UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

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

For the fiscal year ended December 31, 2018

OR

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

001-37963

(Commission file number)

ATHENE HOLDING LTD.

(Exact name of registrant as specified in its charter)

Bermuda	**98-0630022**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)

96 Pitts Bay Road

Pembroke, HM08, Bermuda

(441) 279-8400

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

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

Title of each class	**Name of exchange on which registered**
Class A Common Shares, par value $0.001	New York Stock Exchange

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

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Act. Yes ¨ No x

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

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

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. x

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 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 ¨
Non-accelerated filer ¨	Smaller reporting company ¨
	Emerging growth company ¨

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

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

As of June 30, 2018, the last business day of the registrant's most recently completed second fiscal quarter, the aggregate market value of the voting and non-voting common equity held by non-affiliates of the registrant was approximately $7.9 billion. For purposes of this calculation, we define affiliates as directors, executive officers and shareholders possessing greater than 10% of our aggregate voting power. Class M common shares are excluded from this calculation.

The number of shares of each class of our common stock outstanding is set forth in the table below, as of January 31, 2019:

Class A common	161,378,611	Class M-2 common	841,011
Class B common	25,433,465	Class M-3 common	1,001,110
Class M-1 common	3,358,890	Class M-4 common	4,104,539

DOCUMENTS INCORPORATED BY REFERENCE

Part III of this Form 10-K incorporates by reference certain information from the registrant's definitive proxy statement for the 2019 Annual General Meeting of Shareholders to be filed by the registrant with the Securities and Exchange Commission pursuant to Regulation 14A not later than 120 days after the year ended December 31, 2018.

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As used in this Annual Report on Form 10-K (report), unless the context otherwise indicates, any reference to "Athene," "our Company," "the Company," "us," "we" and "our" refer to Athene Holding Ltd. together with its consolidated subsidiaries and any reference to "AHL" refers to Athene Holding Ltd. only.

Forward-Looking Statements

Certain statements in this report are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933, as amended (Securities Act), and Section 21E of the Securities Exchange Act of 1934, as amended (Exchange Act). You can identify forward-looking statements by the fact that they do not relate strictly to historical or current facts. These statements may include words such as "anticipate," "estimate," "expect," "project," "plan," "intend," "seek," "assume," "believe," "may," "will," "should," "could," "would," "likely" and other words and terms of similar meaning, including the negative of these or similar words and terms, in connection with any discussion of the timing or nature of future operating or financial performance or other events. However, not all forward-looking statements contain these identifying words. Forward-looking statements appear in a number of places throughout and give our current expectations and projections relating to our business, financial condition, results of operations, plans, strategies, objectives, future performance and other matters.

We caution you that forward-looking statements are not guarantees of future performance and that our actual consolidated financial condition, results of operations, liquidity and cash flows may differ materially from those made in or suggested by the forward-looking statements contained in this report. A number of important factors could cause actual results or conditions to differ materially from those contained or implied by the forward-looking statements, including the risks discussed in *Item 1A. Risk Factors*. Factors that could cause actual results or conditions to differ from those reflected in the forward-looking statements contained in this report include:

- the accuracy of management's assumptions and estimates;
- variability in the amount of statutory capital that our insurance and reinsurance subsidiaries have or are required to hold;
- interest rate and/or foreign currency fluctuations;
- our potential need for additional capital in the future and the potential unavailability of such capital to us on favorable terms or at all;
- changes in relationships with important parties in our product distribution network;
- the activities of our competitors and our ability to grow our retail business in a highly competitive environment;
- the impact of general economic conditions on our ability to sell our products and on the fair value of our investments;
- our ability to successfully acquire new companies or businesses and/or integrate such acquisitions into our existing framework;
- downgrades, potential downgrades or other negative actions by rating agencies;
- our dependence on key executives and inability to attract qualified personnel, or the potential loss of Bermudian personnel as a result of Bermuda employment restrictions;
- market and credit risks that could diminish the value of our investments;
- the impact of changes to the creditworthiness of our reinsurance and derivative counterparties;
- changes in consumer perception regarding the desirability of annuities as retirement savings products;
- potential litigation (including class action litigation), enforcement investigations or regulatory scrutiny against us and our subsidiaries, which we may be required to defend against or respond to;
- the impact of new accounting rules or changes to existing accounting rules on our business;
- interruption or other operational failures in telecommunication and information technology and other operating systems, as well as our ability to maintain the security of those systems;
- the termination by Athene Asset Management LLC (AAM) of its investment management agreements with us and limitations on our ability to terminate such arrangements;
- AAM's dependence on key executives and inability to attract qualified personnel;
- increased regulation or scrutiny of alternative investment advisers and certain trading methods;
- potential changes to regulations affecting, among other things, transactions with our affiliates, the ability of our subsidiaries to make dividend payments or distributions to AHL, acquisitions by or of us, minimum capitalization and statutory reserve requirements for insurance companies and fiduciary obligations on parties who distribute our products;
- suspension or revocation of our subsidiaries' insurance and reinsurance licenses or our inability to procure licenses associated with new products or services;
- increases in our tax liability resulting from the Base Erosion and Anti-Abuse Tax (BEAT);
- improper interpretation or application of Public Law no. 115-97, the Act to provide for reconciliation pursuant to titles II and V of the concurrent resolution on the budget for fiscal year 2018 (Tax Act) or subsequent changes to, clarifications of or guidance under the Tax Act that is counter to our interpretation and has retroactive effect;
- AHL or any of its non-United States (U.S.) subsidiaries becoming subject to U.S. federal income taxation;
- adverse changes in U.S. tax law;
- our being subject to U.S. withholding tax under the Foreign Account Tax Compliance Act (FATCA);
- our potential inability to pay dividends or distributions; and
- other risks and factors listed under *Item 1A. Risk Factors* and those discussed elsewhere in this report.

