutions to obtain unsecured and secured credit facilities. At December 31, 2019, the total amount of such credit facilities available to the Company was approximately $50 million. Under the terms of certain reinsurance agreements, irrevocable letters of credit were issued by the Company on a secured basis in the amount of $24 million at December 31, 2019, in respect of reported loss and unearned premium reserves.

15. Agreements with Related Parties

(a) Reinsurance Agreements

The Company enters into reinsurance contracts with subsidiaries of the Parent. As at December 31, 2019, the Company had the following quota-share reinsurance agreements with affiliated companies:

- a 65% quota-share agreement to assume existing and new business from PartnerRe Europe. PartnerRe Europe is a limited liability company incorporated and domiciled in Ireland, and regulated by the Central Bank of Ireland.
- a 50% quota-share agreement to assume new and renewal business from PartnerRe Asia. PartnerRe Asia is licensed by the Monetary Authority of Singapore (MAS) to operate as a non-life and life reinsurer in Singapore and is the principal reinsurance carrier for the Parent’s business underwritten in the Asia Pacific region.
- a 90% quota-share agreement to assume existing and renewal business from PartnerRe Canada. PartnerRe Canada is licensed by the Office of the Superintendent of Financial Institutions (OSFI) to operate as a health and life reinsurer in Canada.

In addition, the company has stop loss agreements with PartnerRe America Insurance Company, PartnerRe Ireland Insurance dac, PartnerRe Asia and PartnerRe Canada.

Effective January 1, 2018, the Company entered into a stop loss agreement with Partner Reinsurance Company of the U.S. (PartnerRe U.S.), a subsidiary of the Parent. The Company did not renew the stop loss agreement with PartnerRe U.S. for the 2020 underwriting year.

The activity included in the Consolidated Statements of Operations related to subsidiaries of the Parent for the years ended December 31, 2019 and 2018 was as follows (in thousands of U.S. dollars):

	2019	2018
Gross premiums written	**2,674,770**	$ 2,368,334
Net premiums written	**2,674,770**	2,368,334
Net premiums earned	**2,596,198**	2,442,671
Net investment income on funds held	**17,427**	8,334
Losses and loss expenses	**1,805,201**	1,667,178
Acquisition costs	**664,144**	720,130

Included in the Consolidated Balance Sheets at December 31, 2019 and 2018 were the following balances related to subsidiaries of the Parent (in thousands of U.S. dollars):

	2019	2018
Reinsurance balances receivable	**$ 1,211,361**	$ 1,079,585
Funds held by reinsured companies	**887,219**	770,295
Deferred acquisition costs	**389,162**	341,626
Non-life Reserves	**3,467,088**	3,568,094
Life and Health Reserves	**1,168,570**	1,055,748
Unearned premiums	**878,282**	807,070
Other reinsurance balances payable	**231,274**	153,325

(b) Loan Agreements

On April 27, 2017, ARL received a loan from the Parent of Canadian $270.6 million (approximately U.S. $207.8 million) to repay the Valins I Limited (Valins) Noteholder long-term operational debt in full. Valins was a special purpose vehicle which provided reinsurance coverage to ARL. On April 28, 2017 Valins became inactive and its reinsurance coverage was recaptured by ARL. At December 31, 2019 and 2018, the amount due to the Parent related to this loan was $205.8 million and $198.5 million, respectively. The loan is non-interest bearing and repayable on or before April 28, 2022.

On June 14, 2017, ARL entered into a Revolving Credit Agreement with the Parent to borrow up to an aggregated principal amount not exceeding one hundred million U.S. dollars for general business use with a termination date of June 30, 2022. At December 31, 2019 and 2018, the amount due to the Parent related to this loan was $nil and $16.3 million, respectively.

The Company has other advances to affiliates totaling $729.8 million and $813.6 million at December 31, 2019 and 2018, respectively, which are primarily related to amounts advanced to or paid on behalf of its Parent. These amounts bear no interest, have no fixed repayment terms and no collateral has been given.

The Company has other liabilities to affiliates totaling $62.8 million and $19.4 million, respectively, at December 31, 2019 and 2018. These represent expenses incurred in the normal course of operations. Amounts due to affiliates bear no interest, have no fixed repayment terms and no collateral has been given.

In addition, accounts payable, accrued expenses and other at December 31, 2019 and 2018 also includes a deferred gain of $72.3 million and $74.1 million, respectively, related to an Assumption Reinsurance Agreement with the Canadian Life branch of PartnerRe Europe entered into in 2014.

(c) Service Agreements

In the normal course of its operations, the Company entered into service agreements with other subsidiaries of the Parent. Revenues earned under the service agreements for the years ended December 31, 2019 and 2018 were $0.4 million and $1.1 million, respectively. Expenses incurred under the service agreements for the years ended December 31, 2019 and 2018 were $16.1 million and $9.8 million, respectively.

(d) Other

Almacantar Group S.A.

In March 2016, the Company purchased from Exor S.A. a 36% shareholding in the privately held United Kingdom real estate investment and development group, Almacantar Group S.A. (Almacantar). At December 31, 2019 and 2018, the total carrying value of this investment, accounted for under the equity, method was $483 million and $498 million, respectively, included within other invested assets in the Consolidated Balance Sheets.

Exor Funds

In 2017, the Company invested $500 million in two Exor managed equity funds. At December 31, 2019 and 2018, the carrying value of these investments totaled $948 million and $563 million, respectively. These investments are recorded at fair value and are included within Equities in the Consolidated Balance Sheets. Net realized and unrealized investment gains related to these funds of $385 million and $12 million were recorded in the Consolidated Statements of Operations for the years ended December 31, 2019 and 2018, respectively. These investments are recorded at fair value and are included within Equities in the Consolidated Balance Sheets

In 2018, the Company entered into an agreement with Exor to invest in a newly formed limited partnership, Exor Seeds L.P. At December 31, 2019 and 2018, the carrying value of the Company's investment in the limited partnership was $32 million and $11 million, respectively, with the increase from 2018 driven primarily by additional capital contributions. This investment is accounted for using the equity method and is included within Other invested assets in the Consolidated Balance Sheets.

These transactions between related parties were entered into at arms-length.

16. Subsequent Events

Effective January 1, 2018, the Company entered into a stop loss agreement with Partner Reinsurance Company of the U.S. (PartnerRe U.S.), a subsidiary of the Parent. The Company did not renew the stop loss agreement with PartnerRe U.S. for the 2020 underwriting year.

On March 3, 2020, EXOR Nederland N.V. and Covéa Coopérations S.A. ("Covéa") entered into a memorandum of understanding under which, following completion of Covéa's required consultation with works councils in France, the parties would enter into a definitive agreement for Covéa to acquire PartnerRe Ltd., the Parent (the "Covéa Acquisition"). The Covéa Acquisition is subject to customary closing conditions, including antitrust, regulatory and other approvals.

As the coronavirus outbreak (COVID-19) continues to progress and evolve, the Company is monitoring the situation closely and has taken operational measures to restrict the spread of the virus across its employees in line with World Health Organisation, local governments and health authorities guidance. At this stage, the Company is not expecting that its continuous operations will be materially affected. The Company is exposed to pandemic and investment risk and a deteriorating global health crisis may have a financial impact. The Company is expecting such potential financial impact to be within risk tolerance.

The Company has evaluated subsequent events from the balance sheet date through to April 29, 2020, which is the date the consolidated financial statements were available to be issued. Other than the items described above, there were no other material subsequent events arising during this period.