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

FORM 10-Q

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d)**
OF THE SECURITIES EXCHANGE ACT OF 1934
For the quarterly period ended June 30, 2019
OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d)**
OF THE SECURITIES EXCHANGE ACT OF 1934
Commission File Number 1-11848

REINSURANCE GROUP OF AMERICA, INCORPORATED
(Exact name of Registrant as specified in its charter)

Missouri	**43-1627032**
(State or other jurisdiction of incorporation or organization)	**(IRS employer identification number)**

16600 Swingley Ridge Road
Chesterfield, Missouri 63017
(Address of principal executive offices)
(636) 736-7000
(Registrant's telephone number, including area code)

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

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

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

Large accelerated filer x **Accelerated filer** o **Non-accelerated filer** o
Smaller reporting company ☐ **Emerging growth company** ☐

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

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

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, par value $0.01	RGA	New York Stock Exchange
6.20% Fixed-To-Floating Rate Subordinated Debentures due 2042	RZA	New York Stock Exchange
5.75% Fixed-To-Floating Rate Subordinated Debentures due 2056	RZB	New York Stock Exchange

As of July 31, 2019, 62,761,461 shares of the registrant's common stock were outstanding.

REINSURANCE GROUP OF AMERICA, INCORPORATED AND SUBSIDIARIES

TABLE OF CONTENTS

PART I - FINANCIAL INFORMATION

ITEM 1. Financial Statements

REINSURANCE GROUP OF AMERICA, INCORPORATED AND SUBSIDIARIES

CONDENSED CONSOLIDATED BALANCE SHEETS

(Unaudited)

	June 30, 2019	December 31, 2018
	(Dollars in thousands, except share data)	
Assets		
Fixed maturity securities available-for-sale, at fair value (amortized cost $42,457,618 and $38,882,168)	$ 46,189,305	$ 39,992,346
Equity securities, at fair value (cost $166,159 and $107,721)	146,755	82,197
Mortgage loans on real estate (net of allowances of $11,692 and $11,286)	5,405,422	4,966,298
Policy loans	1,319,722	1,344,980
Funds withheld at interest	5,696,217	5,761,471
Short-term investments	158,788	142,598
Other invested assets	2,121,406	1,915,297
Total investments	61,037,615	54,205,187
Cash and cash equivalents	2,287,526	1,889,733
Accrued investment income	470,074	427,893
Premiums receivable and other reinsurance balances	2,944,820	3,017,868
Reinsurance ceded receivables	851,380	757,572
Deferred policy acquisition costs	3,440,339	3,397,770
Other assets	1,012,062	839,222
Total assets	$ 72,043,816	$ 64,535,245
Liabilities and Stockholders' Equity		
Future policy benefits	$ 26,995,770	$ 25,285,400
Interest-sensitive contract liabilities	19,748,683	18,004,526
Other policy claims and benefits	6,136,374	5,642,755
Other reinsurance balances	512,924	487,177
Deferred income taxes	2,443,429	1,798,800
Other liabilities	1,480,914	1,396,200
Long-term debt	3,381,411	2,787,873
Collateral finance and securitization notes	635,300	681,961
Total liabilities	61,334,805	56,084,692
Commitments and contingent liabilities (See Note 8)		
Stockholders' Equity:		
Preferred stock - par value $.01 per share, 10,000,000 shares authorized, no shares issued or outstanding	—	—
Common stock - par value $.01 per share, 140,000,000 shares authorized, 79,137,758 shares issued at June 30, 2019 and December 31, 2018	791	791
Additional paid-in capital	1,920,144	1,898,652
Retained earnings	7,549,737	7,284,949
Treasury stock, at cost - 16,379,267 and 16,323,390 shares	(1,403,774)	(1,370,602)
Accumulated other comprehensive income	2,642,113	636,763
Total stockholders' equity	10,709,011	8,450,553
Total liabilities and stockholders' equity	$ 72,043,816	$ 64,535,245

See accompanying notes to condensed consolidated financial statements (unaudited).

REINSURANCE GROUP OF AMERICA, INCORPORATED AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF INCOME
(Unaudited)

	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Revenues:	(Dollars in thousands, except per share data)			
Net premiums	$ 2,763,786	$ 2,594,460	$ 5,501,599	$ 5,177,011
Investment income, net of related expenses	584,078	528,061	1,163,955	1,044,390
Investment related gains (losses), net:				
Other-than-temporary impairments on fixed maturity securities	—	(3,350)	(9,453)	(3,350)
Other investment related gains (losses), net	12,472	(7,222)	29,713	(7,692)
Total investment related gains (losses), net	12,472	(10,572)	20,260	(11,042)
Other revenues	107,072	83,959	201,625	159,256
Total revenues	3,467,408	3,195,908	6,887,439	6,369,615
Benefits and Expenses:				
Claims and other policy benefits	2,515,211	2,279,593	5,023,535	4,641,694
Interest credited	157,842	109,327	291,031	189,776
Policy acquisition costs and other insurance expenses	260,345	320,276	572,226	677,178
Other operating expenses	223,499	194,959	424,982	386,233
Interest expense	43,283	37,025	83,456	74,479
Collateral finance and securitization expense	7,151	7,440	15,568	15,042
Total benefits and expenses	3,207,331	2,948,620	6,410,798	5,984,402
Income before income taxes	260,077	247,288	476,641	385,213
Provision for income taxes	57,379	42,914	104,436	80,609
Net income	$ 202,698	$ 204,374	$ 372,205	$ 304,604
Earnings per share:				
Basic earnings per share	$ 3.23	$ 3.19	$ 5.93	$ 4.74
Diluted earnings per share	$ 3.18	$ 3.13	$ 5.83	$ 4.65

See accompanying notes to condensed consolidated financial statements (unaudited).

REINSURANCE GROUP OF AMERICA, INCORPORATED AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(Unaudited)

	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Comprehensive income (loss)	(Dollars in thousands)			
Net income	$ 202,698	$ 204,374	$ 372,205	$ 304,604
Other comprehensive income (loss), net of tax:				
Foreign currency translation adjustments	24,603	(54,677)	45,989	(55,837)
Net unrealized investment gains (losses)	851,523	(368,719)	1,959,734	(1,002,323)
Defined benefit pension and postretirement plan adjustments	22	(29)	(373)	(500)
Total other comprehensive income (loss), net of tax	876,148	(423,425)	2,005,350	(1,058,660)
Total comprehensive income (loss)	$ 1,078,846	$ (219,051)	$ 2,377,555	$ (754,056)

See accompanying notes to condensed consolidated financial statements (unaudited).

REINSURANCE GROUP OF AMERICA, INCORPORATED AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands except per share amounts)
(Unaudited)

	Three months ended June 30, 2019 and 2018					
	Common Stock	Additional Paid In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Income	Total
Balance, March 31, 2019	$ 791	$ 1,906,291	$ 7,412,081	$ (1,415,020)	$ 1,765,965	$ 9,670,108
Net income			202,698			202,698
Total other comprehensive income (loss)					876,148	876,148
Dividends to stockholders, $0.60 per share			(37,640)			(37,640)
Purchase of treasury stock				(18,692)		(18,692)
Reissuance of treasury stock		13,853	(27,402)	29,938		16,389
Balance, June 30, 2019	$ 791	$ 1,920,144	$ 7,549,737	$ (1,403,774)	$ 2,642,113	$ 10,709,011
Balance, March 31, 2018	$ 791	$ 1,880,352	$ 6,797,545	$ (1,098,823)	$ 1,428,396	$ 9,008,261
Net income			204,374			204,374
Total other comprehensive income (loss)					(423,425)	(423,425)
Dividends to stockholders, $0.50 per share			(32,129)			(32,129)
Purchase of treasury stock				(162,453)		(162,453)
Reissuance of treasury stock		6,984	(17,620)	17,710		7,074
Balance, June 30, 2018	$ 791	$ 1,887,336	$ 6,952,170	$ (1,243,566)	$ 1,004,971	$ 8,601,702

	Six months ended June 30, 2019 and 2018					
	Common Stock	Additional Paid In Capital	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Income	Total
Balance, December 31, 2018	$ 791	$ 1,898,652	$ 7,284,949	$ (1,370,602)	$ 636,763	$ 8,450,553
Adoption of new accounting standards			(87)			(87)
Net income			372,205			372,205
Total other comprehensive income (loss)					2,005,350	2,005,350
Dividends to stockholders, $1.20 per share			(75,347)			(75,347)
Purchase of treasury stock				(67,744)		(67,744)
Reissuance of treasury stock		21,492	(31,983)	34,572		24,081
Balance, June 30, 2019	$ 791	$ 1,920,144	$ 7,549,737	$ (1,403,774)	$ 2,642,113	$ 10,709,011
Balance, December 31, 2017	$ 791	$ 1,870,906	$ 6,736,265	$ (1,102,058)	$ 2,063,631	$ 9,569,535
Adoption of new accounting standards			(2,020)			(2,020)
Net income			304,604			304,604
Total other comprehensive income (loss)					(1,058,660)	(1,058,660)
Dividends to stockholders, $1.00 per share			(64,370)			(64,370)
Purchase of treasury stock				(165,069)		(165,069)
Reissuance of treasury stock		16,430	(22,309)	23,561		17,682
Balance, June 30, 2018	$ 791	$ 1,887,336	$ 6,952,170	$ (1,243,566)	$ 1,004,971	$ 8,601,702

See accompanying notes to condensed consolidated financial statements (unaudited).

REINSURANCE GROUP OF AMERICA, INCORPORATED AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(Unaudited)

	Six months ended June 30,	
	2019	2018
	(Dollars in thousands)	
Cash Flows from Operating Activities:		
Net income	$ 372,205	$ 304,604
Adjustments to reconcile net income to net cash provided by operating activities:		
Change in operating assets and liabilities:		
Accrued investment income	(12,200)	1,834
Premiums receivable and other reinsurance balances	84,599	(345,253)
Deferred policy acquisition costs	(114,895)	20,528
Reinsurance ceded receivable balances	(109,011)	18,245
Future policy benefits, other policy claims and benefits, and other reinsurance balances	736,251	598,015
Deferred income taxes	92,442	48,117
Other assets and other liabilities, net	(122,629)	(98,807)
Amortization of net investment premiums, discounts and other	(33,742)	(25,713)
Depreciation and amortization expense	22,163	21,554
Investment related (gains) losses, net	(20,260)	11,042
Other, net	75,408	29,422
Net cash provided by operating activities	970,331	583,588
Cash Flows from Investing Activities:		
Sales of fixed maturity securities available-for-sale	5,096,692	3,836,575
Maturities of fixed maturity securities available-for-sale	438,749	328,097
Sales of equity securities	36	29,099
Principal payments and sales of mortgage loans on real estate	166,483	213,691
Principal payments on policy loans	43,849	24,793
Purchases of fixed maturity securities available-for-sale	(5,689,268)	(3,880,733)
Purchases of equity securities	(56,732)	(11,930)
Cash invested in mortgage loans on real estate	(598,309)	(376,470)
Cash invested in policy loans	(4,940)	(6,421)
Cash invested in funds withheld at interest	(54,030)	(42,761)
Purchase of businesses, net of cash acquired of $27,374 and $4,938	3,561	(29,315)
Purchases of property and equipment	(17,467)	(14,573)
Change in short-term investments	67,177	(9,843)
Change in other invested assets	(160,204)	(160,824)
Net cash used in investing activities	(764,403)	(100,615)
Cash Flows from Financing Activities:		
Dividends to stockholders	(75,347)	(64,370)
Repayment of collateral finance and securitization notes	(52,644)	(53,102)
Proceeds from long-term debt issuance	598,524	—
Debt issuance costs	(4,750)	—
Principal payments of long-term debt	(1,387)	(1,331)
Purchases of treasury stock	(67,744)	(165,069)
Exercise of stock options, net	2,590	1,252
Change in cash collateral for derivative positions and other arrangements	(80,214)	17,578
Deposits on universal life and other investment type policies and contracts	256,373	225,876
Withdrawals on universal life and other investment type policies and contracts	(390,295)	(329,899)
Net cash provided by (used in) financing activities	185,106	(369,065)
Effect of exchange rate changes on cash	6,759	(19,753)
Change in cash and cash equivalents	397,793	94,155
Cash and cash equivalents, beginning of period	1,889,733	1,303,524
Cash and cash equivalents, end of period	$ 2,287,526	$ 1,397,679
Supplemental disclosures of cash flow information:		
Interest paid	$ 85,829	$ 84,670
Income taxes paid, net of refunds	$ 22,632	$ 59,397
Non-cash investing activities:		
Transfer of invested assets	$ 3,420,531	$ 604,374

Right-of-use assets acquired through operating losses	$ 1,105	$ —
Purchase of businesses:		
Assets acquired, excluding cash acquired	$ 8,303	$ 65,948
Liabilities assumed	(11,864)	(36,633)
Net cash (received) paid on purchase	$ (3,561)	$ 29,315

See accompanying notes to condensed consolidated financial statements (unaudited).

REINSURANCE GROUP OF AMERICA, INCORPORATED AND SUBSIDIARIES
Notes to Condensed Consolidated Financial Statements
(Unaudited)

1. Business and Basis of Presentation

Business

Reinsurance Group of America, Incorporated ("RGA") is an insurance holding company that was formed on December 31, 1992. RGA and its subsidiaries (collectively, the "Company") is engaged in providing traditional reinsurance, which includes individual and group life and health, disability, and critical illness reinsurance. The Company also provides financial solutions, which includes longevity reinsurance, financial reinsurance, stable value products and asset-intensive products, primarily annuities.

Basis of Presentation

The unaudited condensed consolidated financial statements of the Company have been prepared in conformity with accounting principles generally accepted in the United States of America ("GAAP") for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X of the Securities and Exchange Commission ("SEC"). Accordingly, these condensed consolidated financial statements do not include all of the information and footnotes required by GAAP for complete financial statements and should be read in conjunction with the Company's 2018 Annual Report on Form 10-K filed with the SEC on February 27, 2019 (the "2018 Annual Report").

In the opinion of management, all adjustments, including normal recurring adjustments necessary for a fair presentation have been included. Interim results are not necessarily indicative of the results that may be expected for the year ending December 31, 2019.

Consolidation

These unaudited condensed consolidated financial statements include the accounts of RGA and its subsidiaries and all intercompany accounts and transactions have been eliminated. Entities in which the Company has significant influence over the operating and financing decisions but are not required to be consolidated are reported under the equity method of accounting.

2. Earnings Per Share

The following table sets forth the computation of basic and diluted earnings per share on net income (in thousands, except per share information):

	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Earnings:				
Net income (numerator for basic and diluted calculations)	$ 202,698	$ 204,374	$ 372,205	$ 304,604
Shares:				
Weighted average outstanding shares (denominator for basic calculation)	62,678	64,071	62,719	64,278
Equivalent shares from outstanding stock options	1,020	1,179	1,100	1,277
Denominator for diluted calculation	63,698	65,250	63,819	65,555
Earnings per share:				
Basic	$ 3.23	$ 3.19	$ 5.93	$ 4.74
Diluted	$ 3.18	$ 3.13	$ 5.83	$ 4.65

The calculation of common equivalent shares does not include the impact of options having a strike or conversion price that exceeds the average stock price for the earnings period, as the result would be antidilutive. The calculation of common equivalent shares also excludes the impact of outstanding performance contingent shares, as the conditions necessary for their issuance have not been satisfied as of the end of the reporting period. The following table presents approximate amounts of stock options and performance contingent shares excluded from the calculation of common equivalent shares (in thousands):

	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Excluded from common equivalent shares:				
Stock options	250	225	420	295
Performance contingent shares	242	229	171	217

3. Equity

Common Stock

The changes in the number of common stock issued, held in treasury and outstanding are as follows for the periods indicated:

	Issued	Held In Treasury	Outstanding
Balance, December 31, 2018	79,137,758	16,323,390	62,814,368
Common stock acquired	—	344,237	(344,237)
Stock-based compensation [(1)]	—	(288,360)	288,360
Balance, June 30, 2019	79,137,758	16,379,267	62,758,491

	Issued	Held In Treasury	Outstanding
Balance, December 31, 2017	79,137,758	14,685,663	64,452,095
Common stock acquired	—	991,477	(991,477)
Stock-based compensation [(1)]	—	(211,868)	211,868
Balance, June 30, 2018	79,137,758	15,465,272	63,672,486

(1) Represents net shares issued from treasury pursuant to the Company's equity-based compensation programs.

Common Stock Held in Treasury

Common stock held in treasury is accounted for at average cost. Gains resulting from the reissuance of common stock held in treasury are credited to additional paid-in capital. Losses resulting from the reissuance of common stock held in treasury are charged first to additional paid-in capital to the extent the Company has previously recorded gains on treasury share transactions, then to retained earnings.

In January 2019, RGA's board of directors authorized a repurchase program for up to $400.0 million of RGA's outstanding common stock. The authorization was effective immediately and does not have an expiration date. Repurchases would be made in accordance with applicable securities laws and would be made through market transactions, block trades, privately negotiated transactions or other means or a combination of these methods, with the timing and number of shares repurchased dependent on a variety of factors, including share price, corporate and regulatory requirements and market and business conditions. Repurchases may be commenced or suspended from time to time without prior notice. In connection with this new authorization, the board of directors terminated the stock repurchase authority granted in 2017. During the first six months of 2019, RGA repurchased 0.3 million shares of common stock under this program for $50.0 million. During the first six months of 2018, RGA repurchased 1.0 million shares of common stock under the 2017 repurchase program for $150.0 million.

Accumulated Other Comprehensive Income (Loss)

The balance of and changes in each component of accumulated other comprehensive income (loss) ("AOCI") for the six months ended June 30, 2019 and 2018 are as follows (dollars in thousands):

	Accumulated Currency Translation Adjustments	Unrealized Appreciation (Depreciation) of Investments[(1)]	Pension and Postretirement Benefits	Total
Balance, December 31, 2018	$ (168,698)	$ 856,159	$ (50,698)	$ 636,763
Other comprehensive income (loss) before reclassifications	43,534	2,617,211	(3,369)	2,657,376
Amounts reclassified to (from) AOCI	—	(98,502)	2,893	(95,609)
Deferred income tax benefit (expense)	2,455	(558,975)	103	(556,417)
Balance, June 30, 2019	$ (122,709)	$ 2,815,893	$ (51,071)	$ 2,642,113

	Accumulated Currency Translation Adjustments	Unrealized Appreciation (Depreciation) of Investments[(1)]	Pension and Postretirement Benefits	Total
Balance, December 31, 2017	$ (86,350)	$ 2,200,661	$ (50,680)	$ 2,063,631
Other comprehensive income (loss) before reclassifications	(44,227)	(1,327,195)	(2,986)	(1,374,408)
Amounts reclassified to (from) AOCI	—	53,646	2,366	56,012
Deferred income tax benefit (expense)	(11,610)	271,226	120	259,736
Balance, June 30, 2018	$ (142,187)	$ 1,198,338	$ (51,180)	$ 1,004,971

(1) Includes cash flow hedges of $(14,862) and $8,788 as of June 30, 2019 and December 31, 2018, respectively, and $22,656 and $2,619 as of June 30, 2018 and December 31, 2017, respectively. See Note 5 - "Derivative Instruments" for additional information on cash flow hedges.

The following table presents the amounts of AOCI reclassifications for the three and six months ended June 30, 2019 and 2018 (dollars in thousands):

	Amount Reclassified from AOCI				
	Three months ended June 30,		Six months ended June 30,		
Details about AOCI Components	2019	2018	2019	2018	Affected Line Item in Statements of Income
Net unrealized investment gains (losses):					
Net unrealized gains (losses) on available-for-sale securities	$ 20,249	$ (24,642)	$ 19,976	$ (39,098)	Investment related gains (losses), net
Cash flow hedges - Interest rate	383	29	852	(342)	(1)
Cash flow hedges - Currency/Interest rate	(6)	76	19	221	(1)
Deferred policy acquisition costs attributed to unrealized gains and losses	63,182	(7,835)	77,655	(14,427)	(2)
Total	83,808	(32,372)	98,502	(53,646)	
Provision for income taxes	(17,273)	6,945	(20,279)	11,623	
Net unrealized gains (losses), net of tax	$ 66,535	$ (25,427)	$ 78,223	$ (42,023)	
Amortization of defined benefit plan items:					
Prior service cost (credit)	$ 268	$ 247	$ 537	$ 493	(3)
Actuarial gains/(losses)	(1,875)	(1,267)	(3,430)	(2,859)	(3)
Total	(1,607)	(1,020)	(2,893)	(2,366)	
Provision for income taxes	338	214	608	497	
Amortization of defined benefit plans, net of tax	$ (1,269)	$ (806)	$ (2,285)	$ (1,869)	
Total reclassifications for the period	$ 65,266	$ (26,233)	$ 75,938	$ (43,892)	

(1) See Note 5 - “Derivative Instruments” for additional information on cash flow hedges.
(2) This AOCI component is included in the computation of the deferred policy acquisition cost. See Note 8 – “Deferred Policy Acquisition Costs” of the 2018 Annual Report for additional details.
(3) This AOCI component is included in the computation of the net periodic pension cost. See Note 10 – “Employee Benefit Plans” for additional details.

Equity Based Compensation

Equity compensation expense was $21.5 million and $16.6 million in the first six months of 2019 and 2018, respectively. In the first quarter of 2019, the Company granted 0.2 million stock appreciation rights at $145.25 weighted average exercise price per share and 0.1 million performance contingent units to employees. Additionally, non-employee directors were granted a total of 8,472 shares of common stock. As of June 30, 2019, 1.5 million share options at a weighted average strike price per share of $75.03 were vested and exercisable, with a remaining weighted average exercise period of 4.3 years. As of June 30, 2019, the total compensation cost of non-vested awards not yet recognized in the condensed consolidated financial statements was $28.2 million. It is estimated that these costs will vest over a weighted average period of 1.0 years.

4. Investments

Fixed Maturity Securities Available-for-Sale

The Company holds various types of fixed maturity securities available-for-sale and classifies them as corporate securities ("Corporate"), Canadian and Canadian provincial government securities ("Canadian government"), residential mortgage-backed securities ("RMBS"), asset-backed securities ("ABS"), commercial mortgage-backed securities ("CMBS"), U.S. government and agencies ("U.S. government"), state and political subdivisions, and other foreign government, supranational and foreign government-sponsored enterprises ("Other foreign government").

The following tables provide information relating to investments in fixed maturity securities by sector as of June 30, 2019 and December 31, 2018 (dollars in thousands):

June 30, 2019:	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value	% of Total	Other-than-temporary Impairments in AOCI
Available-for-sale:						
Corporate	$ 26,055,078	$ 1,651,141	$ 70,788	$ 27,635,431	59.8%	$ —
Canadian government	2,960,943	1,613,153	133	4,573,963	9.9	—
RMBS	2,214,963	64,629	3,077	2,276,515	4.9	—
ABS	2,482,012	25,714	13,062	2,494,664	5.4	275
CMBS	1,687,024	60,775	514	1,747,285	3.8	—
U.S. government	1,738,348	40,202	370	1,778,180	3.8	—
State and political subdivisions	1,221,461	83,621	1,508	1,303,574	2.9	—
Other foreign government	4,097,789	288,833	6,929	4,379,693	9.5	—
Total fixed maturity securities	$ 42,457,618	$ 3,828,068	$ 96,381	$ 46,189,305	100.0%	$ 275

December 31, 2018:	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value	% of Total	Other-than-temporary Impairments in AOCI
Available-for-sale:						
Corporate	$ 24,006,407	$ 530,804	$ 555,092	$ 23,982,119	59.9%	$ —
Canadian government	2,768,466	1,126,227	2,308	3,892,385	9.7	—
RMBS	1,872,236	22,267	25,282	1,869,221	4.7	—
ABS	2,171,254	10,779	32,829	2,149,204	5.4	275
CMBS	1,428,115	9,153	18,234	1,419,034	3.5	—
U.S. government	2,233,537	10,204	57,867	2,185,874	5.5	—
State and political subdivisions	721,290	39,914	9,010	752,194	1.9	—
Other foreign government	3,680,863	109,320	47,868	3,742,315	9.4	—
Total fixed maturity securities	$ 38,882,168	$ 1,858,668	$ 748,490	$ 39,992,346	100.0%	$ 275

The Company enters into various collateral arrangements with counterparties that require both the pledging and acceptance of fixed maturity securities as collateral. Pledged fixed maturity securities are included in fixed maturity securities, available-for-sale in the condensed consolidated balance sheets. Fixed maturity securities received as collateral are held in separate custodial accounts and are not recorded on the Company's condensed consolidated balance sheets. Subject to certain constraints, the Company is permitted by contract to sell or repledge collateral it receives; however, as of June 30, 2019 and December 31, 2018, none of the collateral received had been sold or repledged. The Company also holds assets in trust to satisfy collateral requirements under derivative transactions and certain third-party reinsurance treaties. The following table includes fixed maturity securities pledged and received as collateral and assets in trust held to satisfy collateral requirements under derivative transactions and certain third-party reinsurance treaties as of June 30, 2019 and December 31, 2018 (dollars in thousands):

	June 30, 2019		December 31, 2018	
	Amortized Cost	Estimated Fair Value	Amortized Cost	Estimated Fair Value
Fixed maturity securities pledged as collateral	$ 85,651	$ 89,295	$ 80,891	$ 83,950
Fixed maturity securities received as collateral	n/a	687,071	n/a	616,584
Assets in trust held to satisfy collateral requirements	23,697,506	25,212,508	20,072,735	20,366,170

The Company monitors its concentrations of financial instruments on an ongoing basis and mitigates credit risk by maintaining a diversified investment portfolio that limits exposure to any one issuer. The Company's exposure to concentrations of credit risk from single issuers greater than 10% of the Company's stockholders' equity included securities of the U.S. government and its agencies as well as the securities disclosed below as of June 30, 2019 and December 31, 2018 (dollars in thousands).

	June 30, 2019		December 31, 2018	
	Amortized Cost	Estimated Fair Value	Amortized Cost	Estimated Fair Value
Fixed maturity securities guaranteed or issued by:				
Canadian province of Quebec	$ 1,168,749	$ 2,115,321	$ 1,091,018	$ 1,757,087
Canadian province of Ontario	978,025	1,361,749	913,642	1,187,526

The amortized cost and estimated fair value of fixed maturity securities classified as available-for-sale at June 30, 2019 are shown by contractual maturity in the table below (dollars in thousands). Actual maturities can differ from contractual maturities because borrowers may have the right to call or prepay obligations with or without call or prepayment penalties. Asset and mortgage-backed securities are shown separately in the table below, as they are not due at a single maturity date.