We caution you that the important factors referenced above may not be exhaustive. In light of these risks, you should not place undue reliance upon any forward-looking statements contained in this report. The forward-looking statements included in this report are made only as of the date hereof. We undertake no obligation, except as may be required by law, to publicly update or revise any forward-looking statement as a result of new information, future events or otherwise. Comparisons of results for current and any prior periods are not intended to express any future trends, or indications of future performance, unless expressed as such, and should only be viewed as historical data.

GLOSSARY OF SELECTED TERMS

Unless otherwise indicated in this report, the following terms have the meanings set forth below:

Entities

Term or Acronym	Definition
A-A Mortgage	A-A Mortgage Opportunities, L.P.
AAA	AP Alternative Assets, L.P.
AAA Investor	AAA Guarantor – Athene, L.P.
AADE	Athene Annuity & Life Assurance Company
AAIA	Athene Annuity and Life Company
AAM	Athene Asset Management LLC
AARe	Athene Annuity Re Ltd., a Bermuda Reinsurance Subsidiary
AGM	Apollo Global Management, LLC
AHL	Athene Holding Ltd.
ALR	ALR Aircraft Investment Ireland Limited
ALRe	Athene Life Re Ltd., a Bermuda Reinsurance Subsidiary
AmeriHome	AmeriHome Mortgage Company, LLC
Apollo	Apollo Global Management, LLC, together with its subsidiaries
Apollo Group	(1) Apollo, (2) the AAA Investor, (3) any investment fund or other collective investment vehicle whose general partner or managing member is owned, directly or indirectly, by Apollo or one or more of Apollo's subsidiaries, (4) BRH Holdings GP, Ltd. and its shareholders and (5) any affiliate of any of the foregoing (except that AHL and its subsidiaries and employees of AHL, its subsidiaries or AAM are not members of the Apollo Group)
Athene USA	Athene USA Corporation
Athora	Athora Holding Ltd., formerly known as AGER Bermuda Holding Ltd.
CoInvest Other	AAA Investments (Other), L.P.
CoInvest VI	AAA Investments (Co-Invest VI), L.P.
CoInvest VII	AAA Investments (Co-Invest VII), L.P.
DOL	United States Department of Labor
MidCap	MidCap FinCo Limited
NAIC	National Association of Insurance Commissioners
NYSDFS	New York State Department of Financial Services
Voya	Voya Financial, Inc.
VIAC	Voya Insurance and Annuity Company
Venerable	Venerable Holdings, Inc., together with its subsidiaries

Certain Terms & Acronyms

Term or Acronym	Definition
ABS	Asset-backed securities
ACL	Authorized control level RBC as defined by the model created by the National Association of Insurance Commissioners
ALM	Asset liability management
ALRe RBC	The risk-based capital ratio of ALRe, when applying the NAIC risk-based capital factors.
Alternative investments	Alternative investments, including investment funds, CLO equity positions and certain other debt instruments considered to be equity-like
Base of earnings	Earnings generated from our results of operations and the underlying profitability drivers of our business
BEAT	Base Erosion and Anti-Abuse Tax
Block reinsurance	A transaction in which the ceding company cedes all or a portion of a block of previously issued annuity contracts through a reinsurance agreement
BMA	Bermuda Monetary Authority
BSCR	Bermuda Solvency Capital Requirement
CAL	Company action level risk-based capital as defined by the model created by the National Association of Insurance Commissioners
CLO	Collateralized loan obligation
CMBS	Commercial mortgage-backed securities
CML	Commercial mortgage loans
Cost of crediting	The interest credited to the policyholders on our fixed annuities, including, with respect to our fixed indexed annuities, option costs, presented on an annualized basis for interim periods
DAC	Deferred acquisition costs
Deferred annuities	Fixed indexed annuities, annual reset annuities and multi-year guaranteed annuities
DSI	Deferred sales inducement
Excess capital	Capital in excess of the level management believes is needed to support our current operating strategy
FIA	Fixed indexed annuity, which is an insurance contract that earns interest at a crediting rate based on a specified index on a tax-deferred basis
Fixed annuities	FIAs together with fixed rate annuities
Fixed rate annuity	An insurance contract that offers tax-deferred growth and the opportunity to produce a guaranteed stream of retirement income for the lifetime of its policyholder
Flow reinsurance	A transaction in which the ceding company cedes a portion of newly issued policies to the reinsurer
GAAP	Accounting principles generally accepted in the United States of America
GLWB	Guaranteed lifetime withdrawal benefit
GMDB	Guaranteed minimum death benefit
IMA	Investment management agreement
IMO	Independent marketing organization
Invested assets	The sum of (a) total investments on the consolidated balance sheet with available-for-sale securities at amortized cost, excluding derivatives, (b) cash and cash equivalents and restricted cash, (c) investments in related parties, (d) accrued investment income, (e) consolidated variable interest entities' assets, liabilities and noncontrolling interest and (f) policy loans ceded (which offset the direct policy loans in total investments). Invested assets includes investments supporting assumed funds withheld and modco agreements and excludes assets associated with funds withheld liabilities related to business exited through reinsurance agreements and derivative collateral (offsetting the related cash positions)
Investment margin	Investment margin applies to deferred annuities and is the excess of our net investment earned rate over the cost of crediting to our policyholders, presented on an annualized basis for interim periods
Liability outflows	The aggregate of withdrawals on our deferred annuities, maturities of our funding agreements, payments on payout annuities, and pension risk benefit payments
LIMRA	Life Insurance and Market Research Association
MCR	Minimum capital requirements
MMS	Minimum margin of solvency
Modco	Modified coinsurance
MVA	Market value adjustment

