REINSURANCE GROUP OF AMERICA INC
Form 10-Q
November 02, 2018
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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-Q

(Mark One)

x	QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 For the quarterly period ended September 30, 2018
	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 x 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 o Emerging growth company o

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

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

As of October 31, 2018, 62,774,675 shares of the registrant's common stock were outstanding.

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PART I - FINANCIAL INFORMATION
ITEM 1. Financial Statements

REINSURANCE GROUP OF AMERICA, INCORPORATED AND SUBSIDIARIES
CONDENSED CONSOLIDATED BALANCE SHEETS
(Unaudited)

	September 30, 2018	December 31, 2017
	(Dollars in thousands, except share data)	
Assets		
Fixed maturity securities available-for-sale, at fair value (amortized cost $37,751,132 and $35,281,412)	$ 39,005,212	$ 38,150,820
Equity securities, at fair value (cost $111,248 and $102,841)	101,069	100,152
Mortgage loans on real estate (net of allowances of $10,366 and $9,384)	4,779,074	4,400,533
Policy loans	1,320,050	1,357,624
Funds withheld at interest	5,976,301	6,083,388
Short-term investments	229,928	93,304
Other invested assets	1,706,979	1,505,332
Total investments	53,118,613	51,691,153
Cash and cash equivalents	1,730,489	1,303,524
Accrued investment income	455,296	392,721
Premiums receivable and other reinsurance balances	2,779,556	2,338,481
Reinsurance ceded receivables	769,324	782,027
Deferred policy acquisition costs	3,211,145	3,239,824
Other assets	908,219	767,088
Total assets	$ 62,972,642	$ 60,514,818
Liabilities and Stockholders' Equity		
Future policy benefits	$ 25,139,148	$ 22,363,241
Interest-sensitive contract liabilities	16,751,379	16,227,642
Other policy claims and benefits	5,424,347	4,992,074
Other reinsurance balances	482,235	488,739
Deferred income taxes	1,883,848	2,198,309
Other liabilities	1,213,595	1,102,975
Long-term debt	2,787,975	2,788,365
Collateral finance and securitization notes	710,792	783,938
Total liabilities	54,393,319	50,945,283
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 September 30, 2018 and December 31, 2017	791	791
Additional paid-in capital	1,899,144	1,870,906
Retained earnings	7,215,526	6,736,265
Treasury stock, at cost - 16,186,890 and 14,685,663 shares	(1,348,943)	(1,102,058)
Accumulated other comprehensive income	812,805	2,063,631
Total stockholders' equity	8,579,323	9,569,535

Total liabilities and stockholders' equity	$ 62,972,642	$ 60,514,818

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

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

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Revenues:	(Dollars in thousands, except per share data)			
Net premiums	$2,562,042	$2,489,797	$7,739,053	$7,335,944
Investment income, net of related expenses	572,742	556,918	1,617,132	1,589,820
Investment related gains (losses), net:				
Other-than-temporary impairments on fixed maturity securities	(10,705)	(390)	(14,055)	(20,980)
Other investment related gains (losses), net	(9,312)	23,043	(17,004)	160,451
Total investment related gains (losses), net	(20,017)	22,653	(31,059)	139,471
Other revenues	112,764	75,942	272,020	218,091
Total revenues	3,227,531	3,145,310	9,597,146	9,283,326
Benefits and Expenses:				
Claims and other policy benefits	2,209,920	2,100,680	6,851,614	6,371,188
Interest credited	143,292	126,099	333,068	349,068
Policy acquisition costs and other insurance expenses	310,639	365,424	987,817	1,064,645
Other operating expenses	200,262	168,417	586,495	481,279
Interest expense	33,290	36,836	107,769	108,590
Collateral finance and securitization expense	7,467	7,692	22,509	21,235
Total benefits and expenses	2,904,870	2,805,148	8,889,272	8,396,005
Income before income taxes	322,661	340,162	707,874	887,321
Provision for income taxes	21,462	112,571	102,071	282,028
Net income	$301,199	$227,591	$605,803	$605,293
Earnings per share:				
Basic earnings per share	$4.76	$3.53	$9.47	$9.39
Diluted earnings per share	$4.68	$3.47	$9.30	$9.23
Dividends declared per share	$0.60	$0.50	$1.60	$1.32

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

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

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Comprehensive income (loss)	(Dollars in thousands)			
Net income	$301,199	$227,591	$605,803	$605,293
Other comprehensive income (loss), net of tax:				
Foreign currency translation adjustments	25,462	46,733	(30,375)	68,085
Net unrealized investment gains (losses)	(215,986)	(93,574)	(1,218,309)	415,870
Defined benefit pension and postretirement plan adjustments	931	700	431	2,473
Total other comprehensive income (loss), net of tax	(189,593)	(46,141)	(1,248,253)	486,428
Total comprehensive income (loss)	$111,606	$181,450	$(642,450)	$1,091,721

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

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

	Nine months ended September 30,	
	2018	2017
	(Dollars in thousands)	
Cash Flows from Operating Activities:		
Net income	$605,803	$605,293
Adjustments to reconcile net income to net cash provided by operating activities:		
Change in operating assets and liabilities:		
Accrued investment income	23,473	(63,321)
Premiums receivable and other reinsurance balances	(519,107)	(421,027)
Deferred policy acquisition costs	23,682	67,471
Reinsurance ceded receivable balances	37,468	(120,013)
Future policy benefits, other policy claims and benefits, and other reinsurance balances	920,492	982,164
Deferred income taxes	(8,136)	236,185
Other assets and other liabilities, net	(47,978)	78,848
Amortization of net investment premiums, discounts and other	(55,154)	(95,227)
Depreciation and amortization expense	32,153	21,384
Investment related (gains) losses, net	31,059	(139,471)
Other, net	56,408	(47,787)
Net cash provided by operating activities	1,100,163	1,104,499
Cash Flows from Investing Activities:		
Sales of fixed maturity securities available-for-sale	6,314,968	6,364,236
Maturities of fixed maturity securities available-for-sale	461,764	385,993
Sales of equity securities	44,952	192,821
Principal payments and sales of mortgage loans on real estate	290,450	208,052
Principal payments on policy loans	43,995	93,286
Purchases of fixed maturity securities available-for-sale	(6,041,665)	(7,450,749)
Purchases of equity securities	(12,578)	(60,790)
Cash invested in mortgage loans on real estate	(671,956)	(751,702)
Cash invested in policy loans	(6,422)	(5,830)
Cash invested in funds withheld at interest	(61,969)	(12,597)
Purchase of businesses, net of cash acquired of $4,988	(31,441)	—
Purchases of property and equipment	(20,478)	(33,242)
Change in short-term investments	34,856	65,664
Change in other invested assets	(313,464)	(51,476)
Net cash provided by (used in) investing activities	31,012	(1,056,334)
Cash Flows from Financing Activities:		
Dividends to stockholders	(102,441)	(85,086)
Repayment of collateral finance and securitization notes	(75,146)	(56,637)
Principal payments of long-term debt	(2,007)	(301,927)
Purchases of treasury stock	(273,873)	(41,360)
Exercise of stock options, net	2,336	4,450
Change in cash collateral for derivative positions and other arrangements	(21,288)	(46,206)
Deposits on universal life and other investment type policies and contracts	320,871	1,007,563
Withdrawals on universal life and other investment type policies and contracts	(520,649)	(568,789)

Net cash used in financing activities	(672,197)	(87,992)
Effect of exchange rate changes on cash	(32,013)	43,699
Change in cash and cash equivalents	426,965	3,872
Cash and cash equivalents, beginning of period	1,303,524	1,200,718
Cash and cash equivalents, end of period	$1,730,489	$1,204,590
Supplemental disclosures of cash flow information:		
Interest paid	$124,575	$129,136
Income taxes paid, net of refunds	$99,554	$27,385
Non-cash transactions:		
Transfer of invested assets	$3,763,195	$2,247,136
Purchase of businesses:		
Assets acquired, excluding cash acquired	$69,853	$—
Liabilities assumed	(38,412)	—
Net cash paid on purchase	$31,441	$—

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

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

1. Business and Basis of Presentation

Reinsurance Group of America, Incorporated ("RGA") is an insurance holding company that was formed on December 31, 1992. The accompanying unaudited condensed consolidated financial statements of RGA and its subsidiaries (collectively, 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. Accordingly, these condensed consolidated financial statements do not include all of the information and footnotes required by GAAP for complete financial statements. In the opinion of management, all adjustments, including normal recurring adjustments necessary for a fair presentation have been included. Results for the nine months ended September 30, 2018 are not necessarily indicative of the results that may be expected for the year ending December 31, 2018. These unaudited condensed consolidated financial statements include the accounts of RGA and its subsidiaries, and all intercompany accounts and transactions have been eliminated. These condensed consolidated statements should be read in conjunction with the Company's 2017 Annual Report on Form 10-K filed with the Securities and Exchange Commission ("SEC") on February 27, 2018 (the "2017 Annual Report").

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 September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Earnings:				
Net income (numerator for basic and diluted calculations)	$301,199	$227,591	$605,803	$605,293
Shares:				
Weighted average outstanding shares (denominator for basic calculation)	63,279	64,488	63,941	64,430
Equivalent shares from outstanding stock options	1,017	1,165	1,189	1,174
Denominator for diluted calculation	64,296	65,653	65,130	65,604
Earnings per share:				
Basic	$4.76	$3.53	$9.47	$9.39
Diluted	$4.68	$3.47	$9.30	$9.23

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 September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Excluded from common equivalent shares:				
Stock options	227	87	349	296
Performance contingent shares	276	307	256	293

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3. Equity

Common Stock

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

	Issued	Held In Treasury	Outstanding
Balance, December 31, 2017	79,137,758	14,685,663	64,452,095
Common stock acquired	—	1,750,295	(1,750,295)
Stock-based compensation [1]	—	(249,068)	249,068
Balance, September 30, 2018	79,137,758	16,186,890	62,950,868

	Issued	Held In Treasury	Outstanding
Balance, December 31, 2016	79,137,758	14,835,256	64,302,502
Common stock acquired	—	208,680	(208,680)
Stock-based compensation [1]	—	(274,449)	274,449
Balance, September 30, 2017	79,137,758	14,769,487	64,368,271

(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 2017, RGA's board of directors authorized a share 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. During the first nine months of 2018, RGA repurchased 1.8 million shares of common stock under this program for $258.5 million. During the first nine months of 2017, RGA repurchased 0.2 million shares of common stock under this program for $26.9 million.

Accumulated Other Comprehensive Income (Loss)

The balance of and changes in each component of accumulated other comprehensive income (loss) ("AOCI") for the nine months ended September 30, 2018 and 2017 are as follows (dollars in thousands):

	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	(24,977)	(1,638,146)	(3,391)	(1,666,514)
Amounts reclassified to (from) AOCI	—	79,505	3,986	83,491
Deferred income tax benefit (expense)	(5,398)	340,332	(164)	334,770
Adoption of new accounting standard	(2,573)	—	—	(2,573)
Balance, September 30, 2018	$ (119,298)	$ 982,352	$ (50,249)	$812,805

	Accumulated Currency Translation Adjustments	Unrealized Appreciation (Depreciation) of Investments[1]	Pension and Postretirement Benefits	Total
Balance, December 31, 2016	$ (172,541)	$ 1,355,033	$ (43,163)	$1,139,329
Other comprehensive income (loss) before reclassifications	23,117	671,564	(191)	694,490

Amounts reclassified to (from) AOCI	—	(51,407)	4,006	(47,401)
Deferred income tax benefit (expense)	44,968	(204,287)	(1,342)	(160,661)
Balance, September 30, 2017	$ (104,456)	$ 1,770,903	$ (40,690)	$ 1,625,757

(1) Includes cash flow hedges of $29,043 and $2,619 as of September 30, 2018 and December 31, 2017, respectively, and $347 and $(2,496) as of September 30, 2017 and December 31, 2016, respectively. See Note 5 - “Derivative Instruments” for additional information on cash flow hedges.

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The following table presents the amounts of AOCI reclassifications for the three and nine months ended September 30, 2018 and 2017 (dollars in thousands):

	Amount Reclassified from AOCI				
	Three months ended September 30,		Nine months ended September 30,		
Details about AOCI Components	2018	2017	2018	2017	Affected Line Item in Statements of Income
Net unrealized investment gains (losses):					
Net unrealized gains (losses) on available-for-sale securities	$(21,249)	$10,515	$(60,347)	$39,032	Investment related gains (losses), net
Cash flow hedges - Interest rate	234	—	(108)	—	(1)
Cash flow hedges - Currency/Interest rate	50	230	270	560	(1)
Cash flow hedges - Forward bond purchase commitments	—	224	—	286	(1)
Deferred policy acquisition costs attributed to unrealized gains and losses	(4,893)	1,116	(19,320)	11,529	(2)
Total	(25,858)	12,085	(79,505)	51,407	
Provision for income taxes	5,355	(3,991)	16,978	(16,015)	
Net unrealized gains (losses), net of tax	$(20,503)	$8,094	$(62,527)	$35,392	
Amortization of defined benefit plan items:					
Prior service cost (credit)	$246	$590	$739	$732	(3)
Actuarial gains/(losses)	(1,866)	(1,661)	(4,725)	(4,738)	(3)
Total	(1,620)	(1,071)	(3,986)	(4,006)	
Provision for income taxes	340	375	837	1,402	
Amortization of defined benefit plans, net of tax	$(1,280)	$(696)	$(3,149)	$(2,604)	
Total reclassifications for the period	$(21,783)	$7,398	$(65,676)	$32,788	

(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 2017 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 $28.4 million and $17.1 million in the first nine months of 2018 and 2017, respectively. In the first quarter of 2018, the Company granted 0.2 million stock appreciation rights at $150.87 weighted average exercise price per share and 0.1 million performance contingent units to employees. Additionally, non-employee directors were granted a total of 7,623 shares of common stock. As of September 30, 2018, 1.5 million share options at a weighted average strike price per share of $66.48 were vested and exercisable, with a remaining weighted average exercise period of 4.3 years. As of September 30, 2018, the total compensation cost of non-vested awards not yet recognized in the condensed consolidated financial statements was $35.1 million. It is estimated that these costs will vest over a weighted average period of 1.3 years.

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4. Investments

Fixed Maturity and Equity 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 table provides information relating to investments in fixed maturity securities by sector as of September 30, 2018 (dollars in thousands):

September 30, 2018:	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value	% of Total	Other-than-temporary impairments in AOCI
Available-for-sale:						
Corporate	$24,271,467	$594,444	$416,413	$24,449,498	62.7 %	$ —
Canadian government	2,902,433	1,138,426	4,109	4,036,750	10.3	—
RMBS	1,816,949	14,235	50,422	1,780,762	4.6	—
ABS	1,867,650	10,312	14,945	1,863,017	4.8	275
CMBS	1,282,015	8,403	16,884	1,273,534	3.3	—
U.S. government	1,500,703	6,359	94,653	1,412,409	3.6	—
State and political subdivisions	889,218	36,410	13,637	911,991	2.3	—
Other foreign government	3,220,697	98,574	42,020	3,277,251	8.4	—
Total fixed maturity securities	$37,751,132	$1,907,163	$653,083	$39,005,212	100.0%	$ 275

The following table provides information relating to investments in fixed maturity and equity securities by sector as of December 31, 2017 (dollars in thousands):

December 31, 2017:	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value	% of Total	Other-than-temporary impairments in AOCI
Available-for-sale:						
Corporate	$21,966,803	$1,299,594	$55,429	$23,210,968	60.9 %	$ —
Canadian government	2,843,273	1,378,510	1,707	4,220,076	11.1	—
RMBS	1,695,126	36,632	11,878	1,719,880	4.5	—
ABS	1,634,758	18,798	5,194	1,648,362	4.3	275
CMBS	1,285,594	22,627	4,834	1,303,387	3.4	—
U.S. government	1,953,436	12,089	21,933	1,943,592	5.1	—
State and political subdivisions	647,727	59,997	4,296	703,428	1.8	—
Other foreign government	3,254,695	154,507	8,075	3,401,127	8.9	—
Total fixed maturity securities	$35,281,412	$2,982,754	$113,346	$38,150,820	100.0%	$ 275
Non-redeemable preferred stock	$41,553	$479	$2,226	$39,806	39.7 %	
Other equity securities	61,288	479	1,421	60,346	60.3	
Total equity securities	$102,841	$958	$3,647	$100,152	100.0%	

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 September 30, 2018 and December 31, 2017, 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 September 30, 2018 and December 31, 2017 (dollars in thousands):

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	September 30, 2018		December 31, 2017	
	Amortized Cost	Estimated Fair Value	Amortized Cost	Estimated Fair Value
Fixed maturity securities pledged as collateral	$67,899	$ 69,792	$72,542	$ 75,622
Fixed maturity securities received as collateral	n/a	592,146	n/a	590,417
Assets in trust held to satisfy collateral requirements	19,263,724	19,670,559	15,584,296	16,715,281

The Company monitors its concentrations of financial instruments on an ongoing basis and mitigates credit risk by maintaining a diversified investment portfolio which 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 September 30, 2018 and December 31, 2017 (dollars in thousands).

	September 30, 2018		December 31, 2017	
	Amortized Cost	Estimated Fair Value	Amortized Cost	Estimated Fair Value
Fixed maturity securities guaranteed or issued by:				
Canadian province of Quebec	$1,158,326	$1,833,972	$1,119,337	$1,917,996
Canadian province of Ontario	951,186	1,225,712	939,837	1,282,944

The amortized cost and estimated fair value of fixed maturity securities classified as available-for-sale at September 30, 2018 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	$986,289	$993,352
Due after one year through five years	7,797,732	7,888,116
Due after five years through ten years	9,311,737	9,407,186
Due after ten years	14,688,760	15,799,245
Asset and mortgage-backed securities	4,966,614	4,917,313
Total	$37,751,132	$39,005,212

Corporate Fixed Maturity Securities

The tables below show the major industry types of the Company's corporate fixed maturity holdings as of September 30, 2018 and December 31, 2017 (dollars in thousands):

September 30, 2018:	Amortized Cost	Estimated Fair Value	% of Total	
Finance	$ 8,561,885	$8,564,254	35.1	%
Industrial	12,632,502	12,753,024	52.1	
Utility	3,077,080	3,132,220	12.8	
Total	$ 24,271,467	$24,449,498	100.0	%

December 31, 2017:	Amortized Cost	Estimated Fair Value	% of Total	
Finance	$ 7,977,885	$8,362,774	36.1	%
Industrial	11,535,166	12,199,333	52.5	
Utility	2,453,752	2,648,861	11.4	

Total	$ 21,966,803	$23,210,968	100.0 %

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Other-Than-Temporary Impairments - Fixed Maturity Securities

As discussed in Note 2 – "Summary of Significant Accounting Policies" of the 2017 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 following table sets forth the amount of pre-tax credit loss impairments on fixed maturity securities held by the Company as of the dates indicated, for which a portion of the OTTI loss was recognized in AOCI, and the corresponding changes in such amounts (dollars in thousands):

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Balance, beginning of period	$3,677	$3,677	$3,677	$6,013
Credit loss OTTI previously recognized on securities impaired to fair value during the period	—	—	—	(2,336)
Balance, end of period	$3,677	$3,677	$3,677	$3,677

Unrealized Losses for Fixed Maturity and Equity Securities Available-for-Sale

The following table presents the total gross unrealized losses for the 2,866 fixed maturity securities as of September 30, 2018, where the estimated fair value had declined and remained below amortized cost by the indicated amount (dollars in thousands):

	September 30, 2018	
	Gross Unrealized Losses	% of Total
Less than 20%	$640,481	98.1 %
20% or more for less than six months	309	—
20% or more for six months or greater	12,293	1.9
Total	$653,083	100.0 %

The following table presents the total gross unrealized losses for the 1,116 fixed maturity and equity securities at December 31, 2017 where the estimated fair value had declined and remained below amortized cost by the indicated amount (dollars in thousands):

	December 31, 2017	
	Gross Unrealized Losses	% of Total
Less than 20%	$113,466	97.0 %
20% or more for less than six months	689	0.6
20% or more for six months or greater	2,838	2.4
Total	$116,993	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 table presents the estimated fair values and gross unrealized losses, including other-than-temporary impairment losses reported in AOCI, for 2,866 fixed maturity securities that have estimated fair values below amortized cost as of September 30, 2018 (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.