	Amortized Cost	Estimated Fair Value
Available-for-sale:		
Due in one year or less	$ 1,305,265	$ 1,314,533
Due after one year through five years	8,823,728	9,130,980
Due after five years through ten years	9,519,138	10,171,840
Due after ten years	16,425,488	19,053,488
Asset and mortgage-backed securities	6,383,999	6,518,464
Total	$ 42,457,618	$ 46,189,305

Corporate Fixed Maturity Securities

The tables below show the major industry types of the Company's corporate fixed maturity holdings as of June 30, 2019 and December 31, 2018 (dollars in thousands):

June 30, 2019:	Amortized Cost	Estimated Fair Value	% of Total
Finance	$ 9,865,739	$ 10,385,443	37.6%
Industrial	13,063,121	13,878,056	50.2
Utility	3,126,218	3,371,932	12.2
Total	$ 26,055,078	$ 27,635,431	100.0%

December 31, 2018:	Amortized Cost	Estimated Fair Value	% of Total
Finance	$ 8,793,742	$ 8,730,568	36.3%
Industrial	12,336,857	12,342,111	51.6
Utility	2,875,808	2,909,440	12.1
Total	$ 24,006,407	$ 23,982,119	100.0%

Other-Than-Temporary Impairments - Fixed Maturity Securities

As discussed in Note 2 – "Significant Accounting Policies and Pronouncements" of the 2018 Annual Report, a portion of certain other-than-temporary impairment ("OTTI") losses on fixed maturity securities is recognized in AOCI. For these securities, the net amount recognized in the condensed consolidated statements of income ("credit loss impairments") represents the difference between the amortized cost of the security and the net present value of its projected future cash flows discounted at the effective interest rate implicit in the debt security prior to impairment. Any remaining difference between the fair value and amortized cost is recognized in AOCI. The amount of pre-tax credit loss impairments on fixed maturity securities held by the Company, for which a portion of the OTTI loss was recognized in AOCI, was $3.7 million as of June 30, 2019 and 2018. There were no changes in these amounts from their respective prior-year ending balances.

Unrealized Losses for Fixed Maturity Securities Available-for-Sale

The following table presents the total gross unrealized losses for the 921 and 3,109 fixed maturity securities as of June 30, 2019 and December 31, 2018, respectively, where the estimated fair value had declined and remained below amortized cost by the indicated amount (dollars in thousands):

	June 30, 2019		December 31, 2018	
	Gross Unrealized Losses	% of Total	Gross Unrealized Losses	% of Total
Less than 20%	$ 73,351	76.1%	$ 721,015	96.3%
20% or more for less than six months	21,995	22.8	21,336	2.9
20% or more for six months or greater	1,035	1.1	6,139	0.8
Total	$ 96,381	100.0%	$ 748,490	100.0%

The Company's determination of whether a decline in value is other-than-temporary includes an analysis of the underlying credit and the extent and duration of a decline in value. The Company's credit analysis of an investment includes determining whether the issuer is current on its contractual payments, evaluating whether it is probable that the Company will be able to collect all amounts due according to the contractual terms of the security and analyzing the overall ability of the Company to recover the amortized cost of the investment.

The following tables present the estimated fair values and gross unrealized losses, including other-than-temporary impairment losses reported in AOCI, for 921 and 3,109 fixed maturity securities that have estimated fair values below amortized cost as of June 30, 2019 and December 31, 2018, respectively (dollars in thousands). These investments are presented by class and grade of security, as well as the length of time the related fair value has remained below amortized cost.

	Less than 12 months		12 months or greater		Total	
June 30, 2019:	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses
Investment grade securities:						
Corporate	$ 780,802	$ 8,757	$ 1,276,130	$ 28,924	$ 2,056,932	$ 37,681
Canadian government	2,535	2	17,555	131	20,090	133
RMBS	57,572	489	240,046	2,577	297,618	3,066
ABS	753,026	5,383	399,818	7,679	1,152,844	13,062
CMBS	79,372	240	37,442	274	116,814	514
U.S. government	257,328	36	76,098	334	333,426	370
State and political subdivisions	42,876	11	13,856	1,497	56,732	1,508
Other foreign government	90,066	2,565	110,341	2,697	200,407	5,262
Total investment grade securities	2,063,577	17,483	2,171,286	44,113	4,234,863	61,596
Below investment grade securities:						
Corporate	216,611	22,148	139,318	10,959	355,929	33,107
RMBS	—	—	976	11	976	11
Other foreign government	6,337	77	18,664	1,590	25,001	1,667
Total below investment grade securities	222,948	22,225	158,958	12,560	381,906	34,785
Total fixed maturity securities	$ 2,286,525	$ 39,708	$ 2,330,244	$ 56,673	$ 4,616,769	$ 96,381

December 31, 2018:	Less than 12 months Estimated Fair Value	Less than 12 months Gross Unrealized Losses	12 months or greater Estimated Fair Value	12 months or greater Gross Unrealized Losses	Total Estimated Fair Value	Total Gross Unrealized Losses
Investment grade securities:						
Corporate	$ 8,505,371	$ 302,604	$ 3,611,266	$ 195,082	$ 12,116,637	$ 497,686
Canadian government	25,169	419	131,806	1,612	156,975	2,031
RMBS	269,558	2,488	836,741	22,760	1,106,299	25,248
ABS	1,102,677	24,271	381,609	8,523	1,484,286	32,794
CMBS	384,259	4,304	414,719	13,930	798,978	18,234
U.S. government	8,616	80	1,086,694	57,787	1,095,310	57,867
State and political subdivisions	103,504	1,538	157,330	7,472	260,834	9,010
Other foreign government	789,859	24,509	472,934	17,446	1,262,793	41,955
Total investment grade securities	11,189,013	360,213	7,093,099	324,612	18,282,112	684,825
Below investment grade securities:						
Corporate	755,679	42,760	122,559	14,646	878,238	57,406
Canadian government	443	34	1,770	243	2,213	277
RMBS	—	—	1,026	34	1,026	34
ABS	—	—	1,063	35	1,063	35
Other foreign government	128,725	5,574	7,479	339	136,204	5,913
Total below investment grade securities	884,847	48,368	133,897	15,297	1,018,744	63,665
Total fixed maturity securities	$ 12,073,860	$ 408,581	$ 7,226,996	$ 339,909	$ 19,300,856	$ 748,490

The Company has no intention to sell, nor does it expect to be required to sell, the securities outlined in the table above, as of the dates indicated. However, unforeseen facts and circumstances may cause the Company to sell fixed maturity securities in the ordinary course of managing its portfolio to meet certain diversification, credit quality and liquidity guidelines. Changes in unrealized losses are primarily driven by changes in interest rates.

Investment Income, Net of Related Expenses

Major categories of investment income, net of related expenses, consist of the following (dollars in thousands):

	Three months ended June 30, 2019	Three months ended June 30, 2018	Six months ended June 30, 2019	Six months ended June 30, 2018
Fixed maturity securities available-for-sale	$ 427,841	$ 373,624	$ 842,928	$ 742,827
Equity securities	645	709	1,891	2,391
Mortgage loans on real estate	60,509	50,460	120,071	100,659
Policy loans	14,394	14,775	28,503	29,555
Funds withheld at interest	65,972	86,417	127,706	161,862
Short-term investments and cash and cash equivalents	7,465	2,964	14,365	6,209
Other invested assets	31,910	20,785	74,146	44,613
Investment income	608,736	549,734	1,209,610	1,088,116
Investment expense	(24,658)	(21,673)	(45,655)	(43,726)
Investment income, net of related expenses	$ 584,078	$ 528,061	$ 1,163,955	$ 1,044,390

Investment Related Gains (Losses), Net

Investment related gains (losses), net, consist of the following (dollars in thousands):

	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Fixed maturity securities available-for-sale:				
Other-than-temporary impairment losses	$ —	$ (3,350)	$ (9,453)	$ (3,350)
Gain on investment activity	20,384	21,140	48,429	32,106
Loss on investment activity	(6,870)	(35,934)	(25,593)	(56,314)
Equity securities:				
Gain on investment activity	—	469	74	497
Loss on investment activity	—	—	(1)	(950)
Change in unrealized gains (losses) recognized in earnings	2,673	(6,966)	6,417	(11,103)
Other impairment losses and change in mortgage loan provision	(5,609)	(1,357)	(7,468)	(1,669)
Derivatives and other, net	1,894	15,426	7,855	29,741
Total investment related gains (losses), net	$ 12,472	$ (10,572)	$ 20,260	$ (11,042)

There were no fixed maturity impairments for the three months ended June 30, 2019. The fixed maturity impairments for the six months ended June 30, 2019 were primarily related to a U.S. utility company. The fixed maturity impairments for the three and six months ended June 30, 2018 were primarily related to high-yield corporate securities. The other impairment losses and change in mortgage loan provision for the three months ended June 30, 2019 includes impairments on limited partnerships. The other impairment losses and change in mortgage loan provision for the six months ended June 30, 2019 includes impairments on real estate joint ventures and limited partnerships. The other impairment losses and change in mortgage loan provision for the three months and six months ended June 30, 2018 includes impairments on real estate joint ventures. The fluctuations in investment related gains (losses) for derivatives and other for the three and six months ended June 30, 2019, compared to the same periods in 2018, are primarily due to changes in the fair value of embedded derivatives and interest rate swaps.

During the three months ended June 30, 2019 and 2018, the Company sold fixed maturity securities with fair values of $466.1 million and $1,174.4 million at losses of $6.9 million and $35.9 million, respectively. During the six months ended June 30, 2019 and 2018, the Company sold fixed maturity securities with fair values of $1,712.7 million and $2,438.0 million at losses of $25.6 million and $56.3 million, respectively. The Company did not sell any equity securities at losses during the three months ended June 30, 2019 and 2018. During the six months ended June 30, 2019, the Company sold equity securities for immaterial losses. During the six months ended June 30, 2018, the Company sold equity securities with fair values $28.4 million at losses of $1.0 million. The Company generally does not buy and sell securities on a short-term basis.

Securities Borrowing, Lending and Other

The following table includes the amount of borrowed securities, securities lent and securities collateral received as part of the securities lending program and repurchased/reverse repurchased securities pledged and received as of June 30, 2019 and December 31, 2018 (dollars in thousands).

	June 30, 2019		December 31, 2018	
	Amortized Cost	Estimated Fair Value	Amortized Cost	Estimated Fair Value
Borrowed securities	$ 343,093	$ 376,665	$ 335,781	$ 366,663
Securities lending:				
Securities loaned	97,596	103,009	101,981	102,618
Securities received	n/a	107,000	n/a	112,000
Repurchase program/reverse repurchase program:				
Securities pledged	576,381	596,412	554,806	554,589
Securities received	n/a	578,112	n/a	530,932

The Company also held cash collateral for repurchase/reverse repurchase programs of $28.6 million at both June 30, 2019 and December 31, 2018. No cash or securities have been pledged by the Company for its securities borrowing program as of June 30, 2019 and December 31, 2018.

The following tables present information on the Company’s securities lending and repurchase transactions as of June 30, 2019 and December 31, 2018 (dollars in thousands). Collateral associated with certain borrowed securities is not included within the table, as the collateral pledged to each counterparty is the right to reinsurance treaty cash flows.

	June 30, 2019				
	Remaining Contractual Maturity of the Agreements				
	Overnight and Continuous	Up to 30 Days	30-90 Days	Greater than 90 Days	Total
Securities lending transactions:					
Corporate	$ —	$ —	$ —	$ 103,009	$ 103,009
Total	—	—	—	103,009	103,009
Repurchase transactions:					
Corporate	—	—	—	289,659	289,659
U.S. government	—	—	—	209,581	209,581
Foreign government	—	—	—	97,172	97,172
Other	—	—	—	—	—
Total	—	—	—	596,412	596,412
Total borrowings	$ —	$ —	$ —	$ 699,421	$ 699,421
Gross amount of recognized liabilities for securities lending and repurchase transactions in preceding table					$ 713,727
Amounts related to agreements not included in offsetting disclosure					$ 14,306

	December 31, 2018				
	Remaining Contractual Maturity of the Agreements				
	Overnight and Continuous	Up to 30 Days	30-90 Days	Greater than 90 Days	Total
Securities lending transactions:					
Corporate	$ —	$ —	$ —	$ 102,618	$ 102,618
Total	$ —	$ —	$ —	$ 102,618	$ 102,618
Repurchase transactions:					
Corporate	$ —	$ —	$ —	$ 254,151	$ 254,151
U.S. government	—	—	—	221,572	221,572
Foreign government	—	—	—	78,866	78,866
Total	—	—	—	554,589	554,589
Total borrowings	$ —	$ —	$ —	$ 657,207	$ 657,207

Gross amount of recognized liabilities for securities lending and repurchase transactions in preceding table	$ 671,492
Amounts related to agreements not included in offsetting disclosure	$ 14,285

The Company has elected to offset amounts recognized as receivables and payables resulting from the repurchase/reverse repurchase programs. After the effect of offsetting, the net amount presented on the condensed consolidated balance sheets was a liability of $0.5 million and $0.4 million as of June 30, 2019 and December 31, 2018, respectively. As of June 30, 2019 and December 31, 2018, the Company recognized payables resulting from cash received as collateral associated with a repurchase agreement as discussed above. Amounts owed to and due from the counterparties may be settled in cash or offset, in accordance with the agreements.

Mortgage Loans on Real Estate

Mortgage loans represented approximately 8.9% and 9.1% of the Company's total investments as of June 30, 2019 and December 31, 2018. As of June 30, 2019, mortgage loans were geographically dispersed throughout the U.S. with the largest concentrations in California (16.8%), Texas (13.4%) and Washington (7.1%) and include loans secured by properties in Canada (2.9%) and United Kingdom (0.5%). The recorded investment in mortgage loans on real estate presented below is gross of unamortized deferred loan origination fees and expenses, and valuation allowances.

The distribution of mortgage loans by property type is as follows as of June 30, 2019 and December 31, 2018 (dollars in thousands):

	June 30, 2019		December 31, 2018	
Property type:	Carrying Value	% of Total	Carrying Value	% of Total
Office building	$ 1,718,595	31.7%	$ 1,725,748	34.6%
Retail	1,526,267	28.1	1,432,394	28.7
Industrial	1,112,460	20.5	961,924	19.3
Apartment	730,452	13.5	571,291	11.5
Other commercial	336,371	6.2	291,997	5.9
Recorded investment	5,424,145	100.0%	4,983,354	100.0%
Unamortized balance of loan origination fees and expenses	(7,031)		(5,770)	
Valuation allowances	(11,692)		(11,286)	
Total mortgage loans on real estate	$ 5,405,422		$ 4,966,298	

The maturities of mortgage loans as of June 30, 2019 and December 31, 2018 are as follows (dollars in thousands):

	June 30, 2019		December 31, 2018	
	Recorded Investment	% of Total	Recorded Investment	% of Total
Due within five years	$ 1,624,003	29.9%	$ 1,425,598	28.6%
Due after five years through ten years	2,921,184	53.9	2,686,264	53.9
Due after ten years	878,958	16.2	871,492	17.5
Total	$ 5,424,145	100.0%	$ 4,983,354	100.0%

The following tables set forth certain key credit quality indicators of the Company's recorded investment in mortgage loans as of June 30, 2019 and December 31, 2018 (dollars in thousands):

	Recorded Investment					
	Debt Service Ratios					
	>1.20x	1.00x - 1.20x	<1.00x	Construction Loans	Total	% of Total
June 30, 2019:						
Loan-to-Value Ratio						
0% - 59.99%	$ 2,570,786	$ 99,194	$ 64,707	$ —	$ 2,734,687	50.4%
60% - 69.99%	1,786,531	108,392	41,680	39,432	1,976,035	36.4
70% - 79.99%	447,382	39,170	22,766	—	509,318	9.4
Greater than 80%	106,070	49,306	48,729	—	204,105	3.8
Total	$ 4,910,769	$ 296,062	$ 177,882	$ 39,432	$ 5,424,145	100.0%

	Recorded Investment					
	Debt Service Ratios					
	>1.20x	1.00x - 1.20x	<1.00x	Construction Loans	Total	% of Total
December 31, 2018:						
Loan-to-Value Ratio						
0% - 59.99%	$ 2,410,556	$ 61,246	$ 38,177	$ 13,691	$ 2,523,670	50.6%
60% - 69.99%	1,618,374	73,908	38,120	18,929	1,749,331	35.1
70% - 79.99%	414,269	48,438	54,440	—	517,147	10.4
Greater than 80%	117,978	49,668	25,560	—	193,206	3.9
Total	$ 4,561,177	$ 233,260	$ 156,297	$ 32,620	$ 4,983,354	100.0%

The age analysis of the Company's past due recorded investments in mortgage loans as of June 30, 2019 and December 31, 2018 is as follows (dollars in thousands):

	June 30, 2019	December 31, 2018
31-60 days past due	$ 11,715	$ —
Total past due	11,715	—
Current	5,412,430	4,983,354
Total	$ 5,424,145	$ 4,983,354

The following table presents the recorded investment in mortgage loans, by method of measuring impairment, and the related valuation allowances as of June 30, 2019 and December 31, 2018 (dollars in thousands):

	June 30, 2019	December 31, 2018
Mortgage loans:		
Individually measured for impairment	$ 17,014	$ 30,635
Collectively measured for impairment	5,407,131	4,952,719
Recorded investment	$ 5,424,145	$ 4,983,354
Valuation allowances:		
Individually measured for impairment	$ —	$ —
Collectively measured for impairment	11,692	11,286
Total valuation allowances	$ 11,692	$ 11,286

Information regarding the Company's loan valuation allowances for mortgage loans for the three and six months ended June 30, 2019 and 2018 is as follows (dollars in thousands):

	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Balance, beginning of period	$ 11,218	$ 8,864	$ 11,286	$ 9,384
Provision (release)	470	845	397	329
Translation adjustment	4	(3)	9	(7)
Balance, end of period	$ 11,692	$ 9,706	$ 11,692	$ 9,706

Information regarding the portion of the Company's mortgage loans that were impaired as of June 30, 2019 and December 31, 2018 is as follows (dollars in thousands):

	Unpaid Principal Balance	Recorded Investment	Related Allowance	Carrying Value
June 30, 2019:				
Impaired mortgage loans with no valuation allowance recorded	$ 17,017	$ 17,014	$ —	$ 17,014
Impaired mortgage loans with valuation allowance recorded	—	—	—	—
Total impaired mortgage loans	$ 17,017	$ 17,014	$ —	$ 17,014
December 31, 2018:				
Impaired mortgage loans with no valuation allowance recorded	$ 30,660	$ 30,635	$ —	$ 30,635
Impaired mortgage loans with valuation allowance recorded	—	—	—	—
Total impaired mortgage loans	$ 30,660	$ 30,635	$ —	$ 30,635

The Company's average investment balance of impaired mortgage loans and the related interest income are reflected in the table below for the periods indicated (dollars in thousands):

	Three months ended June 30,			
	2019		2018	
	Average Recorded Investment(1)	Interest Income	Average Recorded Investment(1)	Interest Income
Impaired mortgage loans with no valuation allowance recorded	$ 17,047	$ 171	$ 27,038	$ 247
Impaired mortgage loans with valuation allowance recorded	—	—	—	—
Total impaired mortgage loans	$ 17,047	$ 171	$ 27,038	$ 247

	Six months ended June 30,			
	2019		2018	
	Average Recorded Investment(1)	Interest Income	Average Recorded Investment(1)	Interest Income
Impaired mortgage loans with no valuation allowance recorded	$ 21,576	$ 499	$ 19,978	$ 304
Impaired mortgage loans with valuation allowance recorded	—	—	—	—
Total impaired mortgage loans	$ 21,576	$ 499	$ 19,978	$ 304

(1) Average recorded investment represents the average loan balances as of the beginning of period and all subsequent quarterly end of period balances.

The Company did not acquire any impaired mortgage loans during the six months ended June 30, 2019 and 2018. The Company had no mortgage loans that were on a nonaccrual status at June 30, 2019 and December 31, 2018.

Policy Loans

Policy loans comprised approximately 2.2% and 2.5% of the Company's total investments as of June 30, 2019 and December 31, 2018, respectively, the majority of which are associated with one client. These policy loans present no credit risk because the amount of the loan cannot exceed the obligation due to the ceding company upon the death of the insured or surrender of the underlying policy. The provisions of the treaties in force and the underlying policies determine the policy loan interest rates. The Company earns a spread between the interest rate earned on policy loans and the interest rate credited to corresponding liabilities.

Funds Withheld at Interest

Funds withheld at interest comprised approximately 9.3% and 10.6% of the Company’s total investments as of June 30, 2019 and December 31, 2018, respectively. Of the $5.7 billion funds withheld at interest balance, net of embedded derivatives, as of June 30, 2019, $3.6 billion of the balance is associated with one client. For reinsurance agreements written on a modified coinsurance basis and certain agreements written on a coinsurance funds withheld basis, assets equal to the net statutory reserves are withheld and legally owned and managed by the ceding company and are reflected as funds withheld at interest on the Company’s condensed consolidated balance sheets. In the event of a ceding company’s insolvency, the Company would need to assert a claim on the assets supporting its reserve liabilities. However, the risk of loss to the Company is mitigated by its ability to offset amounts it owes the ceding company for claims or allowances against amounts owed to the Company from the ceding company.

Other Invested Assets

Other invested assets represented approximately 3.5% of the Company’s total investments as of June 30, 2019 and December 31, 2018. Carrying values of these assets as of June 30, 2019 and December 31, 2018 were as follows (dollars in thousands):

	June 30, 2019	December 31, 2018
Limited partnership interests and real estate joint ventures	$ 1,008,571	$ 965,094
Equity release mortgages	641,611	475,905
Derivatives	122,484	180,699
FVO contractholder-directed unit-linked investments	255,174	197,770
Other	93,566	95,829
Total other invested assets	$ 2,121,406	$ 1,915,297

5. Derivative Instruments

Accounting for Derivative Instruments and Hedging Activities

See Note 2 – “Significant Accounting Policies and Pronouncements” of the Company’s 2018 Annual Report for a detailed discussion of the accounting treatment for derivative instruments, including embedded derivatives. See Note 6 – “Fair Value of Assets and Liabilities” for additional disclosures related to the fair value hierarchy for derivative instruments, including embedded derivatives.

Types of Derivatives Used by the Company

Commonly used derivative instruments include, but are not necessarily limited to: credit default swaps, financial futures, equity options, foreign currency swaps, foreign currency forwards, interest rate swaps, synthetic guaranteed investment contracts (“GICs”), consumer price index (“CPI”) swaps, longevity swaps, mortality swaps and embedded derivatives.

For detailed information on these derivative instruments and the related strategies, see Note 5 – “Derivative Instruments” of the Company’s 2018 Annual Report.

Summary of Derivative Positions

Derivatives, except for embedded derivatives and longevity and mortality swaps, are carried on the Company's condensed consolidated balance sheets in other invested assets or other liabilities, at fair value. Longevity and mortality swaps are included on the condensed consolidated balance sheets in other assets or other liabilities, at fair value. Embedded derivative assets and liabilities on modified coinsurance ("modco") or funds withheld arrangements are included on the condensed consolidated balance sheets with the host contract in funds withheld at interest, at fair value. Embedded derivative liabilities on indexed annuity and variable annuity products are included on the condensed consolidated balance sheets with the host contract in interest-sensitive contract liabilities, at fair value. The following table presents the notional amounts and gross fair value of derivative instruments prior to taking into account the netting effects of master netting agreements as of June 30, 2019 and December 31, 2018 (dollars in thousands):

		June 30, 2019			December 31, 2018		
		Notional	Carrying Value/Fair Value		Notional	Carrying Value/Fair Value	
	Primary Underlying Risk	Amount	Assets	Liabilities	Amount	Assets	Liabilities
Derivatives not designated as hedging instruments:							
Interest rate swaps	Interest rate	$ 922,478	$ 71,535	$ 3,447	$ 1,040,588	$ 47,652	$ 961
Financial futures	Equity	389,353	—	—	325,620	—	—
Foreign currency swaps	Foreign currency	149,698	—	12,194	149,698	504	4,659
Foreign currency forwards	Foreign currency	—	—	—	25,000	—	234
Consumer price index swaps	CPI	438,587	189	25,481	385,580	—	11,384
Credit default swaps	Credit	1,331,300	6,190	134	1,338,300	6,003	1,166
Equity options	Equity	371,869	14,644	—	439,158	42,836	—
Longevity swaps	Longevity	909,840	51,755	—	917,360	47,789	—
Mortality swaps	Mortality	25,000	—	853	25,000	—	369
Synthetic guaranteed investment contracts	Interest rate	13,526,503	—	—	13,397,729	—	—
Embedded derivatives in:							
Modified coinsurance or funds withheld arrangements		—	112,767	—	—	109,597	—
Indexed annuity products		—	—	740,683	—	—	776,940
Variable annuity products		—	—	167,808	—	—	167,925
Total non-hedging derivatives		18,064,628	257,080	950,600	18,044,033	254,381	963,638
Derivatives designated as hedging instruments:							
Interest rate swaps	Foreign currency/Interest rate	535,000	825	27,560	435,000	—	27,257
Foreign currency swaps	Foreign currency	408,910	28,400	2,425	494,461	51,311	—
Foreign currency forwards	Foreign currency	987,606	27,532	653	911,197	50,974	—
Total hedging derivatives		1,931,516	56,757	30,638	1,840,658	102,285	27,257
Total derivatives		$ 19,996,144	$ 313,837	$ 981,238	$ 19,884,691	$ 356,666	$ 990,895

Fair Value Hedges

The Company designates and reports certain foreign currency swaps to hedge the foreign currency fair value exposure of foreign currency denominated assets as fair value hedges when they meet the requirements of the general accounting principles for *Derivatives and Hedging*. The gain or loss on the hedged item attributable to a change in foreign currency and the offsetting gain or loss on the related foreign currency swaps as of June 30, 2019 and 2018, were (dollars in thousands):

Type of Fair Value Hedge	Hedged Item	Gains (Losses) Recognized for Derivatives	Gains (Losses) Recognized for Hedged Items
		Investment Related Gains (Losses)	
For the three months ended June 30, 2019:			
Foreign currency swaps	Foreign-denominated fixed maturity securities	$ (3,718)	$ 1,118
For the three months ended June 30, 2018:			
Foreign currency swaps	Foreign-denominated fixed maturity securities	$ (1,134)	$ 4,942
For the six months ended June 30, 2019:			
Foreign currency swaps	Foreign-denominated fixed maturity securities	$ (4,426)	$ 415
For the six months ended June 30, 2018:			
Foreign currency swaps	Foreign-denominated fixed maturity securities	$ (3,025)	$ 6,833

Cash Flow Hedges

Certain derivative instruments are designated as cash flow hedges when they meet the requirements of the general accounting principles for *Derivatives and Hedging*. The Company designates and accounts for the following as cash flow hedges: (i) certain interest rate swaps, in which the cash flows of assets and liabilities are variable based on a benchmark rate; and (ii) certain interest rate swaps, in which the cash flows of assets are denominated in different currencies, commonly referred to as cross-currency swaps.