Term or Acronym	Definition
MYGA	Multi-year guaranteed annuity
Net investment earned rate	Income from our invested assets divided by the average invested assets for the relevant period, presented on an annualized basis for interim periods
Other liability costs	Other liability costs include DAC, DSI and VOBA amortization, rider reserves, institutional costs, the cost of liabilities on products other than deferred annuities including offsets for premiums, product charges and other revenues
OTTI	Other-than-temporary impairment
Overall tax rate	Tax rate including corporate income taxes, the BEAT and excise taxes, in each case, to the extent applicable, as a percentage of adjusted operating income before tax
Payout annuities	Annuities with a current cash payment component, which consist primarily of single premium immediate annuities, supplemental contracts and structured settlements
Policy loan	A loan to a policyholder under the terms of, and which is secured by, a policyholder's policy
PRT	Pension risk transfer
RBC	Risk-based capital
Reserve liabilities	The sum of (a) interest sensitive contract liabilities, (b) future policy benefits, (c) dividends payable to policyholders, and (d) other policy claims and benefits, offset by reinsurance recoverable, excluding policy loans ceded. Reserve liabilities also includes the reserves related to assumed modco agreements in order to appropriately match the costs incurred in the consolidated statements of income with the liabilities. Reserve liabilities is net of the ceded liabilities to third-party reinsurers as the costs of the liabilities are passed to such reinsurers and therefore we have no net economic exposure to such liabilities, assuming our reinsurance counterparties perform under our agreements
Rider reserves	Guaranteed lifetime withdrawal benefits and guaranteed minimum death benefits reserves
RMBS	Residential mortgage-backed securities
RML	Residential mortgage loan
Sales	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)
SPIA	Single premium immediate annuity
Surplus assets	Assets in excess of policyholder obligations, determined in accordance with the applicable domiciliary jurisdiction's statutory accounting principles
TAC	Total adjusted capital as defined by the model created by the NAIC
U.S. RBC Ratio	The CAL RBC ratio for AADE, our parent U.S. insurance company
VIE	Variable interest entity
VOBA	Value of business acquired

PART I

Item 1. Business

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Item 1. Business

Overview

We are a leading retirement services company that issues, reinsures and acquires retirement savings products designed for the increasing number of individuals and institutions seeking to fund retirement needs. We generate attractive financial results for our policyholders and shareholders by combining our two core competencies of (1) sourcing long-term, generally illiquid liabilities and (2) investing in a high-quality investment portfolio, which takes advantage of the illiquid nature of our liabilities. Our steady and significant base of earnings generates capital that we opportunistically invest across our business to source attractively-priced liabilities and capitalize on opportunities. Our differentiated investment strategy benefits from our strategic relationship with Apollo Global Management, LLC (AGM, and together with its subsidiaries, Apollo) and its indirect subsidiary, AAM. AAM provides a full suite of services for our investment portfolio, including direct investment management, asset allocation, mergers and acquisition asset diligence and certain operational support services, including investment compliance, tax, legal and risk management support. Our relationship with Apollo and AAM also provides us with access to Apollo's investment professionals around the world as well as Apollo's global asset management infrastructure across a broad array of asset classes. We are led by a highly skilled management team with extensive industry experience. We are based in Bermuda with our U.S. subsidiaries' headquarters located in Iowa.

We began operating in 2009 when the burdens of the financial crisis and resulting capital demands caused many companies to exit the retirement market, creating the need for a well-capitalized company with an experienced management team to fill the void. Taking advantage of this market dislocation, we have been able to acquire substantial blocks of long-duration liabilities and reinvest the related investments to produce profitable returns.

We operate our core business strategies out of one reportable segment, Retirement Services. In addition to Retirement Services, we report certain other operations in Corporate and Other. Retirement Services is comprised of our U.S. and Bermuda operations, which issue and reinsure retirement savings products and institutional products. Retirement Services has retail operations, which provide annuity retirement solutions to our policyholders. Retirement Services also has reinsurance operations, which reinsure multi-year guaranteed annuities (MYGA), fixed indexed annuities (FIA), traditional one year guarantee fixed deferred annuities, immediate annuities and institutional products from our reinsurance partners. In addition, our funding agreement activities and our pension risk transfer (PRT) operations are included in our Retirement Services segment. Corporate and Other includes certain other operations related to our corporate activities, including corporate allocated expenses, merger and acquisition costs, debt costs, certain integration and restructuring costs, certain stock-based compensation and intersegment eliminations. Additionally, prior to 2018, Corporate and Other included our former German operations. In Corporate and Other we also hold strategic capital in excess of the level of capital we hold in Retirement Services to support our operating strategy.

We believe we hold a sufficient amount of capital in our Retirement Services segment to support our core operating strategies. This level of capital reflects the level we believe is needed to support or improve our current ratings as well as our risk appetite based on our internal capital and risk models. Our excess capital is currently allocated to our Corporate non-reportable segment and may fluctuate depending on the mix of both our assets and our liabilities as well as our growth and investment in our organic and inorganic channels. We view this excess as strategic capital, which we expect to deploy for future growth opportunities. We further expect our excess capital position to contribute to ratings improvements over time. We manage our capital to levels which we believe would remain consistent with our current ratings in a recessionary environment.

