Athene 4Q'18 and FY'18 Earnings Presentation

Disclaimer

This presentation does not constitute an offer to sell, or the solicitation of an offer to buy, any security of Athene Holding Ltd. ("Athene").

Certain information contained herein and certain oral statements made in reference thereto may be "forward-looking" in nature. These statements include, but are not limited to, discussions related to the financial results to be achieved as a result of Athene's consummation of the reinsurance arrangements with Voya Financial, Inc. and Lincoln Financial Group; Athene's projected effective tax rate and projected overall tax rate; expected future operating results; its liquidity and capital resources and the other non-historical statements. These forward-looking statements are based on management's beliefs, as well as assumptions made by, and information currently available to, management. When used in this presentation, the words "believe," "anticipate," "estimate," "expect," "intend" and similar expressions are intended to identify forward-looking statements. Although management believes that the expectations reflected in these forward-looking statements are reasonable, it can give no assurance that these expectations will prove to be correct. These statements are subject to certain risks, uncertainties and assumptions. For a discussion of the risks and uncertainties related to Athene's forward-looking statements, see its annual report on Form 10-K for the year ended December 31, 2017, its quarterly report on Form 10-Q for quarterly period ended September 30, 2018, and its other SEC filings, which can be found at the SEC's website www.sec.gov. Due to these various risks, uncertainties and assumptions, actual events or results or the actual performance of Athene may differ materially from that reflected or contemplated in such forward-looking statements. Athene undertakes no obligation to publicly update or review any forward-looking statements, whether as a result of new information, future developments or otherwise.

Information contained herein may include information respecting prior performance of Athene. Information respecting prior performance, while a useful tool, is not necessarily indicative of actual results to be achieved in the future, which is dependent upon many factors, many of which are beyond Athene's control. The information contained herein is not a guarantee of future performance by Athene, and actual outcomes and results may differ materially from any historic, pro forma or projected financial results indicated herein. Certain of the financial information contained herein is unaudited or based on the application of non-GAAP financial measures. These non-GAAP financial measures should be considered in addition to and not as a substitute for, or superior to, financial measures presented in accordance with GAAP. Furthermore, certain financial information is based on estimates of management. These estimates, which are based on the reasonable expectations of management, are subject to change and there can be no assurance that they will prove to be correct. The information contained herein does not purport to be all-inclusive or contain all information that an evaluator may require in order to properly evaluate the business, prospects or value of Athene. Athene does not have any obligation to update this presentation and the information may change at any time without notice.

Certain of the information used in preparing this presentation was obtained from third parties or public sources. No representation or warranty, express or implied, is made or given by or on behalf of Athene or any other person as to the accuracy, completeness or fairness of such information, and no responsibility or liability is accepted for any such information.

This document is not intended to be, nor should it be construed or used as, financial, legal, tax, insurance or investment advice. There can be no assurance that Athene will achieve its objectives. Past performance is not indicative of future success.

All information is as of the dates indicated herein.

Financial Statement Revisions

As will further be described in the footnotes to our financial statements to be included in our next annual report on Form 10-K, certain account balances presented herein as of or for the periods ended prior to October 1, 2018 have been adjusted for immaterial corrections identified during the year ended December 31, 2018. The corrections identified impacted a non-operating item related to the completeness and accuracy of data used to calculate a key input in the determination of the value of the host contract within our fixed indexed annuity liabilities and other unrelated immaterial errors. We assessed the materiality of these errors individually and in the aggregate, and concluded these errors are not material to the previously reported consolidated financial statements as a whole. Please refer to slide 29 for details of the revisions by period.

Fundamentals Support Compounding Growth

Execution of business strategy driving significant book value growth

Steady & Significant Base of Earnings + **Robust Asset Growth** + **Differentiated Investment Capabilities** + **Increasing Scale & Expense Discipline** → **Attractive Book Value Growth**

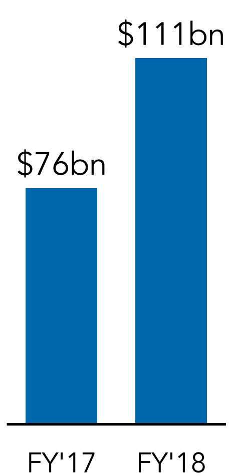
$111bn
Invested Assets

2-3%
Investment Margin

9.6 year
Liability WAL[1]

Efficient Structure

+46%
YoY

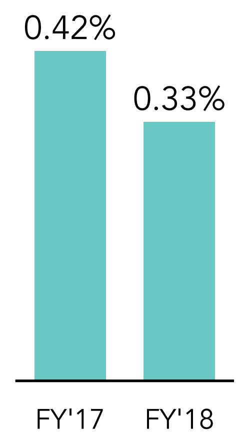


Invested Assets[2]

+7bps
YoY

Consolidated NIER

-9bps
YoY



Operating Expenses[3]

+19%
YoY

Adjusted Book Value per Share

1 Weighted average life of total reserve liabilities; weighted average life on deferred annuities of 9.1 years. 2 Invested assets excluding Germany business. 3 Operating expenses are calculated by dividing operating expenses by average invested assets.

Athene 4Q'18 and FY'18 Financial Results Highlights

Strong financial results drive 19% year-over-year growth in adjusted book value per share

Earnings

	4Q'18		FY'18	
	$ in millions	*Per share*	*$ in millions*	*Per share*
• Adjusted operating income	$240	$1.23	$1,140	$5.82
• Adjusted operating income, ex. notables	$293	$1.50	$1,171	$5.98

- Operating expenses as a percentage of average invested assets of 0.30%

Assets

- Total invested assets of $111.0 billion, up 46% year-over-year, excluding Germany
- Consolidated net investment earned rate (NIER) of 4.40% (4.54% FY'18)
  - Fixed income and other NIER: 4.35% (4.37% FY'18)
  - Alternatives NIER: 5.81% (8.51% FY'18)

Liabilities

- Total organic deposits of $5.2 billion ($13.2 billion FY'18)
  - Retail: $2.0 billion ($7.5 billion FY'18)
  - Flow Reinsurance: $1.1 billion ($2.4 billion FY'18)
  - Pension Risk Transfer: $1.8 billion ($2.6 billion FY'18)
  - Funding Agreements: $0.2 billion ($0.7 billion FY'18)
- Total inorganic deposits of $7.9 billion ($27.0 billion FY'18)

Capital

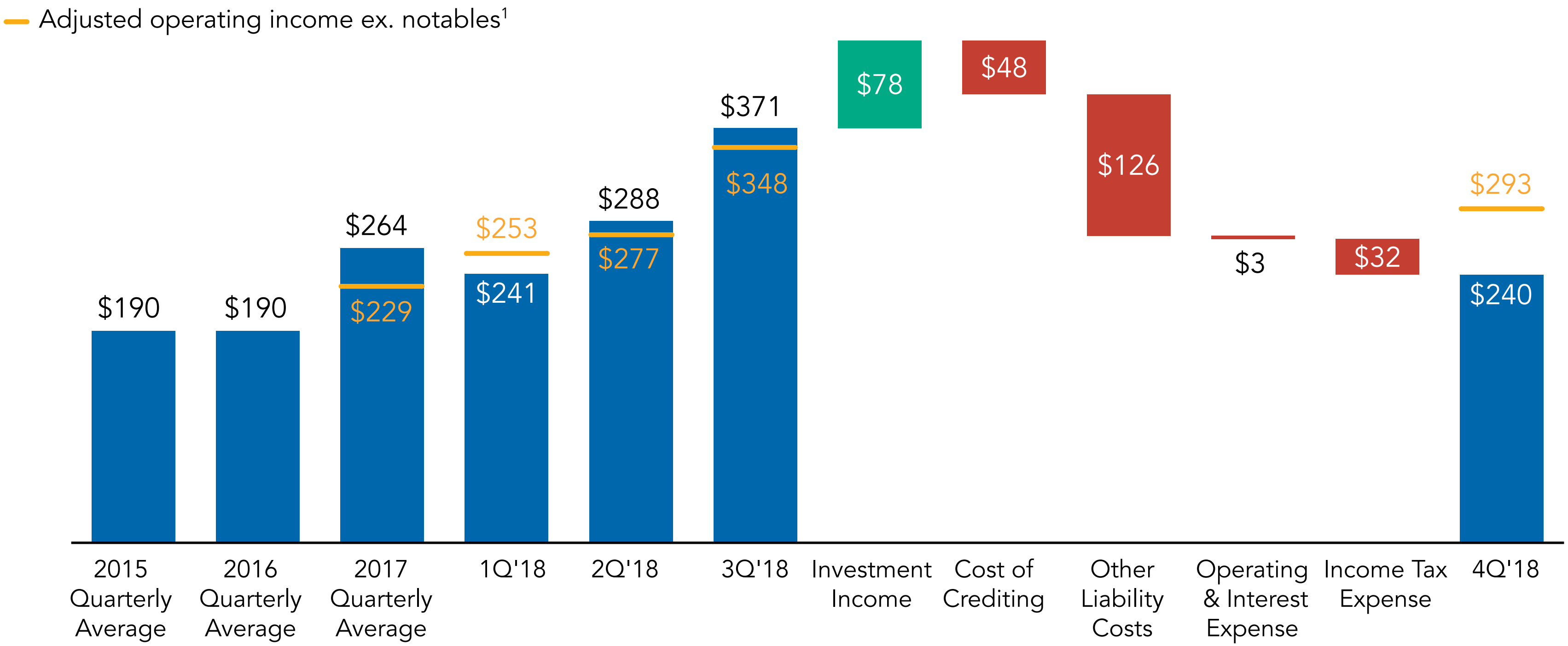
	4Q'18		FY'18	
	Consolidated	*Ret. Services*	*Consolidated*	*Ret. Services*
• Consolidated and Retirement Services adjusted operating ROEs	10.8%	16.0%	13.9%	18.4%

- Adjusted book value per share of $45.59, up 19% year-over-year
- Available capital of ~$3 billion; ~$1 billion of excess capital and ~$2 billion of untapped debt capacity