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	Less than 12 months		12 months or greater		Total	
September 30, 2018:	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses
Investment grade securities:						
Corporate	$10,117,970	$303,926	$1,290,804	$81,236	$11,408,774	$385,162
Canadian government	58,816	1,211	107,167	2,736	165,983	3,947
RMBS	931,044	23,339	528,739	27,063	1,459,783	50,402
ABS	680,900	8,650	262,544	6,243	943,444	14,893
CMBS	555,716	8,304	207,943	8,580	763,659	16,884
U.S. government	197,114	3,913	1,002,661	90,740	1,199,775	94,653
State and political subdivisions	261,456	6,722	90,649	6,915	352,105	13,637
Other foreign government	1,034,417	24,666	297,566	11,062	1,331,983	35,728
Total investment grade securities	13,837,433	380,731	3,788,073	234,575	17,625,506	615,306
Below investment grade securities:						
Corporate	539,521	23,955	77,675	7,296	617,196	31,251
Canadian government	2,328	162	—	—	2,328	162
RMBS	—	—	1,102	20	1,102	20
ABS	—	—	1,110	52	1,110	52
Other foreign government	140,692	5,931	6,410	361	147,102	6,292
Total below investment grade securities	682,541	30,048	86,297	7,729	768,838	37,777
Total fixed maturity securities	$14,519,974	$410,779	$3,874,370	$242,304	$18,394,344	$653,083

The following table presents the estimated fair values and gross unrealized losses, including other-than-temporary impairment losses reported in AOCI, for 1,116 fixed maturity and equity securities that have estimated fair values below amortized cost as of December 31, 2017 (dollars in thousands):

	Less than 12 months		12 months or greater		Total	
December 31, 2017:	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses	Estimated Fair Value	Gross Unrealized Losses
Investment grade securities:						
Corporate	$1,886,212	$ 17,099	$1,009,750	$ 28,080	$2,895,962	$45,179
Canadian government	18,688	91	111,560	1,596	130,248	1,687
RMBS	566,699	5,852	224,439	6,004	791,138	11,856
ABS	434,274	2,707	168,524	2,434	602,798	5,141
CMBS	220,401	1,914	103,269	2,920	323,670	4,834
U.S. government	800,298	6,177	767,197	15,756	1,567,495	21,933
State and political subdivisions	43,510	242	68,666	4,054	112,176	4,296
Other foreign government	369,717	2,707	191,265	4,704	560,982	7,411
Total investment grade securities	4,339,799	36,789	2,644,670	65,548	6,984,469	102,337
Below investment grade securities:						
Corporate	194,879	3,317	75,731	6,933	270,610	10,250
Canadian government	1,995	20	—	—	1,995	20
RMBS	—	—	1,369	22	1,369	22
ABS	—	—	1,489	53	1,489	53
Other foreign government	28,600	113	15,134	551	43,734	664
Total below investment grade securities	225,474	3,450	93,723	7,559	319,197	11,009
Total fixed maturity securities	$4,565,273	$ 40,239	$2,738,393	$ 73,107	$7,303,666	$113,346

Non-redeemable preferred stock	$82	$ 1	$26,471	$ 2,225	$26,553	$ 2,226
Other equity securities	5,820	1,023	47,251	398	53,071	1,421
Total equity securities	$5,902	$ 1,024	$73,722	$ 2,623	$79,624	$ 3,647

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

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ordinary course of managing its portfolio to meet certain diversification, credit quality and liquidity guidelines. Changes in unrealized losses are primarily being 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 September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Fixed maturity securities available-for-sale	$378,669	$359,157	$1,121,496	$1,039,392
Equity securities	1,319	942	3,710	3,296
Mortgage loans on real estate	54,424	50,040	155,083	138,829
Policy loans	14,730	15,404	44,285	45,870
Funds withheld at interest	108,232	102,144	270,094	327,089
Short-term investments and cash and cash equivalents	3,067	1,977	9,276	5,266
Other invested assets	35,594	46,653	80,207	87,192
Investment income	596,035	576,317	1,684,151	1,646,934
Investment expense	(23,293)	(19,399)	(67,019)	(57,114)
Investment income, net of related expenses	$572,742	$556,918	$1,617,132	$1,589,820

Investment Related Gains (Losses), Net

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

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Fixed maturity securities available for sale:				
Other-than-temporary impairment losses	$(10,705)	$(390)	$(14,055)	$(20,980)
Gain on investment activity	20,040	19,512	52,146	91,611
Loss on investment activity	(37,880)	(7,593)	(94,194)	(26,577)
Equity securities:				
Other-than-temporary impairment losses	—	(889)	—	(889)
Gain on investment activity	3,932	10	4,429	24
Loss on investment activity	(174)	(85)	(1,124)	(4,135)
Change in unrealized gains (losses) recognized in earnings	3,539	—	(7,564)	—
Other impairment losses and change in mortgage loan provision	(6,566)	(2,446)	(8,235)	(9,220)
Derivatives and other, net	7,797	14,534	37,538	109,637
Total investment related gains (losses), net	$(20,017)	$22,653	$(31,059)	$139,471

The fixed maturity impairments for the three and nine months ended September 30, 2018 and 2017 were largely related to high-yield corporate securities. The equity impairments for the three and nine months ended September 30, 2017 were related to an equity position received as part of a debt restructuring. The other impairment losses and change in mortgage loan provision for the three and nine months ended September 30, 2018 includes impairments on real estate joint ventures and limited partnerships. The other impairment losses and change in mortgage loan provision for the three and nine months ended September 30, 2017 includes impairments on limited partnerships. The fluctuations in investment related gains (losses) for derivatives and other for the three and nine months ended September 30, 2018, compared to the same periods in 2017, are primarily due to changes in the fair value of embedded derivatives and interest rate swaps.

During the three months ended September 30, 2018 and 2017, the Company sold fixed maturity securities with fair values of $1,345.3 million and $479.7 million at losses of $37.9 million and $7.6 million, respectively. During the nine months ended September 30, 2018 and 2017, the Company sold fixed maturity securities with fair values of

$3,783.3 million and $1,604.7 million at losses of $94.2 million and $26.6 million, respectively. During the three months ended September 30, 2018 and 2017, the Company sold equity securities with fair values of $3.1 million and $5.0 million at losses of $0.2 million and $0.1 million, respectively. During the nine months ended September 30, 2018 and 2017, the Company sold equity securities with fair values of $31.5 million and $166.7 million at losses of $1.1 million and $4.1 million, respectively. The Company generally does not buy and sell securities on a short-term basis.

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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 September 30, 2018 and December 31, 2017 (dollars in thousands).

	September 30, 2018		December 31, 2017	
	Amortized Cost	Estimated Fair Value	Amortized Cost	Estimated Fair Value
Borrowed securities	$353,650	$370,323	$358,875	$377,820
Securities lending:				
Securities loaned	101,965	102,489	117,246	121,551
Securities received	n/a	112,000	n/a	128,000
Repurchase program/reverse repurchase program:				
Securities pledged	408,679	404,905	413,819	428,344
Securities received	n/a	400,515	n/a	417,550

The Company also held cash collateral for securities lending and the repurchase program/reverse repurchase programs of $28.9 million and $31.2 million at September 30, 2018 and December 31, 2017, respectively. No cash or securities have been pledged by the Company for its securities borrowing program as of September 30, 2018 and December 31, 2017.

The following tables present information on the Company’s securities lending and repurchase transactions as of September 30, 2018 and December 31, 2017 (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.

	September 30, 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	$—	$—	$—	$102,489	$102,489
Total	—	—	—	102,489	102,489
Repurchase transactions:					
Corporate	—	—	—	132,228	132,228
U.S. government	—	—	—	219,906	219,906
Foreign government	—	—	—	52,771	52,771
Other	—	—	—	—	—
Total	—	—	—	404,905	404,905
Total transactions	$—	$—	$—	$507,394	$507,394

Gross amount of recognized liabilities for securities lending and repurchase transactions in preceding table	$541,411
Amounts related to agreements not included in offsetting disclosure	$34,017

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	December 31, 2017 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	$—	$—	$—	$121,551	$121,551
Total	$—	$—	$—	$121,551	$121,551
Repurchase transactions:					
Corporate	$—	$—	$312	$184,334	$184,646
U.S. government	—	—	—	220,765	220,765
Foreign government	—	—	—	21,802	21,802
Other	1,131	—	—	—	1,131
Total	1,131	—	312	426,901	428,344
Total borrowings	$1,131	$—	$312	$548,452	$549,895

Gross amount of recognized liabilities for securities lending and repurchase transactions in preceding table	$576,786
Amounts related to agreements not included in offsetting disclosure	$26,891

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 $0.4 million and $1.1 million of September 30, 2018 and December 31, 2017, respectively. As of September 30, 2018 and December 31, 2017, 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 9.0% and 8.5% of the Company's total investments as of September 30, 2018 and December 31, 2017. As of September 30, 2018, mortgage loans were geographically dispersed throughout the U.S. with the largest concentrations in California (18.8%), Texas (10.0%) and Georgia (7.5%) and include loans secured by properties in Canada (2.6%). 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 September 30, 2018 and December 31, 2017 (dollars in thousands):

Property type:	September 30, 2018		December 31, 2017	
	Carrying Value	% of Total	Carrying Value	% of Total
Office building	$1,633,887	34.1 %	$1,487,392	33.6 %
Retail	1,365,157	28.5	1,270,676	28.8
Industrial	983,553	20.5	938,612	21.3
Apartment	543,917	11.3	510,052	11.6
Other commercial	267,712	5.6	206,439	4.7
Recorded investment	4,794,226	100.0%	4,413,171	100.0%
Unamortized balance of loan origination fees and expenses	(4,786)		(3,254)	
Valuation allowances	(10,366)		(9,384)	
Total mortgage loans on real estate	$4,779,074		$4,400,533	

The maturities of mortgage loans as of September 30, 2018 and December 31, 2017 are as follows (dollars in thousands):

	September 30, 2018		December 31, 2017	
	Recorded Investment	% of Total	Recorded Investment	% of Total
Due within five years	$1,216,241	25.4 %	$1,091,066	24.8 %
Due after five years through ten years	2,738,400	57.1	2,516,872	57.0
Due after ten years	839,585	17.5	805,233	18.2
Total	$4,794,226	100.0%	$4,413,171	100.0%

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The following tables set forth certain key credit quality indicators of the Company's recorded investment in mortgage loans as of September 30, 2018 and December 31, 2017 (dollars in thousands):

	Recorded Investment Debt Service Ratios					
	>1.20x	1.00x - 1.20x	<1.00x	Construction loans	Total	% of Total
September 30, 2018:						
Loan-to-Value Ratio						
0% - 59.99%	$2,146,401	$63,794	$43,486	$ 25,724	$2,279,405	47.6 %
60% - 69.99%	1,666,525	117,726	62,617	—	1,846,868	38.5
70% - 79.99%	386,137	70,884	76,054	—	533,075	11.1
Greater than 80%	108,233	22,429	4,216	—	134,878	2.8
Total	$4,307,296	$274,833	$186,373	$ 25,724	$4,794,226	100.0%

	Recorded Investment Debt Service Ratios					
	>1.20x	1.00x - 1.20x	<1.00x	Construction loans	Total	% of Total
December 31, 2017:						
Loan-to-Value Ratio						
0% - 59.99%	$2,148,428	$53,979	$3,801	$ —	$2,206,208	50.0 %
60% - 69.99%	1,517,029	47,128	43,921	—	1,608,078	36.4
70% - 79.99%	396,446	19,461	15,367	—	431,274	9.8
Greater than 80%	120,850	30,713	6,362	9,686	167,611	3.8
Total	$4,182,753	$151,281	$69,451	$ 9,686	$4,413,171	100.0%

The age analysis of the Company's past due recorded investments in mortgage loans as of September 30, 2018 and December 31, 2017 (dollars in thousands):

	September 30, 2018	December 31, 2017
31-60 days past due	$—	$17,100
61-90 days past due	—	2,056
Total past due	—	19,156
Current	4,794,226	4,394,015
Total	$4,794,226	$4,413,171

The following table presents the recorded investment in mortgage loans, by method of measuring impairment, and the related valuation allowances as of September 30, 2018 and December 31, 2017 (dollars in thousands):

	September 30, 2018	December 31, 2017
Mortgage loans:		
Individually measured for impairment	$30,629	$5,858
Collectively measured for impairment	4,763,597	4,407,313
Recorded investment	$4,794,226	$4,413,171
Valuation allowances:		
Individually measured for impairment	$—	$—
Collectively measured for impairment	10,366	9,384
Total valuation allowances	$10,366	$9,384

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Information regarding the Company's loan valuation allowances for mortgage loans for the three and nine months ended September 30, 2018 and 2017 is as follows (dollars in thousands):

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Balance, beginning of period	$9,706	$8,156	$9,384	$7,685
Provision (release)	656	977	986	1,444
Translation adjustment	4	4	(4)	8
Balance, end of period	$10,366	$9,137	$10,366	$9,137

Information regarding the portion of the Company's mortgage loans that were impaired as of September 30, 2018 and December 31, 2017 is as follows (dollars in thousands):

	Unpaid Principal Balance	Recorded Investment	Related Allowance	Carrying Value
September 30, 2018:				
Impaired mortgage loans with no valuation allowance recorded	$30,660	$ 30,629	$—	$30,629
Impaired mortgage loans with valuation allowance recorded	—	—	—	—
Total impaired mortgage loans	$30,660	$ 30,629	$—	$30,629
December 31, 2017:				
Impaired mortgage loans with no valuation allowance recorded	$6,427	$ 5,858	$—	$5,858
Impaired mortgage loans with valuation allowance recorded	—	—	—	—
Total impaired mortgage loans	$6,427	$ 5,858	$—	$5,858

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

	Three months ended September 30,			
	2018		2017	
	Average Recorded Investment	Interest Income	Average Recorded Investment[1]	Interest Income
Impaired mortgage loans with no valuation allowance recorded	$30,641	$ 346	$3,967	$33
Impaired mortgage loans with valuation allowance recorded	—	—	—	—
Total impaired mortgage loans	$30,641	$ 346	$3,967	$33

	Nine months ended September 30,			
	2018		2017	
	Average Recorded Investment	Interest Income	Average Recorded Investment[1]	Interest Income
Impaired mortgage loans with no valuation allowance recorded	$22,641	$ 650	$3,062	$100
Impaired mortgage loans with valuation allowance recorded	—	—	—	—
Total impaired mortgage loans	$22,641	$ 650	$3,062	$100

(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 nine months ended September 30, 2018 and 2017. The Company had no mortgage loans that were on a nonaccrual status at September 30, 2018 and December 31,

2017.

Policy Loans

Policy loans comprised approximately 2.5% and 2.6% of the Company’s total investments as of September 30, 2018 and December 31, 2017, 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.

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Funds Withheld at Interest

Funds withheld at interest comprised approximately 11.3% and 11.8% of the Company's total investments as of both September 30, 2018 and December 31, 2017. Of the $6.0 billion funds withheld at interest balance, net of embedded derivatives, as of September 30, 2018, $3.9 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 include limited partnership interests, joint ventures (other than operating joint ventures), equity release mortgages, derivative contracts and fair value option ("FVO") contractholder-directed unit-linked investments. Other invested assets also include Federal Home Loan Bank of Des Moines ("FHLB") common stock which is included in other in the table below. Other invested assets represented approximately 3.2% and 2.9% of the Company's total investments as of September 30, 2018 and December 31, 2017, respectively. Carrying values of these assets as of September 30, 2018 and December 31, 2017 are as follows (dollars in thousands):

	September 30, 2018	December 31, 2017
Limited partnership interests and real estate joint ventures	$924,006	$781,124
Equity release mortgages	383,450	219,940
Derivatives	101,124	137,613
FVO contractholder-directed unit-linked investments	212,315	218,541
Other	86,084	148,114
Total other invested assets	$1,706,979	$1,505,332

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5. Derivative Instruments

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 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 September 30, 2018 and December 31, 2017 (dollars in thousands):

	September 30, 2018			December 31, 2017		
	Notional Amount	Carrying Value/Fair Value		Notional Amount	Carrying Value/Fair Value	
		Assets	Liabilities		Assets	Liabilities
Derivatives not designated as hedging instruments:						
Interest rate swaps	$1,074,173	$37,238	$1,818	$996,204	$59,809	$2,372
Financial futures	347,916	—	—	412,438	—	—
Foreign currency forwards	—	—	—	6,030	—	28
Consumer price index swaps	409,023	127	2,836	221,932	—	2,160
Credit default swaps	1,373,300	6,759	114	961,200	8,319	1,651
Equity options	571,845	19,372	—	632,251	23,271	—
Longevity swaps	928,320	46,090	—	960,400	40,659	—
Mortality swaps	25,000	—	308	—	—	1,683
Synthetic guaranteed investment contracts	10,844,558	—	—	10,052,576	—	—
Embedded derivatives in:						
Modified coinsurance or funds withheld arrangements	—	142,529	—	—	122,194	—
Indexed annuity products	—	—	815,970	—	—	861,758
Variable annuity products	—	—	90,229	—	—	152,470
Total non-hedging derivatives	15,574,135	252,115	911,275	14,243,031	254,252	1,022,122
Derivatives designated as hedging instruments:						
Interest rate swaps	435,000	99	20,579	435,000	—	20,389
Foreign currency swaps	537,249	46,141	3,770	672,921	65,207	8,496
Foreign currency forwards	834,238	8,948	2,067	553,175	1,265	7,720
Total hedging derivatives	1,806,487	55,188	26,416	1,661,096	66,472	36,605
Total derivatives	$17,380,622	$307,303	$937,691	$15,904,127	$320,724	$1,058,727

Netting Arrangements

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. See "Embedded Derivatives" below for information regarding the Company's bifurcated embedded derivatives.

The following table provides information relating to the Company's derivative instruments as of September 30, 2018 and December 31, 2017 (dollars in thousands):

	Gross Amounts Recognized	Gross Amounts Offset in the Balance Sheet	Net Amounts Presented in the Balance Sheet	Gross Amounts Not Offset in the Balance Sheet		
				Financial Instruments	Cash Collateral Pledged/ Received [1]	Net Amount
September 30, 2018:						
Derivative assets	$ 164,774	$ (17,560)	$ 147,214	$—	$ (159,194)	$ (11,980)
Derivative liabilities	31,492	(17,560)	13,932	(61,293)	(13,400)	(60,761)
December 31, 2017:						
Derivative assets	$ 198,530	$ (20,258)	$ 178,272	$(862)	$ (185,900)	$ (8,490)
Derivative liabilities	44,499	(20,258)	24,241	(58,156)	(22,221)	(56,136)

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

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Accounting for Derivative Instruments and Hedging Activities

The Company does not enter into derivative instruments for speculative purposes. As discussed below under "Non-qualifying Derivatives and Derivatives for Purposes Other Than Hedging," the Company uses various derivative instruments for risk management purposes that either do not qualify or have not been qualified for hedge accounting treatment. As of September 30, 2018 and December 31, 2017, the Company held interest rate swaps that were designated and qualified as cash flow hedges of interest rate risk, for variable rate liabilities and foreign currency assets, foreign currency swaps and foreign currency forwards that were designated and qualified as hedges of a portion of its net investment in its foreign operations, foreign currency swaps that were designated and qualified as fair value hedges of foreign currency risk, and derivative instruments that were not designated as hedging instruments. See Note 2 – "Summary of Significant Accounting Policies" of the Company's 2017 Annual Report for a detailed discussion of the accounting treatment for derivative instruments, including embedded derivatives. Derivative instruments are carried at fair value and generally require an insignificant amount of cash at inception of the contracts.

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 September 30, 2018 and 2017, were (dollars in thousands):

Type of Fair Value Hedge	Hedged Item	Gains (Losses) Recognized for Derivatives [1]	Gains (Losses) Recognized for Hedged Items [1]
For the three months ended September 30, 2018:			
Foreign currency swaps	Foreign-denominated fixed maturity securities	$ (2,258)	$ 2,832
For the three months ended September 30, 2017:			
Foreign currency swaps	Foreign-denominated fixed maturity securities	$ 2,100	$ (2,100)
For the nine months ended September 30, 2018:			
Foreign currency swaps	Foreign-denominated fixed maturity securities	$ (5,284)	$ 9,666
For the nine months ended September 30, 2017:			
Foreign currency swaps	Foreign-denominated fixed maturity securities	$ 9,541	$ (9,541)

(1) The net amount represents the ineffective portion of the fair value hedges

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 flows: (i) certain interest rate swaps, in which the cash flows of liabilities are variable based on a benchmark rate; (ii) certain interest rate swaps, in which the cash flows of assets are denominated in different currencies, commonly referred to as cross-currency swaps; and (iii) forward bond purchase commitments.

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 nine months ended September 30, 2018 and 2017 (dollars in thousands):

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	Three months ended September 30,	
	2018	2017
Balance beginning of period	$22,656	$7,690
Gains (losses) deferred in other comprehensive income (loss) on the effective portion of cash flow hedges	6,671	(6,889)
Amounts reclassified to investment related (gains) losses, net	—	(183)
Amounts reclassified to investment income	(50)	(271)
Amounts reclassified to interest expense	(234)	—
Balance end of period	$29,043	$347

	Nine months ended September 30,	
	2018	2017
Balance beginning of period	$2,619	$(2,496)
Gains (losses) deferred in other comprehensive income (loss) on the effective portion of cash flow hedges	26,586	3,689
Amounts reclassified to investment related (gains) losses, net	—	(142)
Amounts reclassified to investment income	(270)	(704)
Amounts reclassified to interest expense	108	—
Balance end of period	$29,043	$347

As of September 30, 2018, 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 $0.2 million and $1.9 million in investment income and interest expense, respectively.

The following table presents the effective portion 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 nine months ended September 30, 2018 and 2017 (dollars in thousands):

Derivative Type	Effective Portion Gain (Loss) Deferred in OCI	Gain (Loss) Reclassified into Income from OCI		
		Investment Related Gains (Losses)	Investment Income	Interest Expense
For the three months ended September 30, 2018:				
Interest rate	$7,490	$—	$ —	$ 234
Currency/Interest rate	(819)	—	50	—
Total	$6,671	$—	$ 50	$ 234
For the three months ended September 30, 2017:				
Interest rate	$(8,421)	$—	$ —	$ —
Currency/Interest rate	1,544	—	230	—
Forward bond purchase commitments	(12)	183	41	—
Total	$(6,889)	$183	$ 271	$ —

For the nine months ended September 30, 2018:

Interest rate	$27,217	$—	$ —	$ (108)
Currency/Interest rate	(631)	—	270	—
Total	$26,586	$—	$ 270	$ (108)
For the nine months ended September 30, 2017:				
Interest rate	$(6,205)	$—	$ —	$ —
Currency/Interest rate	9,894	—	560	—
Forward bond purchase commitments	—	142	144	—
Total	$3,689	$142	$ 704	$ —

For the three and nine months ended September 30, 2018 and 2017, the ineffective portion of derivatives reported as cash flow hedges was not material to the Company’s results of operations. Also, there were no material amounts reclassified into earnings relating to instances in which the Company discontinued cash flow hedge accounting because the forecasted transaction did not occur by the anticipated date or within the additional time period permitted by the authoritative guidance for the accounting for derivatives and hedging.

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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 nine months ended September 30, 2018 and 2017 (dollars in thousands):

	Derivative Gains (Losses) Deferred in AOCI			
	For the three months ended September 30,		For the nine months ended September 30,	
Type of NIFO Hedge [1] [2]	2018	2017	2018	2017
Foreign currency swaps	$(5,877)	$(35,198)	$11,125	$(60,723)
Foreign currency forwards	(11,562)	4,627	11,737	8,785
Total	$(17,439)	$(30,571)	$22,862	$(51,938)

(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.

(2) There was no ineffectiveness recognized for the Company's hedges of net investments in foreign operations.