We have developed organic and inorganic channels to address the retirement services market and grow our assets and liabilities. By focusing on the retirement services market, we believe that we will benefit from several demographic and economic trends, including the increasing number of retirees in the U.S., the lack of tax advantaged alternatives for people trying to save for retirement and expectations of a rising interest rate environment. To date, most of the products that we have sold or acquired have been fixed annuities, which offer people saving for retirement a product that is tax advantaged, has a minimum guaranteed rate of return or minimum cash value and provides protection against investment loss.

Within our organic channels, we have focused on developing a diverse suite of products that allow us to meet our risk and return profiles, even in today's low rate environment. Our organic channels currently include: (1) retail, from which we provide retirement solutions to our policyholders primarily through independent marketing organizations (IMOs); (2) flow reinsurance, through which we partner with insurance companies to improve their product offerings and enhance their financial results; and (3) institutional, which includes funding agreements and PRT transactions. Our inorganic channel, acquisitions and block reinsurance, has contributed significantly to our growth, and we expect that it will continue to be an important source of growth in the future. We believe our internal transactions team, with support from Apollo, has an industry-leading ability to source, underwrite and expeditiously close transactions, which makes us a competitive counterparty for acquisitions and block reinsurance transactions. In conjunction with Apollo, we are able to provide bespoke solutions to insurance companies seeking to restructure their businesses. We are highly selective in the transactions we pursue, ultimately closing only those that are well aligned with our core competencies and pricing discipline.

We intend to maintain a presence within each of our distribution channels. However, we do not have any market share targets across our organization, which we believe provides us flexibility to respond to changing market conditions in one or more channels and to opportunistically grow liabilities that generate our desired levels of profitability. In a rising interest rate environment, we believe we will be able to profitably increase the volumes generated through our organic channels, while more challenging market environments may give rise to increased growth opportunities through our inorganic channel.

Item 1. Business

Through our efficient corporate structure and operations, we believe we have built a cost-effective platform to support our growth opportunities. We believe our fixed operating cost structure supports our ability to maintain an attractive financial profile across market environments. Additionally, we believe we have designed our platform to be highly scalable and support growth without significant incremental investment in infrastructure, which allows us to scale our business production up or down to meet demand for our products and services. As a result, we believe we will be able to convert a significant portion of our new business spread into adjusted operating income.

Relationship with Apollo

We have a strategic relationship with Apollo which allows us to leverage the scale of its asset management platform. Apollo's indirect subsidiary, AAM, serves as our investment manager. In addition to co-founding the Company, Apollo assists us in identifying and capitalizing on acquisition opportunities that have been critical to our ability to significantly grow our business. The Apollo Group consists of (1) AGM, (2) the AAA Guarantor – Athene, L.P. (AAA Investor), (3) any investment fund or other collective investment vehicle whose general partner or managing member is owned, directly or indirectly, by AGM or one or more of AGM's subsidiaries, (4) BRH Holdings GP, Ltd. and its shareholders and (5) any executive officer of AGM whom AGM designates, in a written notice delivered to Athene, as a member of the Apollo Group for purposes of AHL's Bye-laws (which designation shall continue in effect until such designee ceases to be an executive officer of AGM) and (6) any affiliate of a person described in clauses (1) through (5) above; provided none of AHL or its subsidiaries, nor any person employed by AHL, its subsidiaries or AAM shall be deemed to be a member of the Apollo Group. For avoidance of doubt, any person managed by AGM or by one or more of AGM's subsidiaries pursuant to a managed account agreement (or similar arrangement) without AGM or by one or more of AGM's subsidiaries controlling such person as a general partner or managing member shall not be part of the Apollo Group. Members of the Apollo Group are significant owners of our common shares and Apollo employees serve on our board of directors. We expect our strategic relationship with Apollo to continue for the foreseeable future. See *Item 13. Certain Relationships and Related Transactions, and Director Independence*.

The Apollo Group controls and is expected to continue to control 45% of the total voting power of AHL and six of our fifteen directors are employees of or consultants to Apollo, including our Chairman, Chief Executive Officer and Chief Investment Officer who is a dual employee of both AHL and AAM. Further, our bye-laws generally limit the voting power of our Class A common shares (and certain other of our voting securities) such that no person owns (or is treated as owning) more than 9.9% of the total voting power of our common shares (with certain exceptions). See *Item 1A. Risk Factors–Risks Relating to Investment in Our Class A Common Shares–The interest of the Apollo Group, which controls and is expected to continue to control 45% of the total voting power of AHL and holds a number of the seats on our board of directors, may conflict with those of other shareholders and could make it more difficult for you and other shareholders to influence significant corporate decisions*.

Growth Strategy

The key components of our growth strategy are as follows:

- **Expand Our Organic Distribution Channels.** We plan to grow organically by expanding our retail, flow reinsurance and institutional distribution channels. We expect our retail channel to continue to benefit from our improving credit profile, strong financial position, suite of capital efficient products and product design capabilities. We believe this should support growth in sales at our desired cost of crediting through increased volumes in each of our existing retail channels, including via expanding our small to mid-sized bank and broker-dealer network, and increased volumes via access to new channels. We continue to implement the necessary technology platform, hire and train a specialized sales force, and have created products to capture new potential distribution opportunities.