The following table presents the components of AOCI, before income tax, and the condensed consolidated income statement classification where the gain or loss is recognized related to cash flow hedges for the three and six months ended June 30, 2019 and 2018 (dollars in thousands):

	Three months ended June 30,	
	2019	2018
Balance beginning of period	$ (1,902)	$ 20,662
Gains (losses) deferred in other comprehensive income (loss)	(12,583)	2,099
Amounts reclassified to investment income	6	(76)
Amounts reclassified to interest expense	(383)	(29)
Balance end of period	$ (14,862)	$ 22,656

	Six months ended June 30,	
	2019	2018
Balance beginning of period	$ 8,788	$ 2,619
Gains (losses) deferred in other comprehensive income (loss)	(22,779)	19,916
Amounts reclassified to investment income	(19)	(221)
Amounts reclassified to interest expense	(852)	342
Balance end of period	$ (14,862)	$ 22,656

As of June 30, 2019, the before-tax deferred net gains (losses) on derivative instruments recorded in AOCI that are expected to be reclassified to earnings during the next twelve months are approximately $0.1 million and $(0.3) million in investment income and interest expense, respectively.

The following table presents the effect of derivatives in cash flow hedging relationships on the condensed consolidated statements of income and the condensed consolidated statements of comprehensive income for the three and six months ended June 30, 2019 and 2018 (dollars in thousands):

Derivative Type	Gain (Loss) Deferred in AOCI	Gain (Loss) Reclassified into Income from AOCI	
		Investment Income	Interest Expense
For the three months ended June 30, 2019:			
Interest rate	$ (9,869)	$ —	$ 383
Currency/Interest rate	(2,714)	(6)	—
Total	$ (12,583)	$ (6)	$ 383
For the three months ended June 30, 2018:			
Interest rate	$ 4,742	$ —	$ 29
Currency/Interest rate	(2,643)	76	—
Total	$ 2,099	$ 76	$ 29
For the six months ended June 30, 2019:			
Interest rate	$ (21,970)	$ —	$ 852
Currency/Interest rate	(809)	19	—
Total	$ (22,779)	$ 19	$ 852
For the six months ended June 30, 2018:			
Interest rate	$ 19,727	$ —	$ (342)
Currency/Interest rate	189	221	—
Total	$ 19,916	$ 221	$ (342)

Hedges of Net Investments in Foreign Operations

The Company uses foreign currency swaps and foreign currency forwards to hedge a portion of its net investment in certain foreign operations against adverse movements in exchange rates. The following table illustrates the Company's net investments in foreign operations ("NIFO") hedges for the three and six months ended June 30, 2019 and 2018 (dollars in thousands):

	Derivative Gains (Losses) Deferred in AOCI			
	For the three months ended June 30,		For the six months ended June 30,	
Type of NIFO Hedge (1)	2019	2018	2019	2018
Foreign currency swaps	$ (2,486)	$ 8,197	$ (9,493)	$ 17,002
Foreign currency forwards	(5,984)	11,063	(24,095)	23,299
Total	$ (8,470)	$ 19,260	$ (33,588)	$ 40,301

(1) There were no sales or substantial liquidations of net investments in foreign operations that would have required the reclassification of gains or losses from accumulated other comprehensive income (loss) into investment income during the periods presented.

The cumulative foreign currency translation gain recorded in AOCI related to these hedges was $167.4 million and $201.0 million at June 30, 2019 and December 31, 2018, respectively. If a hedged foreign operation was sold or substantially liquidated, the amounts in AOCI would be reclassified to the condensed consolidated statements of income. A pro rata portion would be reclassified upon partial sale of a hedged foreign operation.

Non-qualifying Derivatives and Derivatives for Purposes Other Than Hedging

The Company uses various other derivative instruments for risk management purposes that either do not qualify or have not been qualified for hedge accounting treatment. The gain or loss related to the change in fair value for these derivative instruments is recognized in investment related gains (losses), net in the condensed consolidated statements of income, except where otherwise noted.

A summary of the effect of non-hedging derivatives, including embedded derivatives, on the Company's condensed consolidated statements of income for the three and six months ended June 30, 2019 and 2018 is as follows (dollars in thousands):

		Gain (Loss) for the three months ended June 30,	
Type of Non-hedging Derivative	Income Statement Location of Gain (Loss)	2019	2018
Interest rate swaps	Investment related gains (losses), net	$ 33,404	$ (8,600)
Financial futures	Investment related gains (losses), net	(7,685)	(897)
Foreign currency swaps	Investment related gains (losses), net	(6,380)	—
Foreign currency forwards	Investment related gains (losses), net	(258)	(262)
CPI swaps	Investment related gains (losses), net	(6,812)	1,041
Credit default swaps	Investment related gains (losses), net	5,078	1,084
Equity options	Investment related gains (losses), net	(4,828)	(8,007)
Longevity swaps	Other revenues	2,184	2,289
Mortality swaps	Other revenues	(1,342)	(799)
Subtotal		13,361	(14,151)
Embedded derivatives in:			
Modified coinsurance or funds withheld arrangements	Investment related gains (losses), net	5,262	8,805
Indexed annuity products	Interest credited	(8,459)	6,519
Variable annuity products	Investment related gains (losses), net	(18,044)	15,324
Total non-hedging derivatives		$ (7,880)	$ 16,497

		Gain (Loss) for the six months ended June 30,	
Type of Non-hedging Derivative	Income Statement Location of Gain (Loss)	2019	2018
Interest rate swaps	Investment related gains (losses), net	$ 57,378	$ (35,171)
Financial futures	Investment related gains (losses), net	(29,963)	(768)
Foreign currency swaps	Investment related gains (losses), net	(5,657)	—
Foreign currency forwards	Investment related gains (losses), net	234	61
CPI swaps	Investment related gains (losses), net	(15,663)	3,227
Credit default swaps	Investment related gains (losses), net	19,578	682
Equity options	Investment related gains (losses), net	(27,512)	(5,414)
Longevity swaps	Other revenues	4,327	4,557
Mortality swaps	Other revenues	(484)	(799)
Subtotal		2,238	(33,625)
Embedded derivatives in:			
Modified coinsurance or funds withheld arrangements	Investment related gains (losses), net	3,170	22,416
Indexed annuity products	Interest credited	(5,389)	31,870
Variable annuity products	Investment related gains (losses), net	117	30,109
Total non-hedging derivatives		$ 136	$ 50,770

Credit Derivatives

The following table presents the estimated fair value, maximum amount of future payments and weighted average years to maturity of credit default swaps sold by the Company at June 30, 2019 and December 31, 2018 (dollars in thousands):

	June 30, 2019			December 31, 2018		
Rating Agency Designation of Referenced Credit Obligations(1)	Estimated Fair Value of Credit Default Swaps	Maximum Amount of Future Payments under Credit Default Swaps(2)	Weighted Average Years to Maturity(3)	Estimated Fair Value of Credit Default Swaps	Maximum Amount of Future Payments under Credit Default Swaps(2)	Weighted Average Years to Maturity(3)
AAA/AA+/AA/AA-/A+/A/A-						
Single name credit default swaps	$ 2,015	$ 147,000	2.1	$ 1,953	$ 152,000	2.2
Subtotal	2,015	147,000	2.1	1,953	152,000	2.2
BBB+/BBB/BBB-						
Single name credit default swaps	3,762	321,700	2.0	2,930	353,700	2.2
Credit default swaps referencing indices	288	852,600	4.8	(76)	817,600	6.4
Subtotal	4,050	1,174,300	4.1	2,854	1,171,300	5.1
BB+/BB/BB-						
Single name credit default swaps	(9)	10,000	0.3	30	15,000	0.7
Subtotal	(9)	10,000	0.3	30	15,000	0.7
Total	$ 6,056	$ 1,331,300	3.8	$ 4,837	$ 1,338,300	4.7

(1) The rating agency designations are based on ratings from Standard and Poor's ("S&P").
(2) Assumes the value of the referenced credit obligations is zero.
(3) The weighted average years to maturity of the credit default swaps is calculated based on weighted average notional amounts.

Netting Arrangements and Credit Risk

Certain of the Company's derivatives are subject to enforceable master netting arrangements and reported as a net asset or liability in the condensed consolidated balance sheets. The Company nets all derivatives that are subject to such arrangements.

The Company has elected to include all derivatives, except embedded derivatives, in the tables below, irrespective of whether they are subject to an enforceable master netting arrangement or a similar agreement. See Note 4 – "Investments" for information regarding the Company's securities borrowing, lending, repurchase and repurchase/reverse repurchase programs.

The following table provides information relating to the Company's derivative instruments as of June 30, 2019 and December 31, 2018 (dollars in thousands):

				Gross Amounts Not Offset in the Balance Sheet		
	Gross Amounts Recognized	Gross Amounts Offset in the Balance Sheet	Net Amounts Presented in the Balance Sheet	Financial Instruments (1)	Cash Collateral Pledged/ Received	Net Amount
June 30, 2019:						
Derivative assets	$ 201,070	$ (26,831)	$ 174,239	$ —	$ (189,265)	$ (15,026)
Derivative liabilities	72,747	(26,831)	45,916	(72,803)	(56,310)	(83,197)
December 31, 2018:						
Derivative assets	$ 247,069	$ (18,581)	$ 228,488	$ —	$ (235,611)	$ (7,123)
Derivative liabilities	46,030	(18,581)	27,449	(71,376)	(24,080)	(68,007)

(1) Includes initial margin posted to a central clearing partner.

The Company may be exposed to credit-related losses in the event of non-performance by counterparties to derivative financial instruments with a positive fair value. Generally, the credit exposure of the Company's derivative contracts is limited to the fair value at the reporting date plus or minus any collateral posted or held by the Company. The Company had no credit exposure related to its derivative contracts, as of June 30, 2019 and December 31, 2018, as the net amount of collateral pledged to the Company from counterparties exceeded the fair value of the derivative contracts.

Derivatives may be exchange-traded or they may be privately negotiated contracts, which are referred to as over-the-counter ("OTC") derivatives. Certain of the Company's OTC derivatives are cleared and settled through central clearing counterparties ("OTC cleared") and others are bilateral contracts between two counterparties. The Company manages its credit risk related to OTC derivatives by entering into transactions with creditworthy counterparties, maintaining collateral arrangements and through the use of master netting agreements that provide for a single net payment to be made by one counterparty to another at each due date and upon termination. The Company is only exposed to the default of the central clearing counterparties for OTC cleared derivatives, and these transactions require initial and daily variation margin collateral postings. Exchange-traded derivatives are settled on a daily basis, thereby reducing the credit risk exposure in the event of non-performance by counterparties to such financial instruments.

6. Fair Value of Assets and Liabilities

Fair Value Measurement

General accounting principles for *Fair Value Measurements and Disclosures* define fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. These principles also establish a fair value hierarchy that requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value and describes three levels of inputs that may be used to measure fair value:

Level 1 - Unadjusted quoted prices in active markets for identical assets or liabilities. The Company's Level 1 assets and liabilities are traded in active exchange markets.

Level 2 - Observable inputs other than Level 1 prices such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or market standard valuation techniques and assumptions that use significant inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 - Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the related assets or liabilities. Prices are determined using valuation methodologies such as discounted cash flow models and other similar techniques that require management's judgment or estimation in developing inputs that are consistent with what other market participants would use when pricing similar assets and liabilities. Additionally, the Company's embedded derivatives, all of which are associated with reinsurance treaties and longevity and mortality swaps, are classified in Level 3 since their values include significant unobservable inputs.

For a discussion of the Company's valuation methodologies for assets and liabilities measured at fair value and the fair value hierarchy, see Note 6 in the Notes to Consolidated Financial Statements included in the Company's 2018 Annual Report.

Assets and Liabilities by Hierarchy Level

Assets and liabilities measured at fair value on a recurring basis as of June 30, 2019 and December 31, 2018 are summarized below (dollars in thousands):

June 30, 2019:		Fair Value Measurements Using:		
	Total	Level 1	Level 2	Level 3
Assets:				
Fixed maturity securities – available-for-sale:				
Corporate	$ 27,635,431	$ —	$ 25,991,067	$ 1,644,364
Canadian government	4,573,963	—	3,902,936	671,027
RMBS	2,276,515	—	2,260,483	16,032
ABS	2,494,664	—	2,384,342	110,322
CMBS	1,747,285	—	1,747,266	19
U.S. government	1,778,180	1,651,425	109,349	17,406
State and political subdivisions	1,303,574	—	1,293,719	9,855
Other foreign government	4,379,693	—	4,364,007	15,686
Total fixed maturity securities – available-for-sale	46,189,305	1,651,425	42,053,169	2,484,711
Equity securities	146,755	101,948	—	44,807
Funds withheld at interest – embedded derivatives	112,767	—	—	112,767
Cash equivalents	755,129	737,286	17,843	—
Short-term investments	126,468	17,963	80,118	28,387
Other invested assets:				
Derivatives:				
Interest rate swaps	61,298	—	61,298	—
Foreign currency forwards	27,532	—	27,532	—
Credit default swaps	(6,696)	—	(6,696)	—
Equity options	14,375	—	14,375	—
Foreign currency swaps	25,975	—	25,975	—
FVO contractholder-directed unit-linked investments	255,174	205,805	49,369	—
Total other invested assets	377,658	205,805	171,853	—
Other assets - longevity swaps	51,755	—	—	51,755
Total	$ 47,759,837	$ 2,714,427	$ 42,322,983	$ 2,722,427
Liabilities:				
Interest sensitive contract liabilities – embedded derivatives	$ 908,491	$ —	$ —	$ 908,491
Other liabilities:				
Derivatives:				
Interest rate swaps	19,945	—	19,945	—
Foreign currency swaps - non-hedged	12,194	—	12,194	—
Foreign currency forwards	653	—	653	—
CPI swaps	25,292	—	25,292	—
Credit default swaps	(12,752)	—	(12,752)	—
Equity options	(269)	—	(269)	—
Mortality swaps	853	—	—	853
Total	$ 954,407	$ —	$ 45,063	$ 909,344

December 31, 2018:		Fair Value Measurements Using:		
	Total	Level 1	Level 2	Level 3
Assets:				
Fixed maturity securities – available-for-sale:				
Corporate	$ 23,982,119	$ —	$ 22,651,194	$ 1,330,925
Canadian government	3,892,385	—	3,364,261	528,124
RMBS	1,869,221	—	1,862,366	6,855
ABS	2,149,204	—	2,053,632	95,572
CMBS	1,419,034	—	1,419,012	22
U.S. government	2,185,874	2,067,529	100,320	18,025
State and political subdivisions	752,194	—	741,992	10,202
Other foreign government	3,742,315	—	3,737,309	5,006
Total fixed maturity securities – available-for-sale	39,992,346	2,067,529	35,930,086	1,994,731
Equity securities	82,197	48,737	—	33,460
Funds withheld at interest – embedded derivatives	109,597	—	—	109,597
Cash equivalents	485,167	473,509	11,658	—
Short-term investments	105,991	4,989	98,774	2,228
Other invested assets:				
Derivatives:				
Interest rate swaps	37,976	—	37,976	—
Foreign currency forwards	50,740	—	50,740	—
Credit default swaps	4,466	—	4,466	—
Equity options	36,206	—	36,206	—
Foreign currency swaps	51,311	—	51,311	—
FVO contractholder-directed unit-linked investments	197,770	196,781	989	—
Total other invested assets	378,469	196,781	181,688	—
Other assets - longevity swaps	47,789	—	—	47,789
Total	$ 41,201,556	$ 2,791,545	$ 36,222,206	$ 2,187,805
Liabilities:				
Interest sensitive contract liabilities – embedded derivatives	$ 944,865	$ —	$ —	$ 944,865
Other liabilities:				
Derivatives:				
Interest rate swaps	18,542	—	18,542	—
Foreign currency swaps - non-hedged	4,155	—	4,155	—
CPI swaps	11,384	—	11,384	—
Credit default swaps	(371)	—	(371)	—
Equity options	(6,630)	—	(6,630)	—
Mortality swaps	369	—	—	369
Total	$ 972,314	$ —	$ 27,080	$ 945,234

Transfers between Levels 1 and 2

Transfers between Levels 1 and 2 are made to reflect changes in observability of inputs and market activity. The Company recognizes transfers of assets and liabilities into and out of levels within the fair value hierarchy at the beginning of the quarter in which the actual event or change in circumstances that caused the transfer occurs. There were no transfers between Level 1 and Level 2 during the six months ended June 30, 2019 or 2018.

Quantitative Information Regarding Internally - Priced Assets and Liabilities

The following table presents quantitative information about significant unobservable inputs used in Level 3 fair value measurements that are developed internally by the Company as of June 30, 2019 and December 31, 2018 (dollars in thousands):

	Estimated Fair Value				Range (Weighted Average)	
	June 30, 2019	December 31, 2018	Valuation Technique	Unobservable Inputs	June 30, 2019	December 31, 2018
Assets:						
Corporate	$ 808,416	$ 642,647	Market comparable securities	Liquidity premium	0-5% (1%)	0-5% (1%)
				EBITDA Multiple	5.9x	5.9x-7.5x (6.5x)
ABS	97,055	77,842	Market comparable securities	Liquidity premium	0-4% (1%)	0-1% (1%)
U.S. government	17,406	18,025	Market comparable securities	Liquidity premium	0-1% (1%)	0-1% (1%)
Other foreign government	15,686	5,006	Market comparable securities	Liquidity premium	1%	1%
Equity securities	31,617	25,007	Market comparable securities	Liquidity premium	4%	4%
				EBITDA Multiple	6.9x-12.3x (8.2x)	6.9x-12.3x (7.9x)
Funds withheld at interest- embedded derivatives	112,767	109,597	Total return swap	Mortality	0-100% (2%)	0-100% (2%)
				Lapse	0-35% (12%)	0-35% (10%)
				Withdrawal	0-5% (3%)	0-5% (3%)
				CVA	0-5% (1%)	0-5% (1%)
				Crediting rate	2-4% (2%)	2-4% (2%)
Longevity swaps	51,755	47,789	Discounted cash flow	Mortality	0-100% (2%)	0-100% (2%)
				Mortality improvement	(10%)-10% (3%)	(10%)-10% (3%)
Liabilities:						
Interest sensitive contract liabilities- embedded derivatives- indexed annuities	740,683	776,940	Discounted cash flow	Mortality	0-100% (2%)	0-100% (2%)
				Lapse	0-35% (12%)	0-35% (10%)
				Withdrawal	0-5% (3%)	0-5% (3%)
				Option budget projection	2-4% (2%)	2-4% (2%)
Interest sensitive contract liabilities- embedded derivatives- variable annuities	167,808	167,925	Discounted cash flow	Mortality	0-100% (1%)	0-100% (1%)
				Lapse	0-25% (5%)	0-25% (5%)
				Withdrawal	0-7% (5%)	0-7% (5%)
				CVA	0-5% (1%)	0-5% (1%)
				Long-term volatility	0-27% (13%)	0-27% (13%)
Mortality swaps	853	369	Discounted cash flow	Mortality	0-100% (1%)	0-100% (1%)

Changes in Level 3 Assets and Liabilities

Assets and liabilities transferred into Level 3 are due to a lack of observable market transactions and price information. Transfers out of Level 3 are primarily the result of the Company obtaining observable pricing information or a third party pricing quotation that appropriately reflects the fair value of those assets and liabilities. In 2018, the Company transferred equity securities with a fair value of approximately $38.9 million into Level 3 as a result of the adoption of the new accounting guidance for the recognition and measurement of equity securities (see “New Accounting Pronouncements - Financial Instruments - Recognition and Measurement” in Note 2 - “Significant Accounting Policies and Pronouncements” in the Notes to Consolidated Financial Statements included in the Company’s 2018 Annual Report).

For further information on the Company’s valuation processes, see Note 6 in the Notes to Consolidated Financial Statements included in the Company’s 2018 Annual Report.

The reconciliations for all assets and liabilities measured at fair value on a recurring basis using significant unobservable inputs (Level 3) are as follows (dollars in thousands):

For the three months ended June 30, 2019:	Fixed maturity securities - available-for-sale			
	Corporate	Canadian government	RMBS	ABS
Fair value, beginning of period	$ 1,530,755	$ 607,791	$ 6,522	$ 113,787
Total gains/losses (realized/unrealized)				
Included in earnings, net:				
Investment income, net of related expenses	27	3,569	(21)	5
Investment related gains (losses), net	15	—	—	110
Included in other comprehensive income	16,728	59,667	70	1,048
Purchases(1)	176,431	—	3,018	8,425
Sales(1)	(13,925)	—	—	—
Settlements(1)	(80,213)	—	(1,239)	(13,053)
Transfers into Level 3	16,041	—	7,682	—
Transfers out of Level 3	(1,495)	—	—	—
Fair value, end of period	$ 1,644,364	$ 671,027	$ 16,032	$ 110,322
Unrealized gains and losses recorded in earnings for the period relating to those Level 3 assets and liabilities that were still held at the end of the period				
Included in earnings, net:				
Investment income, net of related expenses	$ 70	$ 3,569	$ (21)	$ 4

For the three months ended June 30, 2019 (continued):	Fixed maturity securities available-for-sale				
	CMBS	U.S. government	State and political subdivisions	Other foreign government	Equity securities
Fair value, beginning of period	$ 21	$ 17,209	$ 10,162	$ 5,066	$ 40,422
Total gains/losses (realized/unrealized)					
Included in earnings, net:					
Investment income, net of related expenses	—	(86)	5	—	—
Investment related gains (losses), net	—	—	—	—	1,785
Included in other comprehensive income	—	322	39	620	—
Purchases(1)	—	102	—	10,000	2,600
Settlements(1)	(2)	(141)	(351)	—	—
Fair value, end of period	$ 19	$ 17,406	$ 9,855	$ 15,686	$ 44,807
Unrealized gains and losses recorded in earnings for the period relating to those Level 3 assets and liabilities that were still held at the end of the period					
Included in earnings, net:					
Investment income, net of related expenses	$ —	$ (86)	$ 5	$ —	$ —
Investment related gains (losses), net	—	—	—	—	1,785

For the three months ended June 30, 2019 (continued):	Funds withheld at interest-embedded derivatives	Cash equivalents	Short-term Investments	Other assets - longevity swaps	Interest sensitive contract liabilities embedded derivatives	Other liabilities - mortality swaps
Fair value, beginning of period	$ 107,506	$ 19	$ 29,202	$ 48,869	$ (903,935)	$ 489
Total gains/losses (realized/unrealized)						
Included in earnings, net:						
Investment income, net of related expenses	—	—	56	—	—	—
Investment related gains (losses), net	5,261	—	17	—	(18,044)	—
Claims & other policy benefits	—	—	—	—	—	—
Interest credited	—	—	—	—	(8,459)	—
Policy acquisition costs and other insurance expenses	—	—	—	—	—	—
Included in other comprehensive income	—	—	(67)	702	—	—
Other revenues	—	—	—	2,184	2,585	(1,342)
Purchases[1]	—	—	1,265	—	—	—
Sales[1]	—	—	(1,517)	—	—	—
Settlements[1]	—	—	(547)	—	19,362	—
Transfers out of Level 3	—	(19)	(22)	—	—	—
Fair value, end of period	$ 112,767	$ —	$ 28,387	$ 51,755	$ (908,491)	$ (853)
Unrealized gains and losses recorded in earnings for the period relating to those Level 3 assets and liabilities that were still held at the end of the period						
Included in earnings, net:						
Investment income, net of related expenses	$ —	$ —	$ 56	$ —	$ —	$ —
Investment related gains (losses), net	5,261	—	—	—	(19,842)	—
Other revenues	—	—	—	2,184	—	(1,342)
Interest credited	—	—	—	—	(27,820)	—

For the six months ended June 30, 2019:	Fixed maturity securities - available-for-sale			
	Corporate	Canadian government	RMBS	ABS
Fair value, beginning of period	$ 1,330,925	$ 528,124	$ 6,855	$ 95,572
Total gains/losses (realized/unrealized)				
Included in earnings, net:				
Investment income, net of related expenses	160	7,062	(19)	22
Investment related gains (losses), net	15	—	—	110
Included in other comprehensive income	36,132	135,841	71	2,023
Purchases[1]	390,872	—	3,018	39,747
Sales[1]	(24,637)	—	—	—
Settlements[1]	(103,649)	—	(1,575)	(27,152)
Transfers into Level 3	16,041	—	7,682	—
Transfers out of Level 3	(1,495)	—	—	—
Fair value, end of period	$ 1,644,364	$ 671,027	$ 16,032	$ 110,322
Unrealized gains and losses recorded in earnings for the period relating to those Level 3 assets and liabilities that were still held at the end of the period				
Included in earnings, net:				
Investment income, net of related expenses	$ 236	$ 7,062	$ (19)	$ 21

For the six months ended June 30, 2019 (continued):

	Fixed maturity securities available-for-sale				
	CMBS	U.S. government	State and political subdivisions	Other foreign government	Equity securities
Fair value, beginning of period	$ 22	$ 18,025	$ 10,202	$ 5,006	$ 33,460
Total gains/losses (realized/unrealized)					
Included in earnings, net:					
Investment income, net of related expenses	—	(175)	10	—	—
Investment related gains (losses), net	—	—	—	—	5,547
Included in other comprehensive income	—	589	32	680	—
Purchases(1)	—	186	—	10,000	5,800
Settlements(1)	(3)	(1,219)	(389)	—	—
Fair value, end of period	$ 19	$ 17,406	$ 9,855	$ 15,686	$ 44,807
Unrealized gains and losses recorded in earnings for the period relating to those Level 3 assets and liabilities that were still held at the end of the period					
Included in earnings, net:					
Investment income, net of related expenses	$ —	$ (175)	$ 10	$ —	$ —
Investment related gains (losses), net	—	—	—	—	5,547

For the six months ended June 30, 2019 (continued):

	Funds withheld at interest-embedded derivatives	Cash equivalents	Short-term Investments	Other assets - longevity swaps	Interest sensitive contract liabilities embedded derivatives	Other liabilities - mortality swaps
Fair value, beginning of period	$ 109,597	$ —	$ 2,228	$ 47,789	$ (944,865)	$ (369)
Total gains/losses (realized/unrealized)						
Included in earnings, net:						
Investment income, net of related expenses	—	—	88	—	—	—
Investment related gains (losses), net	3,170	—	17	—	117	—
Interest credited	—	—	—	—	(5,389)	—
Included in other comprehensive income	—	—	132	(361)	—	—
Other revenues	—	—	—	4,327	—	(484)
Purchases(1)	—	19	28,008	—	3,983	—
Sales(1)	—	—	(1,517)	—	—	—
Settlements(1)	—	—	(547)	—	37,663	—
Transfers out of Level 3	—	(19)	(22)	—	—	—
Fair value, end of period	$ 112,767	$ —	$ 28,387	$ 51,755	$ (908,491)	$ (853)
Unrealized gains and losses recorded in earnings for the period relating to those Level 3 assets and liabilities that were still held at the end of the period						
Included in earnings, net:						
Investment income, net of related expenses	$ —	$ —	$ 88	$ —	$ —	$ —
Investment related gains (losses), net	3,170	—	—	—	(3,076)	—
Other revenues	—	—	—	4,327	—	(484)
Interest credited	—	—	—	—	(43,052)	—