Adjusted Operating Income Rollforward – 4Q'18

Quarter-over-quarter decrease in AOI driven by elevated other liability costs, partially offset by higher investment income, net of crediting costs, resulting from strong platform growth and asset re-positioning

($ in millions)



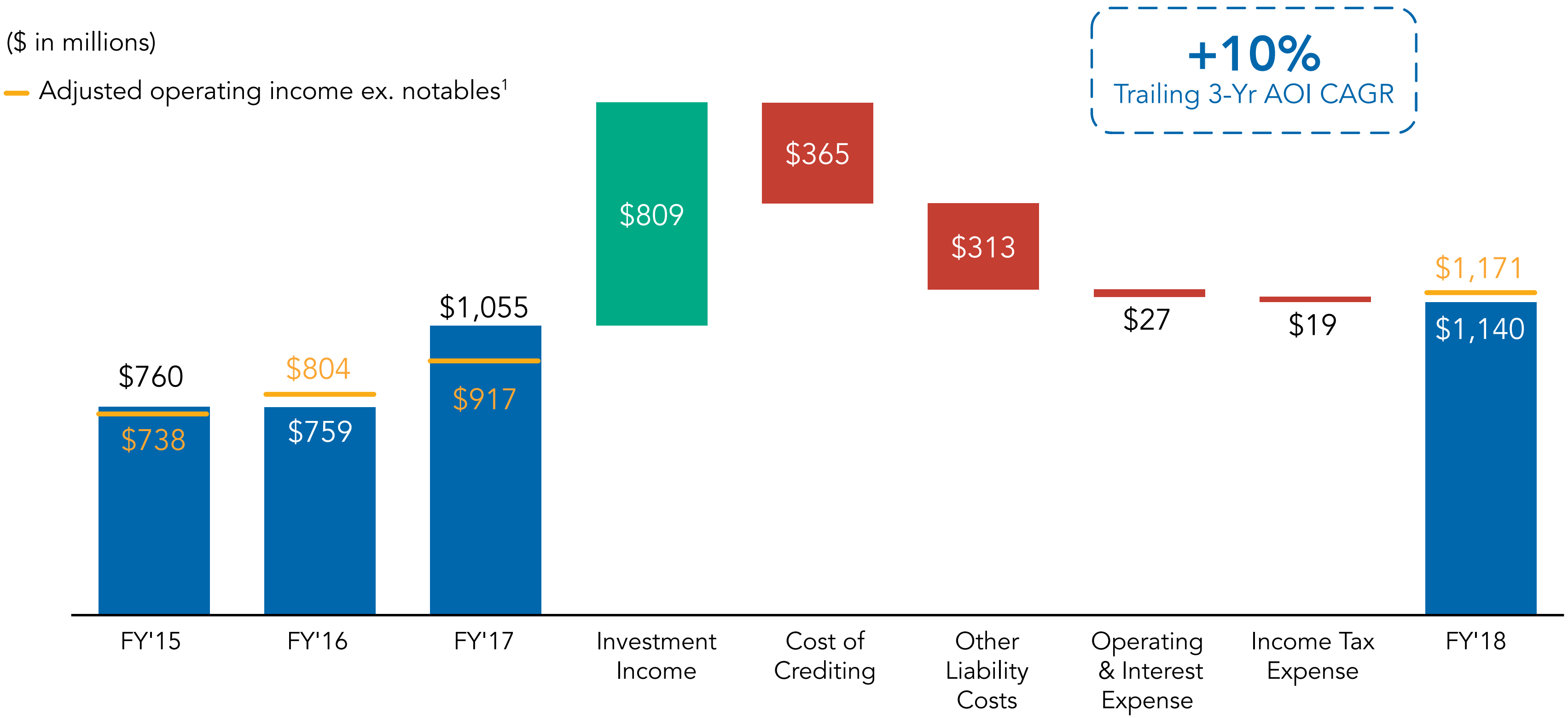
AOI Per Share	$1.09	$1.00	$1.35	$1.23	$1.47	$1.90	$0.40	($0.25)	($0.64)	($0.02)	($0.16)	$1.23

Note: Prior period financial results have been revised to reflect immaterial adjustments. For further information, please refer to the note on slide 2. 1 Reconciliations of quarterly adjusted operating income excluding notable items can be found on slide 24 of this presentation.

Adjusted Operating Income Rollforward – FY'18

Year-over-year increase in AOI driven by robust platform growth, including record organic volumes and two inorganic transactions

($ in millions)



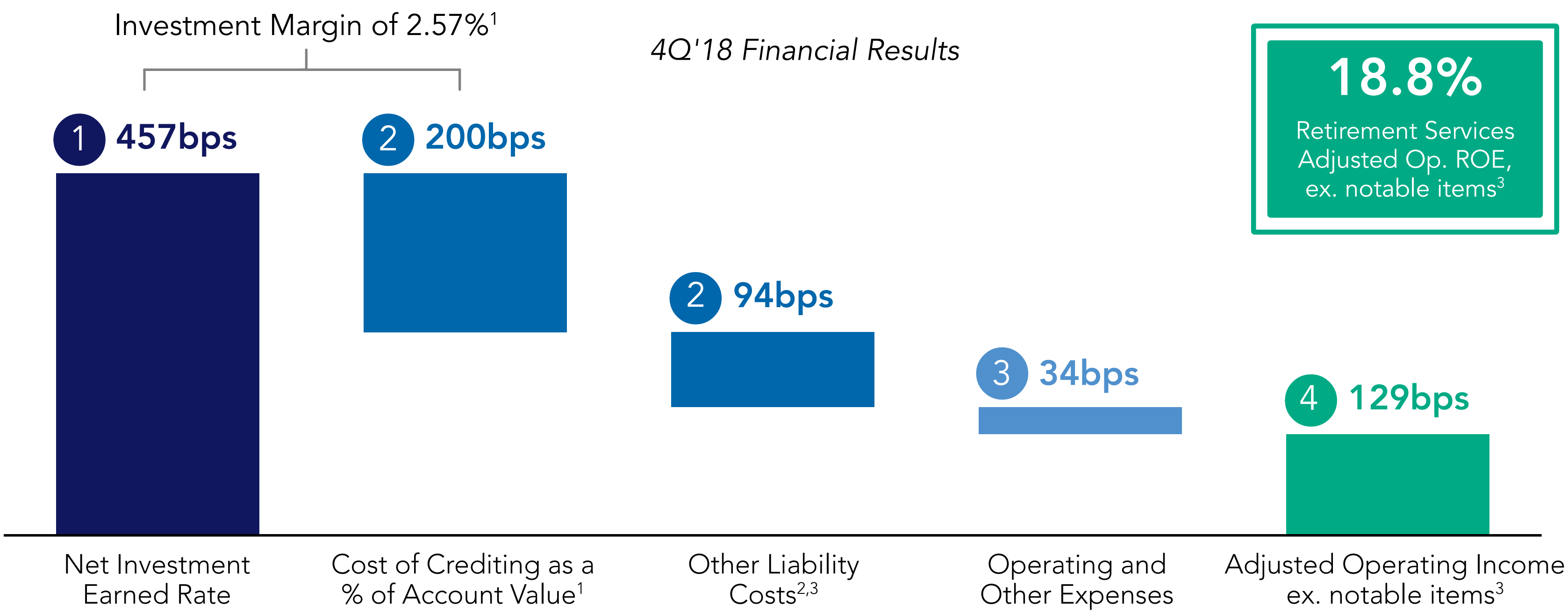
AOI Per Share	$4.34	$3.93	$5.39	$4.13	($1.86)	($1.60)	($0.14)	($0.10)	$5.82

Note: Prior period financial results have been revised to reflect immaterial adjustments. For further information, please refer to the note on slide 2. 1 Reconciliations of annual adjusted operating income excluding notable items can be found on slide 25 of this presentation.

Straightforward & Scalable Net Investment Spread Model

Achieving mid-to-high teen adjusted operating ROE in Retirement Services

1 Unique Investment Capabilities + 2 Attractively Priced Liabilities + 3 Efficient & Scalable Structure = 4 Attractive ROE with Strong Earnings Growth Potential

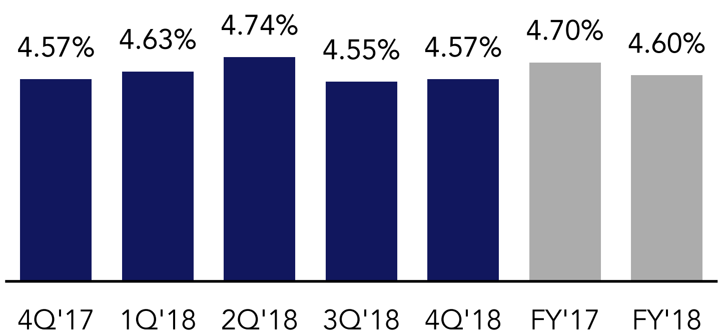


1 Cost of crediting based on average account value of deferred annuities. Investment margin based on net investment earned rates less cost of crediting. 2 For illustrative purposes, includes adjustment due to convention of calculating cost of crediting based on average account value of deferred annuities. Excluding these adjustments, other liability costs would be 129bps (150bps including notable items) of average invested assets. 3 Excludes notable items of $58 million from favorable equity market performance impact on rider reserves and DAC amortization as well as the tax impact from this items of $(5) million. Excluding these adjustments, Retirement Services other liability costs, operating and other expenses, and adjusted operating income would be 114bps, 32bps, and 110bps of average invested assets, respectively.