  Within our flow reinsurance channel, we target reinsurance business consistent with our preferred liability characteristics, and as such, flow reinsurance provides another opportunistic channel for us to source long-term liabilities with attractive crediting rates. We expect our improving credit profile and growing reputation as a reliable reinsurance counterparty will enable us to attract additional flow reinsurance partners.

  We expect to grow our institutional channel by continuing to engage in opportunistic issuances of funding agreements and pursuing additional PRT transactions. We believe that our demonstrated ability to create customized solutions for PRT counterparties seeking to reduce or eliminate their exposure to pension obligations will continue to drive the positive momentum that we have seen in this channel.

- **Pursue Attractive Inorganic Growth Opportunities.** We plan to continue leveraging our expertise in sourcing and evaluating inorganic transactions to grow our business profitably. From our founding through December 31, 2018, we have grown to total assets of $125.5 billion, primarily through acquisitions and block reinsurance transactions. We believe that our demonstrated ability to successfully consummate complex transactions, as well as our relationship with Apollo, provides us with distinct advantages relative to other acquirers and block reinsurance counterparties. Furthermore, we have achieved sufficient scale to provide meaningful operational synergies for the businesses and blocks of business that we acquire and reinsure, respectively. Consequently, we believe we are often sought out by companies looking to restructure their businesses.

Item 1. Business

- **Expand Our Product Offering.** We seek to build products that meet our policyholders' retirement savings objectives, such as accumulation, income and legacy planning. Our products are customized for each of the retail channels through which we distribute, including IMOs, banks and independent broker dealers, and represent innovative solutions that meet the needs of policyholders in each of these channels. In furtherance of our objective to provide innovative solutions to policyholders, we recently launched several new products, including Agility, a no-fee product that offers lifetime income; Protector, an accumulation product with a "return of premium" feature designed to appeal to the bank channel; and products linked to a unique equity strategy that maximizes exposure to the equity market. We will continue to supplement our product offerings to ensure that we are able to provide comprehensive solutions to those within the retirement savings market. Currently, we are developing a single purchase payment index-linked deferred annuity product that will permit policyholders to participate in increases in equity market indices to a greater degree than what is available within our current product portfolio, in exchange for limited risk of loss to principal due to decreases in such equity market indices. Unlike more traditional deferred annuities, this product will be registered under the Securities Act and will therefore only be distributed through registered financial representatives, broker dealers and banks. We currently expect that this product will be available in mid-2019. The foregoing does not constitute an offer to sell, or the solicitation of an offer to buy, any security of AHL or any of its subsidiaries.

- **Leverage Our Unique Relationship with Apollo and AAM.** We intend to continue leveraging our unique relationship with Apollo and AAM to source high-quality assets with attractive risk-adjusted returns. Apollo's global scale and reach provide us with broad market access across environments and geographies and allow us to actively source assets that exhibit our preferred risk and return characteristics. For instance, through our relationship with Apollo and AAM, we have indirectly invested in companies including MidCap FinCo Limited (MidCap) and AmeriHome Mortgage Company, LLC (AmeriHome). See *Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations–Consolidated Investment Portfolio–Alternative Investments* for further discussion of MidCap and AmeriHome.

  Our relationship with Apollo also allows us to offer creative solutions to insurance companies seeking to restructure their businesses and may enable us source additional volumes of attractively-priced liabilities. For example, in December 2017 a consortium of investors, led by affiliates of Apollo, and certain other investors including us, agreed to purchase Voya Insurance and Annuity Company (VIAC), including its closed block variable annuity segment. In connection with this transaction, we reinsured $19 billion of fixed annuities. These transactions provided Voya Financial, Inc. (Voya) with a comprehensive solution to its variable annuity exposure, while providing us with a substantial block of fixed annuities, which are well aligned with our core business, without requiring that we acquire Voya's variable annuity business.

- **Allocate Assets during Market Dislocations.** As we have done successfully in the past, we plan to fully capitalize on future market dislocations to opportunistically reposition our portfolio to capture incremental yield. For example, regulatory changes in the wake of the financial crisis have made it more expensive for banks and other traditional lenders to hold certain illiquid and complex assets, notwithstanding the fact that these assets may have prudent credit characteristics. The repressed demand for these asset classes has provided opportunities for investors to acquire high-quality assets that offer attractive returns. For example, we see emerging opportunities as banks retreat from direct mortgage lending, structured and asset-backed products, and middle-market commercial loans. We intend to maintain a flexible approach to asset allocation, which will allow us to act quickly on similar opportunities that may arise in the future across a wide variety of asset types.

- **Maintain Risk Management Discipline.** Our risk management strategy is to proactively manage our exposure to risks associated with interest rate duration, credit risk and structural complexity of our invested assets. We address interest rate duration and liquidity risks by managing the duration of the liabilities we source with the assets we acquire through asset liability management (ALM) modeling. We assess credit risk by modeling our liquidity and capital under a range of stress scenarios. We manage the risks related to the structural complexity of our invested assets through AAM's modeling efforts. The goal of our risk management discipline is to be able to continue to grow and achieve profitable results across various market environments.