For the three months ended June 30, 2018:	Fixed maturity securities - available-for-sale			
	Corporate	Canadian government	RMBS	ABS
Fair value, beginning of period	$ 1,299,264	$ 572,747	$ 120,614	$ 130,706
Total gains/losses (realized/unrealized)				
Included in earnings, net:				
Investment income, net of related expenses	(305)	3,468	(43)	76
Investment related gains (losses), net	(3,141)	—	312	1,282
Included in other comprehensive income	2,178	(3,517)	(671)	(1,544)
Purchases(1)	155,498	—	24,412	—
Sales(1)	(11,089)	—	(4,961)	—
Settlements(1)	(68,328)	—	(1,572)	(19,544)
Transfers into Level 3	—	—	3,031	4,968
Transfers out of Level 3	(6,923)	—	(86,283)	(45,258)
Fair value, end of period	$ 1,367,154	$ 572,698	$ 54,839	$ 70,686
Unrealized gains and losses recorded in earnings for the period relating to those Level 3 assets and liabilities that were still held at the end of the period				
Included in earnings, net:				
Investment income, net of related expenses	$ (304)	$ 3,468	$ (13)	$ 68
Investment related gains (losses), net	(3,141)	—	—	—

For the three months ended June 30, 2018 (continued):	Fixed maturity securities available-for-sale			
	CMBS	U.S. government	State and political subdivisions	Other foreign government
Fair value, beginning of period	$ 1,884	$ 21,053	$ 41,876	$ 5,004
Total gains/losses (realized/unrealized)				
Included in earnings, net:				
Investment income, net of related expenses	—	(107)	(10)	—
Included in other comprehensive income	(16)	(173)	(110)	40
Purchases(1)	—	118	—	—
Settlements(1)	(2)	(156)	(86)	—
Transfers out of Level 3	1	—	(25,165)	—
Fair value, end of period	$ 1,867	$ 20,735	$ 16,505	$ 5,044
Unrealized gains and losses recorded in earnings for the period relating to those Level 3 assets and liabilities that were still held at the end of the period				
Included in earnings, net:				
Investment income, net of related expenses	$ —	$ (108)	$ (11)	$ —

For the three months ended June 30, 2018 (continued):	Equity securities	Funds withheld at interest-embedded derivatives	Short-term Investments	Other assets - longevity swaps	Interest sensitive contract liabilities embedded derivatives	Other liabilities - mortality swaps
Fair value, beginning of period	$ 36,152	$ 135,805	$ 3,217	$ 44,011	$ (964,794)	$ (1,683)
Total gains/losses (realized/unrealized)						
Included in earnings, net:						
Investment related gains (losses), net	(4,922)	8,805	—	—	15,324	—
Interest credited	—	—	—	—	6,519	—
Included in other comprehensive income	—	—	(21)	(2,329)	—	—
Other revenues	—	—	—	2,289	—	(799)
Purchases(1)	12,248	—	335	—	(4,205)	—
Sales(1)	(541)	—	—	—	—	—
Settlements(1)	—	—	(314)	—	18,359	1,700
Fair value, end of period	$ 42,937	$ 144,610	$ 3,217	$ 43,971	$ (928,797)	$ (782)
Unrealized gains and losses recorded in earnings for the period relating to those Level 3 assets and liabilities that were still held at the end of the period						
Included in earnings, net:						
Investment related gains (losses), net	$ (5,000)	$ 8,805	$ —	$ —	$ 13,474	$ —
Other revenues	—	—	—	2,289	—	(799)
Interest credited	—	—	—	—	(11,839)	—

For the six months ended June 30, 2018:	Fixed maturity securities - available-for-sale			
	Corporate	Canadian government	RMBS	ABS
Fair value, beginning of period	$ 1,337,272	$ 593,942	$ 107,882	$ 123,474
Total gains/losses (realized/unrealized)				
Included in earnings, net:				
Investment income, net of related expenses	(666)	6,912	(135)	182
Investment related gains (losses), net	(3,141)	—	312	1,284
Included in other comprehensive income	(30,674)	(28,156)	(1,781)	(691)
Purchases[1]	255,668	—	45,328	11,000
Sales[1]	(17,269)	—	(4,961)	—
Settlements[1]	(143,474)	—	(4,535)	(22,283)
Transfers into Level 3	7,166	—	3,031	4,968
Transfers out of Level 3	(37,728)	—	(90,302)	(47,248)
Fair value, end of period	$ 1,367,154	$ 572,698	$ 54,839	$ 70,686
Unrealized gains and losses recorded in earnings for the period relating to those Level 3 assets and liabilities that were still held at the end of the period				
Included in earnings, net:				
Investment income, net of related expenses	$ (665)	$ 6,912	$ (105)	$ 174
Investment related gains (losses), net	(3,141)	—	—	—

For the six months ended June 30, 2018 (continued):	Fixed maturity securities available-for-sale			
	CMBS	U.S. government	State and political subdivisions	Other foreign government
Fair value, beginning of period	$ 3,234	$ 22,511	$ 41,203	$ 5,092
Total gains/losses (realized/unrealized)				
Included in earnings, net:				
Investment income, net of related expenses	—	(217)	(2)	—
Included in other comprehensive income	(63)	(513)	590	(48)
Purchases[1]	—	214	—	—
Settlements[1]	(3)	(1,260)	(121)	—
Transfers out of Level 3	(1,301)	—	(25,165)	—
Fair value, end of period	$ 1,867	$ 20,735	$ 16,505	$ 5,044
Unrealized gains and losses recorded in earnings for the period relating to those Level 3 assets and liabilities that were still held at the end of the period				
Included in earnings, net:				
Investment income, net of related expenses	$ —	$ (218)	$ (3)	$ —

For the six months ended June 30, 2018 (continued):	Equity securities	Funds withheld at interest-embedded derivatives	Short-term Investments	Other assets - longevity swaps	Interest sensitive contract liabilities embedded derivatives	Other liabilities - mortality swaps
Fair value, beginning of period	$ —	$ 122,194	$ 3,096	$ 40,659	$ (1,014,228)	$ (1,683)
Total gains/losses (realized/unrealized)						
Included in earnings, net:						
Investment related gains (losses), net	(7,599)	22,416	—	—	30,109	—
Interest credited	—	—	—	—	31,870	—
Included in other comprehensive income	—	—	(46)	(1,245)	—	—
Other revenues	—	—	—	4,557	—	(799)
Purchases(1)	12,248	—	481	—	(12,713)	—
Sales(1)	(569)	—	—	—	—	—
Settlements(1)	(48)	—	(314)	—	36,165	1,700
Transfers into Level 3	38,905	—	—	—	—	—
Fair value, end of period	$ 42,937	$ 144,610	$ 3,217	$ 43,971	$ (928,797)	$ (782)
Unrealized gains and losses recorded in earnings for the period relating to those Level 3 assets and liabilities that were still held at the end of the period						
Included in earnings, net:						
Investment related gains (losses), net	$ (7,705)	$ 22,416	$ —	$ —	$ 26,375	$ —
Other revenues	—	—	—	4,557	—	(799)
Interest credited	—	—	—	—	(4,295)	—

(1) The amount reported within purchases, sales and settlements is the purchase price (for purchases) and the sales/settlement proceeds (for sales and settlements) based upon the actual date purchased or sold/settled. Items purchased and sold/settled in the same period are excluded from the rollforward. The Company had no issuances during the period.

Nonrecurring Fair Value Measurements

The following table (dollars in thousands) presents information for assets measured at an estimated fair value on a nonrecurring basis during the 2019 periods presented and still held at the reporting date (for example, when there is evidence of impairment). The estimated fair values for these assets were determined using significant unobservable inputs (Level 3). The Company did not have any adjustments to financial instruments measured at fair value on a non-recurring basis that were still held as of June 30, 2018.

		Investment Related Gains (Losses), Net	
	Carrying Value After Measurement	Three months ended June 30,	Six months ended June 30,
	At June 30, 2019	2019	2019
Limited partnership interests (1)	$ 5,694	$ (5,049)	$ (5,049)

(1) The impaired limited partnership interests presented above were accounted for using the cost method. Impairments on these cost method investments were recognized at estimated fair value determined using the net asset values of the Company's ownership interest as provided in the financial statements of the investees. The market for these investments has limited activity and price transparency.

Fair Value of Financial Instruments

The Company is required by general accounting principles for *Fair Value Measurements and Disclosures* to disclose the fair value of certain financial instruments including those that are not carried at fair value. The following table presents the carrying amounts and estimated fair values of the Company's financial instruments, which were not measured at fair value on a recurring basis, as of June 30, 2019 and December 31, 2018 (dollars in thousands). For additional information regarding the methods and significant assumptions used by the Company to estimate these fair values, see Note 6 in the Notes to Consolidated Financial Statements included in the Company's 2018 Annual Report. This table excludes any payables or receivables for collateral under repurchase agreements and other transactions. The estimated fair value of the excluded amount approximates carrying value as they equal the amount of cash collateral received/paid.

June 30, 2019:	Carrying Value (1)	Estimated Fair Value	Fair Value Measurement Using: Level 1	Level 2	Level 3	NAV
Assets:						
Mortgage loans on real estate	$ 5,405,422	$ 5,598,551	$ —	$ —	$ 5,598,551	$ —
Policy loans	1,319,722	1,319,722	—	1,319,722	—	—
Funds withheld at interest	5,576,162	5,882,101	—	—	5,882,101	—
Cash and cash equivalents	1,532,397	1,532,397	1,532,397	—	—	—
Short-term investments	32,320	32,320	32,320	—	—	—
Other invested assets	1,122,777	1,151,725	5,317	83,680	661,289	401,439
Accrued investment income	470,074	470,074	—	470,074	—	—
Liabilities:						
Interest-sensitive contract liabilities	$ 16,367,006	$ 17,283,769	$ —	$ —	$ 17,283,769	$ —
Long-term debt	3,381,411	3,508,853	—	—	3,508,853	—
Collateral finance and securitization notes	635,300	584,310	—	—	584,310	—

December 31, 2018:	Carrying Value (1)	Estimated Fair Value	Fair Value Measurement Using: Level 1	Level 2	Level 3	NAV
Assets:						
Mortgage loans on real estate	$ 4,966,298	$ 4,917,416	$ —	$ —	$ 4,917,416	$ —
Policy loans	1,344,980	1,344,980	—	1,344,980	—	—
Funds withheld at interest	5,655,055	5,802,518	—	—	5,802,518	—
Cash and cash equivalents	1,404,566	1,404,566	1,404,566	—	—	—
Short-term investments	36,607	36,607	36,607	—	—	—
Other invested assets	945,731	941,449	4,640	83,203	477,214	376,392
Accrued investment income	427,893	427,893	—	427,893	—	—
Liabilities:						
Interest-sensitive contract liabilities	$ 14,547,436	$ 14,611,011	$ —	$ —	$ 14,611,011	$ —
Long-term debt	2,787,873	2,752,047	—	—	2,752,047	—
Collateral finance and securitization notes	681,961	626,731	—	—	626,731	—

(1) Carrying values presented herein may differ from those in the Company’s condensed consolidated balance sheets because certain items within the respective financial statement captions may be measured at fair value on a recurring basis.

7. Segment Information

The accounting policies of the segments are the same as those described in the Significant Accounting Policies and Pronouncements in Note 2 of the consolidated financial statements accompanying the 2018 Annual Report. The Company measures segment performance primarily based on profit or loss from operations before income taxes. There are no intersegment reinsurance transactions and the Company does not have any material long-lived assets.

The Company allocates capital to its segments based on an internally developed economic capital model, the purpose of which is to measure the risk in the business and to provide a basis upon which capital is deployed. The economic capital model considers the unique and specific nature of the risks inherent in the Company’s businesses. As a result of the economic capital allocation process, a portion of investment income is attributed to the segments based on the level of allocated capital. In addition, the segments are charged for excess capital utilized above the allocated economic capital basis. This charge is included in policy acquisition costs and other insurance expenses.

The Company has geographic-based and business-based operational segments. Geographic-based operations are further segmented into traditional and financial solutions businesses. Information related to revenues, income (loss) before income taxes and total assets of the Company for each reportable segment are summarized below (dollars in thousands).

	Three months ended June 30,		Six months ended June 30,	
Revenues:	2019	2018	2019	2018
U.S. and Latin America:				
Traditional	$ 1,584,676	$ 1,564,147	$ 3,125,342	$ 3,053,841
Financial Solutions	301,257	229,948	555,917	443,300
Total	1,885,933	1,794,095	3,681,259	3,497,141
Canada:				
Traditional	318,142	312,199	630,475	614,518
Financial Solutions	23,929	12,089	47,503	24,866
Total	342,071	324,288	677,978	639,384
Europe, Middle East and Africa:				
Traditional	369,499	372,538	753,505	766,320
Financial Solutions	113,986	100,675	223,407	188,818
Total	483,485	473,213	976,912	955,138
Asia Pacific:				
Traditional	633,417	570,520	1,306,589	1,185,059
Financial Solutions	59,558	17,992	114,086	37,838
Total	692,975	588,512	1,420,675	1,222,897
Corporate and Other	62,944	15,800	130,615	55,055
Total	$ 3,467,408	$ 3,195,908	$ 6,887,439	$ 6,369,615

	Three months ended June 30,		Six months ended June 30,	
Income (loss) before income taxes:	2019	2018	2019	2018
U.S. and Latin America:				
Traditional	$ 55,175	$ 71,978	$ 66,829	$ 74,870
Financial Solutions	92,018	82,388	175,295	149,809
Total	147,193	154,366	242,124	224,679
Canada:				
Traditional	46,259	21,805	96,538	45,512
Financial Solutions	3,813	3,544	5,161	6,735
Total	50,072	25,349	101,699	52,247
Europe, Middle East and Africa:				
Traditional	16,121	6,468	31,545	21,889
Financial Solutions	51,801	65,369	90,191	104,533
Total	67,922	71,837	121,736	126,422
Asia Pacific:				
Traditional	34,775	58,862	71,399	81,749
Financial Solutions	1,918	4,138	8,001	8,159
Total	36,693	63,000	79,400	89,908
Corporate and Other	(41,803)	(67,264)	(68,318)	(108,043)
Total	$ 260,077	$ 247,288	$ 476,641	$ 385,213

Assets:	June 30, 2019	December 31, 2018
U.S. and Latin America:		
Traditional	$ 19,142,106	$ 19,235,781
Financial Solutions	22,698,262	19,870,388
Total	41,840,368	39,106,169
Canada:		
Traditional	4,198,875	4,200,792
Financial Solutions	133,642	154,000
Total	4,332,517	4,354,792
Europe, Middle East and Africa:		
Traditional	3,755,356	3,643,174
Financial Solutions	5,916,625	4,737,529
Total	9,671,981	8,380,703
Asia Pacific:		
Traditional	6,339,047	5,680,978
Financial Solutions	1,618,609	1,180,745
Total	7,957,656	6,861,723
Corporate and Other	8,241,294	5,831,858
Total	$ 72,043,816	$ 64,535,245

8. Commitments, Contingencies and Guarantees

Commitments

Funding of Investments

The Company’s commitments to fund investments as of June 30, 2019 and December 31, 2018 are presented in the following table (dollars in thousands):

	June 30, 2019	December 31, 2018
Limited partnership interests and joint ventures	$ 625,286	$ 523,903
Commercial mortgage loans	146,553	22,605
Bank loans and private placements	90,052	137,076
Equity release mortgages	53,252	264,858

The Company anticipates that the majority of its current commitments will be invested over the next five years; however, these commitments could become due any time at the request of the counterparties. Bank loans and private placements are included in fixed maturity securities available-for-sale.

Contingencies

Litigation

The Company is subject to litigation in the normal course of its business. The Company currently has no material litigation. A legal reserve is established when the Company is notified of an arbitration demand or litigation or is notified that an arbitration demand or litigation is imminent, it is probable that the Company will incur a loss as a result and the amount of the probable loss is reasonably capable of being estimated.

Other Contingencies

The Company indemnifies its directors and officers as provided in its charters and by-laws. Since this indemnity generally is not subject to limitation with respect to duration or amount, the Company does not believe that it is possible to determine the maximum potential amount due under this indemnity in the future.

Guarantees

Statutory Reserve Support

RGA, through wholly-owned subsidiaries, has committed to provide statutory reserve support to third parties, in exchange for a fee, by funding loans if certain defined events occur. Such statutory reserves are required under the U.S. Valuation of Life Policies Model Regulation (commonly referred to as Regulation XXX for term life insurance policies and Regulation A-XXX for universal life secondary guarantees). The third parties have recourse to RGA should the subsidiary fail to provide the required funding, however, as of June 30, 2019, the Company does not believe that it will be required to provide any funding under these commitments as the occurrence of the defined events is considered remote. The following table presents the maximum potential obligation for these commitments as of June 30, 2019 (dollars in millions):

Commitment Period:	Maximum Potential Obligation
2023	$ 500.0
2034	2,000.0
2035	1,314.2
2036	2,658.0
2037	5,750.0
2038	1,800.0
2039	1,750.0

Other Guarantees

RGA has issued guarantees to third parties on behalf of its subsidiaries for the payment of amounts due under certain securities borrowing and repurchase arrangements, financing arrangements and office lease obligations, whereby, if a subsidiary fails to meet an obligation, RGA or one of its other subsidiaries will make a payment to fulfill the obligation. Additionally, in limited circumstances, treaty guarantees are granted to ceding companies in order to provide them additional security, particularly in cases where RGA's subsidiary is relatively new, unrated, or not of a significant size, relative to the ceding company. Liabilities supported by the treaty guarantees, before consideration of any legally offsetting amounts due from the guaranteed party are reflected on the Company's condensed consolidated balance sheets in future policy benefits. Potential guaranteed amounts of future payments will vary depending on production levels and underwriting results. Guarantees related to securities borrowing and repurchase arrangements provide additional security to third parties should a subsidiary fail to provide securities when due. RGA's guarantees issued as of June 30, 2019 and December 31, 2018 are reflected in the following table (dollars in thousands):

	June 30, 2019	December 31, 2018
Treaty guarantees	$ 1,500,220	$ 1,392,352
Treaty guarantees, net of assets in trust	1,402,737	1,291,445
Securities borrowing and repurchase arrangements	274,555	269,980
Financing arrangements	50,666	61,273
Lease obligations	156	392

9. Income Tax

The provision for income tax expense differed from the amounts computed by applying the U.S. federal income tax statutory rate of 21.0% to pre-tax income as a result of the following for the three and six months ended June 30, 2019 and 2018, respectively (dollars in thousands):

	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Tax provision at U.S. statutory rate	$ 54,616	$ 51,931	$ 100,095	$ 80,895
Increase (decrease) in income taxes resulting from:				
U.S. Tax Reform provisional adjustments	—	(4,314)	—	(3,539)
Foreign tax rate differing from U.S. tax rate	627	(330)	1,292	1,103
Differences in tax bases in foreign jurisdictions	(5,997)	(1,132)	(21,076)	(6,892)
Deferred tax valuation allowance	4,662	3,079	23,207	10,501
Amounts related to tax audit contingencies	2,404	(2,036)	2,964	(1,201)
Corporate rate changes	94	145	(1,737)	417
Subpart F	301	(348)	466	310
Foreign tax credits	(415)	113	(107)	(459)
Global intangible low-taxed income, net of credit	—	(119)	—	4,291
Equity compensation excess benefit	(3,694)	(3,135)	(5,155)	(4,250)
Return to provision adjustments	3,376	(503)	3,596	(139)
Other, net	1,405	(437)	891	(428)
Total provision for income taxes	$ 57,379	$ 42,914	$ 104,436	$ 80,609
Effective tax rate	22.1%	17.4%	21.9%	20.9%

The effective tax rates for the second quarter and first six months of 2019 were higher than the U.S. Statutory rate of 21.0% primarily as a result of valuation allowances established on losses in foreign jurisdictions, accrual of uncertain tax positions, and return to provision adjustments. These expenses were partially offset by benefits from differences in bases in foreign jurisdictions and excess tax benefits related to equity compensation.

The effective tax rates for the second quarter and first six months of 2018 were lower than the U.S. Statutory rate of 21.0% primarily as a result of U.S. Tax Reform related adjustments, the effective settlement of an uncertain tax position, benefits from differences in bases in foreign jurisdictions and excess tax benefits related to equity compensation. These benefits were partially offset by valuation allowances established on losses in foreign jurisdictions.

10. Employee Benefit Plans

The components of net periodic benefit costs, included in other operating expenses on the condensed consolidated statements of income, for the three and six months ended June 30, 2019 and 2018 were as follows (dollars in thousands):

	Pension Benefits		Other Benefits	
	Three months ended June 30,		Three months ended June 30,	
	2019	2018	2019	2018
Service cost	$ 3,169	$ 3,570	$ 757	$ 636
Interest cost	1,931	1,357	579	529
Expected return on plan assets	(1,692)	(2,213)	—	—
Amortization of prior service cost (credit)	61	82	(329)	(329)
Amortization of prior actuarial losses	1,231	769	644	498
Net periodic benefit cost	$ 4,700	$ 3,565	$ 1,651	$ 1,334

	Pension Benefits		Other Benefits	
	Six months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Service cost	$ 6,307	$ 6,224	$ 1,514	$ 1,272
Interest cost	3,317	2,687	1,159	1,059
Expected return on plan assets	(3,576)	(3,767)	—	—
Amortization of prior service cost (credit)	121	165	(658)	(658)
Amortization of prior actuarial losses	2,142	1,863	1,288	996
Net periodic benefit cost	$ 8,311	$ 7,172	$ 3,303	$ 2,669

11. Reinsurance

Retrocession reinsurance treaties do not relieve the Company from its obligations to direct writing companies. Failure of retrocessionaires to honor their obligations could result in losses to the Company. Consequently, allowances would be established for amounts deemed uncollectible. At June 30, 2019 and December 31, 2018, no allowances were deemed necessary. The Company regularly evaluates the financial condition of the insurance companies from which it assumes and to which it cedes reinsurance.

Retrocessions are arranged through the Company's retrocession pools for amounts in excess of the Company's retention limit. As of June 30, 2019 and December 31, 2018, all rated retrocession pool participants followed by the A.M. Best Company were rated "A- (excellent)" or better. The Company verifies retrocession pool participants' ratings on a quarterly basis. For a majority of the retrocessionaires that were not rated, security in the form of letters of credit or trust assets has been posted. In addition, the Company performs annual financial reviews of its retrocessionaires to evaluate financial stability and performance.

The following table presents information for the Company's reinsurance ceded receivable assets, including the respective amount and A.M. Best rating for each reinsurer representing in excess of five percent of the total as of June 30, 2019 or December 31, 2018 (dollars in thousands):

		June 30, 2019		December 31, 2018	
Reinsurer	A.M. Best Rating	Amount	% of Total	Amount	% of Total
Reinsurer A	A+	$ 347,916	40.9%	$ 303,036	40.0%
Reinsurer B	A+	201,983	23.7	193,324	25.5
Reinsurer C	A	74,214	8.7	69,885	9.2
Reinsurer D	A++	59,796	7.0	36,600	4.8
Reinsurer E	A+	40,253	4.7	40,004	5.3
Other reinsurers		127,218	15.0	114,723	15.2
Total		$ 851,380	100.0%	$ 757,572	100.0%

Included in the total reinsurance ceded receivables balance were $211.6 million and $242.8 million of claims recoverable, of which $5.7 million and $17.4 million were in excess of 90 days past due, as of June 30, 2019 and December 31, 2018, respectively.

12. Policy Claims and Benefits

The liability for unpaid claims is reported in future policy benefits and other policy-related balances within the Company's consolidated balance sheet. Activity associated with unpaid claims is summarized below (dollars in thousands):

	Six months ended June 30,	
	2019	2018
Balance at beginning of year	$ 6,584,668	$ 5,896,469
Less: reinsurance recoverable	(432,582)	(455,547)
Net balance at beginning of year	6,152,086	5,440,922
Incurred:		
Current year	5,457,193	5,046,146
Prior years	58,249	66,022
Total incurred	5,515,442	5,112,168
Payments:		
Current year	(1,063,092)	(1,097,105)
Prior years	(3,978,853)	(3,518,791)
Total payments	(5,041,945)	(4,615,896)
Other changes:		
Interest accretion	13,185	12,299
Foreign exchange adjustments	2,663	(117,352)
Total other changes	15,848	(105,053)
Net balance at end the period	6,641,431	5,832,141
Plus: reinsurance recoverable	524,808	439,568
Balance at end of the period	$ 7,166,239	$ 6,271,709

Incurred claims related to prior years reflected in the table above, resulted in part from developed claims for prior years being different than were anticipated when the liabilities for unpaid claims were originally estimated. These trends have been considered in establishing the current year liability for unpaid claims.

13. Financing Activities

On May 15, 2019, RGA issued 3.9% Senior Notes due May 15, 2029 with a face amount of $600.0 million. The net proceeds were approximately $593.8 million and will be used in part to repay upon maturity the Company's $400.0 million 6.45% Senior Notes that mature in November 2019. The remainder will be used for general corporate purposes. Capitalized issue costs were approximately $4.8 million.

14. New Accounting Standards

Changes to the general accounting principles are established by the Financial Accounting Standards Board ("FASB") in the form of accounting standards updates to the FASB Accounting Standards Codification™. Accounting standards updates not listed below were assessed and determined to be either not applicable or are expected to have minimal impact on the Company's condensed consolidated financial statements.

Description	Date of Adoption	Effect on the financial statements or other significant matters
Standards adopted:		
Financial Instruments - Recognition and Measurement This guidance requires equity investments that are not accounted for under the equity method of accounting to be measured at fair value with changes recognized in net income and also updates certain presentation and disclosure requirements.	January 1, 2018	This guidance required a cumulative-effect adjustment for certain items upon adoption. The adoption of the new guidance was not material to the Company's financial position.
Compensation - Retirement Benefits - Defined Benefit Plans - General This guidance is part of the FASB's disclosure framework project and eliminates certain disclosure requirements for defined benefit pension and other postretirement plans. Early adoption is permitted.	December 31, 2018	This guidance was applied retrospectively to all periods presented in the year of adoption. The adoption of the new guidance was not material to the Company's financial position.
Leases This new standard, based on the principle that entities should recognize assets and liabilities arising from leases, does not significantly change the lessees' recognition, measurement and presentation of expenses and cash flows from the previous accounting standard. Leases are classified as finance or operating. The new standard's primary change is the requirement for entities to recognize a lease liability for payments and a right of use asset representing the right to use the leased asset during the term of operating lease arrangements. Lessees are permitted to make an accounting policy election to not recognize the asset and liability for leases with a term of twelve months or less. Lessors' accounting is largely unchanged from the previous accounting standard. In addition, the new standard expands the disclosure requirements of lease arrangements. Early adoption is permitted.	January 1, 2019	This guidance was adopted by applying the optional transition method. The adoption of the standard did not have a material impact on the Company's results of operations or financial position. The adoption of the updated guidance resulted in the Company recognizing a right-to-use asset and lease liability of $55.2 million included in other assets and other liabilities, respectively, in the condensed consolidated balance sheets.
Derivatives and Hedging This updated guidance improves the financial reporting of hedging relationships to better portray the economic results of an entity's risk management activities in its financial statements and make certain targeted improvements to simplify the application of the hedge accounting in current GAAP related to the assessment of hedge effectiveness. Early adoption is permitted.	January 1, 2019	This guidance was adopted by applying a modified retrospective approach to existing hedging relationships as of the date of adoption. The adoption of the new standard did not have a material impact on the Company's results of operations or financial position. Upon adoption of the guidance, the Company recorded an immaterial adjustment to retained earnings as of the beginning of the first reporting period in which the guidance was effective and modified some disclosures.