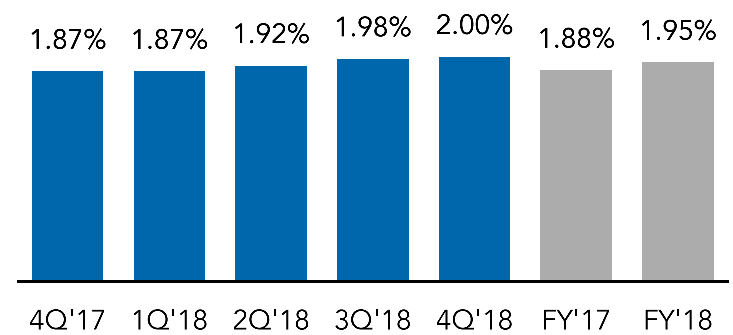
Net Investment Spread Metrics – Retirement Services

Sequential changes in spread metrics were impacted by onboarding of Voya and Lincoln liabilities and market-driven movements, while expenses reflect discipline and scale benefits

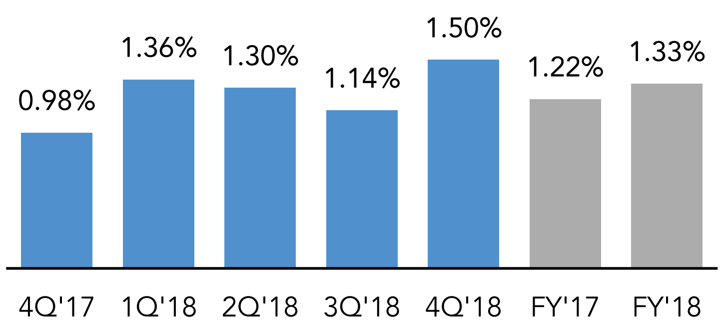
Net Investment Earned Rate[1]



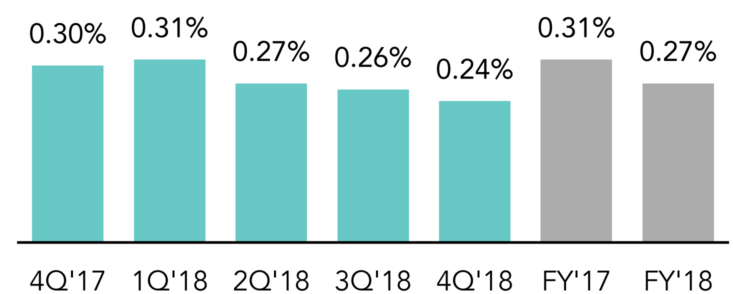
Cost of Crediting[2]



Other Liability Costs[3]



Operating Expenses[4]



Note: Interim periods are annualized. 1 Net investment earned rate is calculated by dividing net investment earnings by average invested assets for the relevant period. 2 Cost of crediting is calculated by dividing the interest credited on fixed strategies and option costs on index annuity strategies by average account value of our deferred annuities. 3 For additional information regarding other liability costs, see slide 14. 4 Operating expenses are calculated by dividing operating expenses by average invested assets.

Investment Portfolio: Differentiated Capabilities Drive Returns

Commentary

- Maintaining investment discipline amid volatile backdrop
- Consolidated NIER of 4.40%[1]
- Retirement Services NIER of 4.57%[1]
  - RS Alternatives NIER of 11.00%[1], led by strength of MidCap and AmeriHome
- Upward bias to NIERs upon completion of Voya and Lincoln block re-deployment in 2019
- 17% of total invested assets in floating rate securities[2] which produce ~$25-30 million of additional adjusted operating income per year for every 25bps increase in interest rates[3]

High Quality Fixed Income Investments

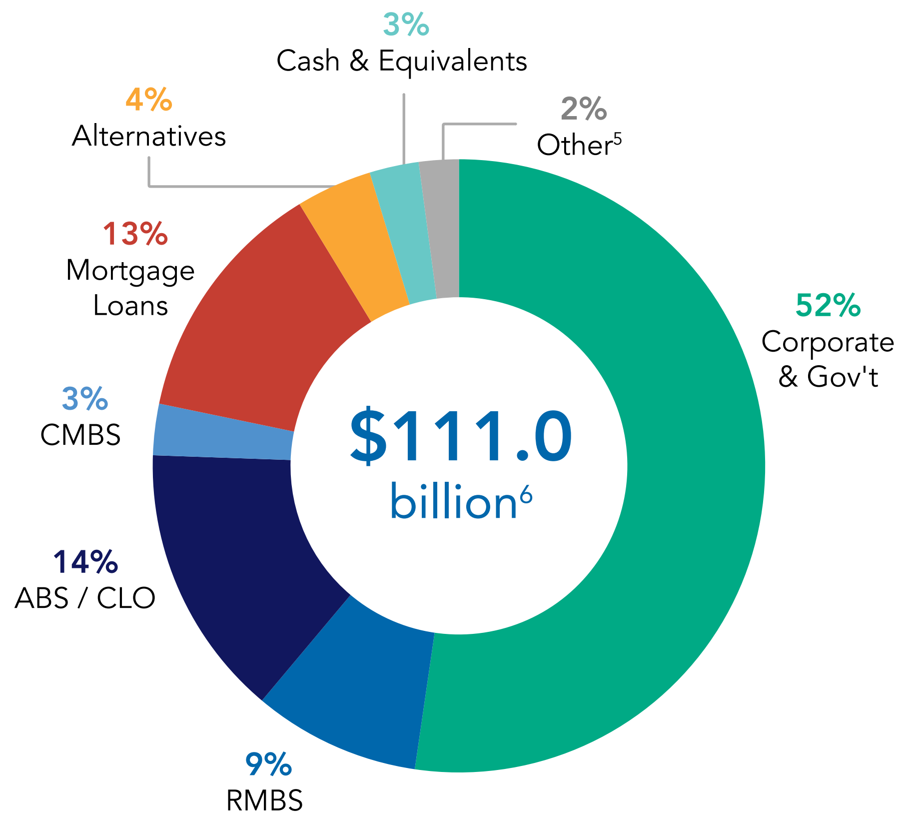
94%

Rated NAIC 1 or 2 of AFS Fixed Maturity Securities[4]

4bps

of OTTI on Total Average Invested Assets[1]

Investment Portfolio Composition



1 For the three months ended December 31, 2018, annualized. 2 In 1Q'18, we refined our definition of floating rate securities to only include short duration securities that are directly tied or linked to an index. 3 Sensitivity assumes parallel shift in spot LIBOR rate and forward yield curve. 4 As of December 31, 2018, including related parties. 5 Other includes short-term investments and equity securities. 6 Invested assets as of December 31, 2018.

Liability Profile: Long-Dated, Persistent & Attractively Priced

Large in-force business produces significant and steady base of earnings

Commentary

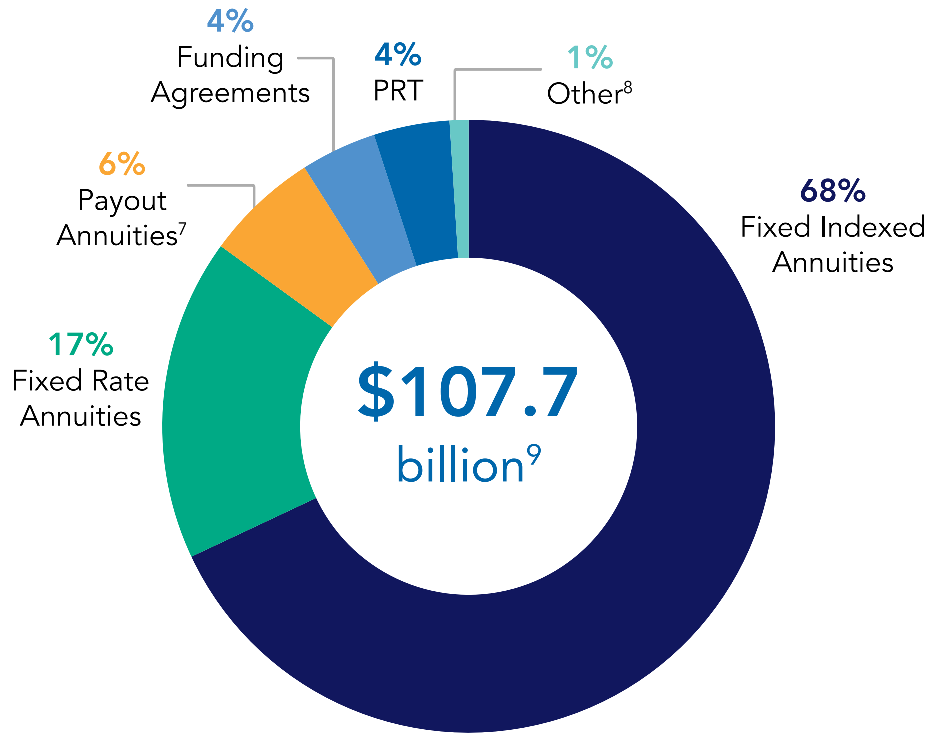
- Continue to underwrite all of our liability growth to the same high return thresholds and profitability standards
- Retirement Services reserve liabilities grew $32.3 billion, or 43%, over the prior year driven by inorganic transactions and organic growth
- 4Q'18 growth driven by broad-based organic strength, including retail, PRT, and flow reinsurance

Deferred Annuity Metrics[1]

Surrender charge protected[2]	78%
Average surrender charge[3]	6.4%
Subject to MVA[2,4]	65%
Cost of crediting[5]	2.00%
Distance to guaranteed minimum crediting rates	100 – 110 bps
Rider reserve as a percentage of account value with riders	8.3%

Diversified Liability Composition

9.6 year weighted average life[6]



1 As of and for the three months ended December 31, 2018, as applicable. 2 Based on fixed indexed annuities and fixed rate annuities only. Refers to the percentage of account value that is in the surrender charge period. 3 Based on deferred annuities only, excluding the impact of MVAs. 4 Refers to the % of account value that is subject to a MVA. 5 For Retirement Services segment deferred annuities for the three months ended December 31, 2018, annualized. 6 Weighted average life of total reserve liabilities; weighted average life on deferred annuities of 9.1 years. 7 Includes Single Premium Immediate Annuities, Supplemental Contracts and Structured Settlements. 8 Other primarily consists of the AmerUs Closed Block liabilities and other life reserves. 9 Reserve liabilities as of December 31, 2018.