Item 1. Business

Products

We principally offer two product lines: annuities and funding agreements. Our primary product line is annuities and includes fixed, payout and group annuities issued in connection with PRT transactions. We also offer funding agreements, including those issued to institutions and to a special-purpose unaffiliated trust in connection with our funding agreement backed notes (FABN) program. The following summarizes our total premiums and deposits by product:

	Years ended December 31,		
(In millions)	2018	2017	2016
Annuities			
Fixed indexed	$ 29,973	$ 5,480	$ 5,322
Fixed rate	5,501	873	3,565
Payout	1,303	129	128
Group	2,546	2,188	—
Total annuities products	39,323	8,670	9,015
Funding agreements	650	3,054	—
Life and other (excluding German products)	58	84	31
German products	—	203	212
Total premiums and deposits, net of ceded	$ 40,031	$ 12,011	$ 9,258

Total premiums and deposits are comprised of all products deposits, which generally are not included in revenues on the consolidated statements of income, and premiums collected. Total premiums and deposits include directly written business, flow reinsurance assumed as well as premiums and deposits generated from assumed block reinsurance transactions, net of those ceded through reinsurance. Organic and inorganic deposits do not correspond to the total premiums and deposits presented above as total premiums and deposits includes renewal deposits, annuitizations, as well as premiums and deposits from life and other products other than deferred annuities and institutional products, all of which are not included in our organic deposits.

Reserve liabilities represents our policyholder liability obligations, including liabilities assumed through reinsurance and net of liabilities ceded through reinsurance, and therefore does not correspond to interest sensitive contract liabilities, future policy benefits, dividends payable to policyholders and other policy claims and benefits as disclosed on our consolidated balance sheets. Reserve liabilities includes the reserves related to assumed modified coinsurance (modco) and funds withheld agreements to encompass the liabilities for which costs are being recognized in the consolidated statements of income. Reserve liabilities is net of the ceded liabilities to third-party reinsurers as the costs of those liabilities are passed to such reinsurers and, therefore, we have no net economic exposure to such liabilities, assuming our reinsurance counterparties perform under our agreements. The majority of our ceded reinsurance is a result of reinsuring large blocks of life business following acquisitions.

The following summarizes our reserve liabilities by product:

	December 31,			
(In millions, except percentages)	2018		2017	
Annuities				
Fixed indexed	$ 73,224	68.0%	$ 48,520	59.7 %
Fixed rate	17,802	16.5%	13,411	16.5 %
Payout	6,009	5.6%	5,216	6.4 %
Group	4,710	4.4%	2,252	2.8 %
Total annuities products	101,745	94.5%	69,399	85.4 %
Funding agreements	3,826	3.5%	3,786	4.7 %
Life and other (excluding German products)	2,161	2.0%	2,262	2.8 %
German products	—	—%	5,979	7.3 %
Intersegment eliminations	—	—%	(174)	(0.2)%
Total reserve liabilities	$ 107,732	100.0%	$ 81,252	100.0 %

Item 1. Business

Annuities

We offer deferred and payout annuities, which are focused on meeting the needs and objectives of people preparing for, approaching or living in retirement. The combination of financial strength, innovative product design and an effective sales strategy enables us to compete successfully in the market and meet the evolving needs of the rapidly growing population of retirees.

Fixed Indexed Annuities

The majority of our reserve liabilities are FIAs. An FIA is a type of insurance contract in which the policyholder makes one or more premium deposits which earn interest, on a tax deferred basis, at a crediting rate based on a specified market index. The policyholder is entitled to receive periodic or lump sum payments a specified number of years after the contract is issued. FIAs allow policyholders the possibility of earning interest without significant risk to principal, unless the contract is surrendered during a surrender charge period. A market index tracks the performance of a specific group of stocks or other assets representing a particular segment of the market, or in some cases, an entire market. Our FIAs include a provision for a minimum guaranteed surrender value calculated in accordance with applicable law, as well as death benefits as required by non-forfeiture regulations. We generally buy options on the indices to which the FIAs are tied to hedge the associated market risk. The cost of the option is priced into the overall economics of the product as an option budget.

The value to the policyholder of an FIA contract is equal to the sum of premiums paid, premium bonuses, if any, and index credits based on the change in the relevant market index, subject to a cap (a maximum rate that may be credited), spread (a credited rate determined by deducting a specific rate from the index return) and/or a participation rate (a credited rate equal to a percentage of the index return), less any fees for riders. Caps on our FIA products generally range from 2.0% to 6.0% when measured annually and 0.5% to 2.5% when measured monthly. Participation rates generally range from 25% to 150% of the performance of the applicable market index. Caps, spreads and participation rates can typically be reset no more frequently than annually, and in some instances no more frequently than every two to four years, at the relevant U.S. insurance subsidiary’s discretion, subject to stated policy minimums. Certain riders provide a variety of benefits, such as lifetime income or additional liquidity, for a set charge. As this charge is fixed, the policyholder may lose principal if the index credits received do not exceed the amount of such charge.

We generate income on FIA products by earning an investment margin, which is based on the difference between (1) income earned on the investments supporting the liabilities and (2) the interest credited to customers and the cost of providing guarantees (net of rider fees).

Fixed Rate Annuities

Fixed rate annuities include annual reset annuities and MYGAs. Unlike FIAs, fixed rate annuities earn interest at a set rate (or declared crediting rate), rather than a rate that may vary based on an index. Fixed rate annual reset annuities have a crediting rate that is typically guaranteed for one year. After such period, we have the ability to change the crediting rate at our discretion, generally once annually, to any rate at or above a guaranteed minimum rate. MYGAs are similar to annual reset annuities except that the initial crediting rate is guaranteed for a specified number of years, rather than just one year, before it may be changed at our discretion. As of December 31, 2018, crediting rates on outstanding annual reset annuities ranged from 1% to 8% and crediting rates on outstanding MYGAs ranged from 1% to 7%. As of December 31, 2018, 47% of our fixed rate annuities were set at the guaranteed minimum crediting rate.