Description	Anticipated Date of Adoption	Effect on the financial statements or other significant matters
Standards not yet adopted:		
Financial Services - Insurance This guidance significantly changes how insurers account for long-duration insurance contracts. The new guidance also significantly expands the disclosure requirements of long-duration insurance contracts. On July 17, 2019, the FASB tentatively agreed to defer the original effective date by one year. If finalized, the new guidance will be effective for annual and interim reporting periods beginning January 1, 2022. Below are the most significant areas of change:	January 1, 2022	See each significant area of change below for the method of adoption and impact to the Company's results of operations and financial position.
Cash flow assumptions for measuring liability for future policy benefits The new guidance requires insurers to review, and if necessary, update the cash flow assumptions used to measure liabilities for future policy benefits periodically. The change in the liability estimate as a result of updating cash flow assumptions will be recognized in net income.		Cash flow assumptions for measuring liability for future policy benefits The Company will likely adopt this guidance on a modified retrospective basis as of the earliest period presented in the year of adoption. The Company is currently evaluating the impact of this amendment on its results of operations and financial position but anticipates the updated guidance will likely have a material impact.
Discount rate assumption for measuring liability for future policy benefits The new guidance requires insurers to update the discount rate assumption used to measure liabilities for future policy benefits at each reporting period, and the discount rate utilized must be based on an upper-medium grade fixed income instrument yield. The change in the liability estimate as a result of updating the discount rate assumption will be recognized in other comprehensive income.		Discount rate assumption for measuring liability for future policy benefits The Company will likely adopt this guidance on a modified retrospective basis as of the earliest period presented in the year of adoption. The Company is currently evaluating the impact of this amendment on its results of operations and financial position but anticipates the updated guidance will likely have a material impact.
Market risk benefits The new guidance created a new category of benefit features called market risk benefits that will be measured at fair value with changes in fair value attributable to a change in the instrument-specific credit risk recognized in other comprehensive income.		Market risk benefits The Company will adopt this guidance on a retrospective basis as of the earliest period presented in the year of adoption. The Company is currently evaluating the impact of this amendment on its results of operations and financial position but anticipates the updated guidance will likely have a material impact.
Amortization of deferred acquisition costs ("DAC") and other balances The new guidance requires DAC and other balances to be amortized on a constant level basis over the expected term of the related contracts.		Amortization of deferred acquisition costs ("DAC") and other balances The Company will likely adopt this guidance on a modified retrospective basis as of the earliest period presented in the year of adoption. The Company is currently evaluating the impact of this amendment on its results of operations and financial position but anticipates the updated guidance will likely have a material impact.
Financial Instruments - Credit Losses This guidance adds to U.S. GAAP an impairment model, known as current expected credit loss ("CECL") model that is based on expected losses rather than incurred losses. For traditional and other receivables, held-to-maturity debt securities, loans and other instruments entities will be required to use the new forward-looking "expected loss" model that generally will result in earlier recognition of allowance for losses. For available-for-sale debt securities with unrealized losses, entities will measure credit losses similar to what they do today, except the losses will be recognized as allowances rather than reduction to the amortized cost of the securities. Early adoption is permitted.	January 1, 2020	For asset classes within the scope of the CECL model, this guidance will be adopted through a cumulative-effect adjustment to retained earnings as of the beginning of the first reporting period in which the guidance is effective (that is, a modified-retrospective approach). For available-for-sale debt securities, this guidance will be applied prospectively. The Company is in the process of finalizing its CECL models, and it anticipates an immaterial adjustment to retained earnings upon adoption of this new standard. The magnitude of the adjustment will depend upon the nature and characteristics of the Company's loan portfolio at the adoption date, as well as macroeconomic conditions and forecasts at that date.
Fair Value Measurement This guidance is part of the FASB's disclosure framework project and eliminates certain disclosure requirements for fair value measurement, requires entities to disclose new information and modifies existing disclosure requirements. Early adoption is permitted.	January 1, 2020	Certain disclosure changes in this guidance will be applied prospectively in the year of adoption. The remaining changes in this guidance will be applied retrospectively to all periods presented in the year of adoption. The Company does not expect the adoption of this guidance to have a material impact on its financial position.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Cautionary Note Regarding Forward-Looking Statements

This report contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995 including, among others, statements relating to projections of the future operations, strategies, earnings, revenues, income or loss, ratios, financial performance and growth potential of the Company. Forward-looking statements often contain words and phrases such as "intend," "expect," "project," "estimate," "predict," "anticipate," "should," "believe" and other similar expressions. Forward-looking statements are based on management's current expectations and beliefs concerning future developments and their potential effects on the Company. Forward-looking statements are not a guarantee of future performance and are subject to risks and uncertainties, some of which cannot be predicted or quantified. Future events and actual results, performance, and achievements could differ materially from those set forth in, contemplated by or underlying the forward-looking statements.

Numerous important factors could cause actual results and events to differ materially from those expressed or implied by forward-looking statements including, without limitation: (1) adverse changes in mortality, morbidity, lapsation or claims experience, (2) inadequate risk analysis and underwriting, (3) adverse capital and credit market conditions and their impact on the Company's liquidity, access to capital and cost of capital, (4) changes in the Company's financial strength and credit ratings and the effect of such changes on the Company's future results of operations and financial condition, (5) the availability and cost of collateral necessary for regulatory reserves and capital, (6) requirements to post collateral or make payments due to declines in market value of assets subject to the Company's collateral arrangements, (7) action by regulators who have authority over the Company's reinsurance operations in the jurisdictions in which it operates, (8) the effect of the Company parent's status as an insurance holding company and regulatory restrictions on its ability to pay principal of and interest on its debt obligations, (9) general economic conditions or a prolonged economic downturn affecting the demand for insurance and reinsurance in the Company's current and planned markets, (10) the impairment of other financial institutions and its effect on the Company's business, (11) fluctuations in U.S. or foreign currency exchange rates, interest rates, or securities and real estate markets, (12) market or economic conditions that adversely affect the value of the Company's investment securities or result in the impairment of all or a portion of the value of certain of the Company's investment securities, that in turn could affect regulatory capital, (13) market or economic conditions that adversely affect the Company's ability to make timely sales of investment securities, (14) risks inherent in the Company's risk management and investment strategy, including changes in investment portfolio yields due to interest rate or credit quality changes, (15) the fact that the determination of allowances and impairments taken on the Company's investments is highly subjective, (16) the stability of and actions by governments and economies in the markets in which the Company operates, including ongoing uncertainties regarding the amount of U.S. sovereign debt and the credit ratings thereof, (17) the Company's dependence on third parties, including those insurance companies and reinsurers to which the Company cedes some reinsurance, third-party investment managers and others, (18) financial performance of the Company's clients, (19) the threat of natural disasters, catastrophes, terrorist attacks, epidemics or pandemics anywhere in the world where the Company or its clients do business, (20) competitive factors and competitors' responses to the Company's initiatives, (21) development and introduction of new products and distribution opportunities, (22) execution of the Company's entry into new markets, (23) integration of acquired blocks of business and entities, (24) interruption or failure of the Company's telecommunication, information technology or other operational systems, or the Company's failure to maintain adequate security to protect the confidentiality or privacy of personal or sensitive data stored on such systems, (25) adverse litigation or arbitration results, (26) the adequacy of reserves, resources and accurate information relating to settlements, awards and terminated and discontinued lines of business, (27) changes in laws, regulations, and accounting standards applicable to the Company or its business, (28) the effects of the Tax Cuts and Jobs Act of 2017 may be different than expected and (29) other risks and uncertainties described in this document and in the Company's other filings with the Securities and Exchange Commission ("SEC").

Forward-looking statements should be evaluated together with the many risks and uncertainties that affect the Company's business, including those mentioned in this document and described in the periodic reports the Company files with the SEC. These forward-looking statements speak only as of the date on which they are made. The Company does not undertake any obligation to update these forward-looking statements, even though the Company's situation may change in the future. For a discussion of these risks and uncertainties that could cause actual results to differ materially from those contained in the forward-looking statements, you are advised to see Item 1A - "Risk Factors" in the 2018 Annual Report.

Overview

The Company is among the leading global providers of life reinsurance and financial solutions, with $3.4 trillion of life reinsurance in force and assets of $72.0 billion as of June 30, 2019. Traditional reinsurance includes individual and group life and health, disability, and critical illness reinsurance. Financial solutions includes longevity reinsurance, asset-intensive reinsurance, financial reinsurance and stable value products. The Company derives revenues primarily from renewal premiums from existing reinsurance treaties, new business premiums from existing or new reinsurance treaties, fee income from financial solutions business and income earned on invested assets.

Historically, the Company's primary business has been traditional life reinsurance, which involves reinsuring life insurance policies that are often in force for the remaining lifetime of the underlying individuals insured, with premiums earned typically over a period of 10 to 30 years. Each year, however, a portion of the business under existing treaties terminates due to, among other things, lapses or voluntary surrenders of underlying policies, deaths of insureds, and the exercise of recapture options by ceding companies. The Company has expanded its financial solutions business, including significant asset-intensive and longevity risk transactions, which allow its clients to take advantage of growth opportunities and manage their capital, longevity and investment risk.

The Company's long-term profitability largely depends on the volume and amount of death- and health-related claims incurred and the ability to adequately price the risks it assumes. While death claims are reasonably predictable over a period of many years, claims become less predictable over shorter periods and are subject to significant fluctuation from quarter to quarter and year to year. For longevity business, the Company's profitability depends on the lifespan of the underlying contract holders and the investment performance for certain contracts. Additionally, the Company generates profits on investment spreads associated with the reinsurance of investment type contracts and generates fees from financial reinsurance transactions, which are typically shorter duration than its traditional life reinsurance business. The Company believes its sources of liquidity are sufficient to cover potential claims payments on both a short-term and long-term basis.

As is customary in the reinsurance business, clients continually update, refine, and revise reinsurance information provided to the Company. Such revised information is used by the Company in preparation of its condensed consolidated financial statements and the financial effects resulting from the incorporation of revised data are reflected in the current period.

Segment Presentation

The Company has geographic-based and business-based operational segments. Geographic-based operations are further segmented into traditional and financial solutions businesses. The Company allocates capital to its segments based on an internally developed economic capital model, the purpose of which is to measure the risk in the business and to provide a consistent basis upon which capital is deployed. The economic capital model considers the unique and specific nature of the risks inherent in RGA's businesses.

As a result of the economic capital allocation process, a portion of investment income is credited to the segments based on the level of allocated capital. In addition, the segments are charged for excess capital utilized above the allocated economic capital basis. This charge is included in policy acquisition costs and other insurance expenses. Segment investment performance varies with the composition of investments and the relative allocation of capital to the operating segments.

Segment revenue levels can be significantly influenced by currency fluctuations, large transactions, mix of business and reporting practices of ceding companies, and therefore may fluctuate from period to period. Although reasonably predictable over a period of years, segment claims experience can be volatile over shorter periods. See "Results of Operations by Segment" below for further information about the Company's segments.

Consolidated Results of Operations

The following table summarizes net income for the periods presented.

	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Revenues:	(Dollars in thousands, except per share data)			
Net premiums	$ 2,763,786	$ 2,594,460	$ 5,501,599	$ 5,177,011
Investment income, net of related expenses	584,078	528,061	1,163,955	1,044,390
Investment related gains (losses), net:				
Other-than-temporary impairments on fixed maturity securities	—	(3,350)	(9,453)	(3,350)
Other investment related gains (losses), net	12,472	(7,222)	29,713	(7,692)
Investment related gains (losses), net	12,472	(10,572)	20,260	(11,042)
Other revenues	107,072	83,959	201,625	159,256
Total revenues	3,467,408	3,195,908	6,887,439	6,369,615
Benefits and Expenses:				
Claims and other policy benefits	2,515,211	2,279,593	5,023,535	4,641,694
Interest credited	157,842	109,327	291,031	189,776
Policy acquisition costs and other insurance expenses	260,345	320,276	572,226	677,178
Other operating expenses	223,499	194,959	424,982	386,233
Interest expense	43,283	37,025	83,456	74,479
Collateral finance and securitization expense	7,151	7,440	15,568	15,042
Total benefits and expenses	3,207,331	2,948,620	6,410,798	5,984,402
Income before income taxes	260,077	247,288	476,641	385,213
Provision for income taxes	57,379	42,914	104,436	80,609
Net income	$ 202,698	$ 204,374	$ 372,205	$ 304,604
Earnings per share:				
Basic earnings per share	$ 3.23	$ 3.19	$ 5.93	$ 4.74
Diluted earnings per share	$ 3.18	$ 3.13	$ 5.83	$ 4.65

Consolidated income before income taxes increased $12.8 million, or 5.2%, and $91.4 million, or 23.7%, for the three and six months ended June 30, 2019, respectively, as compared to the same periods in 2018. The increase in income for the second quarter of 2019 was primarily due to improved claims experience in the Canada Traditional segment and favorable experience in the various Financial Solutions segments and was partially offset by unfavorable results in the U.S. and Latin America and Asia Pacific Traditional segments. In addition, the increase in income for the first six months of 2019 reflects favorable changes in investment related gain (losses) resulting from changes in the fair value of embedded derivatives on modco or funds withheld treaties within the U.S. segment due to changes in interest rates and credit spreads. The effect of the change in fair value of these embedded derivatives on income is discussed below. Foreign currency fluctuations relative to the prior year decreased income before income taxes by $4.7 million in the second quarter and decreased income by $13.9 million in the first six months of 2019, as compared to the same periods in 2018.

The Company recognizes in consolidated income, any changes in the fair value of embedded derivatives on modco or funds withheld treaties, equity-indexed annuity treaties ("EIAs") and variable annuities with guaranteed minimum benefit riders. The Company utilizes freestanding derivatives to minimize the income statement volatility due to changes in the fair value of embedded derivatives associated with guaranteed minimum benefit riders. The following table presents the effect of embedded derivatives and related freestanding derivatives on income before income taxes for the periods indicated (dollars in thousands):

	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Modco/Funds withheld:				
Unrealized gains (losses)	$ 5,262	$ 8,805	$ 3,170	$ 22,416
Deferred acquisition costs/retrocession	(5,560)	405	(8,417)	(2,668)
Net effect	(298)	9,210	(5,247)	19,748
EIAs:				
Unrealized gains (losses)	(18,539)	(565)	(20,057)	27,998
Deferred acquisition costs/retrocession	9,635	(418)	10,511	(15,711)
Net effect	(8,904)	(983)	(9,546)	12,287
Guaranteed minimum benefit riders:				
Unrealized gains (losses)	(18,044)	15,324	117	30,109
Deferred acquisition costs/retrocession	(6,074)	3,864	(22,850)	6,195
Net effect	(24,118)	19,188	(22,733)	36,304
Related freestanding derivatives	27,490	(18,805)	24,913	(41,304)
Net effect after related freestanding derivatives	3,372	383	2,180	(5,000)
Total net effect of embedded derivatives	(33,320)	27,415	(37,526)	68,339
Related freestanding derivatives	27,490	(18,805)	24,913	(41,304)
Total net effect after freestanding derivatives	$ (5,830)	$ 8,610	$ (12,613)	$ 27,035

Consolidated net premiums increased $169.3 million, or 6.5%, and $324.6 million, or 6.3%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018, primarily due to growth in life reinsurance in force. Foreign currency fluctuations decreased net premiums by $60.0 million and $138.8 million in the second quarter and the first six months of 2019, as compared to the same periods in 2018. Consolidated assumed life insurance in force increased to $3,377.2 billion as of June 30, 2019 from $3,340.6 billion as of June 30, 2018 due to new business production and in force transactions. The Company added new business production, measured by face amount of insurance in force, of $70.4 billion and $99.7 billion during the second quarter of 2019 and 2018, respectively, and $149.7 billion and $196.4 billion during the first six months of 2019 and 2018, respectively.

Consolidated investment income, net of related expenses, increased $56.0 million, or 10.6%, and $119.6 million, or 11.4%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increases are primarily attributable to an increase in the average invested asset base and higher variable investment income. Investment income is affected by changes in the fair value of the Company's funds withheld at interest assets associated with the reinsurance of certain EIA products. The re-measurement of these funds withheld assets decreased investment income by $3.7 million in the second quarter and decreased investment income by $10.1 million in the first six months of 2019, respectively, as compared to the same periods in 2018. The effect on investment income of the EIA's market value changes is substantially offset by a corresponding change in interest credited to policyholder account balances resulting in an insignificant effect on net income.

Average invested assets at amortized cost, excluding spread related business, for the six months ended June 30, 2019 were $28.1 billion, a 4.9% increase over June 30, 2018. The average yield earned on investments, excluding spread related business, was 4.38% and 4.32% for the second quarter of 2019 and 2018, respectively, and 4.43% and 4.39% for the six months ended June 30, 2019 and 2018, respectively. The average yield will vary from quarter to quarter and year to year depending on a number of variables, including the prevailing interest rate and credit spread environment, prepayment fees, make-whole premiums and changes in the mix of the underlying investments and cash balances, and the timing of dividends and distributions on certain investments. A continued low interest rate environment is expected to put downward pressure on this yield in future reporting periods.

Total investment related gains (losses), net were $12.5 million and $(10.6) million for the second quarter of 2019 and 2018, respectively, and $20.3 million and $(11.0) million for the first six months of 2019 and 2018, respectively. A portion of the increase in investment related gains (losses) was offset by changes in the value of embedded derivatives related to reinsurance treaties written on a modco or funds withheld basis, reflecting the impact of changes in interest rates and credit spreads on the calculation of fair value. Changes in the fair value of these embedded derivatives increased investment related gains by $5.3 million and $8.8 million for the second quarter of 2019 and 2018, respectively, and $3.2 million and $22.4 million for the first six months of 2019 and 2018, respectively. In addition, impairments on fixed maturity securities decreased by $3.4 million in the second quarter and increased by $6.1 million in the first six months of 2019, respectively, as compared to the same periods in 2018. See Note 4 - "Investments" and Note 5 - "Derivative Instruments" in the Notes to Condensed Consolidated Financial Statements for additional information on the impairment losses and derivatives.

The effective tax rate on a consolidated basis was 22.1% and 17.4% for the second quarter 2019 and 2018, respectively, and 21.9% and 20.9% for the first six months of 2019 and 2018, respectively. See Note 9 - "Income Tax" in the Notes to Condensed Consolidated Financial Statements for additional information on the Company's consolidated effective tax rates.

Critical Accounting Policies

The preparation of financial statements in conformity with GAAP requires the application of accounting policies that often involve a significant degree of judgment. Management, on an ongoing basis, reviews estimates and assumptions used in the preparation of financial statements. If management determines that modifications in assumptions and estimates are appropriate given current facts and circumstances, results of operations and financial position as reported in the condensed consolidated financial statements could change significantly.

Management believes the critical accounting policies relating to the following areas are most dependent on the application of estimates and assumptions:

- Premiums receivable;
- Deferred acquisition costs;
- Liabilities for future policy benefits and incurred but not reported claims;
- Valuation of investments and other-than-temporary impairments to specific investments;
- Valuation of embedded derivatives; and
- Income taxes.

A discussion of each of the critical accounting policies may be found in the Company's 2018 Annual Report under "Management's Discussion and Analysis of Financial Condition and Results of Operations – Critical Accounting Policies."

Results of Operations by Segment

U.S. and Latin America Operations

The U.S. and Latin America operations include business generated by its offices in the U.S., Mexico and Brazil. The offices in Mexico and Brazil provide services to clients in other Latin American countries. U.S. and Latin America operations consist of two major segments: Traditional and Financial Solutions. The Traditional segment primarily specializes in the reinsurance of individual mortality-risk, health and long-term care and to a lesser extent, group reinsurance. The Financial Solutions segment consists of Asset-Intensive and Financial Reinsurance. Asset-Intensive within the Financial Solutions segment includes coinsurance of annuities and corporate-owned life insurance policies and to a lesser extent fee-based synthetic guaranteed investment contracts, which include investment-only, stable value contracts. Financial Reinsurance within the Financial Solutions segment primarily involves assisting ceding companies in meeting applicable regulatory requirements by enhancing the ceding companies' financial strength and regulatory surplus position through relatively low risk reinsurance transactions. Due to the low-risk nature of financial reinsurance transactions, they typically do not qualify as reinsurance under GAAP, so only the related net fees are reflected in other revenues on the condensed consolidated statements of income.

For the three months ended June 30, 2019:		Financial Solutions		
(dollars in thousands)	Traditional	Asset-Intensive	Financial Reinsurance	Total U.S. and Latin America
Revenues:				
Net premiums	$ 1,410,503	$ 8,220	$ —	$ 1,418,723
Investment income, net of related expenses	173,310	203,894	1,029	378,233
Investment related gains (losses), net	(3,950)	17,500	—	13,550
Other revenues	4,813	50,242	20,372	75,427
Total revenues	1,584,676	279,856	21,401	1,885,933
Benefits and expenses:				
Claims and other policy benefits	1,292,852	48,663	—	1,341,515
Interest credited	19,517	123,786	—	143,303
Policy acquisition costs and other insurance expenses	179,947	25,657	(815)	204,789
Other operating expenses	37,185	9,056	2,892	49,133
Total benefits and expenses	1,529,501	207,162	2,077	1,738,740
Income before income taxes	$ 55,175	$ 72,694	$ 19,324	$ 147,193

For the three months ended June 30, 2018:		Financial Solutions		
(dollars in thousands)	Traditional	Asset-Intensive	Financial Reinsurance	Total U.S. and Latin America
Revenues:				
Net premiums	$ 1,373,548	$ 6,699	$ —	$ 1,380,247
Investment income, net of related expenses	180,478	171,810	1,504	353,792
Investment related gains (losses), net	3,725	776	—	4,501
Other revenues	6,396	24,065	25,094	55,555
Total revenues	1,564,147	203,350	26,598	1,794,095
Benefits and expenses:				
Claims and other policy benefits	1,255,007	22,590	—	1,277,597
Interest credited	20,992	74,810	—	95,802
Policy acquisition costs and other insurance expenses	182,064	37,939	2,609	222,612
Other operating expenses	34,106	7,171	2,441	43,718
Total benefits and expenses	1,492,169	142,510	5,050	1,639,729
Income before income taxes	$ 71,978	$ 60,840	$ 21,548	$ 154,366

For the six months ended June 30, 2019: (dollars in thousands)	Traditional	Financial Solutions: Asset-Intensive	Financial Solutions: Financial Reinsurance	Total U.S. and Latin America
Revenues:				
Net premiums	$ 2,767,385	$ 15,430	$ —	$ 2,782,815
Investment income, net of related expenses	358,844	401,115	2,045	762,004
Investment related gains (losses), net	(10,422)	18,546	—	8,124
Other revenues	9,535	72,916	45,865	128,316
Total revenues	3,125,342	508,007	47,910	3,681,259
Benefits and expenses:				
Claims and other policy benefits	2,592,917	96,762	—	2,689,679
Interest credited	39,391	212,496	—	251,887
Policy acquisition costs and other insurance expenses	355,950	44,890	4,561	405,401
Other operating expenses	70,255	16,207	5,706	92,168
Total benefits and expenses	3,058,513	370,355	10,267	3,439,135
Income before income taxes	$ 66,829	$ 137,652	$ 37,643	$ 242,124

For the six months ended June 30, 2018: (dollars in thousands)	Traditional	Financial Solutions: Asset-Intensive	Financial Solutions: Financial Reinsurance	Total U.S. and Latin America
Revenues:				
Net premiums	$ 2,672,970	$ 11,891	$ —	$ 2,684,861
Investment income, net of related expenses	363,538	329,722	3,326	696,586
Investment related gains (losses), net	5,408	1,452	—	6,860
Other revenues	11,925	47,024	49,885	108,834
Total revenues	3,053,841	390,089	53,211	3,497,141
Benefits and expenses:				
Claims and other policy benefits	2,509,968	38,535	—	2,548,503
Interest credited	41,272	129,022	—	170,294
Policy acquisition costs and other insurance expenses	359,704	99,974	6,609	466,287
Other operating expenses	68,027	14,456	4,895	87,378
Total benefits and expenses	2,978,971	281,987	11,504	3,272,462
Income before income taxes	$ 74,870	$ 108,102	$ 41,707	$ 224,679

Income before income taxes decreased by $7.2 million, or 4.6%, and increased by $17.4 million, or 7.8%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The decrease in income before income taxes for the second quarter was primarily due to changes in the value of the embedded derivatives associated with reinsurance treaties structured on a modco or funds withheld basis combined with lower investment income and higher expenses related to an increase in incentive based compensation. Offsetting this somewhat was contributions from new asset-intensive transactions executed since the second half of 2018 and favorable longevity experience. The increase in income before income taxes for the first six months was primarily due to the impact of higher investment related gains (losses) in the Asset-Intensive segment as well as contributions from new asset-intensive deals entered into since the second half of 2018. Additionally, the Traditional segment saw improved claims experience.

Traditional Reinsurance

Income before income taxes for the U.S. and Latin America Traditional segment decreased by $16.8 million, or 23.3%, and $8.0 million, or 10.7%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The decrease in the second quarter was primarily due to changes in the value of embedded derivatives associated with reinsurance treaties structured on a modco or funds withheld basis. Additionally, the segment reported lower investment income in part due to lower variable investment income. General expenses were also higher due to incentive-based compensation. Unfavorable individual mortality experience quarter over quarter was partially offset by improved claim experience in both the Group and Individual Health lines of business.

Net premiums increased $37.0 million, or 2.7%, and $94.4 million, or 3.5%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increases in net premiums in the second quarter and first six months were due to organic growth as well as new sales. The segment added new individual life business production, measured by face amount of insurance in force of $24.7 billion and $29.3 billion for the second quarter and $53.5 billion and $52.6 billion for the first six months of 2019 and 2018, respectively.

Net investment income decreased $7.2 million, or 4.0%, and $4.7 million, or 1.3%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The decreases in the second quarter and first six months were primarily due to lower variable investment income partially offset by an increase in the asset base across all segments. Investment related gains (losses), net decreased $7.7 million and $15.8 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Claims and other policy benefits as a percentage of net premiums ("loss ratios") were 91.7% and 91.4% for the second quarter and 93.7% and 93.9%, for the six months ended June 30, 2019 and 2018, respectively. The increase in the loss ratio for the second quarter was primarily due to moderately unfavorable claims experience and impacts from client reporting adjustments in the mortality line of business. The decrease in the loss ratio for the first six months of 2019 compared to the same period in 2018 was primarily due to improved claim experience within the Group business offset somewhat by unfavorable claims experience in the mortality business.