Multi-Channel Distribution Model Generates Attractive Growth

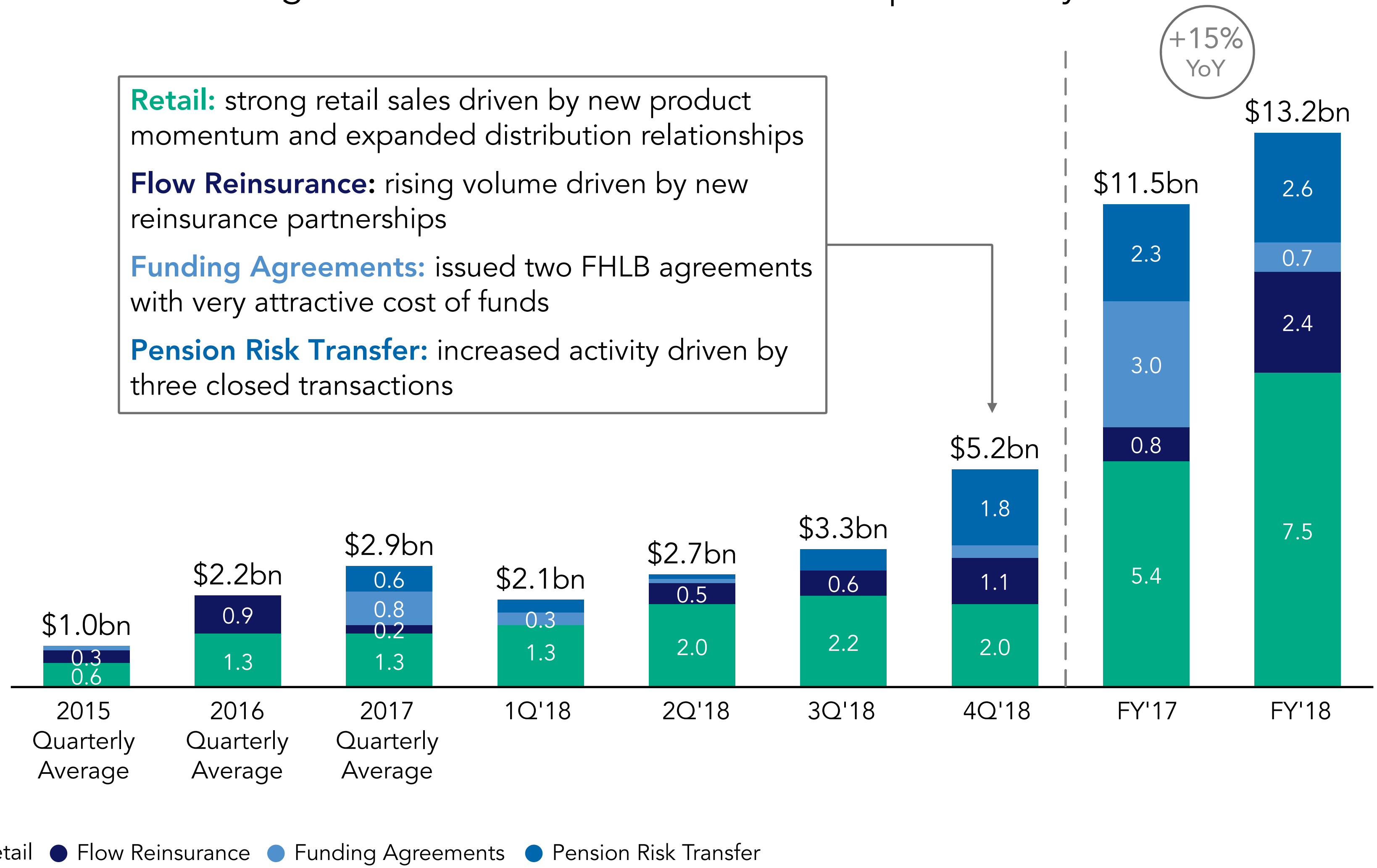
Flexibility to respond to changing market conditions across channels to opportunistically grow liabilities that generate Athene's desired levels of profitability

Retail: strong retail sales driven by new product momentum and expanded distribution relationships

Flow Reinsurance: rising volume driven by new reinsurance partnerships

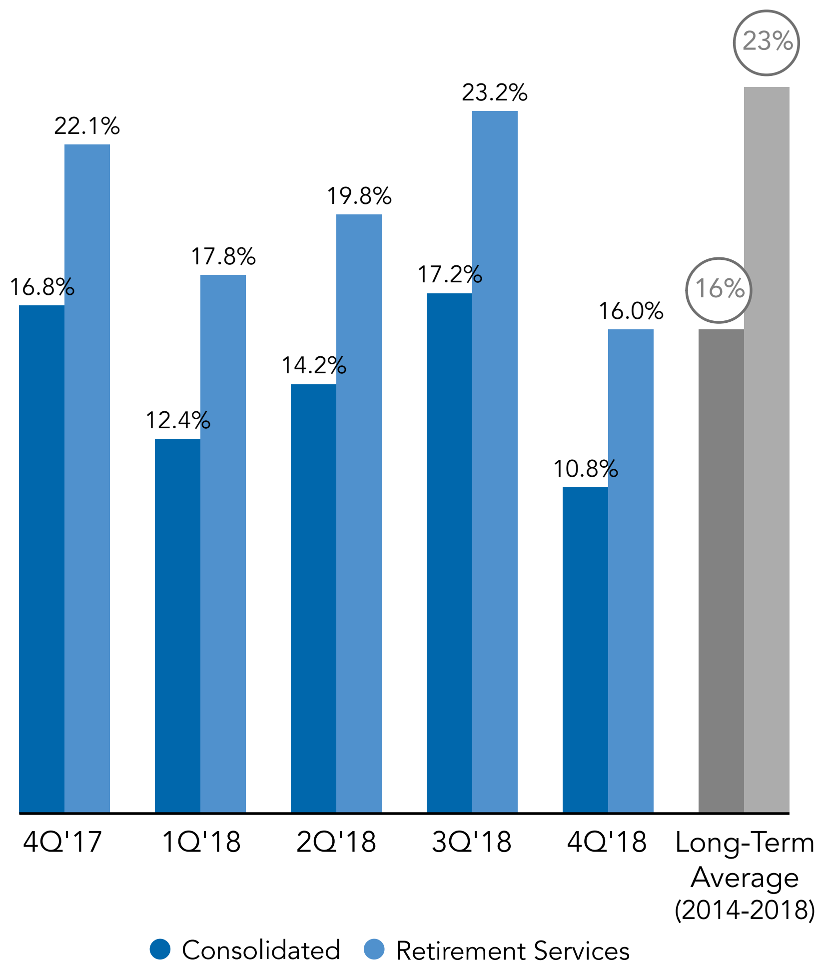
Funding Agreements: issued two FHLB agreements with very attractive cost of funds

Pension Risk Transfer: increased activity driven by three closed transactions

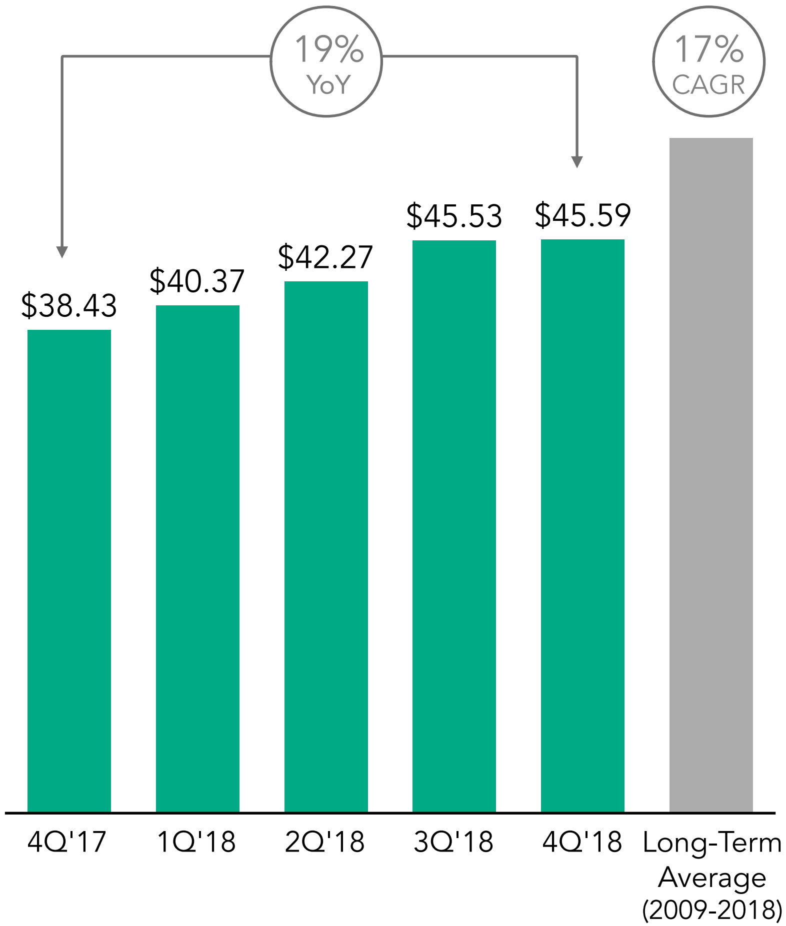


Strong ROE Production Driving Book Value Growth

Adjusted Operating ROE



Adjusted Book Value Per Share



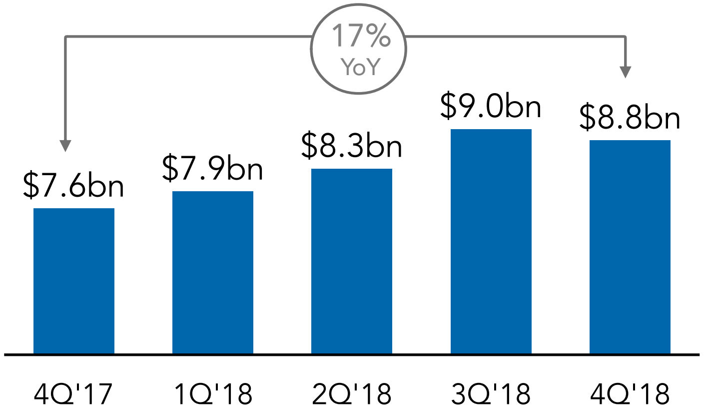
Patient and Disciplined Stewards of Capital