Income Riders to Fixed Annuity Products

We broadly characterize the income riders on our deferred annuities as either guaranteed or participating. Guaranteed income riders provide policyholders with a guaranteed lifetime withdrawal benefit (GLWB), the amount of which is determined based upon the age of the policyholder when the policy is purchased and when the lifetime income is elected. Riders providing GLWB features permit policyholders to elect to receive guaranteed payments for life from their contract without having to annuitize their policies, which provides policyholders with greater flexibility in the future. Participating income riders tend to have lower levels of guaranteed income than guaranteed income riders, but provide policyholders the opportunity to receive greater levels of income if the policies’ indexed crediting strategies perform well.

Income riders, particularly on FIAs, have become very popular among policyholders. The Life Insurance and Market Research Association (LIMRA) estimates that 54% of FIA premium for the nine months ended September 30, 2018 (the most recent period that specific market share data is currently available) included an income rider. Much of our in-force block of deferred annuities contains policies with income riders, which were sourced through retail and reinsurance operations as well as acquisitions, such as the substantial block of these policies acquired with Aviva USA Corporation (Aviva USA). Many of our in-force deferred annuities contain policies that provide GLWB. As of December 31, 2018, approximately 41% of our deferred annuities account value have rider benefits and the reserve associated with the rider benefits was 8.3% of the related account value. Of the deferred annuities sourced through our retail and flow reinsurance channels, for the year ended December 31, 2018, 12% contained participating income riders and 15% contained guaranteed income riders.

Item 1. Business

Withdrawal Options for Deferred Annuities

After the first year following the issuance of a deferred annuity, the policyholder is typically permitted to make withdrawals up to 5% or 10% (depending on the contract) of the prior year's value without a surrender charge or market value adjustment (MVA), subject to certain limitations. Withdrawals in excess of the allowable amounts are assessed a surrender charge and MVA if such withdrawals are made during the surrender charge period of the policy. The surrender charge of most of our products is typically between 7% and 20% of the contract value at contract inception and generally decreases by approximately one percentage point per year during the surrender charge period. The surrender charge period of our most popular products ranges from 3 to 20 years. The average surrender charge (excluding the impact of MVAs) is 6% for our deferred annuities as of December 31, 2018.

At maturity, the policyholder may elect to receive proceeds in the form of a single payment or an annuity. If the annuity option is selected, the policyholder will receive a series of payments either over the policyholder's lifetime or over a fixed number of years, depending upon the terms of the contract. Some contracts permit annuitization prior to maturity. In addition to the foregoing rights, a policyholder may also elect to purchase a guaranteed minimum withdrawal benefit rider which provides the policyholder with a guaranteed minimum withdrawal benefit for the life of the contract.

Payout Annuities

Payout annuities primarily consist of single premium immediate annuities (SPIA), supplemental contracts and structured settlements. Payout annuities provide a series of periodic payments for a fixed period of time or for the life of the policyholder, based upon the policyholder's election at the time of issuance. The amounts, frequency and length of time of the payments are fixed at the outset of the annuity contract. SPIAs are often purchased by persons at or near retirement age who desire a steady stream of payments over a future period of years. Supplemental contracts are typically created upon the conversion of a death claim or the annuitization of a deferred annuity. Structured settlements generally relate to legal settlements.

Group Annuities

PRT transactions usually involve a single premium group annuity contract issued for discharging certain pension plan liabilities. Our group annuities are nonparticipating contracts. The assets supporting the guaranteed benefits for each contract may be held in a separate account. The group annuity benefits may be purchased for current, retired and/or terminated employees and their beneficiaries covered under terminating or ongoing pension plans. Both immediate and deferred annuities may be purchased by a single premium at issue. Immediate annuities cover those retirees and beneficiaries currently receiving payments, whereas deferred annuities cover those participants who have not yet begun receiving benefit payments. Immediate annuities have no cash surrender rights, whereas deferred annuities may include an election to receive a lump sum payment, exercisable by the participant upon either the participant achieving a specified age or the occurrence of a specified event, such as termination of the participant's employment.

A PRT transaction may be structured as a buyout or buy-in transaction. A buyout transaction involves the issuance by an insurer of a group annuity contract to the plan sponsor and individual annuity certificates to each plan participant, resulting in the transfer of the contractual obligation to pay pension benefits from the plan sponsor to the insurer. A buyout transaction may be a full buyout or a partial buyout. A full buyout covers all obligations outstanding under the plan and involves the termination of the plan, whereas, a partial buyout covers benefits for a subset of the plan population with the remaining plan participants continuing with the plan sponsor and may or may not involve a plan termination. A buy-in similarly involves the issuance of a group annuity contract to the plan sponsor, but the plan sponsor retains the contractual obligation to pay pension benefits to the plan participants and receives reimbursement from the insurer for those payments related to plan participants covered by the group annuity contract. The buy-in group annuity contract is considered a plan asset. PRT transactions that are structured as buy-ins have an option to convert to buyout at the election of the plan sponsor. Generally, a buy-in structure is selected when the plan sponsor seeks to eliminate risk but is not yet prepared to terminate the plan or recognize any adverse accounting impact that may accompany a plan termination. A buy-in contract may be surrendered at the election of the plan sponsor, subject to certain conditions, resulting in a refund of the group annuity premium less a penalty.

We earn income on group annuities based upon the spread between the return on the assets received in connection with the PRT transaction and the cost of the pension obligations assumed. Group annuities expose us to longevity risk, which would be realized if plan participants live longer than assumed in underwriting the transaction, resulting in aggregate payments exceeding our expectations.