Interest credited expense decreased $1.5 million, or 7.0%, and $1.9 million, or 4.6%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. Interest credited in this segment relates to amounts credited on cash value products which also have a significant mortality component. Income before income taxes is affected by the spread between the investment income and the interest credited on the underlying products.

Policy acquisition costs and other insurance expenses as a percentage of net premiums were 12.8% and 13.3% for the second quarter and 12.9% and 13.5% for the six months ended June 30, 2019 and 2018, respectively. While these ratios are expected to remain in a predictable range, they may fluctuate from period to period due to varying allowance levels within coinsurance-type arrangements. In addition, the amortization pattern of previously capitalized amounts, which are subject to the form of the reinsurance agreement and the underlying insurance policies, may vary. Also, the mix of first year coinsurance business versus yearly renewable term business can cause the percentage to fluctuate from period to period

Other operating expenses increased $3.1 million, or 9.0%, and $2.2 million, or 3.3%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increase in operating expenses, for both periods, is primarily related to expected expense levels needed to support the business as well as increased incentive-based compensation. Other operating expenses, as a percentage of net premiums were 2.6% and 2.5% for the second quarter and 2.5% and 2.5% first six months of 2019 and 2018, respectively. The expense ratio tends to fluctuate only slightly from period to period due to the maturity and scale of this segment.

Financial Solutions - Asset-Intensive Reinsurance

Asset-Intensive reinsurance within the U.S. and Latin America Financial Solutions segment primarily involves assuming investment risk within underlying annuities and corporate-owned life insurance policies. Most of these agreements are coinsurance, coinsurance with funds withheld or modco. The Company recognizes profits or losses primarily from the spread between the investment income earned and the interest credited on the underlying deposit liabilities, income associated with longevity risk, and fees associated with variable annuity account values and guaranteed investment contracts.

Impact of certain derivatives:

Income from the asset-intensive business tends to be volatile due to changes in the fair value of certain derivatives, including embedded derivatives associated with reinsurance treaties structured on a modco or funds withheld basis, as well as embedded derivatives associated with the Company's reinsurance of equity-indexed annuities and variable annuities with guaranteed minimum benefit riders. Fluctuations occur period to period primarily due to changing investment conditions including, but not limited to, interest rate movements (including risk-free rates and credit spreads), implied volatility, the Company's own credit risk and equity market performance, all of which are factors in the calculations of fair value. Therefore, management believes it is helpful to distinguish between the effects of changes in these derivatives, net of related hedging activity, and the primary factors that drive profitability of the underlying treaties, namely investment income, fee income (included in other revenues), and interest credited. These fluctuations are considered unrealized by management and do not affect current cash flows, crediting rates or spread performance on the underlying treaties.

The following table summarizes the asset-intensive results and quantifies the impact of these embedded derivatives for the periods presented. Revenues before certain derivatives, benefits and expenses before certain derivatives, and income before income taxes and certain derivatives, should not be viewed as substitutes for GAAP revenues, GAAP benefits and expenses, and GAAP income before income taxes.

(dollars in thousands)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Revenues:				
Total revenues	$ 279,856	$ 203,350	$ 508,007	$ 390,089
Less:				
Embedded derivatives – modco/funds withheld treaties	9,256	5,039	13,640	16,957
Guaranteed minimum benefit riders and related free standing derivatives	3,912	2,077	1,076	(2,512)
Revenues before certain derivatives	266,688	196,234	493,291	375,644
Benefits and expenses:				
Total benefits and expenses	207,162	142,510	370,355	281,987
Less:				
Embedded derivatives – modco/funds withheld treaties	5,560	(405)	8,418	2,668
Guaranteed minimum benefit riders and related free standing derivatives	540	1,694	(1,104)	2,488
Equity-indexed annuities	8,904	983	9,546	(12,287)
Benefits and expenses before certain derivatives	192,158	140,238	353,495	289,118
Income before income taxes:				
Income before income taxes	72,694	60,840	137,652	108,102
Less:				
Embedded derivatives – modco/funds withheld treaties	3,696	5,444	5,222	14,289
Guaranteed minimum benefit riders and related free standing derivatives	3,372	383	2,180	(5,000)
Equity-indexed annuities	(8,904)	(983)	(9,546)	12,287
Income before income taxes and certain derivatives	$ 74,530	$ 55,996	$ 139,796	$ 86,526

Embedded Derivatives - Modco/Funds Withheld Treaties - Represents the change in the fair value of embedded derivatives on funds withheld at interest associated with treaties written on a modco or funds withheld basis. The fair value changes of embedded derivatives on funds withheld at interest associated with treaties written on a modco or funds withheld basis are reflected in revenues, while the related impact on deferred acquisition expenses is reflected in benefits and expenses. The Company's utilization of a credit valuation adjustment did not have a material effect on the change in fair value of these embedded derivatives for the six months ended June 30, 2019 and 2018.

The change in fair value of the embedded derivatives - modco/funds withheld treaties increased income before income taxes by $3.7 million and $5.4 million for the second quarter and $5.2 million and $14.3 million for the six months ended June 30, 2019 and 2018, respectively. The decrease in income for the second quarter and first six months of 2019 was primarily the result of lower policyholder lapses and withdrawals.

Guaranteed Minimum Benefit Riders - Represents the impact related to guaranteed minimum benefits associated with the Company's reinsurance of variable annuities. The fair value changes of the guaranteed minimum benefits along with the changes in fair value of the free standing derivatives (interest rate swaps, financial futures and equity options), purchased by the Company to substantially hedge the liability are reflected in revenues, while the related impact on deferred acquisition expenses is reflected in benefits and expenses. The Company's utilization of a credit valuation adjustment did not have a material effect on the change in fair value of these embedded derivatives for the six months ended June 30, 2019 and 2018.

The change in fair value of the guaranteed minimum benefits, after allowing for changes in the associated free standing derivatives, increased income before income taxes by $3.4 million and $0.4 million for the second quarter and increased (decreased) by $2.2 million and $(5.0) million for the six months ended June 30, 2019 and 2018, respectively. The increases in income for the second quarter and for the first six months of June 30, 2019 were primarily due to favorable hedging results. The increase in income for the second quarter of 2018 was primarily due to favorable hedging results. The decrease in income for the first six months ended June 30, 2018 was primarily the result of interest rate movements.

Equity-Indexed Annuities - Represents changes in the liability for equity-indexed annuities in excess of changes in account value, after adjustments for related deferred acquisition expenses. The change in fair value of embedded derivative liabilities associated with equity-indexed annuities increased (decreased) income before income taxes by $(8.9) million and $(1.0) million for the second quarter and $(9.5) million and $12.3 million for the six months ended June 30, 2019 and 2018, respectively. The decreases in income for the second quarter and first six months of 2019 were primarily due to interest rate movements. The decrease in income for the second quarter of 2018 was primarily the result of interest rate movements. The increase in income for the first six months of 2018 was primarily due to lower policyholder lapses and withdrawals.

The changes in derivatives discussed above are considered unrealized by management and do not affect current cash flows, crediting rates or spread performance on the underlying treaties. Fluctuations occur period to period primarily due to changing investment conditions including, but not limited to, interest rate movements (including benchmark rates and credit spreads), credit valuation adjustments, implied volatility and equity market performance, all of which are factors in the calculations of fair value. Therefore, management believes it is helpful to distinguish between the effects of changes in these derivatives and the primary factors that drive profitability of the underlying treaties, namely investment income, fee income (included in other revenues) and interest credited.

Discussion and analysis before certain derivatives:

Income before income taxes and certain derivatives increased by $18.5 million and $53.3 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increases in the second quarter was primarily due to contribution from transactions executed since the second half of 2018 and favorable longevity experience. The increase in the first six months was primarily due to contributions from transactions executed since the second half of 2018.

Revenue before certain derivatives increased by $70.5 million and $117.6 million for the three and six months ended June 30, 2019, respectively, as compared to the same periods in 2018. The increase in the second quarter was primarily due to contribution from transactions executed since the second half of 2018 and favorable longevity experience. The increase in the first six months was primarily due to contributions from transactions executed since the second half of 2018. The effect on investment income related to equity options is substantially offset by a corresponding change in interest credited.

Benefits and expenses before certain derivatives increased by $51.9 million and $64.4 million for the three and six months ended June 30, 2019, as compared to the same period in 2018. The increase in the second quarter was primarily due to contributions from transactions executed since the second half of 2018, partially offset by favorable longevity experience. The increase in the first six months was primarily due to contributions from transactions executed since the second half of 2018. The effect on interest credited related to equity options is substantially offset by a corresponding change in investment income.

The invested asset base supporting this segment increased to $22.1 billion as of June 30, 2019 from $15.8 billion as of June 30, 2018. As of June 30, 2019, $3.6 billion of the invested assets were funds withheld at interest, of which greater than 90% is associated with one client.

Financial Solutions - Financial Reinsurance

Financial Reinsurance within the U.S. and Latin America Financial Solutions segment income before income taxes consists primarily of net fees earned on financial reinsurance transactions. Additionally, a portion of the business is brokered business in which the Company does not participate in the assumption of risk. The fees earned from financial reinsurance contracts and brokered business are reflected in other revenues, and the fees paid to retrocessionaires are reflected in policy acquisition costs and other insurance expenses.

Income before income taxes decreased $2.2 million, or 10.3%, and $4.1 million, or 9.7%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The decreases in the second quarter and first six months were primarily due to the termination of certain agreements.

At June 30, 2019 and 2018, the amount of reinsurance assumed from client companies, as measured by pre-tax statutory surplus, risk based capital and other financial structures was $15.8 billion and $13.7 billion, respectively. The increase was primarily due to a number of new transactions offsetting the termination of certain agreements, as well as organic growth on existing transactions. Fees earned from this business can vary significantly depending on the size of the transactions and the timing of their completion and therefore can fluctuate from period to period.

Canada Operations

The Company conducts reinsurance business in Canada primarily through RGA Canada. The Canada operations are primarily engaged in Traditional reinsurance, which consists mainly of traditional individual life reinsurance, and to a lesser extent creditor, group life and health, critical illness and disability reinsurance. Creditor insurance covers the outstanding balance on personal, mortgage or commercial loans in the event of death, disability or critical illness and is generally shorter in duration than traditional individual life insurance. The Canada Financial Solutions segment consists of longevity and financial reinsurance.

(dollars in thousands)	Three months ended June 30,					
	2019			2018		
Revenues:	Traditional	Financial Solutions	Total Canada	Traditional	Financial Solutions	Total Canada
Net premiums	$ 264,182	$ 22,456	$ 286,638	$ 260,750	$ 10,955	$ 271,705
Investment income, net of related expenses	50,002	788	50,790	49,535	330	49,865
Investment related gains (losses), net	2,564	—	2,564	446	—	446
Other revenues	1,394	685	2,079	1,468	804	2,272
Total revenues	318,142	23,929	342,071	312,199	12,089	324,288
Benefits and expenses:						
Claims and other policy benefits	206,272	19,222	225,494	223,935	7,915	231,850
Interest credited	73	—	73	21	—	21
Policy acquisition costs and other insurance expenses	57,049	447	57,496	58,541	292	58,833
Other operating expenses	8,489	447	8,936	7,897	338	8,235
Total benefits and expenses	271,883	20,116	291,999	290,394	8,545	298,939
Income before income taxes	$ 46,259	$ 3,813	$ 50,072	$ 21,805	$ 3,544	$ 25,349

(dollars in thousands)	Six months ended June 30,					
	2019			2018		
Revenues:	Traditional	Financial Solutions	Total Canada	Traditional	Financial Solutions	Total Canada
Net premiums	$ 519,439	$ 44,445	$ 563,884	$ 513,473	$ 22,260	$ 535,733
Investment income, net of related expenses	99,695	1,506	101,201	100,119	445	100,564
Investment related gains (losses), net	9,968	—	9,968	(285)	—	(285)
Other revenues	1,373	1,552	2,925	1,211	2,161	3,372
Total revenues	630,475	47,503	677,978	614,518	24,866	639,384
Benefits and expenses:						
Claims and other policy benefits	406,128	40,375	446,503	436,760	17,030	453,790
Interest credited	128	—	128	26	—	26
Policy acquisition costs and other insurance expenses	110,957	896	111,853	115,573	388	115,961
Other operating expenses	16,724	1,071	17,795	16,647	713	17,360
Total benefits and expenses	533,937	42,342	576,279	569,006	18,131	587,137
Income before income taxes	$ 96,538	$ 5,161	$ 101,699	$ 45,512	$ 6,735	$ 52,247

Income before income taxes increased by $24.7 million, or 97.5%, and $49.5 million, or 94.7%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increases in income for the second quarter and first six months are primarily due to favorable traditional individual life mortality experience as compared to the same period in 2018. Foreign currency exchange fluctuations in the Canadian dollar resulted in a decrease in income before income taxes of $1.7 million and $4.4 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Traditional Reinsurance

Income before income taxes for the Canada Traditional segment increased by $24.5 million, or 112.1%, and $51.0 million, or 112.1%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increases in income before income taxes for the second quarter and first six months were primarily due to favorable traditional individual life mortality experience as compared to the same periods in 2018. Foreign currency exchange fluctuations in the Canadian dollar resulted in a decrease in income before income taxes of $1.6 million and $4.2 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Net premiums increased $3.4 million, or 1.3%, and $6.0 million, or 1.2%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increases in net premiums in 2019 were primarily due to a new in force block transaction during the last quarter of 2018. Foreign currency exchange fluctuations in the Canadian dollar resulted in a decrease in net premiums of $9.4 million and $22.1 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Net investment income increased $0.5 million, or 0.9%, and decreased $0.4 million, or 0.4%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increase in net investment income for the three months ended June 30, 2019 is primarily a result of an increase in the invested asset base due to growth in the underlying business volume and an increase in investment yields, partially offset by foreign currency exchange fluctuations. The decrease in investment income in the first six months ended June 30, 2019 is primarily a result of foreign currency exchange fluctuation in the Canadian dollar partially offset by an increase in the invested asset base due to growth in the underlying business volume and an increase in investment yields. Foreign currency exchange fluctuation in the Canadian dollar resulted in a decrease in net investment income of $1.8 million and $4.3 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Other revenues decreased by $0.1 million and increased $0.2 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018. These variances are primarily due to gains and losses related to foreign currency transactions.

Loss ratios for this segment were 78.1% and 85.9% for the second quarter and 78.2% and 85.1% for the six months ended June 30, 2019 and 2018, respectively. The decrease in the loss ratios for the three and six months ended June 30, 2019, as compared to the same periods in 2018, is due to favorable traditional individual life mortality experience. Loss ratios for the traditional individual life mortality business were 83.2% and 97.8% for the second quarter and 83.3% and 94.6% for the first six months ended June 30, 2019 and 2018, respectively. Excluding creditor business, claims as a percentage of net premiums for this segment were 67.5% and 74.7% for the second quarter and 70.3% and 75.9% for the six months ended June 30, 2019 and 2018, respectively. Excluding creditor business, claims and other policy benefits, as a percentage of net premiums and investment income were 69.4% and 77.5% for the second quarter and 69.7% and 76.3% for the six months ended June 30, 2019 and 2018, respectively.

Policy acquisition costs and other insurance expenses as a percentage of net premiums were 21.6% and 22.5% for the second quarter and 21.4% and 22.5% for the six months ended June 30, 2019 and 2018, respectively. Overall, while these ratios are expected to remain in a predictable range, they may fluctuate from period to period due to varying allowance levels and product mix. In addition, the amortization patterns of previously capitalized amounts, which are subject to the form of the reinsurance agreement and the underlying insurance policies, may vary.

Other operating expenses increased $0.6 million, or 7.5%, and $0.1 million, or 0.5%, for the three and six months ended June 30, 2019, respectively, as compared to the same periods in 2018. Other operating expenses as a percentage of net premiums were 3.2% and 3.0% for the second quarter and 3.2% and 3.2% for the six month periods ended June 30, 2019 and 2018, respectively.

Financial Solutions Reinsurance

Income before income taxes increased by $0.3 million, or 7.6%, and decreased by $1.6 million, or 23.4%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increase in income for the second quarter was primarily due to favorable experience on longevity business. The decrease in income for the six months ended June 30, 2019 was primarily due to more favorable experience on longevity business in 2018 compared to 2019. Foreign currency exchange fluctuations in the Canadian dollar resulted in a decrease in income before income taxes of $0.1 million and $0.2 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Net premiums increased $11.5 million, or 105.0%, and $22.2 million, or 99.7%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increases were primarily due to a new transaction completed in the first three months of 2019. Foreign currency exchange fluctuations in the Canadian dollar resulted in a decrease in net premiums of $0.8 million and $1.8 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Net investment income increased $0.5 million, or 138.8%, and $1.1 million, or 238.4%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018 primarily due to an increase in the invested asset base.

Claims and other policy benefits increased $11.3 million, or 142.9%, and $23.3 million, or 137.1%, for the three and six months ended June 30, 2019 as compared to the same periods in 2018. The increases for the second quarter and first six months were primarily a result of the aforementioned new transaction completed in the first three months of 2019.

Europe, Middle East and Africa Operations

The Europe, Middle East and Africa (“EMEA”) operations include business generated by its offices principally in France, Germany, Ireland, Italy, the Middle East, the Netherlands, Poland, South Africa, Spain and the United Kingdom (“UK”). EMEA consists of two major segments: Traditional and Financial Solutions. The Traditional segment primarily provides reinsurance through yearly renewable term and coinsurance agreements on a variety of life, health and critical illness products. Reinsurance agreements may be facultative or automatic agreements covering primarily individual risks and, in some markets, group risks. The Financial Solutions segment consists of reinsurance and other transactions associated with longevity closed blocks, payout annuities, capital management solutions and financial reinsurance.

(dollars in thousands)	Three months ended June 30,					
	2019			2018		
Revenues:	Traditional	Financial Solutions	Total EMEA	Traditional	Financial Solutions	Total EMEA
Net premiums	$ 350,884	$ 56,660	$ 407,544	$ 354,534	$ 49,135	$ 403,669
Investment income, net of related expenses	17,945	46,593	64,538	17,087	40,330	57,417
Investment related gains (losses), net	112	2,550	2,662	—	5,858	5,858
Other revenues	558	8,183	8,741	917	5,352	6,269
Total revenues	369,499	113,986	483,485	372,538	100,675	473,213
Benefits and expenses:						
Claims and other policy benefits	295,661	47,551	343,212	310,187	21,854	332,041
Interest credited	—	2,280	2,280	—	4,127	4,127
Policy acquisition costs and other insurance expenses	27,594	1,181	28,775	29,961	1,054	31,015
Other operating expenses	30,123	11,173	41,296	25,922	8,271	34,193
Total benefits and expenses	353,378	62,185	415,563	366,070	35,306	401,376
Income before income taxes	$ 16,121	$ 51,801	$ 67,922	$ 6,468	$ 65,369	$ 71,837

(dollars in thousands)	Six months ended June 30,					
	2019			2018		
Revenues:	Traditional	Financial Solutions	Total EMEA	Traditional	Financial Solutions	Total EMEA
Net premiums	$ 714,768	$ 108,761	$ 823,529	$ 730,263	$ 97,114	$ 827,377
Investment income, net of related expenses	36,747	95,258	132,005	32,851	72,262	105,113
Investment related gains (losses), net	112	5,914	6,026	9	9,210	9,219
Other revenues	1,878	13,474	15,352	3,197	10,232	13,429
Total revenues	753,505	223,407	976,912	766,320	188,818	955,138
Benefits and expenses:						
Claims and other policy benefits	607,796	96,429	704,225	636,989	64,325	701,314
Interest credited	—	14,622	14,622	—	1,475	1,475
Policy acquisition costs and other insurance expenses	57,547	1,812	59,359	55,513	2,134	57,647
Other operating expenses	56,617	20,353	76,970	51,929	16,351	68,280
Total benefits and expenses	721,960	133,216	855,176	744,431	84,285	828,716
Income before income taxes	$ 31,545	$ 90,191	$ 121,736	$ 21,889	$ 104,533	$ 126,422

Income before income taxes decreased by $3.9 million, or 5.4%, and $4.7 million, or 3.7%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The decreases in income before income taxes were primarily due to the normalization of performance on closed longevity blocks after favorable performance in 2018 and foreign exchange fluctuations partly offset by improved performance in Traditional business. Foreign currency exchange fluctuations resulted in a decrease in income before income taxes of $3.9 million and $8.4 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Traditional Reinsurance

Income before income taxes increased by $9.7 million, or 149.2%, and $9.7 million, or 44.1%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increases in income were primarily due to an improvement in morbidity experience. Foreign currency exchange fluctuations resulted in a decrease in income before income taxes of $1.0 million and $2.7 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Net premiums decreased $3.7 million, or 1.0%, and $15.5 million, or 2.1%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The decrease in net premiums for the three and six months was primarily due to foreign currency exchange fluctuations. Foreign currency exchange fluctuations decreased net premiums by $23.3 million and $55.9 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

A portion of the net premiums for the segment, in each period presented, relates to reinsurance of critical illness coverage, primarily in the UK. This coverage provides a benefit in the event of the diagnosis of a pre-defined critical illness. Net premiums earned from this coverage totaled $43.1 million and $47.9 million for the second quarter and $87.5 million and $96.7 million for the first six months of 2019 and 2018, respectively.

Net investment income increased $0.9 million, or 5.0%, and $3.9 million, or 11.9%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increase in net investment income for the three months was primarily due to an increase in the invested asset base resulting from business growth. The increase in net investment income for the six months was primarily due to an increase in the invested asset base and increased invested asset yield. Foreign currency exchange fluctuations resulted in a decrease in net investment income of $1.4 million and $3.0 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Loss ratios for this segment were 84.3% and 87.5% for the second quarter and 85.0% and 87.2% for the first six months ended June 30, 2019 and 2018, respectively. The decreases in loss ratios were due to normal claims variability and changes in business mix.

Policy acquisition costs and other insurance expenses as a percentage of net premiums were 7.9% and 8.5% for the second quarter and 8.1% and 7.6% for the first six months ended June 30, 2019 and 2018, respectively. The decrease in policy acquisition cost ratio for the second quarter was primarily due to changes in the mix of business reflecting business volumes with lower allowances. The increase in the percentage for the first six months is due primarily to variations in the mixture of business.

Other operating expenses increased $4.2 million, or 16.2%, and $4.7 million, or 9.0%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increase is in line with expected expense levels needed to support the business as well as higher incentive-based compensation. Foreign currency fluctuations resulted in a decrease in operating expenses of $2.1 million and $4.4 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018. Other operating expenses as a percentage of net premiums totaled 8.6% and 7.3% for the second quarter and 7.9% and 7.1% for the first six months ended June 30, 2019 and 2018, respectively.

Financial Solutions Reinsurance

Income before income taxes decreased by $13.6 million, or 20.8%, and $14.3 million, or 13.7%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The decreases in income before income taxes were primarily due to the normalization of performance on closed longevity blocks after a positive 2018. Foreign currency exchange fluctuations resulted in a decrease in income before income taxes of $2.9 million and $5.7 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Net premiums increased by $7.5 million, or 15.3%, and $11.6 million, or 12.0%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increases in net premiums were due to higher new business volumes of closed longevity business. Foreign currency exchange fluctuations decreased net premiums by $3.4 million and $7.0 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Net investment income increased $6.3 million, or 15.5%, and $23.0 million, or 31.8%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increase in investment income for the three months was due to an increased invested asset yield and a premium received for the early redemption of a security. The increase for the six months was due to an increase in investment income associated with unit-linked policies which fluctuate with market performance, a premium received for the early redemption of a security and an increase in invested asset yield. The effect on investment income related to unit-linked products is substantially offset by a corresponding change in interest credited. Foreign currency exchange fluctuations resulted in a decrease in net investment income of $2.6 million and $6.2 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Other revenues increased by $2.8 million, or 52.9%, and $3.2 million, or 31.7%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increase in other revenues for the second quarter and first six months of 2019 was primarily due to fees related to the acquisition of a new closed block annuity transaction. Foreign currency exchange fluctuations resulted in a decrease in other revenues of $0.6 million and $1.2 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Claims and other policy benefits increased $25.7 million, or 117.6%, and $32.1 million, or 49.9%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increase in the second quarter and the first six months was primarily due to increased volumes of closed longevity block business as well as a normalization of performance compared to favorable performance in 2018. Foreign currency exchange fluctuations resulted in a decrease in claims and other policy benefits of $3.0 million and $6.3 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Interest credited expense decreased by $1.8 million and increased by $13.1 million or the three and six months ended June 30, 2019, as compared to the same periods in 2018. Interest credited in this segment relates to amounts credited to the contractholders of unit-linked products. The effect on interest credited related to unit-linked products is substantially offset by a corresponding change in investment income.

Other operating expenses increased $2.9 million, or 35.1%, and $4.0 million, or 24.5%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018 due to normal growth in operations and an increase in acquisition related costs. Foreign currency exchange fluctuations resulted in a decrease in operating expenses of $0.7 million and $1.4 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Asia Pacific Operations

The Asia Pacific operations include business generated by its offices principally in Australia, China, Hong Kong, India, Japan, Malaysia, New Zealand, Singapore, South Korea and Taiwan. The Traditional segment’s principal types of reinsurance include individual and group life and health, critical illness, disability and superannuation. Superannuation is the Australian government mandated compulsory retirement savings program. Superannuation funds accumulate retirement funds for employees, and, in addition, typically offer life and disability insurance coverage. The Financial Solutions segment includes financial reinsurance and asset-intensive transactions including certain disability, life and health blocks with significant investment risk. Reinsurance agreements may be facultative or automatic agreements covering primarily individual risks and in some markets, group risks.