The cumulative foreign currency translation gain recorded in AOCI related to these hedges was $136.5 million and $113.7 million at September 30, 2018 and December 31, 2017, 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 nine months ended September 30, 2018 and 2017 is as follows (dollars in thousands):

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		Gain (Loss) for the three months ended September 30,	
Type of Non-hedging Derivative	Income Statement Location of Gain (Loss)	2018	2017
Interest rate swaps	Investment related gains (losses), net	$ (12,228)	$ 641
Financial futures	Investment related gains (losses), net	(6,544)	(8,890)
Foreign currency forwards	Investment related gains (losses), net	(58)	24
CPI swaps	Investment related gains (losses), net	(4,223)	220
Credit default swaps	Investment related gains (losses), net	4,689	4,137
Equity options	Investment related gains (losses), net	(9,793)	(8,295)
Longevity swaps	Other revenues	2,426	3,334
Mortality swaps	Other revenues	473	(132)
Subtotal		(25,258)	(8,961)
Embedded derivatives in:			
Modified coinsurance or funds withheld arrangements	Investment related gains (losses), net	(2,081)	23,044
Indexed annuity products	Interest credited	(25,347)	(13,133)
Variable annuity products	Investment related gains (losses), net	32,133	(6,205)
Total non-hedging derivatives		$ (20,553)	$ (5,255)

		Gain (Loss) for the nine months ended September 30,	
Type of Non-hedging Derivative	Income Statement Location of Gain (Loss)	2018	2017
Interest rate swaps	Investment related gains (losses), net	$ (47,399)	$ 12,318
Financial futures	Investment related gains (losses), net	(7,312)	(28,107)
Foreign currency forwards	Investment related gains (losses), net	3	577
CPI swaps	Investment related gains (losses), net	(996)	211
Credit default swaps	Investment related gains (losses), net	5,371	15,374
Equity options	Investment related gains (losses), net	(15,207)	(34,757)
Longevity swaps	Other revenues	6,983	7,180
Mortality swaps	Other revenues	(326)	(921)
Subtotal		(58,883)	(28,125)
Embedded derivatives in:			

Modified coinsurance or funds withheld arrangements	Investment related gains (losses), net	20,335	106,854
Indexed annuity products	Interest credited	6,523	(35,490)
Variable annuity products	Investment related gains (losses), net	62,242	16,518
Total non-hedging derivatives		$ 30,217	$ 59,757

Types of Derivatives Used by the Company

Interest Rate Swaps

Interest rate swaps are used by the Company primarily to reduce market risks from changes in interest rates, to alter interest rate exposure arising from mismatches between assets and liabilities (duration mismatches) and to manage the risk of cash flows of liabilities that are variable based on a benchmark rate. With an interest rate swap, the Company agrees with another party to exchange, at specified intervals, the difference between two rates, which can be either fixed-rate or floating-rate interest amounts, tied to an agreed-upon notional principal amount. These transactions are executed pursuant to master agreements that provide for a single net payment or individual gross payments at each due date. The Company utilizes interest rate swaps in cash flow and non-qualifying hedging relationships.

Financial Futures

Exchange-traded futures are used primarily to economically hedge liabilities embedded in certain variable annuity products. With exchange-traded futures transactions, the Company agrees to purchase or sell a specified number of contracts, the value of which is determined by the relevant indices, and to post variation margin on a daily basis in an amount equal to the difference between the daily estimated fair values of those contracts. The Company enters into exchange-traded futures with regulated futures commission merchants that are members of the exchange.

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Equity Options

Equity index options are used by the Company primarily to hedge minimum guarantees embedded in certain variable annuity products. To hedge against adverse changes in equity indices volatility, the Company buys put options. The contracts are net settled in cash based on differentials in the indices at the time of exercise and the strike price.

Consumer Price Index Swaps

Consumer price index ("CPI") swaps are used by the Company primarily to economically hedge liabilities embedded in certain insurance products where value is directly affected by changes in a designated benchmark consumer price index. With a CPI swap transaction, the Company agrees with another party to exchange the actual amount of inflation realized over a specified period of time for a fixed amount of inflation determined at inception. These transactions are executed pursuant to master agreements that provide for a single net payment or individual gross payments to be made by the counterparty at each due date. Most of these swaps will require a single payment to be made by one counterparty at the maturity date of the swap.

Foreign Currency Swaps

Foreign currency swaps are used by the Company to reduce the risk from fluctuations in foreign currency exchange rates associated with its assets and liabilities denominated in foreign currencies. With a foreign currency swap transaction, the Company agrees with another party to exchange, at specified intervals, the difference between one currency and another at a forward exchange rate calculated by reference to an agreed upon principal amount. The principal amount of each currency is exchanged at the termination of the currency swap by each party. The Company uses foreign currency swaps in hedges of net investments in foreign operations and non-qualifying hedge relationships.

Foreign Currency Forwards

Foreign currency forwards are used by the Company to reduce the risk from fluctuations in foreign currency exchange rates associated with its assets and liabilities denominated in foreign currencies. With a foreign currency forward transaction, the Company agrees with another party to deliver a specified amount of an identified currency at a specified future date. The price is agreed upon at the time of the contract and payment for such a contract is made in a different currency at the specified future date. The Company uses foreign currency forwards in hedges of net investments in foreign operations and non-qualifying hedge relationships.

Forward Bond Purchase Commitments

Forward bond purchase commitments have been used by the Company to hedge against the variability in the anticipated cash flows required to purchase securities. With forward bond purchase commitments, the forward price is agreed upon at the time of the contract and payment for such contract is made at the future specified settlement date of the securities.

Credit Default Swaps

The Company sells protection under single name credit default swaps and credit default swap index tranches to diversify its credit risk exposure in certain portfolios and, in combination with purchasing securities, to replicate characteristics of similar investments based on the credit quality and term of the credit default swap. Credit default triggers for indexed reference entities and single name reference entities are defined in the contracts. The Company's maximum exposure to credit loss equals the notional value for credit default swaps. In the event of default of a referencing entity, the Company is typically required to pay the protection holder the full notional value less a recovery amount determined at auction.

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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 September 30, 2018 and December 31, 2017 (dollars in thousands):

	September 30, 2018			December 31, 2017		
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	$2,470	$ 152,000	2.5	$3,128	$ 162,000	2.9
Subtotal	2,470	152,000	2.5	3,128	162,000	2.9
BBB+/BBB/BBB-						
Single name credit default swaps	4,220	343,700	2.4	4,469	361,700	2.9
Credit default swaps referencing indices	(80)	642,600	3.4	(55)	422,600	4.0
Subtotal	4,140	986,300	3.1	4,414	784,300	3.5
BB+/BB/BB-						
Single name credit default swaps	32	15,000	1.0	30	5,000	1.5
Subtotal	32	15,000	1.0	30	5,000	1.5
Total	$6,642	$ 1,153,300	3.0	$7,572	$ 951,300	3.4

(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.

The Company also purchases credit default swaps to reduce its risk against a drop in bond prices due to credit concerns of certain bond issuers. If a credit event, as defined by the contract, occurs, the Company is able to put the bond back to the counterparty at par.

Longevity Swaps

The Company enters into longevity swaps in the form of out-of-the-money options, which provide protection against changes in mortality improvement to retirement plans and insurers of such plans. With a longevity swap transaction, the Company agrees with another party to exchange a proportion of a notional value. The proportion is determined by the difference between a predefined benefit, and the realized benefit plus the future expected benefit, calculated by reference to a population index for a fixed premium.

Mortality Swaps

Mortality swaps are used by the Company to hedge risk from changes in mortality experience associated with its reinsurance of life insurance risk. The Company agrees with another party to exchange, at specified intervals, a proportion of a notional value determined by the difference between a predefined expected and realized claim amount on a designated index of reinsured lives, for a fixed percentage (premium) each term.

Synthetic Guaranteed Investment Contracts

The Company sells fee-based synthetic guaranteed investment contracts to retirement plans which include investment-only, stable value contracts. The assets are owned by the trustees of such plans, who invest the assets under the terms of investment guidelines to which the Company agrees. The contracts contain a guarantee of a minimum rate of return on participant balances supported by the underlying assets, and a guarantee of liquidity to meet certain participant-initiated plan cash flow requirements. These contracts are reported as derivatives and recorded at fair value.

Embedded Derivatives

The Company has certain embedded derivatives which are required to be separated from their host contracts and reported as derivatives. Host contracts include reinsurance treaties structured on a modified coinsurance ("modco") or funds withheld basis. Additionally, the Company reinsures equity-indexed annuity and variable annuity contracts with benefits that are considered embedded derivatives, including guaranteed minimum withdrawal benefits, guaranteed minimum accumulation benefits, and guaranteed minimum income benefits. The changes in fair values of embedded derivatives on equity-indexed annuities described below relate to changes in the fair value associated with capital market and other related assumptions. The Company's utilization of a credit valuation adjustment ("CVA") did not have a material effect on the change in fair value of its embedded derivatives for the three and nine months ended September 30, 2018 and 2017.

The related gains (losses) and the effect on net income after amortization of deferred acquisition costs ("DAC") and income taxes for the three and nine months ended September 30, 2018 and 2017 are reflected in the following table (dollars in thousands):

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	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Embedded derivatives in modco or funds withheld arrangements included in investment related gains	$(2,081)	$23,044	$20,335	$106,854
After the associated amortization of DAC and taxes, the related amounts included in net income	(1,320)	7,515	11,517	36,300
Embedded derivatives in variable annuity contracts included in investment related gains	32,133	(6,205)	62,242	16,518
After the associated amortization of DAC and taxes, the related amounts included in net income	9,463	(1,074)	33,061	30,785
Amounts related to embedded derivatives in equity-indexed annuities included in benefits and expenses	(25,347)	(13,133)	6,523	(35,490)
After the associated amortization of DAC and taxes, the related amounts included in net income	(17,311)	(9,737)	(6,808)	(38,059)

Credit Risk

The Company manages its credit risk related to over-the-counter ("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 credit exposure of the Company's OTC derivative transactions is represented by the contracts with a positive fair value (market value) at the reporting date. To reduce credit exposures, the Company seeks to (i) enter into OTC derivative transactions pursuant to master netting agreements that provide for a netting of payments and receipts with a single counterparty, and (ii) enter into agreements that allow the use of credit support annexes, which are bilateral rating-sensitive agreements that require collateral postings at established threshold levels. Certain of the Company's OTC derivatives are cleared derivatives, which are bilateral transactions between the Company and a counterparty where the transactions are cleared through a clearinghouse, such that each derivative counterparty is only exposed to the default of the clearinghouse. These cleared transactions require initial and daily variation margin collateral postings and include certain interest rate swaps and credit default swaps entered into on or after June 10, 2013, related to guidelines implemented under the Dodd-Frank Wall Street Reform and Consumer Protection Act. In 2017, the Company followed the Chicago Mercantile Exchange amended rulebook to legally characterize variation margin payments as settlements of the derivative's mark-to-market exposure and not collateral. Also, the Company enters into exchange-traded futures through regulated exchanges and these transactions are settled on a daily basis, thereby reducing credit risk exposure in the event of non-performance by counterparties to such financial instruments.

The Company enters into various collateral arrangements, which require both the posting and accepting of collateral in connection with its derivative instruments. Collateral agreements contain attachment thresholds that may vary depending on the posting party's ratings. Additionally, a decline in the Company's or the counterparty's credit ratings to specified levels could result in potential settlement of the derivative positions under the Company's agreements with its counterparties. The Company also has exchange-traded futures, which require the maintenance of a margin account. 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.

The Company's credit exposure related to derivative contracts is generally limited to the fair value at the reporting date plus or minus any collateral posted or held by the Company. The Company's credit exposure to mortality swaps is minimal, as they are fully collateralized by a counterparty. Information regarding the Company's credit exposure related to its over-the-counter derivative contracts, centrally cleared derivative contracts and margin account for exchange-traded futures, excluding mortality swaps, at September 30, 2018 and December 31, 2017 are reflected in the following table (dollars in thousands):

	September 30, 2018	December 31, 2017
Estimated fair value of derivatives in net asset position	$133,590	$155,714
Cash provided as collateral[1]	13,400	22,221
Securities pledged to counterparties as collateral[2]	61,293	58,156
Cash pledged from counterparties as collateral[3]	(159,194)	(185,900)
Securities pledged from counterparties as collateral[4]	—	(862)
Initial margin for cleared derivatives[2]	(61,293)	(58,156)
Net amount after application of master netting agreements and collateral	$(12,204)	$(8,827)
Margin account related to exchange-traded futures[5]	$8,348	$6,538

(1) Consists of receivable from counterparty, included in other assets.
(2) Included in available-for-sale securities, primarily consists of U.S. Treasury and government agency securities.
(3) Included in cash and cash equivalents, with obligation to return cash collateral recorded in other liabilities.
(4) Consists of U.S. Treasury and government securities.
(5) Included in other assets.

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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 which 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 those 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 2017 Annual Report.

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Assets and Liabilities by Hierarchy Level

Assets and liabilities measured at fair value on a recurring basis as of September 30, 2018 and December 31, 2017 are summarized below (dollars in thousands):

September 30, 2018:		Fair Value Measurements Using:		
	Total	Level 1	Level 2	Level 3
Assets:				
Fixed maturity securities – available-for-sale:				
Corporate	$24,449,498	$—	$23,193,563	$1,255,935
Canadian government	4,036,750	—	3,488,008	548,742
RMBS	1,780,762	—	1,780,762	—
ABS	1,863,017	—	1,780,250	82,767
CMBS	1,273,534	—	1,271,752	1,782
U.S. government	1,412,409	1,284,932	107,225	20,252
State and political subdivisions	911,991	—	898,346	13,645
Other foreign government	3,277,251	—	3,272,239	5,012
Total fixed maturity securities – available-for-sale	39,005,212	1,284,932	35,792,145	1,928,135
Equity securities	101,069	57,584	—	43,485
Funds withheld at interest – embedded derivatives	142,529	—	—	142,529
Cash equivalents	657,280	657,280	—	—
Short-term investments	186,051	5,957	177,891	2,203
Other invested assets:				
Derivatives:				
Interest rate swaps	29,106	—	29,106	—
Foreign currency forwards	6,881	—	6,881	—
CPI swaps	(13)	—	(13)	—
Credit default swaps	5,961	—	5,961	—
Equity options	16,818	—	16,818	—
Foreign currency swaps	42,371	—	42,371	—
FVO contractholder-directed unit-linked investments	212,315	211,253	1,062	—
Total other invested assets	313,439	211,253	102,186	—
Other assets - longevity swaps	46,090	—	—	46,090
Total	$40,451,670	$2,217,006	$36,072,222	$2,162,442
Liabilities:				
Interest sensitive contract liabilities – embedded derivatives	$906,199	$—	$—	$906,199
Other liabilities:				
Derivatives:				
Interest rate swaps	14,166	—	14,166	—
CPI swaps	2,696	—	2,696	—
Credit default swaps	(684)	—	(684)	—
Equity options	(2,554)	—	(2,554)	—
Mortality swaps	308	—	—	308
Total	$920,131	$—	$13,624	$906,507

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December 31, 2017:		Fair Value Measurements Using:		
	Total	Level 1	Level 2	Level 3
Assets:				
Fixed maturity securities – available-for-sale:				
Corporate	$23,210,968	$—	$21,873,696	$1,337,272
Canadian government	4,220,076	—	3,626,134	593,942
RMBS	1,719,880	—	1,611,998	107,882
ABS	1,648,362	—	1,524,888	123,474
CMBS	1,303,387	—	1,300,153	3,234
U.S. government	1,943,592	1,818,006	103,075	22,511
State and political subdivisions	703,428	—	662,225	41,203
Other foreign government	3,401,127	—	3,396,035	5,092
Total fixed maturity securities – available-for-sale	38,150,820	1,818,006	34,098,204	2,234,610
Equity securities:				
Non-redeemable preferred stock	39,806	39,806	—	—
Other equity securities	60,346	60,346	—	—
Funds withheld at interest – embedded derivatives	122,194	—	—	122,194
Cash equivalents	356,788	354,071	2,717	—
Short-term investments	50,746	—	47,650	3,096
Other invested assets:				
Derivatives:				
Interest rate swaps	51,359	—	51,359	—
Foreign currency forwards	730	—	730	—
CPI swaps	(221)	—	(221)	—
Credit default swaps	5,908	—	5,908	—
Equity options	16,932	—	16,932	—
Foreign currency swaps	62,905	—	62,905	—
FVO contractholder-directed unit-linked investments	218,541	217,618	923	—
Total other invested assets	356,154	217,618	138,536	—
Other assets - longevity swaps	40,659	—	—	40,659
Total	$39,177,513	$2,489,847	$34,287,107	$2,400,559
Liabilities:				
Interest sensitive contract liabilities – embedded derivatives	$1,014,228	$—	$—	$1,014,228
Other liabilities:				
Derivatives:				
Interest rate swaps	14,311	—	14,311	—
Foreign currency forwards	7,213	—	7,213	—
CPI swaps	1,939	—	1,939	—
Credit default swaps	(760)	—	(760)	—
Equity options	(6,339)	—	(6,339)	—
Foreign currency swaps	6,194	—	6,194	—
Mortality swaps	1,683	—	—	1,683
Total	$1,038,469	$—	$22,558	$1,015,911

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Transfers between Levels 1 and 2

Transfers between Levels 1 and 2 are made to reflect changes in observability of inputs and market activity. There were no transfers between Level 1 and Level 2 for the nine months ended September 30, 2018. 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. The following tables present the transfers between Level 1 and Level 2 during the three and nine months ended September 30, 2017 (dollars in thousands):

	2017	
	Transfers from Level 1 to Level 2	Transfers from Level 2 to Level 1
Three months ended September 30:		
Fixed maturity securities - available-for-sale:		
Corporate securities	$ —	$ —
Nine months ended September 30:		
Fixed maturity securities - available-for-sale:		
Corporate securities	$ —	$ 88,674

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Quantitative Information Regarding Internally - Priced Level 3 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 September 30, 2018 and December 31, 2017 (dollars in thousands):

	Estimated Fair Value		Valuation Technique	Unobservable Inputs	Range (Weighted Average)	
	September 30, 2018	December 31, 2017			September 30, 2018	December 31, 2017
Assets:						
Corporate	$630,328	$173,579	Market comparable securities	Liquidity premium	0-5% (1%)	0-2% (1%)
				EBITDA Multiple	5.9x-7.5x (6.9x)	—
ABS	64,475	—	Market comparable securities	Liquidity premium	0-1% (1%)	—
U.S. government	20,252	22,511	Market comparable securities	Liquidity premium	0-1% (1%)	0-1% (1%)
State and political subdivisions	—	4,616	Market comparable securities	Liquidity premium	—	1 %
Other foreign government	5,012	—	Market comparable securities	Liquidity premium	1 %	—
Equity securities	33,074	—	Market comparable securities	Liquidity premium	4 %	—
				EBITDA Multiple	6.9x-12.3x (7.9x)	—
			Discounted cash flow	Discount rate	20 %	
Funds withheld at interest-embedded derivatives	142,529	122,194	Total return swap	Mortality	0-100% (2%)	0-100% (2%)
				Lapse	0-35% (9%)	0-35% (9%)
				Withdrawal	0-5% (3%)	0-5% (3%)
				CVA	0-5% (1%)	0-5% (1%)
				Crediting rate	2-4% (2%)	2-4% (2%)
Longevity swaps	46,090	40,659	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	815,970	861,758	Discounted cash flow	Mortality	0-100% (2%)	0-100% (2%)

annuities						
				Lapse	0-35% (9%)	0-35% (9%)
				Withdrawal	0-5% (3%)	0-5% (3%)
				Option budget projection	2-4% (2%)	2-4% (2%)
Interest sensitive contract liabilities-embedded derivatives-variable annuities	90,229	152,470	Discounted cash flow	Mortality	0-100% (1%)	0-100% (1%)
				Lapse	0-25% (5%)	0-25% (5%)
				Withdrawal	0-7% (4%)	0-7% (3%)
				CVA	0-5% (1%)	0-5% (1%)
				Long-term volatility	0-27% (13%)	0-27% (8%)
Mortality swaps	308	1,683	Discounted cash flow	Mortality	0-100% (1%)	0-100% (1%)

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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. Assets and liabilities are transferred out of Level 3 when circumstances change such that significant inputs can be corroborated with market observable data. This may be due to a significant increase in market activity for the asset or liability, a specific event, one or more significant input(s) becoming observable. Transfers out of Level 3 were 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. The Company also 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.