Capital position aligned with opportunistic approach to create long-term shareholder value

Commentary

- Consistently evaluate an abundance of capital deployment opportunities across liability trades (organic & inorganic), asset trades (standard & origination platforms), as well as other opportunistic uses of capital (share repurchases)
- 4Q'18 Activity: deployed ~$700 million of capital to support the Lincoln transaction, ~$250 million to back funded alternative investments, and $100 million of opportunistic share repurchases

Adjusted Shareholders' Equity[3]



Capital Metrics

405% ALRe RBC Ratio[1,2]	**~$1 billion** Excess Capital	**10.1%** Financial Leverage
421% U.S. RBC Ratio[1]	**~$2 billion** Debt Capacity	**$10.2 billion** Statutory Capital

Share Repurchase Activity

December 10, 2018 - February 22, 2019

Open Market Share Repurchases	3.7 million
Total Capital Used for Share Repurchases	$147 million
Average Price Paid per Share	$40.20
Share Repurchase Plan Authorization	$250 million

1 As of December 31, 2018. 2 ALRe RBC ratio, which is used in evaluating our capital position and the amount of capital needed to support our segment, is calculated by applying the NAIC RBC factors in effect as of December 31, 2018 to the Statutory Financial Statements of ALRe. 3 See Non-GAAP Measures and Definitions and Non-GAAP Measure Reconciliations for more information on adjusted shareholders' equity.

Components and Drivers of Other Liability Costs

	Typical % of OLC	Drivers	4Q'18	FY'18
Rider Reserves	30 - 40%	Reserve pattern impacted by the level of current period operating profits and changes in future expectations of profits and rider benefits.	$173	$615
DAC, DSI, VOBA Amortization	30 - 40%	Amortization pattern impacted by the level of current period operating profits and changes in future expectations of profits.	$130	$272
Institutional Costs	15 - 25%	Institutional costs should trend in line with changes in the size of the block and are expected to increase in line with the strategic growth initiatives for the institutional channel.	$73	$228
Other	5 - 10%	Primarily payout annuities, policy maintenance costs, reinsurance expense allowances, excise taxes, and non-deferred acquisition costs, net of product charges. Costs generally trend in line with changes in the size of the block.	$29	$94
Other Liability Costs			$405	$1,209

The typical percentage range for each component of other liability costs may change over time. Rider reserves and DAC, DSI and VOBA amortization amounts may fall outside of the typical range due to a number of factors including unlocking of assumptions and equity market performance.

Note: For further detail regarding the components of other liability costs, please see Athene's quarterly financial supplement for the period ending December 31, 2018.

Appendix

Consolidated Results of Operations

(In millions, except percentages and per share data)	Three months ended December 31,		Years ended December 31,	
	2018	2017	2018	2017
Net income	$ (104)	$ 439	$ 1,053	$ 1,358
Non-operating adjustments				
Investment gains (losses), net of offsets	(114)	59	(274)	199
Change in fair values of derivatives and embedded derivatives – FIAs, net of offsets	(288)	105	242	230
Integration, restructuring and other non-operating expenses	(4)	(34)	(22)	(68)
Stock compensation expense	(3)	(3)	(11)	(33)
Income tax (expense) benefit – non-operating	65	(1)	(22)	(25)
Less: Total non-operating adjustments	(344)	126	(87)	303
Adjusted operating income	$ 240	$ 313	$ 1,140	$ 1,055
Adjusted operating income by segment				
Retirement Services	$ 296	$ 287	$ 1,201	$ 1,038
Corporate and Other	(56)	26	(61)	17
Adjusted operating income	$ 240	$ 313	$ 1,140	$ 1,055
Notable items	53	(81)	31	(138)
Adjusted operating income, excluding notable items	$ 293	$ 232	$ 1,171	$ 917
ROE	(4.8)%	19.7%	12.1%	16.9%
Adjusted ROE	(2.7)%	23.7%	15.7%	18.0%
Adjusted operating ROE	10.8 %	16.8%	13.9%	15.1%
Earnings per share - diluted Class A[1]	$ (0.53)	$ 2.22	$ 5.32	$ 6.91
Adjusted operating earnings per share[2]	$ 1.23	$ 1.60	$ 5.82	$ 5.39
Weighted average shares outstanding - diluted Class A[1]	164.2	126.4	161.1	111.0
Weighted average shares outstanding - adjusted operating[2]	195.5	196.1	195.9	195.9

1 Diluted earnings per share on Class A common shares, including diluted Class A weighted average shares outstanding, includes the dilutive impacts, if any, of Class B and Class M common shares and any other stock-based awards. Based on allocated net income of $(87) million (84%) and $281 million (64%) diluted Class A common shares for the three months ended December 31, 2018 and 2017, respectively. Based on allocated net income of $857 million (81%) and $767 million (56%) diluted Class A common shares for the years ended December 31, 2018 and 2017, respectively. 2 Represents weighted average common shares outstanding assuming conversion or settlement of all outstanding items that are able to be converted to or settled in Class A common shares, including the impacts of Class B and Class M common shares outstanding and any other stock-based awards outstanding, but excluding any awards for which the exercise or conversion price exceeds the market value of our Class A common shares on the applicable measurement date.

Retirement Services Adjusted Operating Results

(In millions, except percentages)	Three months ended December 31,				Years ended December 31,			
	2018	%[1]	2017	%[1]	2018	%[1]	2017	%[1]
Fixed income and other investment income	$ 1,132	4.35 %	$ 772	4.43 %	$ 3,825	4.36 %	$ 2,968	4.48 %
Alternatives investment income	99	11.00 %	57	7.92 %	363	11.15 %	273	10.01 %
Net investment earnings	**1,231**	**4.57 %**	**829**	**4.57 %**	**4,188**	**4.60 %**	**3,241**	**4.70 %**
Cost of crediting on deferred annuities	(443)	(2.00)%	(271)	(1.87)%	(1,431)	(1.95)%	(1,066)	(1.88)%
Other liability costs	(405)	(1.15)%	(177)	(0.60)%	(1,209)	(0.95)%	(839)	(0.89)%
Interest expense	—	— %	—	— %	(5)	(0.01)%	(3)	— %
Other operating expenses	(65)	(0.24)%	(55)	(0.30)%	(242)	(0.27)%	(212)	(0.31)%
Pre-tax adjusted operating income	318	1.18 %	326	1.80 %	1,301	1.43 %	1,121	1.62 %
Income tax (expense) benefit - operating	(22)	(0.08)%	(39)	(0.21)%	(100)	(0.11)%	(83)	(0.12)%
Adjusted operating income	**$ 296**	**1.10 %**	**$ 287**	**1.58 %**	**$ 1,201**	**1.32 %**	**$ 1,038**	**1.50 %**
Notable items	53	0.19 %	(51)	(0.28)%	31	0.03 %	(136)	(0.19)%
Adjusted operating income, excluding notable items	**$ 349**	**1.29 %**	**$ 236**	**1.30 %**	**$ 1,232**	**1.35 %**	**$ 902**	**1.31 %**
Net Investment Earned Rate	4.57%		4.57%		4.60%		4.70%	
Cost of crediting	2.00%		1.87%		1.95%		1.88%	
Investment margin	**2.57%**		**2.70%**		**2.65%**		**2.82%**	
Adjusted operating ROE	16.0%		22.1%		18.4%		21.5%	
Adjusted operating ROE, excluding notable items	18.8%		18.5%					

1 Net investment earned rate is calculated as net investment earnings divided by average invested assets for the relevant period. Cost of crediting is calculated as interest credited on fixed strategies and option costs on index annuity strategies divided by average account value of our deferred annuities. Other liability costs, for illustrative purposes, include an adjustment due to convention of calculating cost of crediting based on average account value of deferred annuities; absent such adjustment, the value would be 1.50% (1.29% excluding notable items) for the three months ended December 31, 2018 and 1.33% (1.29% excluding notable items) for the years ended December 31, 2018. Other operating expenses and income tax (expense) benefit use average invested assets as the denominator in the calculation. Interim periods are annualized.

Notable Items

(In millions)	Three months ended December 31,				Years ended December 31,			
	2018		2017		2018		2017	
	Dollars	Per Share	Dollars	Per Share	Dollars	Per Share	Dollars	Per Share
Adjusted Operating Income	$ 240	$ 1.23	$ 313	$ 1.60	$ 1,140	$ 5.82	$ 1,055	$ 5.39
Rider Reserve and DAC equity market performance	58	0.30	(55)	(0.28)	21	0.11	(152)	(0.78)
Unlocking	—	—	—	—	13	0.07	20	0.10
Proceeds from bond previously written down	—	—	—	—	—	—	(14)	(0.07)
Germany adjusted operating loss, net of tax	—	—	(30)	(0.16)	—	—	(2)	(0.01)
Tax Effect of Notable Items	(5)	(0.03)	4	0.02	(3)	(0.02)	10	0.05
Notable Items	53	0.27	(81)	(0.42)	31	0.16	(138)	(0.71)
Adjusted Operating Income ex. Notable Items	$ 293	$ 1.50	$ 232	$ 1.18	$ 1,171	$ 5.98	$ 917	$ 4.68

Reserve Liability Rollforward

(In millions)	Three months ended December 31,		Years ended December 31,	
	2018	2017	2018	2017
1 Retirement Services reserve liabilities – beginning	$ 98,553	$ 72,159	$ 75,447	$ 65,763
2 Deposits	5,269	3,592	13,605	11,868
3 Acquisition and block reinsurance	7,878	—	26,982	—
4 Liability outflows	(3,125)	(1,361)	(8,859)	(5,750)
5 Other reserve changes	(843)	1,057	557	3,566
Retirement Services reserve liabilities – ending	107,732	75,447	107,732	75,447
Germany reserve liabilities	—	5,979	—	5,979
Intersegment eliminations	—	(174)	—	(174)
Consolidated reserve liabilities – ending	$ 107,732	$ 81,252	$ 107,732	$ 81,252

1 Retirement Services reserve liabilities include deferred annuity, payout annuity, funding agreements and life products.