(dollars in thousands)	Three months ended June 30,					
	2019			2018		
Revenues:	Traditional	Financial Solutions	Total Asia Pacific	Traditional	Financial Solutions	Total Asia Pacific
Net premiums	$ 606,418	$ 44,453	$ 650,871	$ 538,799	$ 30	$ 538,829
Investment income, net of related expenses	24,732	10,383	35,115	24,076	10,184	34,260
Investment related gains (losses), net	—	(816)	(816)	—	1,904	1,904
Other revenues	2,267	5,538	7,805	7,645	5,874	13,519
Total revenues	633,417	59,558	692,975	570,520	17,992	588,512
Benefits and expenses:						
Claims and other policy benefits	567,994	37,107	605,101	435,592	2,405	437,997
Interest credited	—	6,730	6,730	—	6,660	6,660
Policy acquisition costs and other insurance expenses	(11,584)	9,530	(2,054)	37,584	728	38,312
Other operating expenses	42,232	4,273	46,505	38,482	4,061	42,543
Total benefits and expenses	598,642	57,640	656,282	511,658	13,854	525,512
Income (loss) before income taxes	$ 34,775	$ 1,918	$ 36,693	$ 58,862	$ 4,138	$ 63,000

(dollars in thousands)	Six months ended June 30,					
	2019			2018		
Revenues:	Traditional	Financial Solutions	Total Asia Pacific	Traditional	Financial Solutions	Total Asia Pacific
Net premiums	$ 1,253,159	$ 78,248	$ 1,331,407	$ 1,128,312	$ 708	$ 1,129,020
Investment income, net of related expenses	50,067	20,652	70,719	48,676	20,578	69,254
Investment related gains (losses), net	8	3,253	3,261	8	5,371	5,379
Other revenues	3,355	11,933	15,288	8,063	11,181	19,244
Total revenues	1,306,589	114,086	1,420,675	1,185,059	37,838	1,222,897
Benefits and expenses:						
Claims and other policy benefits	1,114,448	68,826	1,183,274	930,786	6,873	937,659
Interest credited	—	13,432	13,432	—	13,054	13,054
Policy acquisition costs and other insurance expenses	38,739	14,909	53,648	96,366	1,925	98,291
Other operating expenses	82,003	8,918	90,921	76,158	7,827	83,985
Total benefits and expenses	1,235,190	106,085	1,341,275	1,103,310	29,679	1,132,989
Income before income taxes	$ 71,399	$ 8,001	$ 79,400	$ 81,749	$ 8,159	$ 89,908

Income before income taxes decreased by $26.3 million, or 41.8%, and $10.5 million, or 11.7%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The decrease in income before income taxes for the second quarter was due to less favorable claims experience in Asia compared to prior year combined with unfavorable claims experience in Australia. The decrease in income before income taxes for the six months ended June 30, 2019 was due to unfavorable claims experience in Australia. Foreign currency exchange fluctuations resulted in an increase in income before income taxes of $0.8 million and a decrease of $1.2 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Traditional Reinsurance

Income before income taxes decreased by $24.1 million, or 40.9%, and $10.4 million, or 12.7%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The decrease in income before income taxes for the second quarter was due to less favorable claims experience in Asia compared to prior year combined with unfavorable claims experience in Australia. The decrease in income before income taxes for the six months ended June 30, 2019 was primarily due to unfavorable claims experience in Australia. Foreign currency exchange fluctuations resulted in an increase in income before income taxes of $0.5 million and a decrease of $1.6 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Net premiums increased by $67.6 million, or 12.5%, and $124.8 million, or 11.1%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increases were driven by new business written in Asia as well as inforce growth across the segment. Foreign currency exchange fluctuations resulted in a decrease in net premiums of $23.2 million and $50.4 million for the three and six months of 2019, as compared to the same periods in 2018.

A portion of the net premiums for the segment, in each period presented, relates to reinsurance of critical illness coverage. This coverage provides a benefit in the event of the diagnosis of a pre-defined critical illness. Reinsurance of critical illness in the segment is offered primarily in South Korea, Australia, China and Hong Kong. Net premiums earned from this coverage totaled $242.8 million and $180.9 million for the second quarter and $494.9 million and $416.6 million for the first six months ended June 30, 2019 and 2018, respectively.

Net investment income increased by $0.7 million, or 2.7%, and $1.4 million, or 2.9%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increases were due to an increase in invested asset base, partially offset by a lower investment yield and foreign currency exchange fluctuations. Foreign currency exchange fluctuations resulted in a decrease in net investment income of $1.2 million and $2.8 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Other revenues decreased by $5.4 million, or 70.3%, and $4.7 million, or 58.4%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The decreases primarily relate to recapture fee income recognized in the second quarter of 2018 as well as variances in foreign currency gains and losses recognized in each period. Foreign currency exchange fluctuations resulted in a decrease in other revenues of $0.4 million and $0.4 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Loss ratios for this segment were 93.7% and 80.8% for the second quarter and 88.9% and 82.5% for the first six months ended June 30, 2019 and 2018, respectively. The increase in the loss ratios for the second quarter was primarily due to new business mix, less favorable claims experience and experience adjustments in Asia. The increase in loss ratios for the six months ended June 30, 2019 was primarily due to new business mix and unfavorable claims experience in Australia, as well as the impact of experience adjustments in Asia.

Policy acquisition costs and other insurance expenses as a percentage of net premiums were (1.9)% and 7.0% for the second quarter and 3.1% and 8.5% for the six months ended June 30, 2019 and 2018, respectively. These percentages fluctuate due to timing of client company reporting, premium refunds, variations in the mixture of business and the relative maturity of the business. In addition, as the segment grows, renewal premiums, which have lower allowances than first-year premiums, represent a greater percentage of the total net premiums. Experience adjustments in Asia resulted in reduced policy acquisition costs and other insurance expenses in the second quarter of 2019, resulting in a benefit rather than expense for the quarter. The favorable adjustment to policy acquisition costs and other insurance expenses was offset by an increase to claims and other policy benefits.

Other operating expenses increased $3.8 million, or 9.7%, and $5.8 million, or 7.7%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018 mainly due to growth in operations in Asia and consultant expenditures. Other operating expenses as a percentage of net premiums totaled 7.0% and 7.1% for the second quarter and 6.5% and 6.7% for the first six months ended June 30, 2019 and 2018, respectively. The timing of premium flows and the level of costs associated with the entrance into and development of new markets within the segment may cause other operating expenses as a percentage of net premiums to fluctuate over periods of time.

Financial Solutions Reinsurance

Income before income taxes decreased by $2.2 million, or 53.6%, and $0.2 million, or 1.9%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The decrease in income before income taxes for the three months ended June 30, 2019 was primarily due to unfavorable fair value fluctuations on derivatives, partially offset by higher income from new deals in Asia. Foreign currency exchange fluctuations had a negligible effect on income before income taxes for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Net premiums increased $44.4 million and $77.5 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increase for the second quarter and first six months was due to new asset intensive deals in Asia. Foreign currency exchange fluctuations had a negligible effect on net premiums for the three months ended June 30, 2019, as compared to the same period in 2018. Foreign currency exchange fluctuations decreased net premiums by $1.3 million for the six months ended June 30, 2019, as compared to the same period in 2018.

Net investment income increased $0.2 million, or 2.0%, and $0.1 million, or 0.4%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018 mainly due to an increase in invested asset base, partially offset by a lower investment yield and foreign currency exchange fluctuations. Foreign currency exchange fluctuations resulted in a decrease in net investment income of $0.3 million and $0.8 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018.

Other revenues increased by $0.3 million, or 5.7%, and $0.8 million, or 6.7%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. At June 30, 2019 and 2018, the amount of reinsurance assumed from client companies, as measured by pre-tax statutory surplus, risk based capital and other financial reinsurance structures was $3.1 billion and $2.8 billion, respectively. Fees earned from this business can vary significantly depending on the size of the transactions and the timing of their completion and, therefore, can fluctuate from period to period.

Claims and other policy benefits increased by $34.7 million and $62.0 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increases in the second quarter and first six months were attributable to new asset-intensive deals in Asia.

Other operating expenses increased by $0.2 million, or 5.2%, and $1.1 million, or 13.9%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018, respectively. The timing of transactions and the level of costs associated with the entrance into and development of new markets and new transactions within the segment may cause other operating expenses to fluctuate over periods of time.

Corporate and Other

Corporate and Other revenues primarily include investment income from unallocated invested assets, investment related gains and losses and service fees. Corporate and Other expenses consist of the offset to capital charges allocated to the operating segments within the policy acquisition costs and other insurance income line item, unallocated overhead and executive costs, interest expense related to debt, and the investment income and expense associated with the Company's collateral finance and securitization transactions and service business expenses. Additionally, Corporate and Other includes results from certain wholly-owned subsidiaries, such as RGAX, and joint ventures that, among other activities, develop and market technology, and provide consulting and outsourcing solutions for the insurance and reinsurance industries. In the past two years, the Company has increased its investment and expenditures in this area in an effort to both support its clients and generate new future revenue streams.

(dollars in thousands)	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Revenues:				
Net premiums	$ 10	$ 10	$ (36)	$ 20
Investment income, net of related expenses	55,402	32,727	98,026	72,873
Investment related gains (losses), net	(5,488)	(23,281)	(7,119)	(32,215)
Other revenues	13,020	6,344	39,744	14,377
Total revenues	62,944	15,800	130,615	55,055
Benefits and expenses:				
Claims and other policy benefits	(111)	108	(146)	428
Interest credited	5,456	2,717	10,962	4,927
Policy acquisition costs and other insurance income	(28,661)	(30,496)	(58,035)	(61,008)
Other operating expenses	77,629	66,270	147,128	129,230
Interest expense	43,283	37,025	83,456	74,479
Collateral finance and securitization expense	7,151	7,440	15,568	15,042
Total benefits and expenses	104,747	83,064	198,933	163,098
Income (loss) before income taxes	$ (41,803)	$ (67,264)	$ (68,318)	$ (108,043)

Loss before income taxes decreased by $25.5 million and $39.7 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The decreases in loss before income taxes for the second quarter and the first six months are primarily due to decreased net investment related losses and higher investment income partially offset by increased other operating expenses.

Net investment income increased by $22.7 million, or 69.3%, and $25.2 million, or 34.5%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increases in the second quarter and the first six months were largely attributable to increases in unallocated invested assets and a higher average investment yield.

Net investment related losses decreased by $17.8 million and $25.1 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The decrease in the second quarter was primarily due to an increase in net gains on the sale of fixed maturity securities of $22.1 million and an increase in the fair value of equity securities of $9.7 million, which were offset by a $2.6 million increase in investment impairments. The decrease in the first six months of 2019 was primarily due to an increase in net gains on the sale of fixed maturity securities of $27.2 million and an increase in the fair value of equity securities of $17.8 million, which were offset by a $6.4 million increase in other-than-temporary impairments on fixed maturity securities and other investments.

Other revenues increased by $6.7 million and $25.4 million for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increase in the second quarter was mainly related to the Company's RGAx operations, which contributed $3.6 million to other revenues. The increase in the first six months of 2019 was mainly due to a recapture of a collateral finance transaction, which resulted in a $12.9 million gain. In addition, the Company's RGAX operations contributed $21.8 million to other revenues in the first six months of 2019 compared to $13.6 million in the same period in 2018.

Policy acquisition costs and other insurance income decreased by $1.8 million, or 6.0%, and $3.0 million, or 4.9%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. Fluctuations period over period were attributable to the offset to capital charges allocated to the operating segments.

Other operating expenses increased by $11.4 million, or 17.1%, and $17.9 million, or 13.8%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increases in other operating expenses, were primarily due to growth in strategic initiatives, such as RGAX, and increased incentive-based compensation.

Interest expense increased by $6.3 million, or 16.9%, and $9.0 million, or 12.1%, for the three and six months ended June 30, 2019, as compared to the same periods in 2018. The increases in interest expense resulted primarily from the issuance of $600.0 million in long-term debt in May 2019 and the variability in tax-related interest expense.

Liquidity and Capital Resources

Overview

The Company believes that cash flows from the various sources of funds available to it will provide sufficient cash flows for the next twelve months to satisfy the current liquidity requirements of the Company under various scenarios that include the potential risk of early recapture of reinsurance treaties, market events and higher than expected claims. The Company performs periodic liquidity stress testing to ensure its asset portfolio includes sufficient high quality liquid assets that could be utilized to bolster its liquidity position under stress scenarios. These assets could be utilized as collateral for secured borrowing transactions with various third parties or by selling the securities in the open market if needed. The Company's liquidity requirements have been and will continue to be funded through net cash flows from operations. However, in the event of significant unanticipated cash requirements beyond normal liquidity needs, the Company has multiple liquidity alternatives available based on market conditions and the amount and timing of the liquidity need. These alternatives include borrowings under committed credit facilities, secured borrowings, the ability to issue long-term debt, preferred securities or common equity and, if necessary, the sale of invested assets subject to market conditions.

Current Market Environment

The current low interest rate environment in select markets, primarily the U.S., Canada and Europe, continues to put downward pressure on the Company's investment yield. The Company's average investment yield, excluding spread business, for the six months ended June 30, 2019 was 4.43%, 4 basis points above the same period in 2018. The Company's insurance liabilities, in particular its annuity products, are sensitive to changing market factors. Gross unrealized gains on fixed maturity securities available-for-sale increased from $1,858.7 million at December 31, 2018 to $3,828.1 million at June 30, 2019. Similarly, gross unrealized losses decreased from $748.5 million at December 31, 2018 to $96.4 million at June 30, 2019.

The Company continues to be in a position to hold any investment security showing an unrealized loss until recovery, provided it remains comfortable with the credit of the issuer. As indicated above, gross unrealized gains on fixed maturity securities of $3,828.1 million remain well in excess of gross unrealized losses of $96.4 million as of June 30, 2019. The Company does not rely on short-term funding or commercial paper and to date it has experienced no liquidity pressure, nor does it anticipate such pressure in the foreseeable future.

The Company projects its reserves to be sufficient, and it would not expect to write down deferred acquisition costs or be required to take any actions to augment capital, even if interest rates remain at current levels for the next five years, assuming all other factors remain constant. While the Company has felt the pressures of sustained low interest rates and volatile equity markets and may continue to do so, its business operations are not overly sensitive to these risks. Although management believes the Company's current capital base is adequate to support its business at current operating levels, it continues to monitor new business opportunities and any associated new capital needs that could arise from the changing financial landscape.

The Holding Company

RGA is an insurance holding company whose primary uses of liquidity include, but are not limited to, the immediate capital needs of its operating companies, dividends paid to its shareholders, repurchase of common stock and interest payments on its indebtedness. The primary sources of RGA's liquidity include proceeds from its capital-raising efforts, interest income on undeployed corporate investments, interest income received on surplus notes with RGA Reinsurance, RCM and Rockwood Re and dividends from operating subsidiaries. As the Company continues its growth efforts, RGA will continue to be dependent upon these sources of liquidity. The following tables provide comparative information for RGA (dollars in thousands):

	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Interest expense	$ 51,548	$ 47,250	$ 99,998	$ 92,694
Capital contributions to subsidiaries	18,268	12,000	38,768	23,000
Dividends to shareholders	37,640	32,129	75,347	64,370
Interest and dividend income	35,806	232,473	65,918	264,020
Issuance of unaffiliated debt	598,543	—	598,543	—

	June 30, 2019	December 31, 2018
Cash and invested assets	$ 864,100	$ 658,850

See Item 15, Schedule II - "Condensed Financial Information of the Registrant" in the 2018 Annual Report for additional financial information related to RGA.

The undistributed earnings of substantially all of the Company's foreign subsidiaries have been reinvested indefinitely in those non-U.S. operations, as described in Note 9 - "Income Tax" of the Notes to Consolidated Financial Statements in the 2018 Annual Report. As U.S. Tax Reform generally eliminates U.S. federal income taxes on dividends from foreign subsidiaries, the Company does not expect to incur material income taxes if these funds are repatriated.

RGA endeavors to maintain a capital structure that provides financial and operational flexibility to its subsidiaries, credit ratings that support its competitive position in the financial services marketplace, and shareholder returns. As part of the Company's capital deployment strategy, it has in recent years repurchased shares of RGA common stock and paid dividends to RGA shareholders, as authorized by the board of directors. RGA's current share repurchase program, which was approved by the board of directors in January 2019, authorizes the repurchase of up to $400.0 million of common stock. The pace of repurchase activity depends on various factors such as the level of available cash, an evaluation of the costs and benefits associated with alternative uses of excess capital, such as acquisitions and in force reinsurance transactions, and RGA's stock price.

Details underlying dividend and share repurchase program activity were as follows (in thousands, except share data):

	Six months ended June 30,	
	2019	2018
Dividends to shareholders	$ 75,347	$ 64,370
Repurchases of treasury stock	50,000	150,000
Total amount paid to shareholders	$ 125,347	$ 214,370
Number of shares repurchased	344,237	991,477
Average price per share	$ 145.25	$ 151.29

In July 2019, RGA's board of directors declared a quarterly dividend of $0.70 per share. All future payments of dividends are at the discretion of RGA's board of directors and will depend on the Company's earnings, capital requirements, insurance regulatory conditions, operating conditions, and other such factors as the board of directors may deem relevant. The amount of dividends that RGA can pay will depend in part on the operations of its reinsurance subsidiaries. See Note 3 - "Equity" in the Notes to Condensed Consolidated Financial Statements for information on the Company's share repurchase program.

Debt

Certain of the Company's debt agreements contain financial covenant restrictions related to, among others, liens, the issuance and disposition of stock of restricted subsidiaries, minimum requirements of consolidated net worth, maximum ratios of debt to capitalization and change of control provisions. The Company is required to maintain a minimum consolidated net worth, as defined in the debt agreements, of $5.3 billion, calculated as of the last day of each fiscal quarter. Also, consolidated indebtedness, calculated as of the last day of each fiscal quarter, cannot exceed 35% of the sum of the Company's consolidated indebtedness plus adjusted consolidated stockholders' equity. A material ongoing covenant default could require immediate payment of the amount due, including principal, under the various agreements. Additionally, the Company's debt agreements contain cross-default covenants, which would make outstanding borrowings immediately payable in the event of a material uncured covenant default under any of the agreements, including, but not limited to, non-payment of indebtedness when due for an amount in excess of the amounts set forth in those agreements, bankruptcy proceedings, or any other event that results in the acceleration of the maturity of indebtedness.

As of June 30, 2019 and December 31, 2018, the Company had $3.4 billion and $2.8 billion, respectively, in outstanding borrowings under its debt agreements and was in compliance with all covenants under those agreements. As of June 30, 2019 and December 31, 2018, the average net interest rate on long-term debt outstanding was 5.01% and 5.24%, respectively. The ability of the Company to make debt principal and interest payments depends on the earnings and surplus of subsidiaries, investment earnings on undeployed capital proceeds, available liquidity at the holding company, and the Company's ability to raise additional funds.

On May 15, 2019, RGA issued 3.9% Senior Notes due May 15, 2029 with a face amount of $600.0 million. This security has been registered with the Securities and Exchange Commission. The net proceeds were approximately $593.8 million and will be used in part to repay upon maturity the Company's $400.0 million 6.45% Senior Notes that mature in November 2019. The remainder will be used for general corporate purposes. Capitalized issue costs were approximately $4.8 million.

The Company enters into derivative agreements with counterparties that reference either the Company's debt rating or its financial strength rating. If either rating is downgraded in the future, it could trigger certain terms in the Company's derivative agreements, which could negatively affect overall liquidity. For the majority of the Company's derivative agreements, there is a termination event, at the Company's option, should the long-term senior debt ratings drop below either BBB+ (S&P) or Baa1 (Moody's) or the financial strength ratings drop below either A- (S&P) or A3 (Moody's).

The Company may borrow up to $850.0 million in cash and obtain letters of credit in multiple currencies on its revolving credit facility that matures in August 2023. As of June 30, 2019, the Company had no cash borrowings outstanding and $19.6 million in issued, but undrawn, letters of credit under this facility.

Based on the historic cash flows and the current financial results of the Company, management believes RGA's cash flows will be sufficient to enable RGA to meet its obligations for at least the next 12 months.

Credit and Committed Facilities

At June 30, 2019, the Company maintained an $850.0 million syndicated revolving credit facility and certain committed letter of credit facilities aggregating to $1,074.9 million. See Note 13 - “Debt” in the Notes to Consolidated Financial Statements in the 2018 Annual Report for further information about these facilities.

The Company has obtained bank letters of credit in favor of various affiliated and unaffiliated insurance companies from which the Company assumes business. These letters of credit represent guarantees of performance under the reinsurance agreements and allow ceding companies to take statutory reserve credits. Certain of these letters of credit contain financial covenant restrictions similar to those described in the “Debt” discussion above. At June 30, 2019, there were approximately $95.2 million of outstanding bank letters of credit in favor of third parties. Additionally, in accordance with applicable regulations, the Company utilizes letters of credit to secure statutory reserve credits when it retrocedes business to its affiliated subsidiaries. The Company cedes business to its affiliates to help reduce the amount of regulatory capital required in certain jurisdictions, such as the U.S. and the UK. The Company believes the capital required to support the business in the affiliates reflects more realistic expectations than the original jurisdiction of the business, where capital requirements are often considered to be quite conservative. As of June 30, 2019, $1.2 billion in letters of credit from various banks were outstanding, but undrawn, backing reinsurance between the various subsidiaries of the Company.

Cash Flows

The Company’s principal cash inflows from its reinsurance operations include premiums and deposit funds received from ceding companies. The primary liquidity concerns with respect to these cash flows are early recapture of the reinsurance contract by the ceding company and lapses of annuity products reinsured by the Company. The Company’s principal cash inflows from its invested assets result from investment income and the maturity and sales of invested assets. The primary liquidity concerns with respect to these cash inflows relates to the risk of default by debtors and interest rate volatility. The Company manages these risks very closely. See “Investments” and “Interest Rate Risk” below.

Additional sources of liquidity to meet unexpected cash outflows in excess of operating cash inflows and current cash and equivalents on hand include selling short-term investments or fixed maturity securities and drawing funds under a revolving credit facility, under which the Company had availability of $830.4 million as of June 30, 2019. The Company also has $865.9 million of funds available through collateralized borrowings from the FHLB as of June 30, 2019. As of June 30, 2019, the Company could have borrowed these additional amounts without violating any of its existing debt covenants.

The Company’s principal cash outflows relate to the payment of claims liabilities, interest credited, operating expenses, income taxes, dividends to shareholders, purchases of treasury stock and principal and interest under debt and other financing obligations. The Company seeks to limit its exposure to loss on any single insured and to recover a portion of benefits paid by ceding reinsurance to other insurance enterprises or reinsurers under excess coverage and coinsurance contracts (See Note 2, “Significant Accounting Policies and Pronouncements” in the Notes to Consolidated Financial Statements in the 2018 Annual Report). The Company performs annual financial reviews of its retrocessionaires to evaluate financial stability and performance. The Company has never experienced a material default in connection with retrocession arrangements, nor has it experienced any difficulty in collecting claims recoverable from retrocessionaires; however, no assurance can be given as to the future performance of such retrocessionaires nor to the recoverability of future claims. The Company’s management believes its current sources of liquidity are adequate to meet its cash requirements for the next 12 months.

Summary of Primary Sources and Uses of Liquidity and Capital

The Company's primary sources and uses of liquidity and capital are summarized as follows:

	For the six months ended June 30,	
	2019	2018
	(Dollars in thousands)	
Sources:		
Net cash provided by operating activities	$ 970,331	$ 583,588
Proceeds from long-term debt issuance	598,524	—
Exercise of stock options, net	2,590	1,252
Change in cash collateral for derivative positions and other arrangements	—	17,578
Effect of exchange rate changes on cash	6,759	—
Total sources	1,578,204	602,418
Uses:		
Net cash used in investing activities	764,403	100,615
Dividends to stockholders	75,347	64,370
Repayment of collateral finance and securitization notes	52,644	53,102
Debt issuance costs	4,750	—
Principal payments of long-term debt	1,387	1,331
Purchases of treasury stock	67,744	165,069
Change in cash collateral for derivatives and other arrangements	80,214	—
Cash used for changes in universal life and other investment type policies and contracts	133,922	104,023
Effect of exchange rate changes on cash	—	19,753
Total uses	1,180,411	508,263
Net change in cash and cash equivalents	$ 397,793	$ 94,155

Cash Flows from Operations - The principal cash inflows from the Company's reinsurance activities come from premiums, investment and fee income, annuity considerations and deposit funds. The principal cash outflows relate to the liabilities associated with various life and health insurance, annuity and disability products, operating expenses, income tax payments and interest on outstanding debt obligations. The primary liquidity concern with respect to these cash flows is the risk of shortfalls in premiums and investment income, particularly in periods with abnormally high claims levels.

Cash Flows from Investments - The principal cash inflows from the Company's investment activities come from repayments of principal on invested assets, proceeds from maturities of invested assets, sales of invested assets and settlements of freestanding derivatives. The principal cash outflows relate to purchases of investments, issuances of policy loans and settlements of freestanding derivatives. The Company typically has a net cash outflow from investing activities because cash inflows from insurance operations are reinvested in accordance with its asset/liability management discipline to fund insurance liabilities. The Company closely monitors and manages these risks through its credit risk management process. The primary liquidity concerns with respect to these cash flows are the risk of default by debtors and market disruption, which could make it difficult for the Company to sell investments.

Financing Cash Flows - The principal cash inflows from the Company's financing activities come from issuances of RGA debt and equity securities, and deposit funds associated with universal life and other investment type policies and contracts. The principal cash outflows come from repayments of debt, payments of dividends to stockholders, purchases of treasury stock, and withdrawals associated with universal life and other investment type policies and contracts. A primary liquidity concern with respect to these cash flows is the risk of early contractholder and policyholder withdrawal.

Contractual Obligations

The Company's obligation for long-term debt, including interest, increased by $755.9 million since December 31, 2018 primarily related to the May 2019 issuance of senior notes as previously discussed. There were no other material changes in the Company's contractual obligations from those reported in the 2018 Annual Report.

Asset / Liability Management

The Company actively manages its cash and invested assets using an approach that is intended to balance quality, diversification, asset/liability matching, liquidity and investment return. The goals of the investment process are to optimize after-tax, risk-adjusted investment income and after-tax, risk-adjusted total return while managing the assets and liabilities on a cash flow and duration basis.

The Company has established target asset portfolios for its operating segments, which represent the investment strategies intended to profitably fund its liabilities within acceptable risk parameters. These strategies include objectives and limits for effective duration, yield curve sensitivity and convexity, liquidity, asset sector concentration and credit quality.

The Company's asset-intensive products are primarily supported by investments in fixed maturity securities reflected on the Company's balance sheet and under funds withheld arrangements with the ceding company. Investment guidelines are established to structure the investment portfolio based upon the type, duration and behavior of products in the liability portfolio so as to achieve targeted levels of profitability. The Company manages the asset-intensive business to provide a targeted spread between the interest rate earned on investments and the interest rate credited to the underlying interest-sensitive contract liabilities. The Company periodically reviews models projecting different interest rate scenarios and their effect on profitability. Certain of these asset-intensive agreements, primarily in the U.S. and Latin America Financial Solutions operating segment, are generally funded by fixed maturity securities that are withheld by the ceding company.

The Company's liquidity position (cash and cash equivalents and short-term investments) was $2,446.3 million and $2,032.3 million at June 30, 2019 and December 31, 2018, respectively. Liquidity needs are determined from valuation analyses conducted by operational units and are driven by product portfolios. Periodic evaluations of demand liabilities and short-term liquid assets are designed to adjust specific portfolios, as well as their durations and maturities, in response to anticipated liquidity needs.

See "Securities Borrowing, Lending and Other" in Note 4 - "Investments" in the Notes to Condensed Consolidated Financial Statements for information related to the Company's securities borrowing, lending and repurchase/reverse repurchase programs. In addition to its security agreements with third parties, certain RGA's subsidiaries have entered into intercompany securities lending agreements to more efficiently source securities for lending to third parties and to provide for more efficient regulatory capital management.

The Company is a member of the FHLB and holds $83.7 million of FHLB common stock, which is included in other invested assets on the Company's condensed consolidated balance sheets.