For further information on the Company's valuation processes, see Note 6 in the Notes to Consolidated Financial Statements included in the Company's 2017 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 September 30, 2018:	Fixed maturity securities - available-for-sale			
	Corporate	Canadian government	RMBS	ABS
Fair value, beginning of period	$1,367,154	$572,698	$54,839	$70,686
Total gains/losses (realized/unrealized)				
Included in earnings, net:				
Investment income, net of related expenses	(156)	3,520	3	20
Investment related gains (losses), net	239	—	—	626
Included in other comprehensive income	(4,858)	(27,476)	(1)	(130)
Purchases[1]	123,808	—	—	11,099
Sales[1]	(62,047)	—	—	(462)
Settlements[1]	(101,868)	—	(3)	(24,166)
Transfers into Level 3	2,782	—	—	64,009
Transfers out of Level 3	(69,119)	—	(54,838)	(38,915)
Fair value, end of period	$1,255,935	$548,742	$—	$82,767
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	$(180)	$3,520	$—	$13
Investment related gains (losses), net	(1,430)	—	—	—

For the three months ended September 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	$1,867	$20,735	$16,505	$5,044
Total gains/losses (realized/unrealized)				
Included in earnings, net:				
Investment income, net of related expenses	—	(107)	6	—
Included in other comprehensive income	7	(122)	(544)	(32)
Purchases[1]	—	120	—	—
Settlements[1]	(1)	(374)	(37)	—
Transfers into Level 3	1,752	—	9,859	—
Transfers out of Level 3	(1,843)	—	(12,144)	—

Fair value, end of period	$1,782	$ 20,252	$ 13,645	$ 5,012
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	$—	$ (107)	$ 6	$ —

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For the three months ended September 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	$42,937	$144,610	$ 3,217	$43,971	$(928,797)	$ (782)
Total gains/losses (realized/unrealized) Included in earnings, net:						
Investment related gains (losses), net	5,532	(2,081)	—	—	32,133	—
Interest credited	—	—	—	—	(25,348)	—
Included in other comprehensive income	—	—	47	(307)	—	1
Other revenues	—	—	—	2,426	—	473
Purchases[1]	863	—	1,721	—	(4,231)	—
Sales[1]	(5,847)	—	—	—	—	—
Settlements[1]	—	—	—	—	20,044	—
Transfers out of Level 3	—	—	(2,782)	—	—	—
Fair value, end of period	$43,485	$142,529	$ 2,203	$46,090	$(906,199)	$ (308)
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	$2,178	$(2,081)	$ —	$—	$30,433	$ —
Other revenues	—	—	—	2,426	—	473
Interest credited	—	—	—	—	(45,393)	—

For the nine months ended September 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	(822)	10,432	(132)	202
Investment related gains (losses), net	(2,902)	—	312	1,910
Included in other comprehensive income	(35,532)	(55,632)	(1,782)	(821)
Purchases[1]	379,476	—	45,328	22,099
Sales[1]	(79,316)	—	(4,961)	(462)
Settlements[1]	(245,342)	—	(4,538)	(46,449)
Transfers into Level 3	9,948	—	3,031	68,977
Transfers out of Level 3	(106,847)	—	(145,140)	(86,163)
Fair value, end of period	$1,255,935	$ 548,742	$—	$82,767
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	$(845)	$ 10,432	$—	$187
Investment related gains (losses), net	(4,571)	—	—	—

For the nine months ended September 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	—	(324)	4	—
Included in other comprehensive income	(56)	(635)	46	(80)
Purchases[1]	—	334	—	—
Settlements[1]	(4)	(1,634)	(158)	—
Transfers into Level 3	1,752	—	9,859	—
Transfers out of Level 3	(3,144)	—	(37,309)	—
Fair value, end of period	$1,782	$ 20,252	$ 13,645	$ 5,012
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	$—	$ (325)	$ 3	$ —

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For the nine months ended September 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	(2,067)	20,335	—	—	62,242	—
Interest credited	—	—	—	—	6,523	—
Included in other comprehensive income	—	—	1	(1,552)	—	1
Other revenues	—	—	—	6,983	—	(326)
Purchases[1]	13,111	—	2,202	—	(16,946)	—
Sales[1]	(6,416)	—	—	—	—	—
Settlements[1]	(48)	—	(314)	—	56,210	1,700
Transfers into Level 3	38,905	—	—	—	—	—
Transfers out of Level 3	—	—	(2,782)	—	—	—
Fair value, end of period	$43,485	$142,529	$ 2,203	$46,090	$(906,199)	$(308)
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	$(5,527)	$20,335	$ —	$—	$56,808	$—
Other revenues	—	—	—	6,983	—	(326)
Interest credited	—	—	—	—	(49,688)	—

For the three months ended September 30, 2017:	Fixed maturity securities - available-for-sale			
	Corporate	Canadian government	RMBS	ABS
Fair value, beginning of period	$1,291,054	$533,270	$148,685	$201,589
Total gains/losses (realized/unrealized) Included in earnings, net:				
Investment income, net of related expenses	(383)	3,460	(30)	160
Investment related gains (losses), net	396	—	44	—
Included in other comprehensive income	(2,700)	(11,365)	104	(101)
Purchases[1]	107,670	—	26,765	—
Sales[1]	(26,337)	—	(3,553)	—
Settlements[1]	(88,551)	—	(3,645)	(15,243)
Transfers into Level 3	3,844	—	15	36,994
Transfers out of Level 3	(12,973)	—	(50,390)	(78,202)
Fair value, end of period	$1,272,020	$525,365	$117,995	$145,197
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	$(394)	$3,460	$(27)	$156

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For the three months ended September 30, 2017 (continued):	Fixed maturity securities available-for-sale			
	CMBS	U.S. government	State and political subdivisions	Other foreign government
Fair value, beginning of period	$1,943	$ 23,567	$ 34,434	$ 11,994
Total gains/losses (realized/unrealized)				
Included in earnings, net:				
Investment income, net of related expenses	—	(116)	26	(1)
Included in other comprehensive income	5	6	(208)	(7)
Purchases[1]	—	134	—	495
Settlements[1]	(1)	(340)	(35)	—
Transfers into Level 3	—	—	7,295	—
Transfers out of Level 3	—	—	—	(6,853)
Fair value, end of period	$1,947	$ 23,251	$ 41,512	$ 5,628
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	$—	$ (116)	$ 26	$ (1)

For the three months ended September 30, 2017 (continued):	Short-term Investments	Funds withheld at interest-embedded derivatives	Other assets - longevity swaps	Interest sensitive contract liabilities embedded derivatives	Other liabilities - mortality swaps
Fair value, beginning of period	$ 3,548	$ 61,281	$ 33,349	$(974,631)	$(1,552)
Total gains/losses (realized/unrealized)					
Included in earnings, net:					
Investment related gains (losses), net	—	23,044	—	(10,047)	—
Interest credited	—	—	—	(8,335)	—
Included in other comprehensive income	(3)	—	1,144	—	1
Other revenues	—	—	3,334	—	(132)
Purchases[1]	3,164	—	—	(18,736)	—
Settlements[1]	(114)	—	—	21,809	—
Transfers out of Level 3	(3,236)	—	—	—	—
Fair value, end of period	$ 3,359	$ 84,325	$ 37,827	$(989,940)	$(1,683)
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	$ —	$ 23,044	$ —	$(11,900)	$ —
Other revenues	—	—	3,334	—	(132)
Interest credited	—	—	—	(30,145)	—

For the nine months ended September 30, 2017:	Fixed maturity securities - available-for-sale			
	Corporate	Canadian government	RMBS	ABS
Fair value, beginning of period	$1,272,253	$ 475,965	$160,291	$219,280

Total gains/losses (realized/unrealized)				
Included in earnings, net:				
Investment income, net of related expenses	(1,202)	9,731	(304)	1,689
Investment related gains (losses), net	7,592	—	524	—
Included in other comprehensive income	(2,300)	39,669	2,716	6,802
Purchases[1]	257,671	—	72,582	45,215
Sales[1]	(49,511)	—	(18,624)	—
Settlements[1]	(234,552)	—	(15,084)	(60,966)
Transfers into Level 3	35,042	—	5,515	75,752
Transfers out of Level 3	(12,973)	—	(89,621)	(142,575)
Fair value, end of period	$1,272,020	$ 525,365	$117,995	$145,197
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	$(1,213)	$ 9,731	$(155)	$556
Investment related gains (losses), net	(2,788)	—	(346)	—

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For the nine months ended September 30, 2017 (continued):	Fixed maturity securities available-for-sale			
	CMBS	U.S. government	State and political subdivisions	Other foreign government
Fair value, beginning of period	$21,145	$ 24,488	$ 41,666	$ 12,869
Total gains/losses (realized/unrealized)				
Included in earnings, net:				
Investment income, net of related expenses	709	(348)	(68)	(1)
Investment related gains (losses), net	(595)	—	—	—
Included in other comprehensive income	(57)	269	(228)	(210)
Purchases[1]	—	370	—	495
Sales[1]	(3,720)	—	—	—
Settlements[1]	(5,403)	(1,528)	(309)	(672)
Transfers into Level 3	—	—	7,295	—
Transfers out of Level 3	(10,132)	—	(6,844)	(6,853)
Fair value, end of period	$1,947	$ 23,251	$ 41,512	$ 5,628
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	$—	$ (348)	$ (68)	$ (1)

For the nine months ended September 30, 2017 (continued):	Short-term Investments	Funds withheld at interest-embedded derivatives	Other assets - longevity swaps	Interest sensitive contract liabilities embedded derivatives	Other liabilities - mortality swaps
Fair value, beginning of period	$ 3,346	$(22,529)	$ 26,958	$(990,308)	$(2,462)
Total gains/losses (realized/unrealized)					
Included in earnings, net:					
Investment related gains (losses), net	—	106,854	—	9,005	—
Interest credited	—	—	—	(20,408)	—
Included in other comprehensive income	1	—	3,689	—	1
Other revenues	—	—	7,180	—	(922)
Purchases[1]	3,520	—	—	(51,276)	—
Settlements[1]	(272)	—	—	63,047	1,700
Transfers out of Level 3	(3,236)	—	—	—	—
Fair value, end of period	$ 3,359	$84,325	$ 37,827	$(989,940)	$(1,683)
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	$ —	$106,854	$—	$2,934	$—
Other revenues	—	—	7,180	—	(922)
Interest credited	—	—	—	(83,456)	—

(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.

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Nonrecurring Fair Value Measurements

The following table presents information for assets measured at an estimated fair value on a nonrecurring basis during the periods presented and 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).

	Carrying Value After Measurement		Net Investment Gains (Losses)			
	At September 30,		Three months ended September 30,		Nine months ended September 30,	
(dollars in thousands)	2018	2017	2018	2017	2018	2017
Limited partnership interests[1]	$2,246	$4,656	$(1,860)	$(896)	$(1,860)	$(7,204)
Private equities[2]	—	106	—	(531)	—	(531)

(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.

(2) The fair value of the Company's private equity investments is based on external valuation models.

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 September 30, 2018 and December 31, 2017 (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 2017 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.

September 30, 2018:	Carrying Value[1]	Estimated Fair Value	Fair Value Measurement Using: Level 1	Level 2	Level 3	NAV
Assets:						
Mortgage loans on real estate	$ 4,779,074	$4,652,481	$—	$—	$4,652,481	$ —
Policy loans	1,320,050	1,320,050	—	1,320,050	—	—
Funds withheld at interest	5,833,925	6,040,671	—	—	6,040,671	—
Cash and cash equivalents	1,073,209	1,073,209	1,073,209	—	—	—
Short-term investments	43,877	43,877	43,877	—	—	—
Other invested assets	842,626	839,280	5,718	451,078	382,284	379,977
Accrued investment income	455,296	455,296	—	455,296	—	—
Liabilities:						
Interest-sensitive contract liabilities	$ 13,319,348	$13,113,427	$—	$—	$13,113,427	$ —
Long-term debt	2,787,975	2,850,344	—	—	2,850,344	—
Collateral finance and securitization notes	710,792	652,380	—	—	652,380	—

December 31, 2017:	Carrying Value[1]	Estimated Fair Value	Fair Value Measurement Using: Level 1	Level 2	Level 3	NAV
Assets:						

Mortgage loans on real estate	$ 4,400,533	$4,477,654	$—	$4,477,654	$ —
Policy loans	1,357,624	1,357,624	—	1,357,624	—
Funds withheld at interest	5,955,092	6,275,623	—	—	6,275,623
Cash and cash equivalents	946,736	946,736	946,736	—	—
Short-term investments	42,558	42,558	42,558	—	—
Other invested assets	651,792	679,377	28,570	247,934	335,125
Accrued investment income	392,721	392,721	—	392,721	—
Liabilities:					
Interest-sensitive contract liabilities	$ 12,683,872	$12,917,243	$—	$12,917,243	$ —
Long-term debt	2,788,365	2,959,912	—	2,959,912	—
Collateral finance and securitization notes	783,938	722,145	—	722,145	—

(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.

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7. Segment Information

The accounting policies of the segments are the same as those described in the Summary of Significant Accounting Policies in Note 2 of the consolidated financial statements accompanying the 2017 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 September 30,		Nine months ended September 30,	
Revenues:	2018	2017	2018	2017
U.S. and Latin America:				
Traditional	$1,547,790	$1,521,383	$4,601,631	$4,532,584
Financial Solutions	290,848	264,170	734,148	834,992
Total	1,838,638	1,785,553	5,335,779	5,367,576
Canada:				
Traditional	295,962	281,095	910,480	814,643
Financial Solutions	12,168	12,430	37,034	36,240
Total	308,130	293,525	947,514	850,883
Europe, Middle East and Africa:				
Traditional	357,059	360,972	1,123,379	1,024,978
Financial Solutions	91,664	77,041	280,482	230,435
Total	448,723	438,013	1,403,861	1,255,413
Asia Pacific:				
Traditional	578,035	561,660	1,763,094	1,628,419
Financial Solutions	16,167	16,932	54,005	55,368
Total	594,202	578,592	1,817,099	1,683,787
Corporate and Other	37,838	49,627	92,893	125,667
Total	$3,227,531	$3,145,310	$9,597,146	$9,283,326

	Three months ended September 30,		Nine months ended September 30,	
Income (loss) before income taxes:	2018	2017	2018	2017
U.S. and Latin America:				
Traditional	$116,328	$160,512	$191,198	$281,066
Financial Solutions	87,073	89,118	236,882	299,689
Total	203,401	249,630	428,080	580,755
Canada:				
Traditional	21,149	28,789	66,661	80,953
Financial Solutions	1,646	4,472	8,381	12,489
Total	22,795	33,261	75,042	93,442
Europe, Middle East and Africa:				

Traditional	18,370	15,421	40,259	40,751
Financial Solutions	56,205	30,953	160,738	91,776
Total	74,575	46,374	200,997	132,527
Asia Pacific:				
Traditional	62,007	26,564	143,756	121,574
Financial Solutions	206	(229)	8,365	11,020
Total	62,213	26,335	152,121	132,594
Corporate and Other	(40,323)	(15,438)	(148,366)	(51,997)
Total	$322,661	$340,162	$707,874	$887,321

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Assets:	September 30, 2018	December 31, 2017
U.S. and Latin America:		
Traditional	$19,148,790	$18,603,423
Financial Solutions	19,251,832	15,959,206
Total	38,400,622	34,562,629
Canada:		
Traditional	4,210,051	4,161,452
Financial Solutions	146,374	126,372
Total	4,356,425	4,287,824
Europe, Middle East and Africa:		
Traditional	3,573,449	3,099,495
Financial Solutions	4,585,297	5,274,993
Total	8,158,746	8,374,488
Asia Pacific:		
Traditional	5,312,822	4,915,442
Financial Solutions	1,181,954	1,198,585
Total	6,494,776	6,114,027
Corporate and Other	5,562,073	7,175,850
Total	$62,972,642	$60,514,818

8. Commitments, Contingencies and Guarantees

Commitments

Funding of Investments

The Company’s commitments to fund investments as of September 30, 2018 and December 31, 2017 are presented in the following table (dollars in thousands):

	September 30, 2018	December 31, 2017
Limited partnership interests and joint ventures	$ 578,944	$ 485,197
Commercial mortgage loans	120,571	40,815
Bank loans and private placements	101,992	60,472
Equity release mortgages	213,459	153,937

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 September 30, 2018, 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 September 30, 2018 (dollars in millions):

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Commitment Period:	Maximum Potential Obligation
2023	$ 500.0
2033	450.0
2034	2,000.0
2035	1,314.2
2036	1,932.0
2037	6,750.0
2038	800.0

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 for 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 September 30, 2018 and December 31, 2017 are reflected in the following table (dollars in thousands):

	September 30, 2018	December 31, 2017
Treaty guarantees	$ 1,073,184	$ 1,047,449
Treaty guarantees, net of assets in trust	966,099	926,393
Securities borrowing and repurchase arrangements	276,190	294,325
Financing arrangements	69,221	86,183
Lease obligations	881	1,662

9. Income Tax

The Company's effective tax rates differed from the applicable U.S. federal income tax statutory rates of 21% and 35% as a result of the following for the three and nine months ended September 30, 2018 and 2017, respectively (dollars in thousands):

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Tax provision at U.S. statutory rate	$67,759	$119,057	$148,654	$310,562
Increase (decrease) in income taxes resulting from:				
U.S. Tax Reform provisional adjustments	664	—	(2,685)	—
U.S. Tax Reform valuation allowance adjustments	(58,949)	—	(59,139)	—
Foreign tax rate differing from U.S. tax rate	7,537	(3,635)	8,795	(14,049)
Differences in tax bases in foreign jurisdictions	(2,371)	2,126	(9,264)	(14,633)
Deferred tax valuation allowance	(5,334)	(2,501)	5,357	11,627
Amounts related to tax audit contingencies	1,851	299	650	(873)
Corporate rate changes	(166)	(1,139)	30	(2,332)
Subpart F	(99)	64	211	1,390
Foreign tax credits	(544)	1,230	(1,003)	(834)

Global intangible low-taxed income, net of credit	7,624	—	11,916	—
Equity compensation excess benefit	(817)	(2,762)	(5,067)	(7,226)
Return to provision adjustments	4,213	452	4,108	133
Other, net	94	(620)	(492)	(1,737)
Total provision for income taxes	$21,462	$112,571	$102,071	$282,028
Effective tax rate	6.7%	33.1%	14.4%	31.8%

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (“U.S. Tax Reform”) was signed into law. U.S. Tax Reform makes broad and complex changes to the U.S. tax code, including but not limited to, (1) reducing the U.S. federal corporate tax rate from

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35% to 21%; (2) requiring companies to pay a one-time transition tax on certain unrepatriated earnings of foreign subsidiaries; (3) generally eliminating U.S. federal income taxes on dividends from foreign subsidiaries; (4) eliminating the corporate alternative minimum tax ("AMT") and changing how existing AMT credits can be realized; (5) creating the base erosion anti-abuse tax ("BEAT"); (6) establishing a new provision designed to tax global intangible low-taxed income ("GILTI"), which allows for the possibility of using foreign tax credits and a deduction of up to 50 percent to offset the income tax liability (subject to some limitations); and (7) changing rules related to uses and limitations of net operating loss carryforwards created in tax years beginning after December 31, 2017.

The SEC issued Staff Accounting Bulletin 118 ("SAB 118"), which provides guidance on accounting for the tax effects of U.S. Tax Reform. SAB 118 provides a measurement period that should not extend beyond one year from U.S. Tax Reform enactment date for companies to complete the accounting under Accounting Standards Codification 740 ("ASC 740"). In accordance with SAB 118, a company must reflect the income tax effects of those aspects of U.S. Tax Reform for which the accounting under ASC 740 is complete. To the extent that a company's accounting for certain income tax effects of U.S. Tax Reform is incomplete but it is able to determine a reasonable estimate, it must record a provisional estimate in the financial statements. If a company cannot determine a provisional estimate to be included in the financial statements, it should continue to apply ASC 740 on the basis of the provisions of the tax laws that were in effect immediately before the enactment of U.S. Tax Reform.

The Company calculated a provisional estimate of the impact of U.S. Tax Reform for its 2017 financial statements. As of September 30, 2018, the Company has finalized certain aspects of U.S. Tax Reform including computing the pretax deferred tax items upon which the change in tax rate was applied, the one-time transition tax on unrepatriated earnings of foreign subsidiaries and the adoption of Accounting Standards Update 2018-02 ("ASU 2018-02"). The Company has refined provisional estimates related to excessive employee remuneration, which may be further refined during the fourth quarter. The Company also continues to monitor the issuance of new guidance in the form of Treasury Regulations or Notices which could impact the provisional balances recorded as of December 31, 2017. In addition to the amounts in the table above, the Company recorded an additional adjustment in the third quarter of 2018 related to ASU 2018-02, decreasing accumulated other comprehensive income and increasing retained earnings by approximately $2.6 million.

The Company provisionally estimated there would be no one-time transition tax on unrepatriated earnings of foreign subsidiaries. Upon review of the Proposed Treasury Regulations issued during the quarter and completion of the accumulated and current earnings and profits calculations of the Company's foreign subsidiaries, no adjustment to the provisional estimate of the transition tax on unrepatriated earnings is necessary.

Companies subject to GILTI have the option to account for the GILTI tax as a period cost if and when incurred, or to recognize deferred taxes for temporary differences including outside basis differences expected to reverse as GILTI. The Company has not yet made a policy election to account for GILTI but included an estimate of the current GILTI impact in the tax provision. The Company continues to gather information and monitor guidance that may change the Company's interpretation of the law and hence may result in a refinement to the calculation and changes to this amount.

The Company continues to evaluate the effects of the BEAT and is currently restructuring existing business flows to reduce the risk that the Company will be subject to the BEAT for 2018. The Company has estimated that the annual deductible payments to foreign affiliates as a percentage of annual estimated total deductions to be below the base erosion percentage threshold for application of the BEAT; therefore, the Company has not established an additional BEAT liability as of September 30, 2018. The Company continues to gather information and monitor guidance that may change the Company's interpretation of the law and hence may result in a refinement to the calculation and changes to this amount.

The effective tax rate for the third quarter and first nine months of 2018 were lower than the U.S. Statutory rate of 21.0% primarily as a result of the release of a valuation allowance on foreign tax credits, which was partially offset by income earned in jurisdictions with statutory rates higher than the U.S. tax rate and tax expense related to GILTI. During the third quarter the Company released an uncertain tax position due to the expiration of the statute of limitations and established a new position. The foreign tax credits were used to offset the new uncertain tax liability,

resulting in a valuation allowance no longer being necessary. $58.9 million of the release of the valuation allowance was previously established as part of U.S. Tax Reform. The effective tax rates for the third quarter and first nine months of 2017 were lower than the U.S. Statutory rate of 35% primarily as a result of income generated in non-U.S. jurisdictions with lower tax rates than the U.S. The first nine months of 2017 also included a reduction related to differences in tax bases in foreign jurisdictions and a tax benefit from the filing of amended returns, which was partially offset with a valuation allowance established related to amended return filings.

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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 nine months ended September 30, 2018 and 2017 were as follows (dollars in thousands):

	Pension Benefits		Other Benefits	
	Three months ended September 30,		Three months ended September 30,	
	2018	2017	2018	2017
Service cost	$3,106	$2,699	$999	$465
Interest cost	1,341	1,314	680	459
Expected return on plan assets	(1,884)	(1,554)	—	—
Amortization of prior service cost (credit)	82	85	(328)	(675)
Amortization of prior actuarial losses	929	1,081	937	580
Settlements	—	256	—	—
Net periodic benefit cost	$3,574	$3,881	$2,288	$829

	Pension Benefits		Other Benefits	
	Nine months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Service cost	$9,330	$8,098	$2,271	$1,907
Interest cost	4,028	3,943	1,739	1,589
Expected return on plan assets	(5,651)	(4,662)	—	—
Amortization of prior service cost (credit)	247	254	(986)	(986)
Amortization of prior actuarial losses	2,792	3,244	1,933	1,494
Settlements	—	769	—	—
Net periodic benefit cost	$10,746	$11,646	$4,957	$4,004

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 September 30, 2018 and December 31, 2017, 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 September 30, 2018 and December 31, 2017, all rated retrocession pool participants followed by the A.M. Best Company were rated "A- (excellent)" or better, except for one pool member that was rated "B++". 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. In addition to its third party retrocessionaires, various RGA reinsurance subsidiaries retrocede amounts in excess of their retention limits to affiliated subsidiaries.

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 September 30, 2018 or December 31, 2017 (dollars in thousands):

		September 30, 2018	December 31, 2017
Reinsurer	A.M. Best Rating	Amount	Amount

			% of Total		% of Total
Reinsurer A	A+	$303,942	39.5	$301,478	38.6 %
Reinsurer B	A+	203,702	26.5	203,898	26.1
Reinsurer C	A	67,599	8.8	67,723	8.7
Reinsurer D	A+	41,049	5.3	40,528	5.2
Reinsurer E	A++	35,090	4.6	40,592	5.2
Other reinsurers		117,942	15.3	127,808	16.2
Total		$769,324	100.0%	$782,027	100.0%

Included in the total reinsurance ceded receivables balance were $269.1 million and $243.8 million of claims recoverable, of which $6.7 million and $1.9 million were in excess of 90 days past due, as of September 30, 2018 and December 31, 2017, respectively.