2 Deposits include $5.2 billion of new deposits on retail, flow reinsurance and institutional products, as well as renewal premiums, internal product exchanges and annuitizations.

3 Acquisitions and block reinsurance transactions includes the reserve liabilities acquired in our inorganic channel at inception.

4 Liability outflows includes full surrenders, partial withdrawals, death benefits, annuitization benefits and interest payments and maturities on funding agreement products.

5 Other reserve changes primarily include fixed and bonus interest credits, change in fair value of embedded derivatives, change in rider reserves, product charges and change in life reserves.

Non-GAAP Measures and Definitions

- Adjusted operating income is a non-GAAP measure used to evaluate our financial performance excluding market volatility and expenses related to integration, restructuring, stock compensation, and other expenses. Our adjusted operating income equals net income adjusted to eliminate the impact of the following (collectively, the "non-operating adjustments"): (a) investment gains (losses), (b) change in fair values of derivatives and embedded derivatives - FIA, net of offsets, (c) integration, restructuring, and other non-operating expenses, (d) stock compensation expense, (e) bargain purchase gain and (f) income tax (expense) benefit - non-operating.

  We consider these non-operating adjustments to be meaningful adjustments to net income for the reasons discussed in greater detail above. Accordingly, we believe using a measure which excludes the impact of these items is useful in analyzing our business performance and the trends in our results of operations. Together with net income, we believe adjusted operating income, provides a meaningful financial metric that helps investors understand our underlying results and profitability. Adjusted operating income should not be used as a substitute for net income.

- Adjusted ROE, adjusted operating ROE and adjusted net income are non-GAAP measures used to evaluate our financial performance excluding the impacts of AOCI and funds withheld and modco reinsurance unrealized gains and losses, in each case net of DAC, DSI, rider reserve and tax offsets. Adjusted ROE is calculated as adjusted net income, divided by average adjusted shareholders' equity. Adjusted shareholders' equity is calculated as the ending shareholders' equity excluding AOCI and funds withheld and modco reinsurance unrealized gains and losses. Adjusted operating ROE is calculated as the adjusted operating income, divided by average adjusted shareholders' equity. Adjusted net income is calculated as net income excluding funds withheld and modco reinsurance unrealized gains and losses, net of DAC, DSI, rider reserve and tax offsets. These adjustments fluctuate period to period in a manner inconsistent with our underlying profitability drivers as the majority of such fluctuation is related to the market volatility of the unrealized gains and losses associated with our AFS securities. Except with respect to reinvestment activity relating to acquired blocks of businesses, we typically buy and hold AFS investments to maturity throughout the duration of market fluctuations, therefore, the period-over-period impacts in unrealized gains and losses are not necessarily indicative of current operating fundamentals or future performance. Accordingly, we believe using measures which exclude AOCI and funds withheld and modco reinsurance unrealized gains and losses are useful in analyzing trends in our operating results. To enhance the ability to analyze these measures across periods, interim periods are annualized. Adjusted ROE, adjusted operating ROE and adjusted net income should not be used as a substitute for ROE and net income. However, we believe the adjustments to equity are significant to gaining an understanding of our overall financial performance.

- Adjusted operating earnings per share, weighted average shares outstanding – adjusted operating and adjusted book value per share are non-GAAP measures used to evaluate our financial performance and financial condition. The non-GAAP measures adjust the number of shares included in the corresponding GAAP measures to reflect the conversion or settlement of all shares and other stock-based awards outstanding. We believe using these measures represents an economic view of our share counts and provides a simplified and consistent view of our outstanding shares. Adjusted operating earnings per share is calculated as the adjusted operating income, over the weighted average shares outstanding – adjusted operating. Adjusted book value per share is calculated as the adjusted shareholders' equity divided by the adjusted operating common shares outstanding. Our Class B common shares are economically equivalent to Class A common shares and can be converted to Class A common shares on a one-for-one basis at any time. Our Class M common shares are in the legal form of shares but economically function as options as they are convertible into Class A shares after vesting and payment of the conversion price. In calculating Class A diluted earnings per share on a GAAP basis, we are required to apply sequencing rules to determine the dilutive impacts, if any, of our Class B common shares, Class M common shares and any other stock-based awards. To the extent our Class B common shares, Class M common shares and/or any other stock-based awards are not dilutive, after considering the dilutive effects of the more dilutive securities in the sequence, they are excluded. Weighted average shares outstanding – adjusted operating and adjusted operating common shares outstanding assume conversion or settlement of all outstanding items that are able to be converted to or settled in Class A common shares, including the impacts of Class B common shares on a one-for-one basis, the impacts of all Class M common shares net of the conversion price and any other stock-based awards, but excluding any awards for which the exercise or conversion price exceeds the market value of our Class A common shares on the applicable measurement date. For certain historical periods, Class M shares were not included due to issuance restrictions which were contingent upon our IPO. Adjusted operating earnings per share, weighted average shares outstanding – adjusted operating and adjusted book value per share should not be used as a substitute for basic earnings per share – Class A common shares, basic weighted average shares outstanding – Class A or book value per share. However, we believe the adjustments to the shares and equity are significant to gaining an understanding of our overall results of operations and financial condition.

- Adjusted debt to capital ratio is a non-GAAP measure used to evaluate our capital structure excluding the impacts of AOCI and funds withheld and modco reinsurance unrealized gains and losses, net of DAC, DSI, rider reserve and tax offsets. Adjusted debt to capital ratio is calculated as total debt excluding consolidated Variable Interest Entities (VIEs) divided by adjusted shareholders' equity. Adjusted debt to capital ratio should not be used as a substitute for the debt to capital ratio. However, we believe the adjustments to total debt and shareholders' equity are significant to gaining an understanding of our capitalization, debt utilization, and debt capacity.

Non-GAAP Measures and Definitions

- Investment margin is a key measurement of the financial health of our Retirement Services core deferred annuities. Investment margin on our deferred annuities is generated from the excess of our net investment earned rate over the cost of crediting to our policyholders. Net investment earned rate is a key measure of investment returns and cost of crediting is a key measure of the policyholder benefits on our deferred annuities. We believe measures like net investment earned rate, cost of crediting and investment margin on deferred annuities are effective in analyzing the trends of our core business operations, profitability and pricing discipline. While we believe net investment earned rate, cost of crediting and investment margin on deferred annuities are meaningful financial metrics and enhance our understanding of the underlying profitability drivers of our business, they should not be used as a substitute for net investment income and interest sensitive contract benefits presented under GAAP.

    - Net investment earned rate is a non-GAAP measure we use to evaluate the performance of our invested assets that does not correspond to GAAP net investment income. Net investment earned rate is computed as the income from our invested assets divided by the average invested assets for the relevant period. To enhance the ability to analyze these measures across periods, interim periods are annualized. The adjustments to arrive at our net investment earned rate add alternative investment gains and losses, gains and losses related to trading securities for CLOs, net VIE impacts (revenues, expenses and noncontrolling interest) and the change in reinsurance embedded derivatives. We include the income and assets supporting our assumed reinsurance by evaluating the underlying investments of the funds withheld at interest receivables and we include the net investment income from those underlying investments which does not correspond to the GAAP presentation of reinsurance embedded derivatives. We exclude the income and assets supporting business that we have exited through ceded reinsurance including funds withheld agreements. We believe the adjustments for reinsurance provide a net investment earned rate on the assets for which we have economic exposure.

    - Cost of crediting is the interest credited to the policyholders on our fixed strategies as well as the option costs on the indexed annuity strategies. With respect to FIAs, the cost of providing index credits includes the expenses incurred to fund the annual index credits, and where applicable, minimum guaranteed interest credited. The interest credited on fixed strategies and option costs on indexed annuity strategies are divided by the average account value of our deferred annuities. Our average account values are averaged over the number of quarters in the relevant period to obtain our cost of crediting for such period. To enhance the ability to analyze these measures across periods, interim periods are annualized.

- Other liability costs include DAC, DSI and VOBA amortization, rider reserves, institutional costs, the cost of liabilities on products other than deferred annuities, premiums, product charges and other revenues. Along with our cost of crediting, other liability costs give a view of the total costs of our liabilities. We believe a measure like other liability costs is useful in analyzing the trends of our core business operations and profitability. While we believe other liability costs is a meaningful financial metric and enhances our understanding of the underlying profitability drivers of our business, it should not be used as a substitute for total benefits and expenses presented under GAAP.

- Operating expenses excludes integration, restructuring and other non-operating expenses, stock compensation expense, interest expense and policy acquisition expenses. We believe a measure like operating expenses is useful in analyzing the trends of our core business operations and profitability. While we believe operating expenses is a meaningful financial metric and enhances our understanding of the underlying profitability drivers of our business, it should not be used as a substitute for policy and other operating expenses presented under GAAP.

- In managing our business we analyze invested assets, which does not correspond to total investments, including investments in related parties, as disclosed in our consolidated financial statements and notes thereto. Invested assets represents the investments that directly back our reserve liabilities as well as surplus assets. Invested assets is used in the computation of net investment earned rate, which allows us to analyze the profitability of our investment portfolio. Invested assets includes (a) total investments on the consolidated balance sheets with AFS securities at cost or amortized cost, excluding derivatives, (b) cash and cash equivalents and restricted cash, (c) investments in related parties, (d) accrued investment income, (e) the consolidated VIE assets, liabilities and noncontrolling interest, (f) net investment payables and receivables and (g) policy loans ceded (which offset the direct policy loans in total investments). Invested assets also excludes assets associated with funds withheld liabilities related to business exited through reinsurance agreements and derivative collateral (offsetting the related cash positions). We include the underlying investments supporting our assumed funds withheld and modco agreements in our invested assets calculation in order to match the assets with the income received. We believe the adjustments for reinsurance provide a view of the assets for which we have economic exposure. Our invested assets are averaged over the number of quarters in the relevant period to compute our net investment earned rate for such period.