The Company has entered into funding agreements with the FHLB under guaranteed investment contracts whereby the Company has issued the funding agreements in exchange for cash and for which the FHLB has been granted a blanket lien on the Company's commercial and residential mortgage-backed securities and commercial mortgage loans used to collateralize the Company's obligations under the funding agreements. The Company maintains control over these pledged assets, and may use, commingle, encumber or dispose of any portion of the collateral as long as there is no event of default and the remaining qualified collateral is sufficient to satisfy the collateral maintenance level. The funding agreements and the related security agreements represented by this blanket lien provide that upon any event of default by the Company, the FHLB's recovery is limited to the amount of the Company's liability under the outstanding funding agreements. The amount of the Company's liability for the funding agreements with the FHLB under guaranteed investment contracts was $1.7 billion at June 30, 2019 and December 31, 2018, respectively, which is included in interest sensitive contract liabilities on the Company's condensed consolidated balance sheets. The advances on these agreements are collateralized primarily by commercial and residential mortgage-backed securities, commercial mortgage loans, and U.S. Treasury and government agency securities. The amount of collateral exceeds the liability and is dependent on the type of assets collateralizing the guaranteed investment contracts.

Investments

Management of Investments

The Company's investment and derivative strategies involve matching the characteristics of its reinsurance products and other obligations and to seek to closely approximate the interest rate sensitivity of the assets with estimated interest rate sensitivity of the reinsurance liabilities. The Company achieves its income objectives through strategic and tactical asset allocations, security and derivative strategies within an asset/liability management and disciplined risk management framework. Derivative strategies are employed within the Company's risk management framework to help manage duration, currency, and other risks in assets and/or liabilities and to replicate the credit characteristics of certain assets. For a discussion of the Company's risk management process see "Market and Credit Risk" in the "Enterprise Risk Management" section of the Company's 2018 Annual Report.

The Company's portfolio management groups work with the Enterprise Risk Management function to develop the investment policies for the assets of the Company's domestic and international investment portfolios. All investments held by the Company, directly or in a funds withheld at interest reinsurance arrangement, are monitored for conformance with the Company's stated investment policy limits as well as any limits prescribed by the applicable jurisdiction's insurance laws and regulations. See Note 4 – "Investments" in the Notes to Condensed Consolidated Financial Statements for additional information regarding the Company's investments.

Portfolio Composition

The Company had total cash and invested assets of $63.3 billion and $56.1 billion at June 30, 2019 and December 31, 2018, respectively, as illustrated below (dollars in thousands):

	June 30, 2019	% of Total	December 31, 2018	% of Total
Fixed maturity securities, available-for-sale	$ 46,189,305	72.9%	$ 39,992,346	71.3%
Equity securities	146,755	0.2	82,197	0.1
Mortgage loans on real estate	5,405,422	8.5	4,966,298	8.8
Policy loans	1,319,722	2.1	1,344,980	2.4
Funds withheld at interest	5,696,217	9.0	5,761,471	10.3
Short-term investments	158,788	0.3	142,598	0.3
Other invested assets	2,121,406	3.4	1,915,297	3.4
Cash and cash equivalents	2,287,526	3.6	1,889,733	3.4
Total cash and invested assets	$ 63,325,141	100.0%	$ 56,094,920	100.0%

Investment Yield

The following table presents consolidated average invested assets at amortized cost, net investment income and investment yield, excluding spread related business. Spread related business is primarily associated with contracts on which the Company earns an interest rate spread between assets and liabilities. To varying degrees, fluctuations in the yield on other spread related business is generally subject to corresponding adjustments to the interest credited on the liabilities (dollars in thousands).

	Three months ended June 30,			Six months ended June 30,		
	2019	2018	Increase/ (Decrease)	2019	2018	Increase/ (Decrease)
Average invested assets at amortized cost	$ 28,486,745	$ 26,899,416	5.9%	$ 28,137,502	$ 26,816,599	4.9%
Net investment income	306,805	285,832	7.3%	617,034	582,305	6.0%
Investment yield (ratio of net investment income to average invested assets)	4.38%	4.32%	6 bps	4.43%	4.39%	4 bps

Investment yield increased for the three and six months ended June 30, 2019 in comparison to the same periods in the prior year primarily due to increased income from limited partnerships, which is included in other invested assets on the condensed consolidated balance sheets.

Fixed Maturity Securities Available-for-Sale

See “Fixed Maturity Securities Available-for-Sale” in Note 4 – “Investments” in the Notes to Condensed Consolidated Financial Statements for tables that provide the amortized cost, unrealized gains and losses, estimated fair value of these securities, and the other-than-temporary impairments in AOCI by sector as of June 30, 2019 and December 31, 2018.

The Company holds various types of fixed maturity securities available-for-sale and classifies them as corporate securities (“Corporate”), Canadian and Canadian provincial government securities (“Canadian government”), residential mortgage-backed securities (“RMBS”), asset-backed securities (“ABS”), commercial mortgage-backed securities (“CMBS”), U.S. government and agencies (“U.S. government”), state and political subdivisions, and other foreign government, supranational and foreign government-sponsored enterprises (“Other foreign government”). As of June 30, 2019 and December 31, 2018, approximately 95.8% and 95.6%, respectively, of the Company’s consolidated investment portfolio of fixed maturity securities were investment grade.

Important factors in the selection of investments include diversification, quality, yield, call protection and total rate of return potential. The relative importance of these factors is determined by market conditions and the underlying reinsurance liability and existing portfolio characteristics. The Company owns floating rate securities that represent approximately 16.6% and 16.0% of the total fixed maturity securities at June 30, 2019 and December 31, 2018, respectively. These investments have a higher degree of income variability than the other fixed income holdings in the portfolio due to the floating rate nature of the interest payments. The Company holds these investments to match specific floating rate liabilities primarily reflected in the condensed consolidated balance sheets as collateral finance notes, as well as to enhance asset management strategies.

The largest asset class in which fixed maturity securities were invested was corporate securities, which represented approximately 59.8% and 59.9% of total fixed maturity securities as of June 30, 2019 and December 31, 2018, respectively. See “Corporate Fixed Maturity Securities” in Note 4 – “Investments” in the Notes to Condensed Consolidated Financial Statements for tables showing the major industry types, which comprise the corporate fixed maturity holdings at June 30, 2019 and December 31, 2018.

As of June 30, 2019, the Company's investments in Canadian government securities represented 9.9% of the fair value of total fixed maturity securities compared to 9.7% of the fair value of total fixed maturities at December 31, 2018. These assets are primarily high quality, long duration provincial strips, the valuation of which is closely linked to the interest rate curve. These assets are longer in duration and held primarily for asset/liability management to meet Canadian regulatory requirements. See "Fixed Maturity Securities Available-for-Sale" in Note 4 – "Investments" in the Notes to Condensed Consolidated Financial Statements for tables showing the various sectors as of June 30, 2019 and December 31, 2018.

The Company references rating agency designations in some of its investments disclosures. These designations are based on the ratings from nationally recognized statistical rating organizations, primarily Moody's, S&P and Fitch. Structured securities held by the Company's insurance subsidiaries that maintain the NAIC statutory basis of accounting utilize the NAIC rating methodology. The NAIC assigns designations to publicly traded as well as privately placed securities. The designations assigned by the NAIC range from class 1 to class 6, with designations in classes 1 and 2 generally considered investment grade (BBB or higher rating agency designation). NAIC designations in classes 3 through 6 are generally considered below investment grade (BB or lower rating agency designation).

The quality of the Company's available-for-sale fixed maturity securities portfolio, as measured at fair value and by the percentage of fixed maturity securities invested in various ratings categories, relative to the entire available-for-sale fixed maturity security portfolio, at June 30, 2019 and December 31, 2018 was as follows (dollars in thousands):

		June 30, 2019			December 31, 2018		
NAIC Designation	Rating Agency Designation	Amortized Cost	Estimated Fair Value	% of Total	Amortized Cost	Estimated Fair Value	% of Total
1	AAA/AA/A	$ 27,571,234	$ 30,513,833	66.1%	$ 24,904,526	$ 26,180,440	65.5%
2	BBB	12,941,492	13,705,079	29.7	12,141,601	12,023,426	30.1
3	BB	1,389,207	1,407,595	3.0	1,409,235	1,371,328	3.4
4	B	489,829	495,219	1.1	395,694	385,670	1.0
5	CCC and lower	15,120	15,890	—	13,183	12,860	—
6	In or near default	50,736	51,689	0.1	17,929	18,622	—
	Total	$ 42,457,618	$ 46,189,305	100.0%	$ 38,882,168	$ 39,992,346	100.0%

The Company's fixed maturity portfolio includes structured securities. The following table shows the types of structured securities the Company held at June 30, 2019 and December 31, 2018 (dollars in thousands):

	June 30, 2019		December 31, 2018	
	Amortized Cost	Estimated Fair Value	Amortized Cost	Estimated Fair Value
RMBS:				
Agency	$ 893,169	$ 928,931	$ 811,044	$ 814,568
Non-agency	1,321,794	1,347,584	1,061,192	1,054,653
Total RMBS	2,214,963	2,276,515	1,872,236	1,869,221
CMBS	1,687,024	1,747,285	1,428,115	1,419,034
ABS	2,482,012	2,494,664	2,171,254	2,149,204
Total	$ 6,383,999	$ 6,518,464	$ 5,471,605	$ 5,437,459

The Company's RMBS include agency-issued pass-through securities and collateralized mortgage obligations. A majority of the agency-issued pass-through securities are guaranteed or otherwise supported by the Federal Home Loan Mortgage Corporation, the Federal National Mortgage Association, or the Government National Mortgage Association. The principal risks inherent in holding mortgage-backed securities are prepayment and extension risks, which will affect the timing of when cash will be received and are dependent on the level of mortgage interest rates. Prepayment risk is the unexpected increase in principal payments from the expected, primarily as a result of owner refinancing. Extension risk relates to the unexpected slowdown in principal payments from the expected. In addition, non-agency mortgage-backed securities face credit risk should the borrower be unable to pay the contractual interest or principal on their obligation. The Company monitors its mortgage-backed securities to mitigate exposure to the cash flow uncertainties associated with these risks.

The Company's ABS portfolio primarily consists of collateralized loan obligations among other collateral types. The principal risks in holding asset-backed securities are structural, credit, capital market and interest rate risks. Structural risks include the securities' cash flow priority in the capital structure and the inherent prepayment sensitivity of the underlying collateral. Credit risks include the adequacy and ability to realize proceeds from the collateral. Credit risks are mitigated by credit enhancements that include excess spread, over-collateralization and subordination. Capital market risks include general level of interest rates and the liquidity for these securities in the marketplace.

The Company monitors its fixed maturity securities to determine impairments in value and evaluates factors such as financial condition of the issuer, payment performance, the length of time and the extent to which the market value has been below amortized cost, compliance with covenants, general market and industry sector conditions, current intent and ability to hold securities, and various other subjective factors. Based on management's judgment, securities determined to have an other-than-temporary impairment in value are written down to fair value. See "Investments – Other-than-Temporary Impairment" in Note 2 – "Significant Accounting Policies and Pronouncements" in the Notes to Consolidated Financial Statements in the 2018 Annual Report for additional information. The table below summarizes other-than-temporary impairments and changes in the mortgage loan provision for the three and six months ended June 30, 2019 and 2018 (dollars in thousands).

	Three months ended June 30,		Six months ended June 30,	
	2019	2018	2019	2018
Impairment losses on fixed maturity securities	$ —	$ 3,350	$ 9,453	$ 3,350
Other impairment losses	5,139	512	7,071	1,340
Change in mortgage loan provision	470	845	397	329
Total	$ 5,609	$ 4,707	$ 16,921	$ 5,019

There were no fixed maturity securities impairments for the three months ended June 30, 2019. The fixed maturity securities impairments for the six months ended June 30, 2019 were primarily related to a U.S. utility company. The fixed maturity securities impairments for the three and six months ended June 30, 2018 were primarily related to high-yield corporate securities. In addition, other impairment losses for the three months ended June 30, 2019 were primarily due to impairments on limited partnerships. Other impairment losses for the six months ended June 30, 2019 were primarily due to impairments on real estate joint ventures and limited partnerships. Other impairment losses for the three and six months ended June 30, 2018 were primarily due to impairments on real estate joint ventures.

At June 30, 2019 and December 31, 2018, the Company had $96.4 million and $748.5 million, respectively, of gross unrealized losses related to its fixed maturity securities. The distribution of the gross unrealized losses related to these securities is shown below.

	June 30, 2019	December 31, 2018
Sector:		
Corporate	73.4%	74.2%
Canadian government	0.1	0.3
RMBS	3.2	3.4
ABS	13.6	4.4
CMBS	0.5	2.4
U.S. government	0.4	7.7
State and political subdivisions	1.6	1.2
Other foreign government	7.2	6.4
Total	100.0%	100.0%
Industry:		
Finance	20.0%	27.5%
Asset-backed	13.6	4.4
Industrial	47.4	38.2
Mortgage-backed	3.7	5.8
Government	9.3	15.6
Utility	6.0	8.5
Total	100.0%	100.0%

See "Unrealized Losses for Fixed Maturity Securities Available-for-Sale" in Note 4 – "Investments" in the Notes to Condensed Consolidated Financial Statements for a table that presents the total gross unrealized losses for these securities at June 30, 2019 and December 31, 2018, where the estimated fair value had declined and remained below amortized cost by less than 20% or more than 20%.

The Company's determination of whether a decline in value is other-than-temporary includes analysis of the underlying credit and the extent and duration of a decline in value. The Company's credit analysis of an investment includes determining whether the issuer is current on its contractual payments, evaluating whether it is probable that the Company will be able to collect all amounts due according to the contractual terms of the security and analyzing the overall ability of the Company to recover the amortized cost of the investment.

See "Unrealized Losses for Fixed Maturity Securities Available-for-Sale" in Note 4 – "Investments" in the Notes to Condensed Consolidated Financial Statements for tables that present the estimated fair values and gross unrealized losses, including other-than-temporary impairment losses reported in AOCI, for these securities that have estimated fair values below amortized cost, by class and grade security, as well as the length of time the related market value has remained below amortized cost as of June 30, 2019 and December 31, 2018.

As of June 30, 2019 and December 31, 2018, the Company classified approximately 5.4% and 5.0%, respectively, of its fixed maturity securities in the Level 3 category (refer to Note 6 – "Fair Value of Assets and Liabilities" in the Notes to Condensed Consolidated Financial Statements for additional information). These securities primarily consist of private placement corporate securities, bank loans, and Canadian provincial strips with inactive trading markets.

See "Securities Borrowing, Lending and Other" in Note 4 - "Investments" in the Notes to Condensed Consolidated Financial Statements for information related to the Company's securities borrowing, lending, repurchase and repurchase/reverse repurchase programs.

Mortgage Loans on Real Estate

Mortgage loans represented approximately 8.5% and 8.8% of the Company's cash and invested assets as of June 30, 2019 and December 31, 2018, respectively. The Company's mortgage loan portfolio consists of U.S., Canada and United Kingdom based investments primarily in commercial offices, light industrial properties and retail locations. The mortgage loan portfolio is diversified by geographic region and property type. The mortgage loan portfolio was diversified by geographic region and property type discussed further under "Mortgage Loans on Real Estate" in Note 4 – "Investments" in the Notes to Condensed Consolidated Financial Statements.

As of June 30, 2019 and December 31, 2018, the Company's mortgage loans, gross of unamortized deferred loan origination fees and expenses and valuation allowances, were distributed geographically as follows (dollars in thousands):

	June 30, 2019		December 31, 2018	
	Recorded Investment	% of Total	Recorded Investment	% of Total
U.S. Region:				
Pacific	$ 1,389,504	25.5%	$ 1,396,346	28.0%
South Atlantic	993,143	18.3	964,174	19.3
Mountain	772,054	14.2	693,281	13.9
East North Central	694,241	12.8	605,608	12.2
West North Central	296,537	5.5	288,949	5.8
West South Central	751,789	13.9	567,541	11.4
Middle Atlantic	200,513	3.7	202,235	4.1
East South Central	138,580	2.6	117,588	2.4
New England	5,554	0.1	5,609	0.1
Subtotal - U.S.	5,241,915	96.6	4,841,331	97.2
Canada	155,651	2.9	135,394	2.7
United Kingdom	26,579	0.5	6,629	0.1
Total	$ 5,424,145	100.0%	$ 4,983,354	100.0%

Valuation allowances on mortgage loans are established based upon inherent losses expected by management to be realized in connection with future dispositions or settlement of mortgage loans, including foreclosures. The valuation allowances are established after management considers, among other things, the value of underlying collateral and payment capabilities of debtors. Any subsequent adjustments to the valuation allowances will be treated as investment gains or losses. See "Mortgage Loans on Real Estate" in Note 4 – "Investments" in the Notes to Condensed Consolidated Financial Statements for information regarding valuation allowances and impairments.

Policy Loans

Policy loans comprised approximately 2.1% and 2.4% of the Company’s cash and invested assets as of June 30, 2019 and December 31, 2018, respectively, the majority of which are associated with one client. These policy loans present no credit risk because the amount of the loan cannot exceed the obligation due the ceding company upon the death of the insured or surrender of the underlying policy. The provisions of the treaties in force and the underlying policies determine the policy loan interest rates. The Company earns a spread between the interest rate earned on policy loans and the interest rate credited to corresponding liabilities.

Funds Withheld at Interest

Funds withheld at interest comprised approximately 9.0% and 10.3% of the Company’s cash and invested assets as of June 30, 2019 and December 31, 2018, respectively. For reinsurance agreements written on a modified coinsurance basis and certain agreements written on a coinsurance basis, assets equal to the net statutory reserves are withheld and legally owned and managed by the ceding company, and are reflected as funds withheld at interest on the Company’s condensed consolidated balance sheets. In the event of a ceding company’s insolvency, the Company would need to assert a claim on the assets supporting its reserve liabilities. However, the risk of loss to the Company is mitigated by its ability to offset amounts it owes the ceding company for claims or allowances against amounts owed by the ceding company. Interest accrues to the total funds withheld at interest assets at rates defined by the treaty terms. The Company is subject to the investment performance on the withheld assets, although it does not directly control them. These assets are primarily fixed maturity investment securities and pose risks similar to the fixed maturity securities the Company owns. To mitigate this risk, the Company helps set the investment guidelines followed by the ceding company and monitors compliance. Ceding companies with funds withheld at interest had an average financial strength rating of “A” at June 30, 2019 and December 31, 2018. Certain ceding companies maintain segregated portfolios for the benefit of the Company.

Other Invested Assets

Other invested assets include limited partnership interests, joint ventures (other than operating joint ventures), equity release mortgages, derivative contracts, FVO contractholder-directed unit-linked investments and FHLB common stock. Other invested assets represented approximately 3.4% of the Company’s cash and invested assets as of both June 30, 2019 and December 31, 2018. See “Other Invested Assets” in Note 4 – “Investments” in the Notes to Condensed Consolidated Financial Statements for a table that presents the carrying value of the Company’s other invested assets by type as of June 30, 2019 and December 31, 2018.

The Company utilizes derivative financial instruments to protect the Company against possible changes in the fair value of its investment portfolio as a result of interest rate changes, to hedge liabilities associated with the reinsurance of variable annuities with guaranteed living benefits and to manage the portfolio’s effective yield, maturity and duration. In addition, the Company utilizes derivative financial instruments to reduce the risk associated with fluctuations in foreign currency exchange rates. The Company uses exchange-traded, centrally cleared, and customized over-the-counter derivative financial instruments.

See Note 5 - “Derivative Instruments” in the Notes to Condensed Consolidated Financial Statements for a table that presents the notional amounts and fair value of investment related derivative instruments held at June 30, 2019 and December 31, 2018.

The Company may be exposed to credit-related losses in the event of non-performance by counterparties to derivative financial instruments. Generally, the credit exposure of the Company’s derivative contracts is limited to the fair value at the reporting date plus or minus any collateral posted or held by the Company. The Company had no credit exposure related to its derivative contracts, excluding futures and mortality swaps, at June 30, 2019 and December 31, 2018, as the net amount of collateral pledged to the Company from counterparties exceeded the fair value of the derivative contracts.

The Company manages its credit risk related to over-the-counter derivatives by entering into transactions with creditworthy counterparties, maintaining collateral arrangements and through the use of master agreements that provide for a single net payment to be made by one counterparty to another at each due date and upon termination. As exchange-traded futures are affected through regulated exchanges, and positions are marked to market on a daily basis, the Company has minimal exposure to credit-related losses in the event of nonperformance by counterparties. See Note 5 - “Derivative Instruments” in the Notes to Condensed Consolidated Financial Statements for more information regarding the Company’s derivative instruments.

The Company holds beneficial interests in equity release mortgages in the United Kingdom. Equity release mortgages represent loans provided to individuals 55 years of age and older secured by the borrower’s residence. Equity release mortgages are comparable to a home equity loan by allowing the borrower to utilize the equity in their home as collateral. The amount of the loan is dependent on the appraised value of the home at the time of origination, the borrower's age and interest rate. Unlike a home equity loan, no payment of principal or interest is required until the death of the borrower or sale of the home. Equity release mortgages may be fully funded at origination, or the borrower can request periodic funding similar to a line of credit. Equity release mortgages are subject to risks, including market, credit, interest rate, liquidity, operational, reputational and legal risks.

Other invested assets include $641.6 million and $475.9 million of equity release mortgages as of June 30, 2019 and December 31, 2018, respectively. Equity release mortgage investment income was $8.4 million and $3.9 million for the three months ended June 30, 2019 and 2018, respectively, and $15.7 million and $7.2 million for the six months ended June 30, 2019 and 2018, respectively.

New Accounting Standards

See Note 14 — "New Accounting Standards" in the Notes to Condensed Consolidated Financial Statements.

ITEM 3. Quantitative and Qualitative Disclosures About Market Risk

Market risk is the risk of fluctuations in the value of financial instruments as a result of absolute or relative changes in interest rates, foreign currency exchange rates, equity prices or commodity prices. To varying degrees, the Company products and services, and the investment activities supporting them, generate exposure to market risk. The market risk incurred, and the Company's strategies for managing this risk, vary by product. As of June 30, 2019, there have been no material changes in the Company's economic exposure to market risk or the Company's Enterprise Risk Management function from December 31, 2018, a description of which may be found in its Annual Report on Form 10-K, for the year ended December 31, 2018, Item 7A, "Quantitative and Qualitative Disclosures about Market Risk," filed with the Securities and Exchange Commission.

ITEM 4. Controls and Procedures

The Chief Executive Officer and the Chief Financial Officer have evaluated the effectiveness of the design and operation of the Company's disclosure controls and procedures as defined in Exchange Act Rule 13a-15(e) as of the end of the period covered by this report. Based on that evaluation, the Chief Executive Officer and the Chief Financial Officer concluded that these disclosure controls and procedures were effective.

There was no change in the Company's internal control over financial reporting as defined in Exchange Act Rule 13a-15(f) during the quarter ended June 30, 2019, that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

PART II - OTHER INFORMATION

ITEM 1. Legal Proceedings

The Company is subject to litigation in the normal course of its business. The Company currently has no material litigation. A legal reserve is established when the Company is notified of an arbitration demand or litigation or is notified that an arbitration demand or litigation is imminent, it is probable that the Company will incur a loss as a result and the amount of the probable loss is reasonably capable of being estimated.

ITEM 1A. Risk Factors

There were no material changes from the risk factors disclosed in the 2018 Annual Report.

ITEM 2. Unregistered Sales of Equity Securities and Use of Proceeds

Issuer Purchases of Equity Securities

The following table summarizes RGA's repurchase activity of its common stock during the quarter ended June 30, 2019:

	Total Number of Shares Purchased (1)	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs (1)	Maximum Number (or Approximate Dollar Value) of Shares that May Yet Be Purchased Under the Plan or Program
April 1, 2019 - April 30, 2019	6,746	$ 150.39	—	$ 39,579,388
May 1, 2019 - May 31, 2019	97,139	$ 149.46	—	$ 39,579,388
June 1, 2019 - June 30, 2019	1,154	$ 151.66	—	$ 39,579,388

(1) RGA had no repurchases of common stock under its share repurchase program for the second quarter of 2019. The Company net settled - issuing 19,838, 266,451 and 3,714 shares from treasury and repurchased from recipients 6,746, 97,139 and 1,154 shares in April, May and June 2019, respectively, in settlement of income tax withholding requirements incurred by the recipients of equity incentive awards.

On January 24, 2019, RGA's board of directors authorized a share repurchase program, with no expiration date, for up to $400.0 million of RGA's outstanding common stock.

ITEM 6. Exhibits

See index to exhibits.

INDEX TO EXHIBITS

Exhibit Number	Description
3.1	Amended and Restated Articles of Incorporation, as amended by Amendment of Articles of Incorporation, effective as of May 23, 2018, incorporated by reference to Exhibit 3.1 to Quarterly Report on Form 10-Q for the period ended June 30, 2018, filed on August 3, 2018.
3.2	Amended and Restated Bylaws, effective as of May 23, 2018, incorporated by reference to Exhibit 3.2 to Current Report on Form 8-K filed on May 24, 2018.
10.1	First Amendment to Letter of Credit Reimbursement Agreement, dated as of June 14, 2019, by and between Reinsurance Group of America, Incorporated and Crédit Agricole Corporate and Investment Bank, incorporated by reference to Exhibit 10.1 to Current Report on Form 8-K filed on June 18, 2019.
31.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document - the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Reinsurance Group of America, Incorporated

Date: August 2, 2019	By:	/s/ Anna Manning Anna Manning President & Chief Executive Officer (Principal Executive Officer)
Date: August 2, 2019	By:	/s/ Todd C. Larson Todd C. Larson Senior Executive Vice President & Chief Financial Officer (Principal Financial and Accounting Officer)

Exhibit 31.1

CEO CERTIFICATION

I, Anna Manning, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Reinsurance Group of America, Incorporated;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: August 2, 2019

/s/ Anna Manning
Anna Manning
President & Chief Executive Officer

Exhibit 31.2

CFO CERTIFICATION

I, Todd C. Larson, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Reinsurance Group of America, Incorporated;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: August 2, 2019

/s/ Todd C. Larson
Todd C. Larson
Senior Executive Vice President
& Chief Financial Officer

Exhibit 32.1

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of Reinsurance Group of America, Incorporated and subsidiaries, (the “Company”), for the quarterly period ended June 30, 2019, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), Anna Manning, Chief Executive Officer of the Company, certifies, to her best knowledge and belief, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: August 2, 2019

/s/ Anna Manning
Anna Manning
President & Chief Executive Officer

Exhibit 32.2

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of Reinsurance Group of America, Incorporated and subsidiaries, (the “Company”), for the quarterly period ended June 30, 2019, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), Todd C. Larson, Chief Financial Officer of the Company, certifies, to his best knowledge and belief, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: August 2, 2019

/s/ Todd C. Larson
Todd C. Larson
Chief Financial Officer
& Senior Executive Vice President