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12. Financing Activities

On August 21, 2018 the Company entered into a new syndicated revolving credit facility with a five year term and an overall capacity of $850.0 million, replacing its existing $850.0 million syndicated revolving credit facility, which was scheduled to mature in September 2019. The Company may borrow cash and may obtain letters of credit in multiple currencies under this facility.

13. 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:		
Reporting Comprehensive Income This updated guidance requires reclassification from accumulated other comprehensive income to retained earnings for the stranded tax effects resulting from the newly enacted U.S. federal corporate income tax rate. The amount of the reclassification would be the difference between the historical U.S. federal corporate income tax rate and the newly enacted 21 percent tax rate.	December 31, 2017	The Company adopted the new guidance by reclassifying certain income tax effects of items within accumulated other comprehensive income to retained earnings as a result of the Tax Cuts and Jobs Act of 2017. The impact of adopting this standard was an increase in accumulated other comprehensive income and a reduction in retained earnings of approximately $156.4 million. The adjustments to the Company's deferred tax liabilities was a provisional amount as defined in the SEC's SAB 118, issued in December 2017 to address complexities in completing the calculations resulting from the U.S. Tax Cuts and Jobs Act of 2017. SAB 118 provides guidance on accounting for the effects of the U.S. Tax and Jobs Act of 2017 when the Company's process is incomplete, and permits a final determination to be made within a measurement period not to exceed one year from the enactment date. During 2018, the Company continued to evaluate and gather additional information to account for the effects of the Tax Cuts and Jobs Act of 2017, including the preparation of and filing of its U.S. tax returns to more precisely compute the pretax deferred tax items and the impact of adopting the new guidance. As part of this process the Company recorded an additional adjustment in 2018 decreasing accumulated other comprehensive income and increasing retained earnings of approximately $2.6 million.
Stock Compensation This updated guidance requires excess tax benefits and deficiencies from share-based payment awards be recorded in income tax expense in the income statement. Previously, excess tax benefits and deficiencies were recognized in shareholders' equity or deferred taxes on the balance sheet	January 1, 2017	Upon adoption, the Company recognized excess tax benefits of approximately $17.7 million in deferred tax assets that were previously not recognized in a cumulative-effect adjustment increasing retained earnings by $17.7 million. The Company also recorded excess tax benefits of approximately $10.5 million in the provision for income taxes for the year ended December 31, 2017. The number of weighted average diluted shares outstanding were also adjusted to exclude excess tax benefits from the assumed

depending on the tax situation of the Company. In addition, the updated guidance also changes the accounting for forfeitures and statutory tax withholding requirements, as well as the classification in the statement of cash flows.		proceeds in the diluted shares calculation resulting in an immaterial increase in the number of dilutive shares outstanding. The Company also elected to continue estimating forfeitures for purposes of recognizing share-based compensation. Other aspects of the adoption of the updated guidance did not have a material impact to the Company’s consolidated financial statements.
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 consolidated financial statements.

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Standards not yet adopted:

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 new standard will be adopted by applying a modified retrospective transition approach, which includes a number of practical expedients. The Company is currently evaluating the impact of this amendment on its consolidated financial statements; however, it does not expect the adoption of the new standard to have a material impact on its results of operations or balance sheet as a result of the recognition of right-to-use assets and lease liabilities related to operating leases. Contractual obligations related to operating leases totaled approximately $38.2 million as of December 31, 2017.
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 new guidance will be adopted by applying a modified retrospective approach to existing hedging relationships as of the date of adoption. The Company is currently evaluating the impact of this updated guidance on its consolidated financial statements.
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	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). The Company is currently evaluating the impact of this amendment on its consolidated financial statements.
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 the new guidance will be applied prospectively in the year of adoption. The remaining changes in the new guidance will be applied retrospectively to all periods presented in the year of adoption. The Company is currently evaluating the impact of this

		amendment on its consolidated financial statements.
Financial Services - Insurance This guidance significantly changes how insurers account for long-duration insurance contracts. The new guidance will require insurers to review and update, if necessary, the assumptions used to measure insurance liabilities periodically, rather than retain assumptions used at contract inception. The updated guidance also changes the recognition and measurement of deferred acquisition costs (DAC) and created a new category of benefit features called market risk benefits (MRB) that will be measured at fair value. The guidance also significantly expands the disclosure requirements for long-duration contracts.	January 1, 2021	The guidance on measuring the liabilities for future policy benefits and DAC will be adopted on a modified retrospective basis as of the earliest period presented in the year of adoption. The guidance on MRB will be adopted 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 consolidated financial statements but anticipates the updated guidance will likely have a material impact on the measurement and recognition of its long-duration insurance contracts.
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.	January 1, 2021	This new guidance will be applied retrospectively to all periods presented in the year of adoption. The Company is currently evaluating the impact of this amendment on its consolidated financial statements.

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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 strategies, earnings, revenues, income or loss, ratios, future financial performance, and growth potential of the Company. The words "intend," "expect," "project," "estimate," "predict," "anticipate," "should," "believe," and other similar expressions also are intended to identify forward-looking statements. Forward-looking statements are inherently 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 capital and credit market conditions and their impact on the Company's liquidity, access to capital and cost of capital, (2) the impairment of other financial institutions and its effect on the Company's business, (3) requirements to post collateral or make payments due to declines in market value of assets subject to the Company's collateral arrangements, (4) the fact that the determination of allowances and impairments taken on the Company's investments is highly subjective, (5) adverse changes in mortality, morbidity, lapsation or claims experience, (6) 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, (7) inadequate risk analysis and underwriting, (8) general economic conditions or a prolonged economic downturn affecting the demand for insurance and reinsurance in the Company's current and planned markets, (9) the availability and cost of collateral necessary for regulatory reserves and capital, (10) 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, (11) market or economic conditions that adversely affect the Company's ability to make timely sales of investment securities, (12) 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, (13) fluctuations in U.S. or foreign currency exchange rates, interest rates, or securities and real estate markets, (14) adverse litigation or arbitration results, (15) the adequacy of reserves, resources and accurate information relating to settlements, awards and terminated and discontinued lines of business, (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) competitive factors and competitors' responses to the Company's initiatives, (18) the success of the Company's clients, (19) successful execution of the Company's entry into new markets, (20) successful development and introduction of new products and distribution opportunities, (21) the Company's ability to successfully integrate acquired blocks of business and entities, (22) action by regulators who have authority over the Company's reinsurance operations in the jurisdictions in which it operates, (23) 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, (24) the threat of natural disasters, catastrophes, terrorist attacks, epidemics or pandemics anywhere in the world where the Company or its clients do business, (25) 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, (26) changes in laws, regulations, and accounting standards applicable to the Company, its subsidiaries, or its business, (27) the benefits or burdens associated with the Tax Cuts and Jobs Act of 2017 may be different than expected, (28) the effect of the Company's status as an insurance holding company and regulatory restrictions on its ability to pay principal of and interest on its debt obligations, and (29) other risks and uncertainties described in this document and in the Company's other filings with the 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 obligations 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 2017 Annual Report.

Overview

The Company is among the leading global providers of life reinsurance and financial solutions, with $3.3 trillion of life reinsurance in force. Traditional reinsurance includes individual and group life and health, disability, and critical illness reinsurance. Financial solutions includes longevity reinsurance, asset-intensive reinsurance, and financial reinsurance. 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

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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. 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

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Revenues:	(Dollars in thousands, except per share data)			
Net premiums	$2,562,042	$2,489,797	$7,739,053	$7,335,944
Investment income, net of related expenses	572,742	556,918	1,617,132	1,589,820
Investment related gains (losses), net	(20,017)	22,653	(31,059)	139,471
Other revenues	112,764	75,942	272,020	218,091
Total revenues	3,227,531	3,145,310	9,597,146	9,283,326
Benefits and Expenses:				
Claims and other policy benefits	2,209,920	2,100,680	6,851,614	6,371,188
Interest credited	143,292	126,099	333,068	349,068
Policy acquisition costs and other insurance expenses	310,639	365,424	987,817	1,064,645
Other operating expenses	200,262	168,417	586,495	481,279
Interest expense	33,290	36,836	107,769	108,590
Collateral finance and securitization expense	7,467	7,692	22,509	21,235
Total benefits and expenses	2,904,870	2,805,148	8,889,272	8,396,005

Income before income taxes	322,661	340,162	707,874	887,321
Provision for income taxes	21,462	112,571	102,071	282,028
Net income	$301,199	$227,591	$605,803	$605,293
Earnings per share:				
Basic earnings per share	$4.76	$3.53	$9.47	$9.39
Diluted earnings per share	$4.68	$3.47	$9.30	$9.23
Dividends declared per share	$0.60	$0.50	$1.60	$1.32

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Consolidated income before income taxes decreased $17.5 million, or 5.1%, and $179.4 million, or 20.2%, for the three and nine months ended September 30, 2018, respectively, as compared to the same periods in 2017. The decrease in income for the third quarter of 2018 was primarily due to unfavorable claims experience in the U.S. group business and an increase in operating expenses related to the Company's strategic initiatives. The third quarter and first nine months also reflect lower variable investment income and unfavorable changes in investment related gains (losses). The unfavorable change in investment related gains (losses) includes changes in the fair value of embedded derivatives on modco or funds withheld treaties within the U.S. segment primarily related 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 in income before income taxes by $1.4 million in the third quarter and increased income by $13.4 million in the first nine months of 2018, as compared to the same periods in 2017.

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 September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Modco/Funds withheld:				
Unrealized gains (losses)	$(2,081)	$23,044	$20,335	$106,854
Deferred acquisition costs/retrocession	51	(11,481)	(2,617)	(51,008)
Net effect	(2,030)	11,563	17,718	55,846
EIAs:				
Unrealized gains (losses)	1,602	1,367	29,600	36,665
Deferred acquisition costs/retrocession	(1,285)	(1,848)	(16,997)	(23,062)
Net effect	317	(481)	12,603	13,603
Guaranteed minimum benefit riders:				
Unrealized gains (losses)	32,133	(6,205)	62,242	16,518
Deferred acquisition costs/retrocession	(17,575)	4,552	(11,379)	30,844
Net effect	14,558	(1,653)	50,863	47,362
Related freestanding derivatives	(9,393)	(10,026)	(50,697)	(61,732)
Net effect after related freestanding derivatives	5,165	(11,679)	166	(14,370)
Total net effect of embedded derivatives	12,845	9,429	81,184	116,811
Related freestanding derivatives	(9,393)	(10,026)	(50,697)	(61,732)
Total net effect after freestanding derivatives	$3,452	$(597)	$30,487	$55,079

Consolidated net premiums increased $72.2 million, or 2.9%, and $403.1 million, or 5.5%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017, primarily due to growth in life reinsurance in force. Foreign currency fluctuations decreased net premiums by $33.4 million in the third quarter and increased net premiums by $86.8 million in the first nine months of 2018, as compared to the same periods in 2017.

Consolidated assumed life insurance in force increased to $3,307.2 billion as of September 30, 2018 from $3,297.9 billion as of September 30, 2017 due to new business production and in force transactions. The Company added new business production, measured by face amount of insurance in force, of $95.7 billion and $90.7 billion during the third quarter of 2018 and 2017, respectively, and $292.1 billion and $304.8 billion during the first nine months of 2018 and 2017, respectively. Foreign currency fluctuations negatively affected the increase in assumed life insurance in force

from September 30, 2017 by $60.0 billion.

Consolidated investment income, net of related expenses, increased $15.8 million, or 2.8%, and $27.3 million, or 1.7%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increases are primarily attributable to an increase in the average invested asset base partially offset by a decrease in the average investment yield and lower 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 increased investment income by $13.7 million in the third quarter and decreased investment income by $48.9 million in the first nine months of 2018, respectively, as compared to the same periods in 2017. 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.

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Average invested assets at amortized cost, excluding spread related business, for the nine months ended September 30, 2018 were $26.7 billion, a 6.2% increase over September 30, 2017. The average yield earned on investments, excluding spread related business, was 4.57% and 4.81% for the third quarter of 2018 and 2017, respectively, and 4.45% and 4.61% for the nine months ended September 30, 2018 and 2017, 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 $(20.0) million and $22.7 million for the third quarter of 2018 and 2017, respectively, and $(31.1) million and $139.5 million for the first nine months of 2018 and 2017, respectively. The unfavorable changes are largely due to asset repositioning related to reinsurance transactions. A portion of the investment related gains (losses) are due to 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 (decreased) investment related gains by $(2.1) million and $23.0 million for the third quarter of 2018 and 2017, respectively, and $20.3 million and $106.9 million for the first nine months of 2018 and 2017, respectively. In addition, impairments on fixed maturity securities increased by $10.3 million in the third quarter and decreased by $6.9 million in the first nine months of 2018, respectively, as compared to the same periods in 2017. 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 6.7% and 33.1% for the third quarter 2018 and 2017, respectively, and 14.4% and 31.8% for the first nine months of 2018 and 2017, respectively. The 2018 effective tax rates reflect changes to the U.S. tax code related to the Tax Cuts and Jobs Act of 2017. 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 2017 Annual Report under “Management’s Discussion and Analysis of Financial Condition and Results of Operations – Critical Accounting Policies.”

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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 individual mortality-risk reinsurance and to a lesser extent, group, health and long-term care reinsurance. The Financial Solutions segment consists of Asset-Intensive and Financial Reinsurance. Asset-Intensive within the Financial Solutions segment provides coinsurance of annuities and corporate-owned life insurance policies and to a lesser extent also issues 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 September 30, 2018: (dollars in thousands)		Financial Solutions		
	Traditional	Asset-Intensive	Financial Reinsurance	Total U.S. and Latin America
Revenues:				
Net premiums	$1,360,076	$6,885	$ —	$1,366,961
Investment income, net of related expenses	181,396	200,397	1,491	383,284
Investment related gains (losses), net	(33)	581	—	548
Other revenues	6,351	53,735	27,759	87,845
Total revenues	1,547,790	261,598	29,250	1,838,638
Benefits and expenses:				
Claims and other policy benefits	1,191,489	46,995	—	1,238,484
Interest credited	20,321	110,673	—	130,994
Policy acquisition costs and other insurance expenses	183,433	30,519	5,324	219,276
Other operating expenses	36,219	7,921	2,343	46,483
Total benefits and expenses	1,431,462	196,108	7,667	1,635,237
Income before income taxes	$116,328	$65,490	$ 21,583	$203,401

For the three months ended September 30, 2017: (dollars in thousands)		Financial Solutions		
	Traditional	Asset-Intensive	Financial Reinsurance	Total U.S. and Latin America
Revenues:				
Net premiums	$1,327,181	$6,423	$ —	$1,333,604
Investment income, net of related expenses	191,904	188,176	2,984	383,064
Investment related gains (losses), net	(1,503)	12,832	—	11,329
Other revenues	3,801	26,899	26,856	57,556
Total revenues	1,521,383	234,330	29,840	1,785,553
Benefits and expenses:				
Claims and other policy benefits	1,118,401	11,959	—	1,130,360
Interest credited	20,673	94,120	—	114,793
Policy acquisition costs and other insurance expenses	189,291	54,441	5,674	249,406
Other operating expenses	32,506	6,684	2,174	41,364

Total benefits and expenses	1,360,871	167,204	7,848	1,535,923
Income before income taxes	$160,512	$67,126	$ 21,992	$249,630

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For the nine months ended September 30, 2018: (dollars in thousands)		Financial Solutions		
	Traditional	Asset-Intensive	Financial Reinsurance	Total U.S. and Latin America
Revenues:				
Net premiums	$4,033,046	$18,776	$ —	$4,051,822
Investment income, net of related expenses	544,934	530,119	4,817	1,079,870
Investment related gains (losses), net	5,375	2,033	—	7,408
Other revenues	18,276	100,759	77,644	196,679
Total revenues	4,601,631	651,687	82,461	5,335,779
Benefits and expenses:				
Claims and other policy benefits	3,701,457	85,530	—	3,786,987
Interest credited	61,593	239,695	—	301,288
Policy acquisition costs and other insurance expenses	543,137	130,493	11,933	685,563
Other operating expenses	104,246	22,377	7,238	133,861
Total benefits and expenses	4,410,433	478,095	19,171	4,907,699
Income before income taxes	$191,198	$173,592	$ 63,290	$428,080

For the nine months ended September 30, 2017: (dollars in thousands)		Financial Solutions		
	Traditional	Asset-Intensive	Financial Reinsurance	Total U.S. and Latin America
Revenues:				
Net premiums	$3,966,842	$18,186	$ —	$3,985,028
Investment income, net of related expenses	554,612	553,286	6,501	1,114,399
Investment related gains (losses), net	(192)	103,229	—	103,037
Other revenues	11,322	76,324	77,466	165,112
Total revenues	4,532,584	751,025	83,967	5,367,576
Benefits and expenses:				
Claims and other policy benefits	3,538,958	53,998	—	3,592,956
Interest credited	61,800	260,941	—	322,741
Policy acquisition costs and other insurance expenses	556,476	176,305	17,234	750,015
Other operating expenses	94,284	19,883	6,942	121,109
Total benefits and expenses	4,251,518	511,127	24,176	4,786,821
Income before income taxes	$281,066	$239,898	$ 59,791	$580,755

Income before income taxes decreased by $46.2 million, or 18.5%, and $152.7 million, or 26.3%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The decrease in income before income taxes for the third quarter was primarily due to claims experience in the group disability and healthcare excess lines of business as well as lower variable investment income. The decrease in income before income taxes for the first nine months was primarily due to claims experience in group and individual life lines of business, partially related to a severe influenza season in 2018. Also contributing to the year over year decline in income were lower investment related gains and changes in the value of the embedded derivatives associated with reinsurance treaties structured on a modco or funds withheld basis.

Traditional Reinsurance

Income before income taxes for the U.S. and Latin America Traditional segment decreased by $44.2 million, or 27.5%, and $89.9 million, or 32.0%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The decrease in the third quarter was primarily due to claims experience in the group disability and healthcare excess lines of business, as well as lower variable investment income. The decrease for the first nine

months also reflects unfavorable claims experience across all lines of business, in part relating to the severe influenza season.

Net premiums increased $32.9 million, or 2.5%, and $66.2 million, or 1.7%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increases in net premiums in the third quarter and first nine months were reduced by $24.7 million and $76.5 million, respectively, due to the restructure of a health treaty. After adjusting for the treaty restructure, net premiums increased 4.4% and 3.7% in the third quarter and first nine months of 2018, respectively, compared to the same periods in 2017, due to new business and expected organic growth mainly in the group and mortality lines of business. The segment added new individual life business production, measured by face amount of insurance in force of $27.6 billion and $24.8 billion for the third quarter and $80.2 billion and $75.1 billion for the first nine months of 2018 and 2017, respectively.

Net investment income decreased $10.5 million, or 5.5%, and $9.7 million, or 1.7%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The decreases in the third quarter and first nine months were primarily due to lower variable investment income. Investment related gains (losses), net increased $1.5 million and $5.6 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

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Claims and other policy benefits as a percentage of net premiums ("loss ratios") were 87.6% and 84.3% for the third quarter and 91.8% and 89.2%, for the nine months ended September 30, 2018 and 2017, respectively. The increases in the loss ratios for the third quarter and first nine months of 2018, as compared to the same periods in 2017 were primarily due to unfavorable claims experience in the group line of business. The individual mortality line of business also contributed to the increase in the loss ratio for the first nine months of 2018. Management believes a portion of the unfavorable variance is the normal volatility associated with influenza season.

Interest credited expense decreased $0.4 million, or 1.7%, and $0.2 million, or 0.3%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. 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 13.5% and 14.3% for the third quarter and 13.5% and 14.0% for the nine months ended September 30, 2018 and 2017, 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 $3.7 million, or 11.4%, and $10.0 million, or 10.6%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increase in operating expenses, for both periods, is primarily related to expense growth associated with key business line initiatives focused on enhancing the services and reinsurance options for clients. Other operating expenses, as a percentage of net premiums were 2.7% and 2.4% for the third quarter and 2.6% and 2.4% first nine months of 2018 and 2017, 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.

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(dollars in thousands)	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Revenues:				
Total revenues	$261,598	$234,330	$651,687	$751,025
Less:				
Embedded derivatives – modco/funds withheld treaties	(2,138)	24,539	14,819	107,039
Guaranteed minimum benefit riders and related free standing derivatives	8,067	(17,058)	5,556	(20,935)
Revenues before certain derivatives	255,669	226,849	631,312	664,921
Benefits and expenses:				
Total benefits and expenses	196,108	167,204	478,095	511,127
Less:				
Embedded derivatives – modco/funds withheld treaties	(51)	11,481	2,617	51,008
Guaranteed minimum benefit riders and related free standing derivatives	2,902	(5,379)	5,390	(6,565)
Equity-indexed annuities	(317)	481	(12,603)	(13,603)
Benefits and expenses before certain derivatives	193,574	160,621	482,691	480,287
Income before income taxes:				
Income before income taxes	65,490	67,126	173,592	239,898
Less:				
Embedded derivatives – modco/funds withheld treaties	(2,087)	13,058	12,202	56,031
Guaranteed minimum benefit riders and related free standing derivatives	5,165	(11,679)	166	(14,370)
Equity-indexed annuities	317	(481)	12,603	13,603
Income before income taxes and certain derivatives	$62,095	$66,228	$148,621	$184,634

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 nine months ended September 30, 2018 and 2017.

The change in fair value of the embedded derivatives - modco/funds withheld treaties increased (decreased) income before income taxes by $(2.1) million and $13.1 million for the third quarter and $12.2 million and $56.0 million for the nine months ended September 30, 2018 and 2017, respectively. The decrease in income for the third quarter of 2018 was primarily the result of interest rate movements. The increases in income for the first nine months of 2018 and 2017, and for the third quarter of 2017 were primarily due to tightening credit spreads.

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 nine months ended September 30, 2018 and 2017.

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 $5.2 million and decreased by $11.7 million for the third quarter and increased (decreased) by $0.2 million and $(14.4) million for the nine months ended September 30, 2018 and 2017, respectively. The increase in income for the third quarter was primarily due to the annual update of

best estimate actuarial policyholder assumptions associated with the continuation of benefits payable to spouses after the death of the policyholder. The increase in income for the first nine months of September 30, 2018 was primarily due to the annual update of best estimate actuarial policyholder assumptions, offset by interest rate movements. The decreases in income for the third quarter and first nine months of 2017 were primarily due to the annual update of best estimate actuarial assumptions to account for lower policyholder lapse experience.