- Sales statistics do not correspond to revenues under GAAP, but are used as relevant measures to understand our business performance as it relates to deposits generated during a specific period of time. Our sales statistics include deposits for fixed rate annuities and FIAs and align with the LIMRA definition of all money paid into an individual annuity, including money paid into new contracts with initial purchase occurring in the specified period and existing contracts with initial purchase occurring prior to the specified period (excluding internal transfers).

Non-GAAP Measure Reconciliations

Reconciliation of shareholders' equity to adjusted shareholders' equity

	December 31,		
(In millions)	2018	2017	2009
Total shareholders' equity	$ 8,276	$ 9,176	$ 113
Less: AOCI	(472)	1,449	1
Less: Accumulated reinsurance unrealized gains and losses	(75)	161	—
Total adjusted shareholders' equity	$ 8,823	$ 7,566	$ 112
Retirement Services	$ 7,807	$ 5,237	
Corporate and Other	1,016	2,329	
Total adjusted shareholders' equity	$ 8,823	$ 7,566	

Reconciliation of average shareholders' equity to average adjusted shareholders' equity

	Three months ended December 31,		Years ended December 31,				
(In millions)	2018	2017	2018	2017	2016	2015	2014
Average shareholders' equity	$ 8,627	$ 8,912	$ 8,726	$ 8,029	$ 6,124	$ 4,959	$ 3,648
Less: Average AOCI	(220)	1,316	489	908	63	203	359
Less: Average accumulated reinsurance unrealized gains and losses	(53)	163	43	112	41	58	100
Average adjusted shareholders' equity	$ 8,900	$ 7,433	$ 8,194	$ 7,009	$ 6,020	$ 4,698	$ 3,189
Retirement Services	$ 7,416	$ 5,200	$ 6,522	$ 4,823	$ 4,186	$ 3,333	$ 2,262
Corporate and Other	1,484	2,233	1,672	2,186	1,834	1,365	927
Average adjusted shareholders' equity	$ 8,900	$ 7,433	$ 8,194	$ 7,009	$ 6,020	$ 4,698	$ 3,189

Reconciliation of total capitalization to total adjusted capitalization

	December 31,	
(In millions)	2018	2017
Total debt	$ 991	$ —
Total shareholders' equity	8,276	9,176
Total capitalization	9,267	9,176
Less: AOCI	(472)	1,449
Less: Accumulated reinsurance unrealized gains and losses	(75)	161
Total adjusted capitalization	$ 9,814	$ 7,566

Non-GAAP Measure Reconciliations

Reconciliation of basic Class A shares outstanding to adjusted operating common shares outstanding

	December 31,		
(In millions)	2018	2017	2009
Class A common shares outstanding	162.2	142.2	0.1
Conversion of Class B shares to Class A shares	25.4	47.4	9.7
Conversion of Class M shares to Class A shares	4.9	6.4	—
Effect of other stock compensation plans	1.0	0.9	—
Adjusted operating common shares outstanding	193.5	196.9	9.8

Reconciliation of book value per share to adjusted book value per share

	December 31,		
	2018	2017	2009
Book value per share	$ 42.45	$ 46.60	$ 11.62
AOCI	2.42	(7.36)	0.13
Accumulated reinsurance unrealized gains and losses	0.39	(0.82)	—
Effect of items convertible to or settled in Class A common shares	0.33	0.01	—
Adjusted book value per share	$ 45.59	$ 38.43	$ 11.75

Non-GAAP Measure Reconciliations

Reconciliation of basic earnings per Class A common shares to adjusted operating earnings per share

(in millions)	Three months ended December 31, 2018	Three months ended December 31, 2017	Years ended December 31, 2018	Years ended December 31, 2017
Basic earnings per share – Class A common shares	$ (0.53)	$ 2.23	$ 5.34	$ 6.95
Non-operating adjustments				
Investment gains (losses), net of offsets	(0.59)	0.30	(1.40)	1.02
Change in fair values of derivatives and embedded derivatives – FIAs, net of offsets	(1.47)	0.54	1.24	1.17
Integration, restructuring and other non-operating expenses	(0.02)	(0.18)	(0.12)	(0.35)
Stock compensation expense	(0.01)	(0.02)	(0.05)	(0.17)
Income tax (expense) benefit – non-operating	0.33	(0.01)	(0.11)	(0.13)
Less: Total non-operating adjustments	(1.76)	0.63	(0.44)	1.54
Less: Effect of items convertible to or settled in Class A common shares	—	—	(0.04)	0.02
Adjusted operating earnings per share	$ 1.23	$ 1.60	$ 5.82	$ 5.39

Reconciliation of Net income to adjusted operating income excluding notable items

	Three Months Ended,							
(In millions)	Dec. 31, 2018	Sept. 30, 2018	June 30, 2018	March 31,2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017	March 31, 2017
Net income	$ (104)	$ 623	$ 257	$ 277	$ 439	$ 244	$ 298	$ 377
Less: Total non-operating adjustments	(344)	252	(31)	36	126	31	37	109
Adjusted operating income	240	371	288	241	313	213	261	268
Notable items	53	(23)	(11)	12	(81)	17	(26)	(50)
Adjusted operating income excluding notable items	$ 293	$ 348	$ 277	$ 253	$ 232	$ 230	$ 235	$ 218
Retirement Services adjusted operating income	$ 296	$ 379	$ 287	$ 239	$ 287	$ 226	$ 248	$ 277
Proceeds from bond previously written down	—	—	—	—	—	—	—	(14)
Rider Reserve and DAC equity market performance	58	(38)	(13)	14	(55)	(20)	(28)	(40)
Unlocking	—	13	—	—	—	20	—	—
Tax impact of notable items	(5)	2	2	(2)	4	—	2	4
Retirement Services notable items	53	(23)	(11)	12	(51)	—	(26)	(50)
Retirement Services adjusted operating income excluding notable items	349	356	276	251	236	226	222	227
Corporate and Other adjusted operating income	(56)	(8)	1	2	26	(13)	13	(9)
Germany adjusted operating income, net of tax	—	—	—	—	(30)	17	—	—
Corporate and Other adjusted operating income excluding notable items	(56)	(8)	1	2	(4)	4	13	(9)
Adjusted operating income excluding notable items	$ 293	$ 348	$ 277	$ 253	$ 232	$ 230	$ 235	$ 218

Non-GAAP Measure Reconciliations

Reconciliation of Net income to adjusted operating income excluding notable items

	Years ended December 31,			
(In millions)	2018	2017	2016	2015
Net income	$ 1,053	$ 1,358	$ 773	$ 579
Less: Total non-operating adjustments	(87)	303	14	(181)
Adjusted operating income	1,140	1,055	759	760
Notable items	31	(138)	45	(22)
Adjusted operating income excluding notable items	$ 1,171	$ 917	$ 804	$ 738
Retirement Services adjusted operating income	$ 1,201	$ 1,038	$ 808	$ 789
Proceeds from bond previously written down	—	(14)	—	—
Rider Reserve and DAC equity market performance	58	(152)	—	—
Unlocking	—	20	158	(24)
Deferred tax valuation allowance release	—	—	(102)	—
Tax impact of notable items	(5)	10	(11)	2
Retirement Services notable items	53	(136)	45	(22)
Retirement Services adjusted operating income excluding notable items	1,232	902	853	767
Corporate and Other adjusted operating income	(61)	17	(49)	(29)
Germany adjusted operating income, net of tax	—	(2)	—	—
Corporate and Other adjusted operating income excluding notable items	(61)	15	(49)	(29)
Adjusted operating income excluding notable items	$ 1,171	$ 917	$ 804	$ 738

Reconciliation of basic weighted average Class A shares to weighted average shares outstanding - adjusted operating

	Three months ended December 31,		Years ended December 31,	
(In millions)	2018	2017	2018	2017
Basic weighted average shares outstanding – Class A	164.2	126.0	160.5	107.7
Conversion of Class B shares to Class A shares	25.5	63.5	29.3	81.6
Conversion of Class M shares to Class A shares	5.2	6.1	5.6	6.1
Effect of other stock compensation plans	0.6	0.5	0.5	0.5
Weighted average shares outstanding – adjusted operating	195.5	196.1	195.9	195.9

Non-GAAP Measure Reconciliations

Reconciliation of GAAP net investment income to net investment earnings and earned rate

	Three months ended December 31,				Years ended December 31,			
	2018		2017		2018		2017	
(In millions)	Dollar	Rate	Dollar	Rate	Dollar	Rate	Dollar	Rate
GAAP net investment income	$ 1,121	4.10 %	$ 842	4.18 %	$ 4,004	4.30 %	$ 3,269	4.27 %
Reinsurance embedded derivative impacts	132	0.48 %	54	0.27 %	301	0.32 %	191	0.25 %
Net VIE earnings	(18)	(0.07)%	18	0.09 %	37	0.04 %	77	0.10 %
Alternative income gain (loss)	(20)	(0.07)%	(9)	(0.04)%	(34)	(0.04)%	(20)	(0.03)%
Held for trading amortization	(11)	(0.04)%	(44)	(0.22)%	(76)	(0.08)%	(94)	(0.12)%
Total adjustments to arrive at net investment earnings/earned rate	83	0.30 %	19	0.10 %	228	0.24 %	154	0.20 %
Total net investment earnings	$ 1,204	4.40 %	$ 861	4.28 %	$ 4,232	4.54 %	$ 3,423	4.47 %
Retirement Services	$ 1,231	4.57 %	$ 829	4.57 %	$ 4,188	4.60 %	$ 3,241	4.70 %
Corporate and Other	(27)	(7.57)%	32	1.61 %	44	1.99 %	182	2.42 %
Total net investment earnings	$ 1,204	4.40 %	$ 861	4.28 %	$ 4,232	4.54 %	$ 3,423	4.47 %
Retirement Services average invested assets	$ 107,939		$ 72,587		$ 90,995		$ 69,014	
Corporate and Other average invested assets	1,484		7,964		2,182		7,541	
Average invested assets	$ 109,423		$ 80,551		$ 93,177		$ 76,555	