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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 $0.3 million and $(0.5) million for the third quarter and $12.6 million and $13.6 million for the nine months ended September 30, 2018 and 2017, respectively. The increases in income for the third quarter and first nine months of 2018 were primarily due to lower policyholder lapses and withdrawals. The decrease in income for the third quarter of 2017 was primarily due to shifts in the yield curve. The increase in income for the first nine months of 2017 was primarily due to declining long-term interest rates.

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 decreased by $4.1 million and $36.0 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The decreases in the third quarter and first nine months were primarily due to lower investment related gains (losses), net of the corresponding impact to deferred acquisition costs, associated with coinsurance portfolios.

Revenue before certain derivatives increased by $28.8 million and decreased by $33.6 million for the three and nine months ended September 30, 2018, respectively, as compared to the same periods in 2017. The increase in the third quarter was primarily due to revenues from new transactions. The decrease in the first nine months was primarily due to the change in fair value of equity options associated with the reinsurance of EIAs and lower investment related gains (losses) associated with coinsurance portfolios, partially offset by revenues from new transactions. 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 $33.0 million and $2.4 million for the three and nine months ended September 30, 2018, as compared to the same period in 2017. The increase in the third quarter was primarily due to new transactions. The increase for the first nine months was primarily due to new transactions, offset by lower interest credited associated with the reinsurance of EIAs. 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 $19.0 billion as of September 30, 2018 from $15.5 billion as of September 30, 2017 of which $2.9 billion was due to a new annuity transaction in the third quarter of 2018. As of September 30, 2018, $4.0 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 $0.4 million, or 1.9%, and increased $3.5 million, or 5.9%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increase in the first nine months was primarily due to growth in new transactions.

At September 30, 2018 and 2017, the amount of reinsurance assumed from client companies, as measured by pre-tax statutory surplus, risk based capital and other financial structures was $13.7 billion and $12.6 billion, respectively. The increase was primarily due to new transactions, 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.

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Canada Operations

The Company conducts reinsurance business in Canada primarily through RGA Canada, which assists clients with capital management activity and mortality and morbidity risk management. The Canada operations are primarily engaged in Traditional reinsurance, which consists mainly of traditional individual life reinsurance, as well as 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 September 30,					
	2018			2017		
Revenues:	Traditional	Financial Solutions	Total Canada	Traditional	Financial Solutions	Total Canada
Net premiums	$243,105	$ 10,681	$253,786	$225,841	$ 9,874	$235,715
Investment income, net of related expenses	50,145	415	50,560	51,593	1,120	52,713
Investment related gains (losses), net	2,484	—	2,484	2,380	—	2,380
Other revenues	228	1,072	1,300	1,281	1,436	2,717
Total revenues	295,962	12,168	308,130	281,095	12,430	293,525
Benefits and expenses:						
Claims and other policy benefits	210,292	10,003	220,295	193,978	7,170	201,148
Interest credited	6	—	6	6	—	6
Policy acquisition costs and other insurance expenses	56,224	190	56,414	50,023	221	50,244
Other operating expenses	8,291	329	8,620	8,299	567	8,866
Total benefits and expenses	274,813	10,522	285,335	252,306	7,958	260,264
Income before income taxes	$21,149	$ 1,646	$22,795	$28,789	$ 4,472	$33,261

(dollars in thousands)	Nine months ended September 30,					
	2018			2017		
Revenues:	Traditional	Financial Solutions	Total Canada	Traditional	Financial Solutions	Total Canada
Net premiums	$756,578	$ 32,941	$789,519	$662,983	$ 28,598	$691,581
Investment income, net of related expenses	150,264	860	151,124	140,929	3,515	144,444
Investment related gains (losses), net	2,199	—	2,199	8,821	—	8,821
Other revenues	1,439	3,233	4,672	1,910	4,127	6,037
Total revenues	910,480	37,034	947,514	814,643	36,240	850,883
Benefits and expenses:						
Claims and other policy benefits	647,052	27,033	674,085	566,227	21,888	588,115
Interest credited	32	—	32	15	—	15
Policy acquisition costs and other insurance expenses	171,797	578	172,375	143,302	571	143,873
Other operating expenses	24,938	1,042	25,980	24,146	1,292	25,438
Total benefits and expenses	843,819	28,653	872,472	733,690	23,751	757,441
Income before income taxes	$66,661	$ 8,381	$75,042	$80,953	$ 12,489	$93,442

Income before income taxes decreased by $10.5 million, or 31.5%, and $18.4 million, or 19.7%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The decreases in income for the third quarter and first nine months are primarily due to unfavorable traditional individual life mortality experience as compared to the same periods in 2017. Foreign currency exchange fluctuations in the Canadian dollar resulted in a decrease in income before income taxes of $1.1 million and an increase of $1.2 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Traditional Reinsurance

Income before income taxes for the Canada Traditional segment decreased by $7.6 million, or 26.5%, and $14.3 million, or 17.7%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The decreases in income before income taxes for the third quarter and first nine months were primarily due to unfavorable traditional individual life mortality experience. Foreign currency exchange fluctuations in the Canadian dollar resulted in a decrease in income before income taxes of $1.1 million and an increase of $0.9 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

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Net premiums increased $17.3 million, or 7.6%, and $93.6 million, or 14.1%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increases in net premiums were primarily due to a new in force block transaction during the first quarter of 2018. Foreign currency exchange fluctuations in the Canadian dollar resulted in a decrease in net premiums of $10.5 million and an increase of $10.6 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Net investment income decreased $1.4 million, or 2.8%, and increased $9.3 million, or 6.6%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. Foreign currency exchange fluctuation in the Canadian dollar resulted in a decrease in net investment income of $2.2 million and an increase of $2.0 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. Also contributing to the increase in the first nine months of 2018 was an increase in the invested asset base due to growth in the underlying business volume and an increase in investment yields.

Other revenues decreased by $1.1 million and $0.5 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. These variances are primarily due to gains and losses related to foreign currency transactions.

Loss ratios for this segment were 86.5% and 85.9% for the third quarter and 85.5% and 85.4% for the nine months ended September 30, 2018 and 2017, respectively. The increase in the loss ratios for the three and nine months ended September 30, 2018, as compared to the same periods in 2017, is due to unfavorable traditional individual life mortality experience. Loss ratios for the traditional individual life mortality business were 96.7% and 99.5% for the third quarter and 95.3% and 98.7% for the first nine months ended September 30, 2018 and 2017, respectively. The aforementioned new in force block reduced the traditional individual life mortality business loss ratios in the third quarter and first nine months of 2018 by 5.6% and 5.9%, respectively. Historically, the loss ratio increased primarily as the result of several large permanent level premium in force blocks assumed in 1997 and 1998. These blocks are mature blocks of long-term permanent level premium business in which mortality as a percentage of net premiums is expected to be higher than historical ratios. The nature of permanent level premium policies requires the Company to set up actuarial liabilities and invest the amounts received in excess of early-year claims costs to fund claims in later years when premiums, by design, continue to be level as compared to expected increasing mortality or claim costs. As such, investment income becomes a more significant component of profitability of these in force blocks. Excluding creditor business, claims and other policy benefits, as a percentage of net premiums and investment income were 77.2% and 77.7% for the third quarter and 76.8% and 77.7% for the nine months ended September 30, 2018 and 2017, respectively.

Policy acquisition costs and other insurance expenses as a percentage of net premiums were 23.1% and 22.1% for the third quarter and 22.7% and 21.6% for the nine months ended September 30, 2018 and 2017, 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 were unchanged and increased $0.8 million, or 3.3%, for the three and nine months ended September 30, 2018, respectively, as compared to the same periods in 2017. Other operating expenses as a percentage of net premiums were 3.4% and 3.7% for the third quarter and 3.3% and 3.6% for the nine month periods ended September 30, 2018 and 2017, respectively.

Financial Solutions Reinsurance

Income before income taxes decreased by $2.8 million, or 63.2%, and $4.1 million, or 32.9%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The decreases in income were primarily a result of normal aging of the longevity block of business and a decrease in net investment income as a result of a decrease in the invested asset base. Foreign currency exchange fluctuations in the Canadian dollar resulted in a decrease in income before income taxes of $0.1 million and an increase of $0.3 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Net premiums increased $0.8 million, or 8.2%, and $4.3 million, or 15.2%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increases were primarily due to longevity

business, where the premium structure generally increases over time. Foreign currency exchange fluctuations in the Canadian dollar resulted in a decrease in net premiums of $0.5 million and an increase of $0.5 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Net investment income decreased $0.7 million, or 62.9%, and $2.7 million, or 75.5%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017 primarily due to a decrease in the invested asset base.

Claims and other policy benefits increased $2.8 million, or 39.5%, and $5.1 million, or 23.5%, for the three and nine months ended September 30, 2018 as compared to the same periods in 2017. The increases for the third quarter and first nine months were primarily a result of normal aging of the longevity block of business.

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Europe, Middle East and Africa Operations

The Europe, Middle East and Africa ("EMEA") operations include business generated by its offices principally in the United Kingdom ("UK"), South Africa, France, Germany, Ireland, Italy, the Netherlands, Poland, Spain and the Middle East region. 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 September 30,					
	2018			2017		
Revenues:	Traditional	Financial Solutions	Total EMEA	Traditional	Financial Solutions	Total EMEA
Net premiums	$340,414	$49,104	$389,518	$344,211	$39,294	$383,505
Investment income, net of related expenses	16,190	37,548	53,738	14,727	30,892	45,619
Investment related gains (losses), net	—	(87)	(87)	—	1,192	1,192
Other revenues	455	5,099	5,554	2,034	5,663	7,697
Total revenues	357,059	91,664	448,723	360,972	77,041	438,013
Benefits and expenses:						
Claims and other policy benefits	291,442	24,211	315,653	285,071	35,648	320,719
Interest credited	—	2,402	2,402	—	2,475	2,475
Policy acquisition costs and other insurance expenses	21,817	814	22,631	35,751	327	36,078
Other operating expenses	25,430	8,032	33,462	24,729	7,638	32,367
Total benefits and expenses	338,689	35,459	374,148	345,551	46,088	391,639
Income before income taxes	$18,370	$56,205	$74,575	$15,421	$30,953	$46,374

(dollars in thousands)	Nine months ended September 30,					
	2018			2017		
Revenues:	Traditional	Financial Solutions	Total EMEA	Traditional	Financial Solutions	Total EMEA
Net premiums	$1,070,677	$146,218	$1,216,895	$979,733	$119,809	$1,099,542
Investment income, net of related expenses	49,041	109,810	158,851	41,032	88,602	129,634
Investment related gains (losses), net	9	9,123	9,132	7	8,225	8,232
Other revenues	3,652	15,331	18,983	4,206	13,799	18,005
Total revenues	1,123,379	280,482	1,403,861	1,024,978	230,435	1,255,413
Benefits and expenses:						
Claims and other policy benefits	928,431	88,536	1,016,967	846,476	108,381	954,857
Interest credited	—	3,877	3,877	—	6,297	6,297
Policy acquisition costs and other insurance expenses	77,330	2,948	80,278	66,263	1,070	67,333
Other operating expenses	77,359	24,383	101,742	71,488	22,911	94,399
Total benefits and expenses	1,083,120	119,744	1,202,864	984,227	138,659	1,122,886
Income before income taxes	$40,259	$160,738	$200,997	$40,751	$91,776	$132,527

Income before income taxes increased by $28.2 million, or 60.8%, and $68.5 million, or 51.7%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increase in income before income taxes for the third quarter was primarily due to favorable performance in the closed block longevity, payout annuity and individual life businesses partly offset by unfavorable group mortality experience. The increases in income before income taxes for the first nine months were primarily due to favorable performance in the closed block longevity, payout annuity and critical illness business partially offset by unfavorable individual life experience. Foreign currency

exchange fluctuations resulted in a decrease in income before income taxes of $1.0 million and an increase of $9.4 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

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Traditional Reinsurance

Income before income taxes increased by $2.9 million, or 19.1%, and decreased by $0.5 million, or 1.2%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increase in income for the third quarter was primarily due to more favorable individual life and critical illness experience coupled with lower policy acquisition costs, partially offset by less favorable group mortality experience. The decrease in income for the first nine months was primarily due to unfavorable individual life mortality experience, partially offset by favorable critical illness experience. Foreign currency exchange fluctuations resulted in a decrease in income before income taxes of $0.4 million and an increase of $2.4 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Net premiums decreased $3.8 million, or 1.1%, and increased $90.9 million, or 9.3%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The decrease in net premiums for the three months was primarily due to a large transaction completed in the third quarter of 2017. The increase in net premiums for the first nine months were primarily due to increased volumes of mostly individual life business as well as increased health business. Foreign currency exchange fluctuations decreased net premiums by $6.4 million and increased them by $52.6 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

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 $45.6 million and $49.0 million for the third quarter and $142.4 million and $144.2 million for the first nine months of 2018 and 2017, respectively.

Net investment income increased $1.5 million, or 9.9%, and $8.0 million, or 19.5%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increase in net investment income for the third quarter was primarily due to an increase in the invested asset base resulting from business growth. The increase in net investment income for the first nine months was 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 $0.3 million and an increase of $2.4 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Loss ratios for this segment were 85.6% and 82.8% for the third quarter and 86.7% and 86.4% for the first nine months ended September 30, 2018 and 2017, respectively. The increases in loss ratios were due in part to normal claims variability and differences in business mix, with the third quarter of 2018 having both higher benefits and lower policy acquisition costs as a percentage of premium.

Policy acquisition costs and other insurance expenses as a percentage of net premiums were 6.4% and 10.4% for the third quarter and 7.2% and 6.8% for the first nine months ended September 30, 2018 and 2017, respectively. The decrease in policy acquisition cost ratio for the third quarter was primarily due to the aforementioned large transaction completed in 2017, which included ceding allowances. The increase in the percentage for the first nine months is due primarily to variations in the mixture of business. A small number of recent larger new treaties have included higher than average ceding allowances.

Other operating expenses increased $0.7 million, or 2.8%, and $5.9 million, or 8.2%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. Foreign currency fluctuations resulted in a decrease in operating expenses of $0.5 million and an increase of $3.8 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. Other operating expenses as a percentage of net premiums totaled 7.5% and 7.2% for the third quarter and 7.2% and 7.3% for the first nine months ended September 30, 2018 and 2017, respectively.

Financial Solutions Reinsurance

Income before income taxes increased by $25.3 million, or 81.6%, and $69.0 million, or 75.1%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increases in income before income taxes were primarily due to favorable performance in the closed block longevity and payout annuity businesses. Foreign currency exchange fluctuations resulted in a decrease in income before income taxes of $0.7 million and an

increase of $7.0 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Net premiums increased by $9.8 million, or 25.0%, and $26.4 million, or 22.0%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increases in net premiums were due to increased volumes of closed block longevity business. Foreign currency exchange fluctuations decreased net premiums by $0.2 million and increased them by $8.1 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

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Net investment income increased $6.7 million, or 21.5%, and $21.2 million, or 23.9%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increases in investment income were due to an increased invested asset base resulting from business growth. Foreign currency exchange fluctuations resulted in a decrease in net investment income of $0.2 million and an increase of $5.5 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Other revenues decreased by $0.6 million, or 10.0%, and increased by $1.5 million, or 11.1%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The decrease in other revenues for the third quarter was primarily due to the fair value change on longevity derivative contracts in the third quarter of 2017. The increase in other revenues for the first nine months of 2018 was primarily due to increased volumes of fee income business. Foreign currency exchange fluctuations resulted in a decrease in other revenues of $0.1 million and an increase of $0.8 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Claims and other policy benefits decreased $11.4 million, or 32.1%, and $19.8 million, or 18.3%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The decrease in the third quarter was due to higher terminations in closed block longevity and payout annuity businesses. The decrease in the first nine months was primarily due to higher terminations in closed block longevity business. Foreign currency exchange fluctuations resulted in an increase in claims and other policy benefits of $0.3 million and $6.8 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Interest credited expense decreased by $0.1 million and $2.4 million or the three and nine months ended September 30, 2018, as compared to the same periods in 2017. 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 $0.4 million, or 5.2%, and $1.5 million, or 6.4%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017 due to normal growth in operations. Foreign currency exchange fluctuations resulted in a decrease in operating expenses of $0.1 million and an increase of $1.5 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

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, asset-intensive and certain disability and life blocks. Reinsurance agreements may be facultative or automatic agreements covering primarily individual risks and in some markets, group risks.

(dollars in thousands)	Three months ended September 30,					
	2018			2017		
Revenues:	Traditional	Financial Solutions	Total Asia Pacific	Traditional	Financial Solutions	Total Asia Pacific
Net premiums	$551,695	$ 75	$551,770	$536,931	$ 19	$536,950
Investment income, net of related expenses	23,169	10,145	33,314	23,858	10,556	34,414
Investment related gains (losses), net	—	(438)	(438)	—	758	758
Other revenues	3,171	6,385	9,556	871	5,599	6,470
Total revenues	578,035	16,167	594,202	561,660	16,932	578,592
Benefits and expenses:						
Claims and other policy benefits	431,570	3,894	435,464	442,358	6,110	448,468

Interest credited	—	6,875	6,875	—	7,026	7,026
Policy acquisition costs and other insurance expenses	42,063	786	42,849	55,891	653	56,544
Other operating expenses	42,395	4,406	46,801	36,847	3,372	40,219
Total benefits and expenses	516,028	15,961	531,989	535,096	17,161	552,257
Income (loss) before income taxes	$62,007	$ 206	$62,213	$26,564	$ (229)	$26,335

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(dollars in thousands)	Nine months ended September 30, 2018			2017		
Revenues:	Traditional	Financial Solutions	Total Asia Pacific	Traditional	Financial Solutions	Total Asia Pacific
Net premiums	$1,680,007	$ 783	$1,680,790	$1,557,590	$ 2,094	$1,559,684
Investment income, net of related expenses	71,845	30,723	102,568	68,105	24,662	92,767
Investment related gains (losses), net	8	4,933	4,941	—	11,525	11,525
Other revenues	11,234	17,566	28,800	2,724	17,087	19,811
Total revenues	1,763,094	54,005	1,817,099	1,628,419	55,368	1,683,787
Benefits and expenses:						
Claims and other policy benefits	1,362,356	10,767	1,373,123	1,221,091	14,170	1,235,261
Interest credited	—	19,929	19,929	—	15,595	15,595
Policy acquisition costs and other insurance expenses	138,429	2,711	141,140	180,007	4,111	184,118
Other operating expenses	118,553	12,233	130,786	105,747	10,472	116,219
Total benefits and expenses	1,619,338	45,640	1,664,978	1,506,845	44,348	1,551,193
Income before income taxes	$143,756	$ 8,365	$152,121	$121,574	$ 11,020	$132,594

Income before income taxes increased by $35.9 million, or 136.2%, and $19.5 million, or 14.7%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increases in income before income taxes for the third quarter and first nine months were due to business growth across the region and net favorable claims experience in Asia. Foreign currency exchange fluctuations resulted in an increase in income before income taxes of $1.1 million and $2.2 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Traditional Reinsurance

Income before income taxes increased by $35.4 million, or 133.4%, and $22.2 million, or 18.2%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increase in income before income taxes for the three and nine months ended September 30, 2018 was primarily due to business growth across the region and favorable claims experience in Asia partially offset by adverse claims experience in Australia. Foreign currency exchange fluctuations resulted in an increase in income before income taxes of $1.2 million and $2.1 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Net premiums increased by $14.8 million, or 2.7%, and $122.4 million, or 7.9%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increases were driven by new business written in Asian markets partially offset by the effect of three treaties recaptured in Australia in the fourth quarter of 2017. Foreign currency exchange fluctuations resulted in a decrease in net premiums of $14.9 million and an increase of $15.6 million for the three and nine months of 2018, as compared to the same periods in 2017.

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 and Hong Kong. Net premiums earned from this coverage totaled $191.1 million and $158.6 million for the third quarter and $607.7 million and $474.8 million for the first nine months ended September 30, 2018 and 2017, respectively.

Net investment income decreased $0.7 million, or 2.9%, and increased $3.7 million, or 5.5%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The decrease in the third quarter was primarily due to foreign currency exchange fluctuations. The increase in the first nine months of 2018 was primarily due to an increase in investment yield, partially offset by a slightly lower asset base, for the nine months ended September 30, 2018, compared to the nine months ended September 30, 2017. Foreign currency exchange fluctuations resulted in a decrease in net investment income of $1.1 million and $0.1 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Other revenues increased by $2.3 million, or 264.1%, and $8.5 million, or 312.4%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. Foreign currency exchange fluctuations resulted in an increase in other revenues of $0.6 million and $0.8 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Loss ratios for this segment were 78.2% and 82.4% for the third quarter and 81.1% and 78.4% for the first nine months ended September 30, 2018 and 2017, respectively. The decrease in the loss ratios for the third quarter was primarily due to favorable claims experience in Asia, partially offset by adverse claims experience in Australia. The increase in the first nine months of 2018 was primarily due to new business mix, partially offset by assumption updates reflecting net favorable claims experience.

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Policy acquisition costs and other insurance expenses as a percentage of net premiums were 7.6% and 10.4% for the third quarter and 8.2% and 11.6% for the nine months ended September 30, 2018 and 2017, 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.

Other operating expenses increased $5.5 million, or 15.1%, and $12.8 million, or 12.1%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017 mainly due to growth in operations in Asia and consultant expenditures. Other operating expenses as a percentage of net premiums totaled 7.7% and 6.9% for the third quarter and 7.1% and 6.8% for the first nine months ended September 30, 2018 and 2017, 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 increased by $0.4 million, or 190.0%, and decreased by $2.7 million, or 24.1%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The decrease in income before income taxes for the first nine months of 2018 was primarily due to a decline in investment related gains (losses) associated with a closed treaty in Japan. Foreign currency exchange fluctuations had a negligible effect on income before income taxes for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Net premiums increased $0.1 million or 294.7%, and decreased by $1.3 million, or 62.6%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The decrease for the first nine months was due to policy lapses on a closed treaty in Japan. Foreign currency exchange fluctuations had a negligible effect on net premiums for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Net investment income decreased $0.4 million, or 3.9%, and increased by $6.1 million, or 24.6%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017 mainly due to an increase in investment yield, partially offset by a slightly lower asset base. Foreign currency exchange fluctuations resulted in a decrease on net investment income of $0.4 million and $0.1 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017.