Reconciliation GAAP interest sensitive contract benefits to Retirement Services' cost of crediting on deferred annuities

	Three months ended December 31,				Years ended December 31,			
	2018		2017		2018		2017	
(In millions)	Dollar	Rate	Dollar	Rate	Dollar	Rate	Dollar	Rate
GAAP interest sensitive contract benefits	$ (825)	(3.71)%	$ 971	6.69 %	$ 290	0.40 %	$ 2,866	5.06 %
Interest credited other than deferred annuities	(38)	(0.17)%	(35)	(0.24)%	(163)	(0.22)%	(125)	(0.22)%
FIA option costs	275	1.24 %	159	1.09 %	886	1.20 %	607	1.07 %
Product charges (strategy fees)	(28)	(0.12)%	(20)	(0.14)%	(98)	(0.13)%	(73)	(0.13)%
Reinsurance embedded derivative impacts	14	0.05 %	10	0.07 %	49	0.07 %	37	0.07 %
Change in fair values of embedded derivatives – FIAs	1,039	4.68 %	(810)	(5.58)%	436	0.59 %	(2,252)	(3.98)%
Negative VOBA amortization	9	0.04 %	10	0.07 %	31	0.04 %	40	0.07 %
Unit linked change in reserve	—	— %	(12)	(0.08)%	—	— %	(29)	(0.05)%
Other changes in interest sensitive contract liabilities	(3)	(0.01)%	(2)	(0.01)%	—	— %	(5)	(0.01)%
Total adjustments to arrive at cost of crediting on deferred annuities	1,268	5.71 %	(700)	(4.82)%	1,141	1.55 %	(1,800)	(3.18)%
Retirement Services cost of crediting on deferred annuities	$ 443	2.00 %	$ 271	1.87 %	$ 1,431	1.95 %	$ 1,066	1.88 %
Average account value on deferred annuities	$ 88,874		$ 58,033		$ 73,567		$ 56,589	

Non-GAAP Measure Reconciliations

Reconciliation of GAAP benefits and expenses to other liability costs

	Three months ended December 31,		Years ended December 31,	
(In millions)	2018	2017	2018	2017
GAAP benefits and expenses	$ 1,301	$ 3,385	$ 5,368	$ 7,263
Premiums	(1,833)	(1,962)	(3,368)	(2,465)
Product charges	(128)	(88)	(449)	(340)
Other revenues	(4)	(13)	(26)	(37)
Cost of crediting	(154)	(102)	(496)	(423)
Change in fair value of embedded derivatives - FIA, net of offsets	1,266	(873)	327	(2,404)
DAC, DSI and VOBA amortization related to investment gains and losses	36	(14)	110	(65)
Rider reserves related to investment gains and losses	8	(7)	16	(16)
Policy and other operating expenses, excluding policy acquisition expenses	(102)	(130)	(394)	(435)
VIE operating expenses	—	—	(1)	—
AmerUs closed block fair value liability	14	(19)	112	(68)
Policyholder dividends	—	(24)	—	(84)
Other	1	(12)	10	(30)
Total adjustments to arrive at other liability costs	(896)	(3,244)	(4,159)	(6,367)
Other liability costs	$ 405	$ 141	$ 1,209	$ 896
Retirement Services	405	177	1,209	839
Corporate and Other	—	(36)	—	57
Consolidated other liability costs	$ 405	$ 141	$ 1,209	$ 896

Reconciliation GAAP policy and other expenses to operating expenses

	Three months ended December 31,		Years ended December 31,	
(In millions)	2018	2017	2018	2017
Policy and other operating expenses	$ 172	$ 193	$ 625	$ 672
Interest expense	(13)	(6)	(57)	(16)
Policy acquisition expenses, net of deferrals	(70)	(63)	(232)	(237)
Integration, restructuring and other non-operating expenses	(4)	(34)	(22)	(68)
Stock compensation expenses	(3)	(3)	(11)	(33)
Total adjustments to arrive at operating expenses	(90)	(106)	(322)	(354)
Operating expenses	$ 82	$ 87	$ 303	$ 318
Retirement Services	$ 65	$ 55	$ 242	$ 212
Corporate and Other	17	32	61	106
Consolidated operating expenses	$ 82	$ 87	$ 303	$ 318

Non-GAAP Measure Reconciliations

Reconciliation of total investments, including related parties to total invested assets

(In millions)	December 31, 2018	December 31, 2017
Total investments, including related parties	$ 107,632	$ 84,379
Derivative assets	(1,043)	(2,551)
Cash and cash equivalents (including restricted cash)	3,403	4,993
Accrued investment income	682	652
Payables for collateral on derivatives	(969)	(2,323)
Reinsurance funds withheld and modified coinsurance	223	(579)
VIE and VOE assets, liabilities and noncontrolling interest	718	862
Unrealized (gains) losses	808	(2,794)
Ceded policy loans	(281)	(308)
Net investment receivables (payables)	(139)	(33)
Total adjustments to arrive at invested assets	3,402	(2,081)
Total invested assets	$ 111,034	$ 82,298

Reconciliation of total liabilities to total reserve liabilities

(In millions)	December 31, 2018	December 31, 2017
Total liabilities	$ 117,229	$ 90,985
Long-term debt	(991)	—
Derivative liabilities	(85)	(134)
Payables for collateral on derivatives	(969)	(2,323)
Funds withheld liability	(721)	(407)
Other liabilities	(888)	(1,227)
Liabilities of consolidated VIEs	(1)	(2)
Reinsurance ceded receivables	(5,534)	(5,332)
Policy loans ceded	(281)	(308)
Other	(27)	—
Total adjustments to arrive at reserve liabilities	(9,497)	(9,733)
Total reserve liabilities	$ 107,732	$ 81,252

Summary of Financial Statement Revisions

Consolidated revision adjustments

	Net income			Adjusted operating income		
	Previously reported	Revision adjustment	Revised	Previously reported	Revision adjustment	Revised
Full Year						
2017	$ 1,448	$ (90)	$ 1,358	$ 1,109	$ (54)	$ 1,055
2016	768	5	773	728	31	759
2015	562	17	579	738	22	760
Quarterly						
3Q 2018	$ 640	$ (17)	$ 623	$ 381	$ (10)	$ 371
2Q 2018	264	(7)	257	290	(2)	288
1Q 2018	268	9	277	237	4	241
4Q 2017	464	(25)	439	332	(19)	313
3Q 2017	274	(30)	244	231	(18)	213
2Q 2017	326	(28)	298	280	(19)	261
1Q 2017	384	(7)	377	266	2	268

Consolidated Revisions Detail

Quarterly adjusted operating income and net income revision adjustments

	Three months ended,						
	Sept. 30, 2018	June 30, 2018	March 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017	March 31, 2017
Adjusted operating income (pre-revision)	$ 381	$ 290	$ 237	$ 332	$ 231	$ 280	$ 266
Other liability costs	(18)	(2)	4	(5)	(15)	(15)	—
Income tax (expense) benefit - operating	8	—	—	(14)	(3)	(4)	2
Total adjustments to adjusted operating income	(10)	(2)	4	(19)	(18)	(19)	2
Adjusted operating income	$ 371	$ 288	$ 241	$ 313	$ 213	$ 261	$ 268
Net income (pre-revision)	$ 640	$ 264	$ 268	$ 464	$ 274	$ 326	$ 384
Total adjustments to adjusted operating income	(10)	(2)	4	(19)	(18)	(19)	2
Total investment gains (losses), net of offsets	(5)	—	—	—	—	—	—
Change in fair values of derivatives and embedded derivatives - FIA, net of offsets	(4)	(7)	(9)	(6)	(12)	(9)	(9)
Income tax (expense) benefit - non-operating	2	2	14	—	—	—	—
Total adjustments to net income	(17)	(7)	9	(25)	(30)	(28)	(7)
Net income	$ 623	$ 257	$ 277	$ 439	$ 244	$ 298	$ 377

Full year adjusted operating income and net income revision adjustments

	Years ended December 31,		
	2017	2016	2015
Adjusted operating income (pre-revision)	$ 1,109	$ 728	$ 738
Other liability costs	(35)	24	10
Income tax (expense) benefit - operating	(19)	7	12
Total adjustments to adjusted operating income	(54)	31	22
Adjusted operating income	$ 1,055	$ 759	$ 760
Net income (pre-revision)	$ 1,448	$ 768	$ 562
Total adjustments to adjusted operating income	(54)	31	22
Change in fair values of derivatives and embedded derivatives - FIA, net of offsets	(36)	(28)	(5)
Income tax (expense) benefit - non-operating	—	2	—
Total adjustments to net income	(90)	5	17
Net income	$ 1,358	$ 773	$ 579

Retirement Services Revisions Detail

Quarterly adjusted operating income revision adjustments

	Three months ended,						
	Sept. 30, 2018	June 30, 2018	March 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017	March 31, 2017
Adjusted operating income (pre-revision)	$ 389	$ 289	$ 235	$ 306	$ 244	$ 267	$ 275
Other liability costs	(18)	(2)	4	(5)	(15)	(15)	—
Income tax (expense) benefit - operating	8	—	—	(14)	(3)	(4)	2
Total adjustments to adjusted operating income	(10)	(2)	4	(19)	(18)	(19)	2
Adjusted operating income	$ 379	$ 287	$ 239	$ 287	$ 226	$ 248	$ 277

Full year adjusted operating income revision adjustments

	Years ended December 31,		
	2017	2016	2015
Adjusted operating income (pre-revision)	$ 1,092	$ 777	$ 767
Other liability costs	(35)	24	10
Income tax (expense) benefit - operating	(19)	7	12
Total adjustments to adjusted operating income	(54)	31	22
Adjusted operating income	$ 1,038	$ 808	$ 789