Other revenues increased by $0.8 million, or 14.0%, and $0.5 million, or 2.8%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. At September 30, 2018 and 2017, the amount of reinsurance assumed from client companies, as measured by pre-tax statutory surplus, risk based capital and other financial reinsurance structures was $2.9 billion and $2.4 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 decreased by $2.2 million, or 36.3%, and $3.4 million, or 24.0%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The decreases in the third quarter and first nine months were attributable to lower lapses on the aforementioned closed treaty in Japan, partially offset by higher claims and policy benefits from new business.

Other operating expenses increased by $1.0 million, or 30.7%, and $1.8 million, or 16.8%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017, respectively. The timing of transactions and the level of costs associated with the entrance into and development of new markets 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 and investment related gains and losses. 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. 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.

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(dollars in thousands)	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Revenues:				
Net premiums	$7	$23	$27	$109
Investment income, net of related expenses	51,846	41,108	124,719	108,576
Investment related gains (losses), net	(22,524)	6,994	(54,739)	7,856
Other revenues	8,509	1,502	22,886	9,126
Total revenues	37,838	49,627	92,893	125,667
Benefits and expenses:				
Claims and other policy benefits	24	(15)	452	(1)
Interest credited	3,015	1,799	7,942	4,420
Policy acquisition costs and other insurance income	(30,531)	(26,848)	(91,539)	(80,694)
Other operating expenses	64,896	45,601	194,126	124,114
Interest expense	33,290	36,836	107,769	108,590
Collateral finance and securitization expense	7,467	7,692	22,509	21,235
Total benefits and expenses	78,161	65,065	241,259	177,664
Income (loss) before income taxes	$(40,323)	$(15,438)	$(148,366)	$(51,997)

Loss before income taxes increased by $24.9 million and $96.4 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increases in loss before income taxes for the third quarter and the first nine months are primarily due to decreased net investment related gains and higher other operating expenses partially offset by increased other revenue.

Net investment income increased by $10.7 million, or 26.1%, and $16.1 million, or 14.9%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increases in the third quarter and the first nine months were related to an increase in unallocated invested assets and higher variable investment income.

Net investment related gains (losses) decreased by $29.5 million and $62.6 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The unfavorable change in the third quarter was largely caused by an increase in net losses on the sale of securities of $17.4 million and a $12.4 million increase in impairments on fixed maturity securities and other investments, which was offset by a $3.3 million increase in fair value of equity securities. The decrease in the first nine months was primarily due to net losses on the sale of securities and a $7.7 million decrease in the fair value of equity securities, which was partially offset by an $8.6 million reduction in other-than-temporary impairments on fixed maturity securities and other investments.

Other revenues increased by $7.0 million and $13.8 million for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increase in the third quarter was mainly due to the Company’s January 2018 acquisition of LOGiQ3 Inc., a group of companies providing technology, consulting and outsourcing solutions primarily to the North American life insurance and reinsurance industry, which contributed $5.7 million to other revenues in the current quarter. The acquisition of LOGiQ3 Inc. contributed $15.7 million of other revenues in the first nine months.

Policy acquisition costs and other insurance income increased by $3.7 million, or 13.7%, and $10.8 million, or 13.4%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. Fluctuations period over period were attributable to the offset to capital charges allocated to the operating segments.

Other operating expenses increased by $19.3 million, or 42.3%, and $70.0 million, or 56.4%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The increase in operating expenses, for both periods presented, was primarily related to increased consulting and compensation expenses. The increase in these expenses was due to increased compliance costs, strategic initiatives, acquisitions and increased incentive-based compensation. The aforementioned acquisition of LOGiQ3 Inc. contributed $7.4 million and $21.4 million of other operating expenses in the current quarter and first nine months, respectively.

Interest expense decreased by $3.5 million, or 9.6%, and $0.8 million, or 0.8%, for the three and nine months ended September 30, 2018, as compared to the same periods in 2017. The decrease in interest expense in the third quarter was mainly due to a reduction in tax-related interest expense, and the decrease in the first nine months was mainly the result of the repayment of $300.0 million of long-term debt in 2017.

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Liquidity and Capital Resources

Overview

The Company believes that cash flows from the source of funds available to it will provide sufficient cash flows for the next twelve months to satisfy the current liquidity requirements of RGA, Inc. and its subsidiaries 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. and Canada, continues to put downward pressure on the Company's investment yield. The Company's average investment yield, excluding spread business, for the nine months ended September 30, 2018 was 4.45%, 16 basis points below the same period in 2017. The Company's insurance liabilities, in particular its annuity products, are sensitive to changing market factors. Due to increases in risk free interest rates, gross unrealized gains on fixed maturity securities available-for-sale decreased from $2,982.8 million at December 31, 2017 to $1,907.2 million at September 30, 2018. Gross unrealized losses increased from $113.3 million at December 31, 2017 to $653.1 million at September 30, 2018.

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 $1,907.2 million remain well in excess of gross unrealized losses of $653.1 million as of September 30, 2018. 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 future policy benefits and other insurance liabilities 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 expansion 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 September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Interest expense	$40,924	$44,697	$133,618	$132,018
Capital contributions to subsidiaries	17,850	10,000	40,850	28,500

Dividends to shareholders	38,071	32,271	102,441	85,086
Interest and dividend income	132,035	23,635	396,055	75,916

	September 30, 2018	December 31, 2017
Cash and invested assets	$498,708	$779,996

See Item 15, Schedule II - “Condensed Financial Information of the Registrant” in the 2017 Annual Report for additional financial information related to RGA.

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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 2017 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 2017, 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):

	Nine months ended September 30,	
	2018	2017
Dividends to shareholders	$102,441	$85,086
Repurchases of treasury stock	258,524	26,897
Total amount paid to shareholders	$360,965	$111,983
Number of shares repurchased	1,750,295	208,680
Average price per share	$147.70	$128.89

In October 2018, RGA's board of directors declared a quarterly dividend of $0.60 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's most restrictive debt agreement requires it to maintain a minimum consolidated net worth, as defined in the debt agreement, 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 which results in the acceleration of the maturity of indebtedness.

As of September 30, 2018 and December 31, 2017, the Company had $2.8 billion in outstanding borrowings under its debt agreements and was in compliance with all covenants under those agreements. As of September 30, 2018 and December 31, 2017, the average net interest rate on long-term debt outstanding was 5.24%. 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.

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 September 30, 2018, the Company had no cash borrowings outstanding and $18.3 million in issued, but undrawn, letters of credit under this facility.

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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 September 30, 2018, the Company maintained an $850.0 million syndicated revolving credit facility and certain committed letter of credit facilities aggregating $1,256.1 million. See Note 12 - "Financing Activities" in the Notes to Condensed Consolidated Financial Statements and Note 13 - "Debt" in the Notes to Consolidated Financial Statements in the 2017 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 September 30, 2018, there were approximately $94.8 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 September 30, 2018, $1.4 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 $831.7 million as of September 30, 2018. The Company also has $1.1 billion of funds available through collateralized borrowings from the FHLB as of September 30, 2018. As of September 30, 2018, 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, "Summary of Significant Accounting Policies" in Notes to Consolidated Financial Statements in the 2017 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.

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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 nine months ended September 30,	
	2018	2017
	(Dollars in thousands)	
Sources:		
Net cash provided by operating activities	$1,100,163	$1,104,499
Net cash provided by investing activities	31,012	—
Exercise of stock options, net	2,336	4,450
Cash provided by changes in universal life and other investment type policies and contracts	—	438,774
Effect of exchange rate changes on cash	—	43,699
Total sources	1,133,511	1,591,422
Uses:		
Net cash used in investing activities	—	1,056,334
Dividends to stockholders	102,441	85,086
Repayment of collateral finance and securitization notes	75,146	56,637
Principal payments of long-term debt	2,007	301,927
Purchases of treasury stock	273,873	41,360
Change in cash collateral for derivatives and other arrangements	21,288	46,206
Cash used for changes in universal life and other investment type policies and contracts	199,778	—
Effect of exchange rate changes on cash	32,013	—
Total uses	706,546	1,587,550
Net change in cash and cash equivalents	$426,965	$3,872

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

There were no material changes in the Company's contractual obligations from those previously reported in the 2017 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.

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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 $1,960.4 million and $1,396.8 million at September 30, 2018 and December 31, 2017, respectively. Cash and cash equivalents includes cash collateral received from derivative counterparties of $159.2 million and $185.9 million as of September 30, 2018 and December 31, 2017, respectively. This unrestricted cash collateral is included in cash and cash equivalents and the obligation to return it is included in other liabilities in the Company's condensed consolidated balance sheets. 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 $71.4 million of FHLB common stock, which is included in other invested assets on the Company's condensed consolidated balance sheets. Membership provides the Company access to borrowing arrangements ("advances") and funding agreements, discussed below, with the FHLB. The Company did not have any advances from the FHLB at September 30, 2018 and December 31, 2017. The Company had no advances during the third quarter and the first nine months of 2018 and had average outstanding balances for advances of $8.2 million and $17.0 million during the third quarter and the first nine months of 2017, respectively. Interest on advances is reflected in interest expense on the Company's condensed consolidated statements of income.

In addition, the Company has also 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 $1.4 billion at September 30, 2018 and December 31, 2017, 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 below.

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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 $54.8 billion and $53.0 billion at September 30, 2018 and December 31, 2017, respectively, as illustrated below (dollars in thousands):

	September 30, 2018	% of Total	December 31, 2017	% of Total
Fixed maturity securities, available-for-sale	$39,005,212	71.1 %	$38,150,820	71.9 %
Equity securities	101,069	0.2	100,152	0.2
Mortgage loans on real estate	4,779,074	8.7	4,400,533	8.3
Policy loans	1,320,050	2.4	1,357,624	2.6
Funds withheld at interest	5,976,301	10.9	6,083,388	11.5
Short-term investments	229,928	0.4	93,304	0.2
Other invested assets	1,706,979	3.1	1,505,332	2.8
Cash and cash equivalents	1,730,489	3.2	1,303,524	2.5
Total cash and invested assets	$54,849,102	100.0%	$52,994,677	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 September 30,			Nine months ended September 30,		
	2018	2017	Increase/ (Decrease)	2018	2017	Increase/ (Decrease)
Average invested assets at amortized cost	$27,029,073	$25,887,338	4.4 %	$26,689,086	$25,136,119	6.2 %
Net investment income	303,860	305,632	(0.6)%	886,165	863,724	2.6 %
Investment yield (ratio of net investment income to average invested assets)	4.57 %	4.81 %	(24 bps)	4.45 %	4.61 %	(16 bps)

Investment yield decreased for the three months and nine months ended September 30, 2018 in comparison to the same periods in the prior year primarily due to decreased income from joint venture investments, which is included in other invested assets on the condensed consolidated balance sheets, and the effect of the low interest rate environment.

Fixed Maturity and Equity Securities Available-for-Sale

See "Fixed Maturity and Equity 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 September 30, 2018 and December 31, 2017.

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 September 30, 2018 and December 31, 2017, approximately 95.8% and 95.6%, respectively, of the Company's consolidated investment portfolio of fixed maturity securities were investment grade.

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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 largest asset class in which fixed maturity securities were invested was corporate securities, which represented approximately 62.7% and 60.9% of total fixed maturity securities as of September 30, 2018 and December 31, 2017, 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 September 30, 2018 and December 31, 2017.
As of September 30, 2018, the Company’s investments in Canadian and Canadian provincial government securities represented 10.3% of the fair value of total fixed maturity securities compared to 11.1% of the fair value of total fixed maturity securities at December 31, 2017. 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 and Equity Securities Available-for-Sale” in Note 4 – “Investments” in the Notes to Condensed Consolidated Financial Statements for tables showing the various sectors as of September 30, 2018 and December 31, 2017.
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 (mortgage-backed and asset-backed 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 September 30, 2018 and December 31, 2017 was as follows (dollars in thousands):

		September 30, 2018			December 31, 2017		
NAIC Designation	Rating Agency Designation	Amortized Cost	Estimated Fair Value	% of Total	Amortized Cost	Estimated Fair Value	% of Total
1	AAA/AA/A	$24,627,894	$25,837,847	66.2 %	$23,534,574	$25,762,103	67.5 %
2	BBB	11,466,201	11,526,902	29.6	10,115,008	10,709,170	28.1
3	BB	1,187,035	1,168,627	3.0	1,139,200	1,173,639	3.1
4	B	425,572	424,040	1.1	408,990	420,284	1.1
5	CCC and lower	27,341	30,106	0.1	78,143	79,747	0.2
6	In or near default	17,089	17,690	—	5,497	5,877	—
	Total	$37,751,132	$39,005,212	100.0 %	$35,281,412	$38,150,820	100.0 %

The Company’s fixed maturity portfolio includes structured securities. The following table shows the types of structured securities the Company held at September 30, 2018 and December 31, 2017 (dollars in thousands):

	September 30, 2018		December 31, 2017	
	Amortized Cost	Estimated Fair Value	Amortized Cost	Estimated Fair Value
RMBS:				
Agency	$813,762	$795,873	$878,559	$896,977
Non-agency	1,003,187	984,889	816,567	822,903
Total RMBS	1,816,949	1,780,762	1,695,126	1,719,880
CMBS	1,282,015	1,273,534	1,285,594	1,303,387

ABS	1,867,650	1,863,017	1,634,758	1,648,362
Total	$4,966,614	$4,917,313	$4,615,478	$4,671,629

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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, 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 include credit card receivables, railcar leasing, student loans, single-family rentals, home equity loans and collateralized debt obligations (primarily collateralized loan obligations). The Company owns floating rate securities that represent approximately 15.2% and 13.8% of the total fixed maturity securities at September 30, 2018 and December 31, 2017, 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. In addition to the risks associated with floating rate securities, principal risks in holding asset-backed securities are structural, credit and capital market 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 which 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 – "Summary of Significant Accounting Policies" in the Notes to Consolidated Financial Statements in the 2017 Annual Report for additional information. The table below summarizes other-than-temporary impairments and changes in the mortgage loan provision for the three and nine months ended September 30, 2018 and 2017 (dollars in thousands).

	Three months ended September 30,		Nine months ended September 30,	
	2018	2017	2018	2017
Impairment losses on available-for-sale securities				
Fixed maturity securities	$10,705	$390	$14,055	$20,980
Equity securities	—	889	—	889
Other impairment losses	5,910	1,469	7,249	7,776
Change in mortgage loan provision	656	977	986	1,444
Total	$17,271	$3,725	$22,290	$31,089

The fixed maturity impairments for the three and nine months ended September 30, 2018 and 2017 were largely related to high-yield corporate securities. The equity impairments for the three and nine months ended September 30, 2017 were related to an equity position received as part of a debt restructuring. In addition, other impairment losses for the three and nine months ended September 30, 2018 were primarily due to impairments on real estate joint ventures and limited partnerships. Other impairment losses for the three and nine months ended September 30, 2017 were primarily due to impairments on limited partnerships.

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At September 30, 2018 and December 31, 2017, the Company had $653.1 million and $113.3 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.

	September 30, 2018		December 31, 2017	
Sector:				
Corporate	63.8	%	48.8	%
Canadian government	0.6		1.5	
RMBS	7.7		10.5	
ABS	2.3		4.6	
CMBS	2.6		4.3	
U.S. government	14.5		19.4	
State and political subdivisions	2.1		3.8	
Other foreign government	6.4		7.1	
Total	100.0	%	100.0	%
Industry:				
Finance	24.0	%	15.8	%
Asset-backed	2.3		4.6	
Industrial	32.6		30.0	
Mortgage-backed	10.3		14.8	
Government	23.6		31.8	
Utility	7.2		3.0	
Total	100.0	%	100.0	%

See “Unrealized Losses for Fixed Maturity and Equity 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 September 30, 2018 and December 31, 2017, respectively, 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. In the Company’s impairment review process, the duration and severity of an unrealized loss position for equity securities are given greater weight and consideration given the lack of contractual cash flows and the deferability features of these securities.

See “Unrealized Losses for Fixed Maturity and Equity 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 September 30, 2018 and December 31, 2017.

As of September 30, 2018 and December 31, 2017, the Company classified approximately 4.9% and 5.9%, 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, repurchase and repurchase/reverse repurchase programs.

Mortgage Loans on Real Estate

Mortgage loans represented approximately 8.7% and 8.3% of the Company's cash and invested assets as of September 30, 2018 and December 31, 2017, respectively. The Company's mortgage loan portfolio consists of U.S. and Canadian based investments primarily in commercial offices, light industrial properties and retail locations. The mortgage loan portfolio is diversified by geographic region and property type. Additional information on geographic concentration and property type can be found under "Mortgage Loans on Real Estate" in Note 4 – "Investments" in the Notes to Condensed Consolidated Financial Statements.

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As of September 30, 2018 and December 31, 2017, 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):

	September 30, 2018		December 31, 2017	
	Recorded Investment	% of Total	Recorded Investment	% of Total
U.S. Region:				
Pacific	$1,342,410	27.9 %	$1,258,753	28.6 %
South Atlantic	962,752	20.1	896,117	20.3
Mountain	678,604	14.2	694,324	15.7
East North Central	579,162	12.1	527,316	11.9
West North Central	302,538	6.3	309,326	7.0
West South Central	502,670	10.5	387,151	8.8
Middle Atlantic	170,974	3.6	137,600	3.1
East South Central	124,447	2.6	96,887	2.2
New England	5,637	0.1	5,700	0.1
Subtotal - U.S.	4,669,194	97.4	4,313,174	97.7
Canada	125,032	2.6	99,997	2.3
Total	$4,794,226	100.0%	$4,413,171	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 2.4% and 2.6% of the Company's cash and invested assets as of September 30, 2018 and December 31, 2017, 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 10.9% and 11.5% of the Company's cash and invested assets as of September 30, 2018 and December 31, 2017, 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 September 30, 2018 and December 31, 2017. 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 3.1% and 2.8% of the Company's cash and invested assets as of September 30, 2018 and December 31, 2017, respectively. 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 September 30, 2018 and December 31, 2017.

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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 against risk of changes in the purchase price of securities, 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 both 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 September 30, 2018 and December 31, 2017.

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 net credit exposure related to its derivative contracts, excluding futures and mortality swaps, at September 30, 2018 and December 31, 2017, 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.

Enterprise Risk Management

RGA maintains a dedicated Enterprise Risk Management ("ERM") function that is responsible for analyzing and reporting the Company's risks on an aggregated basis; facilitating monitoring to ensure the Company's risks remain within its appetites and limits; and ensuring, on an ongoing basis, that RGA's ERM objectives are met. This includes ensuring proper risk controls are in place; risks are effectively identified, assessed, and managed; and key risks to which the Company is exposed are disclosed to appropriate stakeholders. The ERM function plays an important role in fostering the Company's risk management culture and practices.

Enterprise Risk Management Structure and Governance

The Board of Directors ("the Board") oversees enterprise risk through its standing committees. The Finance, Investments, and Risk Management ("FIRM") Committee of the Board oversees the management of the Company's ERM program and policies. The FIRM receives regular reports and assessments which describe the Company's key risk exposures and include quantitative and qualitative assessments and information about breaches, exceptions, and waivers.

The Company's Global Chief Risk Officer ("CRO") leads the dedicated ERM function. The CRO reports to the Chief Executive Officer ("CEO") and has direct access to the Board through the FIRM Committee with formal reporting occurring quarterly. The CRO is supported by a network of Business Unit Chief Risk Officers and Risk Management Officers throughout the business who are responsible for the analysis and management of risks within their scope. A Lead Risk Management Officer is assigned to each risk to take overall responsibility to monitor and assess the risk consistently across all markets.

In addition to leading the ERM function, the CRO also chairs the Company's Risk Management Steering Committee ("RMSC"), which is made up of senior management executives, including the CEO, the Chief Financial Officer ("CFO"), and the Chief Operating Officer, among others. The RMSC provides oversight for the Insurance, Market and Credit, Capital, and Operational risk committees and retains direct risk oversight responsibilities for the following:

- Company's global ERM framework, activities, and issues.
- Identification, assessments, and management of all known, new and emerging strategic risk exposures.

- Risk appetite statement, including the ongoing alignment of the risk appetite statement with the Company's strategy and capital plans.
- Review, revise and approve RGA group-level strategic risk limits consistent with the risk appetite statement

The Insurance, Market and Credit, Capital, and Operational risk committees have direct oversight accountability for their respective risks areas including the identification, assessments, and management of known, new and emerging risk exposures and the review and approval of RGA group-level risk limits

To ensure appropriate oversight of enterprise-wide risk management issues without unnecessary duplication, as well as to foster cross-committee communication and coordination regarding risk issues, risk committee chairs attend RMSC meetings. In addition

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to the risk committees, their sub-committees and working groups, some RGA operating entities have risk management committees that oversee relevant risks related to segment-level risk limits.

Enterprise Risk Management Framework

RGA's ERM framework provides a platform to assess the risk / return profiles of risks throughout the organization to enable enhanced decision making by business leaders. The ERM framework also guides the development and implementation of mitigation strategies to reduce exposures to these risks to acceptable levels.

RGA's ERM framework includes the following elements:

1. Risk Culture: Risk management is an integral part of the Company's culture and is embedded in RGA's business processes in accordance with RGA's risk philosophy. As the cornerstone of the ERM framework, a culture of prudent risk management reinforced by senior management plays a preeminent role in the effective management of risks assumed by RGA.
2. Risk Appetite Statement: A general and high level overview of the risk profile RGA aims to achieve to meet its strategic objectives. This statement is then supported by more granular risk limits guiding the businesses to achieve this Risk Appetite Statement.
3. Risk Limits: Risk Limits establish the maximum amount of defined risk that the Company is willing to assume to remain within the Company's overall risk appetite. These risks have been identified by the management of the Company as relevant to manage the overall risk profile of the Company while allowing achievement of strategic objectives.
4. Risk Assessment Process: RGA uses qualitative and quantitative methods to assess key risks through a portfolio approach, which analyzes established and emerging risks in conjunction with other risks.
5. Business Specific Limits/Controls: These limits/controls provide additional safeguards against undesired risk exposures and are embedded in business processes. Examples include maximum retention limits, pricing and underwriting reviews, per issuer limits, concentration limits, and standard treaty language.

Proactive risk monitoring and reporting enable early detection and mitigation of emerging risks. The RMSC and its subcommittees monitor adherence to risk limits through the ERM function, which reports regularly to the RMSC and FIRM Committee. The frequency of monitoring is tailored to the volatility assessment and relative priority of each risk. Risk escalation channels coupled with open communication lines enhance the mitigants explained above. The Company has devoted significant resources to developing its ERM program and expects to continue to do so in the future. Nonetheless, the Company's policies and procedures to identify, manage, and monitor risks may not be fully effective. Many of the Company's methods for managing risk are based on historical information, which may not be a good predictor of future risk exposures, such as the risk of a pandemic causing a large number of deaths. Management of operational, legal, and regulatory risk relies on policies and procedures which may not be fully effective under all scenarios.

Risk Categories

The Company groups its risks into the following categories: Insurance risk, Market and Credit risk, Capital risk, Operational risk and Strategic risk. Specific risk assessments and descriptions can be found below and in Item 1A – "Risk Factors" of the 2017 Annual Report.

Insurance Risk

Insurance risk is the risk of lower or negative earnings and potentially a reduction in enterprise value due to a greater amount of benefits and related expenses paid than expected, or from non-market related adverse policyholder or client behavior. The Company uses multiple approaches to managing insurance risk: active insurance risk assessment and pricing appropriately for the risks assumed, transferring undesired risks, and managing the retained exposure prudently. These strategies are explained below.

Insurance Risk Assessment and Pricing

The Company has developed extensive expertise in assessing insurance risks which ultimately forms an integral part of ensuring that it is compensated commensurately for the risks it assumes and that it does not overpay for the risks it transfers to third parties. This expertise includes a vast array of market and product knowledge supported by a large information database of historical experience which is closely monitored. Analysis and experience studies derived

from this database help form the basis for the Company's pricing assumptions which are used in developing rates for new risks. If actual mortality or morbidity experience is materially adverse, some reinsurance treaties allow for increases to future premium rates.

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Misestimation of any key risk can threaten the long term viability of the enterprise. Further, the pricing process is a key operational risk and significant effort is applied to ensuring the appropriateness of pricing assumptions. Some of the safeguards the Company uses to ensure proper pricing are: experience studies, strict underwriting, sensitivity and scenario testing, pricing guidelines and controls, authority limits and internal and external pricing reviews. In addition, the ERM function provides pricing oversight which includes periodic pricing audits.

Risk Transfer

To minimize volatility in financial results and reduce the impact of large losses, the Company transfers some of its insurance risk to third parties using vehicles such as retrocession and catastrophe coverage.

Individual Exposure Retrocession

In the normal course of business, the Company seeks to limit its exposure to loss on any single insured and to recover a portion of claims paid by ceding reinsurance to other insurance enterprises (or retrocessionaires) under excess coverage and coinsurance contracts. In individual life markets, the Company retains a maximum of $8.0 million of coverage per individual life. In certain limited situations the Company has retained more than $8.0 million per individual life. The Company enters into agreements with other reinsurers to mitigate the residual risk related to the over-retained policies. Additionally, due to some lower face amount reinsurance coverages provided by the Company in addition to individual life, such as group life, disability and health, under certain circumstances, the Company could potentially incur claims totaling more than $8.0 million per individual life.

Catastrophic Excess Loss Retrocession

The Company seeks to limit its exposure to loss on its assumed catastrophic excess of loss reinsurance agreements by ceding a portion of its exposure to multiple retrocessionaires through retrocession line slips or directly to retrocession markets. The Company’s policy is to retain a maximum of $20.0 million of catastrophic loss exposure per agreement and to retrocede up to $30.0 million additional loss exposures to the retrocession markets. The Company limits its exposure on a country-by-country (and state-by-state in the U.S.) basis by managing its total exposure to all catastrophic excess of loss agreements bound within a given country to established maximum aggregate exposures. The maximum exposures are established and managed both on gross amounts issued prior to including retrocession and for amounts net of exposures retroceded.

Catastrophe Coverage

The Company accesses the markets each year for annual catastrophic coverages and reviews current coverage and pricing of current and alternate designs. The coverage may vary from year to year based on the Company’s perceived value of such protection. The current policy covers events involving 8 or more insured deaths from a single occurrence and covers $100.0 million of claims in excess of the Company’s $25.0 million deductible.

Managing Retained Exposure

The Company retains most of the inbound insurance risk. The Company manages the retained exposure proactively using various mitigating factors such as diversification and limits. Diversification is the primary mitigating factor of short term volatility risk, but it also mitigates adverse impacts of changes in long term trends and catastrophic events. The Company’s insured populations are dispersed globally, diversifying the insurance exposure because factors that cause actual experience to deviate materially from expectations do not affect all areas uniformly and synchronously or in close sequence. A variety of limits mitigate retained insurance risk. Examples of these limits include geographic exposure limits, which set the maximum amount of business that can be written in a given country, and jumbo limits, which prevent excessive coverage on a given individual.

In the event that mortality or morbidity experience develops in excess of expectations, some reinsurance treaties allow for increases to future premium rates. Other treaties include experience refund provisions, which may also help reduce RGA’s mortality risk.

RGA has various methods to manage its insurance risks, including access to the capital and reinsurance markets.

Market and Credit Risk

Market and Credit risk is the risk of lower or negative earnings and potentially a reduction in enterprise value due to changes in the market prices of asset and liabilities.

Interest Rate Risk

Interest Rate risk is risk that changes in the level and volatility of nominal interest rates affect the profitability, value or solvency position of the Company. This includes credit spread changes and inflation but excludes credit quality deterioration. This risk arises from many of the Company's primary activities, as the Company invests substantial funds in interest-sensitive assets, primarily fixed maturity securities, and also has certain interest-sensitive contract liabilities. A prolonged period where market yields are significantly below the book yields of the Company's asset portfolio puts downward pressure on portfolio book yields.

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The Company has been proactive in its investment strategies, reinsurance structures and overall asset-liability management practices to reduce the risk of unfavorable consequences in this type of environment.

The Company manages interest rate risk to optimize the return on the Company's capital and to preserve the value created by its business operations within certain constraints. For example, certain management and monitoring processes are designed to minimize the effect of sudden and/or sustained changes in interest rates on fair value, cash flows, and net interest income. The Company manages its exposure to interest rates principally by managing the relative matching of the cash flows of its liabilities and assets.

The Company's exposure to interest rate price risk and interest rate cash flow risk is reviewed on a quarterly basis. Interest rate price risk exposure is measured using interest rate sensitivity analysis to determine the change in fair value of the Company's financial instruments in the event of a hypothetical change in interest rates. Interest rate cash flow risk exposure is measured using interest rate sensitivity analysis to determine the Company's variability in cash flows in the event of a hypothetical change in interest rates.

In order to reduce the exposure to changes in fair values from interest rate fluctuations, the Company has developed strategies to manage the net interest rate sensitivity of its assets and liabilities. In addition, from time to time, the Company has utilized the swap market to manage the sensitivity of fair values to interest rate fluctuations.

Inflation can also have direct effects on the Company's assets and liabilities. The primary direct effect of inflation is the increase in operating expenses. A large portion of the Company's operating expenses consists of salaries, which are subject to wage increases at least partly affected by the rate of inflation.

The Company reinsures annuities with benefits indexed to the cost of living. Some of these benefits are hedged with a combination of CPI swaps and indexed bonds when material.

Long Term Care products have an inflation component linked to the future cost of such services. If health care costs increase at a much larger rate than what is prevalent in the nominal interest rates available in the markets, the Company may not earn enough investment yield to pay future claims on such products.

Foreign Currency Risk

Foreign currency risk is the risk of changes in level and volatility of currency exchange rates affect the profitability, value or solvency position of the Company. The Company manages its exposure to currency principally by currency matching invested assets with the underlying liabilities to the extent possible. The Company has in place net investment hedges for a portion of its investments in its Canadian operations to reduce excess exposure to these currencies. Translation differences resulting from translating foreign subsidiary balances to U.S. dollars are reflected in stockholders' equity on the condensed consolidated balance sheets.

The Company generally does not hedge the foreign currency exposure of its subsidiaries transacting business in currencies other than their functional currency (transaction exposure). However, the Company has entered into cross currency swaps to manage exposure to specific currencies. The majority of the Company's foreign currency transactions are denominated in Australian dollars, British pounds, Canadian dollars, Euros, Japanese yen, Korean won, and the South African rand. The maximum amount of assets held in a specific currency (with the exception of the U.S. dollar) is measured relative to risk targets and is monitored regularly.

Real Estate Risk

Real Estate risk is the risk that changes in the level and volatility of real estate market valuations may impact the profitability, value or solvency position of the Company. The Company has investments in direct real estate equity and debt instruments collateralized by real estate ("real estate loans"). Real estate equity risks include significant reduction in valuations, which could be caused by downturns in the broad economy or in specific geographic regions or sectors. In addition, real estate loan risks include defaults, borrower or tenant bankruptcy and reduced liquidity. Real estate loan risks are partially mitigated by the excess of the value of the property over the loan principle, which provides a buffer should the value of the real estate decrease. The Company manages its real estate loan risk by diversifying by property type and geography and through exposure limits.

Equity Risk

Equity risk is the risk that changes in the level and volatility of equity market valuations affect the profitability, value or solvency position of the Company. This risk includes Variable Annuity and other equity linked exposures and asset

related equity exposure. The Company assumes equity risk from alternative investments, fixed indexed annuities and variable annuities. The Company uses derivatives to hedge its exposure to movements in equity markets that have a direct correlation with certain of its reinsurance products.

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Alternative Investments

Alternative investments are investments in non-traditional asset classes that primarily back the Company's capital and surplus. The Company generally restricts the alternative investments portfolio to non-liability supporting assets: that is, free surplus. Alternative investments generally encompass: hedge funds, emerging markets debt, distressed debt, commodities, infrastructure, tax credits, and equities, both public and private. The Company mitigates its exposure to alternative investments by limiting the size of the alternative investments holding and using per-issuer investment limits.

Fixed Indexed Annuities

The Company reinsures fixed indexed annuities ("FIAs"). Credits for FIAs are affected by changes in equity markets. Thus the fair value of the benefit is primarily a function of index returns and volatility. The Company hedges most of the underlying FIA equity exposure with derivatives.

Variable Annuities

The Company reinsures variable annuities including those with guaranteed minimum death benefits ("GMDB"), guaranteed minimum income benefits ("GMIB"), guaranteed minimum accumulation benefits ("GMAB") and guaranteed minimum withdrawal benefits ("GMWB"). Strong equity markets, increases in interest rates and decreases in equity market volatility will generally decrease the fair value of the liabilities underlying the benefits. Conversely, a decrease in the equity markets along with a decrease in interest rates and an increase in equity market volatility will generally result in an increase in the fair value of the liabilities underlying the benefits, which has the effect of increasing reserves and lowering earnings. The Company maintains a customized dynamic hedging program that is designed to substantially mitigate the risks associated with income volatility around the change in reserves on guaranteed benefits, ignoring the Company's own credit risk assessment. However, the hedge positions may not fully offset the changes in the carrying value of the guarantees due to, among other things, time lags, high levels of volatility in the equity and derivative markets, extreme swings in interest rates, unexpected contract holder behavior, and divergence between the performance of the underlying funds and hedging indices. These factors, individually or collectively, may have a material adverse effect on the Company's net income, financial condition or liquidity. The table below provides a summary of variable annuity account values and the fair value of the guaranteed benefits as of September 30, 2018 and December 31, 2017.

(dollars in millions)	September 30, 2018	December 31, 2017
No guaranteed minimum benefits	$ 870	$ 950
GMDB only	179	182
GMIB only	24	24
GMAB only	10	22
GMWB only	1,244	1,366
GMDB / WB	309	343
Other	23	31
Total variable annuity account values	$ 2,659	$ 2,918
Fair value of liabilities associated with living benefit riders	$ 90	$ 152

Credit Risk

Credit risk, which includes default risk, is risk of loss due to credit quality deterioration of an individual financial asset, derivative or non-derivative contract or instrument. Credit quality deterioration may or may not be accompanied by a ratings downgrade. Generally, the credit exposure for an asset is limited to the fair value, net of any collateral received, at the reporting date.

Investment Credit Risk

Investment credit risk is credit risk related to invested assets. The Company manages investment credit risk using per-issuer investment limits. In addition to per-issuer limits, the Company also limits the total amounts of investments per rating category. An automated compliance system checks for compliance for all investment positions and sends warning messages when there is a breach. 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. Because futures are transacted 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 to such derivative instruments.

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The Company enters into various collateral arrangements, which require both the posting and accepting of collateral in connection with its derivative instruments. Collateral agreements contain attachment thresholds that vary depending on the posting party's financial strength ratings. Additionally, a decrease in the Company's financial strength rating to a specified level results in potential settlement of the derivative positions under the Company's agreements with its counterparties. A committee is responsible for setting rules and approving and overseeing all transactions requiring collateral. See "Credit Risk" in Note 5 – "Derivative Instruments" in the Notes to Condensed Consolidated Financial Statements for additional information on credit risk related to derivatives.

Counterparty Risk

Counterparty risk is the potential for the Company to incur losses due to a client, retrocessionaire, or partner becoming distressed or insolvent. This includes run-on-the-bank risk and collection risk.

Run-on-the-Bank

The risk that a client's in force block incurs substantial surrenders and/or lapses due to credit impairment, reputation damage or other market changes affecting the counterparty. Substantially higher than expected surrenders and/or lapses could result in inadequate in force business to recover cash paid out for acquisition costs.

Collection Risk

For clients and retrocessionaires, this includes their inability to satisfy a reinsurance agreement because the right of offset is disallowed by the receivership court; the reinsurance contract is rejected by the receiver, resulting in a premature termination of the contract; and/or the security supporting the transaction becomes unavailable to RGA.

The Company manages counterparty risk by limiting the total exposure to a single counterparty and by only initiating contracts with creditworthy counterparties. In addition, some of the counterparties have set up trusts and letters of credit, reducing the Company's exposure to these counterparties.

Generally, RGA's insurance subsidiaries retrocede amounts in excess of their retention to certain other RGA insurance subsidiaries. External retrocessions are arranged through the Company's retrocession pools for amounts in excess of its retention. As of September 30, 2018, all retrocession pool members in this excess retention pool rated by the A.M. Best Company were rated "A-" or better, except for one pool member that was rated "B++". A rating of "A-" is the fourth highest rating out of sixteen possible ratings. For a majority of the retrocessionaires that were not rated, letters of credit or trust assets have been given as additional security. In addition, the Company performs annual financial and in force 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 material difficulty in collecting claims recoverable from retrocessionaires; however, no assurance can be given as to the future performance of such retrocessionaires or as to the recoverability of any such claims.

Aggregate Counterparty Limits

In addition to investment credit limits and counterparty limits, there are aggregate counterparty risk limits which include counterparty exposures from reinsurance, financing and investment activities at an aggregated level to control total exposure to a single counterparty. Counterparty risk aggregation is important because it enables the Company to capture risk exposures at a comprehensive level and under more extreme circumstances compared to analyzing the components individually.

All counterparty exposures are calculated on a quarterly basis, reviewed by management and monitored by the ERM function.

Capital Risk

Capital risk is the risk of lower/negative earnings, potential reduction in enterprise value, and/or the loss of ability to conduct business due to insufficient financial capacity, including not having the appropriate amount of group or entity-level capital to conduct business today or in the future. The Company monitors capital risk exposure using relevant bases of measurement including but not limited to economic, rating agency, and local regulatory methodologies. Additionally, the Company regularly assesses risk related to collateral, financing, liquidity and tax.

Collateral Risk

Collateral risk is the risk that collateral will not be available at expected costs or in the capacity required to meet current and future needs. The Company monitors risks related to interest rate movement, collateral requirements and

position and capital markets environment. Collateral demands and resources continue to be actively managed with available collateral sources being more than sufficient to cover stress level collateral demands.

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Financing Risk

Financing risk is the risk that capital will not be available at expected costs or in the capacity required. The Company continues to monitor financing risks related to regulatory financing, contingency financing, and debt capital and sees no immediate issues with its current structures, capacity and plans.

Liquidity Risk

Liquidity risk is the risk that the Company is unable to meet payment obligations at expected costs or in the capacity required. The Company's traditional liquidity demands include items such as claims, expenses, debt financing and investment purchases which are largely known or can be reasonably forecasted. The Company regularly performs liquidity risk modeling, including both market and Company specific stresses, to assess the sufficiency of available resources.

Tax Risk

Tax risk is the risk that current and future tax positions are different than expected. The Company monitors tax risks related to the evolving tax and regulatory environment, business transactions, legal entity reorganizations, tax compliance obligations, and financial reporting.

Operational Risk

Operational risk is the risk of lower/negative earnings and a potential reduction in enterprise value caused by unexpected losses associated with inadequacy or failure on the part of internal processes, people and systems, or from external events. The Company regularly monitors and assesses the risks related to business conduct and governance, fraud, privacy and security, business disruption, and business operations. Various insurance, market and credit, capital, and strategy risk obligations and concerns often intersect with the Company's core operational process risk areas. Given the scope of the Company's business and the number of countries in which it operates, this set of risks has the potential to affect the business locally, regionally, or globally. Operational risks are core to managing the Company's brand and market confidence as well as maintaining its ability to acquire and retain the appropriate expertise to execute and operate the business.

Business Conduct and Governance

Business conduct and governance is the risk related to management oversight, compliance, market conduct, and legal matters. The Company's Compliance Risk Management Program facilitates a proactive evaluation of present and potential compliance risks associated with both local and enterprise-wide regulatory requirements as well as compliance with Company policies and procedures.

Fraud Risk

Fraud risk is the risk related to the deliberate abuse of and/or taking of Company assets in order to secure gain for the perpetrator or inflict harm on the Company or other victim. Ongoing monitoring and an annual fraud risk assessment enables the Company to continually evaluate potential fraud risks within the organization.

Privacy and Security Risk

Privacy and security risk is the risk of theft, loss, or unauthorized disclosure of physical or electronic assets resulting in a loss of asset value, confidentiality, or intellectual property. The Company's privacy and security programs, processes, and procedures are designed to prevent unauthorized physical and electronic theft and the disclosure of confidential and personal data related to its customers, insured individuals or its employees. The Company employs technology, administrative related processes and procedural controls, security measures and other preventative actions to reduce the risk of such incidents.

Business Disruption Risk

Business disruption risk is the risk of impairment to operational capabilities due to the unavailability of people, systems, and/or facilities. The Company's global business continuity process enables associates to identify potential impacts that threaten operations by providing the framework, policies and procedures and required recurring training for how the Company will recover and restore interrupted critical functions, within a predetermined time, after a disaster or extended disruption, until its normal facilities are restored.

Business Operations Risk

Business operations risk is the risk related to business processes and procedures. Business operations risk includes risk associated with the processing of transactions, data use and management, monitoring and reporting, the integrity and accuracy of models and the use of third party and advisory services.

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Human Capital Risk

Human capital risk is related to workforce management, including talent acquisition, development, retention, and employment relations/regulations. The Company actively monitors human capital risks using multiple practices which include but are not limited to human resource and compliance policies and procedures, regularly reviewing key risk indicators, performance evaluations, compensation and benefits benchmarking, succession planning, employee engagement surveys and associate exit interviews.

Strategic Risk

Strategic risk relates to the planning, implementation, and management of the Company's business plans and strategies, including the risks associated with: the global environment in which it operates; future law and regulation changes; political risks; and relationships with key external parties.

Strategy Risk

Strategy risk is the risk related to the design and execution of the Company's strategic plan, including risks associated with merger and acquisition activity. Strategy risks are addressed by a multi-year planning process, regular business unit level assessments of strategy execution and active benchmarking of key performance and risk indicators across the Company's portfolios of businesses. The Company's risk appetites and limits are set consistently with strategic objectives.

External Environment Risk

External environment risk relates to external competition, macro trends, and client needs. Macro characteristics that drive market opportunities, risk and growth potential, the competitive landscape and client feedback are closely monitored.

Key Relationships Risk

Key relationships risk relates to areas of important interactions with parties external to the Company. The Company's reputation is a critical asset in successfully conducting business and therefore relationships with its primary stakeholders (including but not limited to business partners, shareholders, clients, rating agencies, and regulators) are all carefully monitored.

Political and Regulatory Risk

Political and regulatory risk relates to future law and regulation changes and the impact of political changes or instability on the Company's ability to achieve its objectives. Regulatory and political developments and related risks that may affect the Company are identified, assessed and monitored as part of regular oversight activities.

New Accounting Standards

See Note 13 — "New Accounting Standards" in the Notes to Condensed Consolidated Financial Statements.

ITEM 3. Quantitative and Qualitative Disclosures About Market Risk

There has been no significant change in the Company's quantitative or qualitative aspects of market risk during the quarter ended September 30, 2018 from that disclosed in the 2017 Annual Report. See "Item 2 – Management's Discussion and Analysis of Financial Condition and Results of Operations – Market and Credit Risk", which is included herein, for additional information.

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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 September 30, 2018, that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

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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 2017 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 September 30, 2018:

	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
July 1, 2018 - July 31, 2018	16,406	$ 139.95	16,406	$ 220,807,197
August 1, 2018 - August 31, 2018	683,388	$ 143.21	682,222	$ 123,103,321
September 1, 2018 - September 30, 2018	60,977	$ 141.67	60,190	$ 114,579,309

(1) RGA repurchased 16,406, 682,222 and 60,190 shares of common stock under its share repurchase program for $2.3 million, $97.7 million and $8.5 million during July, August and September 2018, respectively. The Company net settled - issuing 364, 3,353 and 2,081 shares from treasury in July, August and September 2018 and repurchasing from recipients 1,166 and 787 shares in August and September 2018, respectively, in settlement of income tax withholding requirements incurred by the recipients of an equity incentive award.

In January 2017, 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.

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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	Credit Agreement, dated as of August 21, 2018, by and among RGA, the lenders named therein, U.S. Bank National Association, as Administrative Agent, Swing Line Lender and L/C Issuer, Bank of America, N.A.; JPMorgan Chase Bank, N.A.; and Wells Fargo Bank, National Association as Joint Syndication Agents and Barclays Bank PLC; HSBC Bank USA, National Association; KeyBank National Association; Mizuho Bank, Ltd.; MUFG Bank, Ltd.; Royal Bank of Canada; and Sumitomo Mitsui Banking Corporation as Co-Documentation Agents, incorporated by reference to Exhibit 10.1 to Current Report on Form 8-K filed on August 22, 2018.
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
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

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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: November 2, 2018 By: /s/ Anna Manning
Anna Manning
President & Chief Executive Officer
(Principal Executive Officer)

Date: November 2, 2018 By: /s/ Todd C. Larson
Todd C. Larson
Senior Executive Vice President & Chief Financial Officer
(Principal Financial and Accounting Officer)