Funding Agreements

We focus on opportunistically issuing funding agreements at attractive risk-adjusted funding costs to institutional investors. Funding agreements are negotiated privately between an investor and an insurance company. They are designed to provide an agreement holder with a guaranteed return of principal and periodic interest payments, while offering competitive yields and predictable returns. The interest rate can be fixed or floating. If the interest rate is a floating rate, it may be linked to the London Interbank Offered Rate (LIBOR), the federal funds rate or other major index. See *Item 1A. Risk Factors–Risks Relating to Our Business–Uncertainty relating to the LIBOR calculation process and potential phasing out of LIBOR after 2021 may adversely affect the value of our investment portfolio and may further affect our ability to issue funding agreements bearing a floating rate of interest.*

Item 1. Business

Life and Other (Excluding German Products)

Life and other products include other retail products, including run-off or ceded business, statutory closed blocks and ceded life insurance.

German Products

Prior to the deconsolidation of Athora Holding Ltd. (together with its subsidiaries, Athora) as discussed below, German products included annuity, life insurance and unit-linked products. The primary German product type was endowment policies, which were traditional German life insurance policies that included legally guaranteed interest, the right of policyholders to participate in certain portions of results and a death benefit.

Athora Deconsolidation

Prior to January 1, 2018, Athora was a wholly-owned subsidiary of AHL. In order to fully capitalize on the opportunity presented by the European market, Athora raised capital as part of a private offering of its equity securities. In April 2017, Athora entered into subscription agreements pursuant to which Athora secured commitments to purchase new common shares in Athora (Athora Offering). On January 1, 2018, the Athora Offering closed and Athora called capital from all of its investors, excluding us. In connection with the closing of Athora Offering, our equity interest in Athora was exchanged for new common shares of Athora and our interest in Athora was reduced. As of December 31, 2018, we held 10% of the aggregate voting power of and 23% of the economic interest in Athora. Our interest in Athora is held as a related party investment rather than as a consolidated subsidiary.

In order to align our interests with those of Athora, in connection with the closing of the Athora Offering, we entered into a cooperation agreement with Athora, pursuant to which, among other things, (1) we have the right to reinsure approximately 20% of the spread business written or reinsured by any insurance or reinsurance company owned or acquired by Athora, (2) Athora's insurance subsidiaries are required to purchase certain funding agreements and/or other spread instruments issued by our insurance subsidiaries, (3) we provide Athora with a right of first refusal to pursue acquisition and reinsurance transactions in Europe (other than the United Kingdom (UK)) and (4) Athora provides us and our subsidiaries with a right of first refusal to pursue acquisition and reinsurance transactions in North America and the UK.

Distribution Channels

We have developed four dedicated distribution channels: retail, flow reinsurance, institutional and acquisitions and block reinsurance, which support opportunistic origination across differing market environments and which we believe enable us to achieve stable asset growth while maintaining attractive returns.

We are diligent in setting our return targets based on market conditions and risks inherent to our products offered and acquisitions or block reinsurance transactions. Generally, we target mid-teen returns for sources of organic growth and mid-teen or higher returns for sources of inorganic growth. However, specific return targets are established with due consideration to the facts and circumstances surrounding each growth opportunity and may be higher or lower than those that we target more generally. Factors that we consider in establishing return targets for a given growth opportunity include, but are not limited to, the certainty of the return profile, the strategic nature of the opportunity, the size and scale of the opportunity, the alignment and fit of the opportunity with our existing business, the opportunity for risk diversification and the existence of increased opportunities for higher returns or growth. If market conditions or risks inherent in a product or transaction create return profiles that are not acceptable to us, we generally will not sacrifice our profitability merely to facilitate growth.

Retail

We have built a scalable platform that allows us to originate and rapidly grow our business in fixed annuity products despite today's low interest rate environment. We have developed a suite of retirement savings products, distributed through our network of approximately 55 IMOs; more than 36,000 independent agents in all 50 states; and our growing network of nine small and mid-sized banks and 75 regional broker-dealers. We are focused in every aspect of our retail channel on providing high quality products and service to our policyholders and maintaining appropriate financial protection over the life of their policies.

Flow Reinsurance

Reinsurance is an arrangement under which an insurance company, the reinsurer, agrees to indemnify another insurance company, the ceding company or cedant, for all or a portion of the insurance risks underwritten by the ceding company. Reinsurance is designed to (1) reduce the net amount at risk on individual risks, thereby enabling the ceding company to increase the volume of business it can underwrite, as well as increase the maximum risk it can underwrite on a single risk, (2) stabilize operating results by reducing volatility in the ceding company's loss experience, (3) assist the ceding company in meeting applicable regulatory requirements and (4) enhance the ceding company's financial strength and surplus position.

Item 1. Business

We conduct the majority of our third-party reinsurance transactions through our subsidiary, Athene Life Re Ltd. (ALRe). ALRe is licensed as a Class E insurer carrying on long-term business in Bermuda; one of the largest reinsurance markets in the world by reserves, with a regulatory regime deemed equivalent to the European Union's Directive (2009/138/EC) (Solvency II) for commercial insurers. As a fixed annuity reinsurer, ALRe partners with life and annuity insurance companies to develop solutions to their capital requirements, enhance their presence in the retirement market and improve their financial results. The specific liabilities ALRe targets to reinsure include FIAs, MYGAs, traditional one-year guarantee fixed deferred annuities, immediate annuities and institutional products. ALRe only targets business consistent with our preferred liability characteristics, and as such, reinsurance provides another opportunistic channel for us to source long-term liabilities with attractive crediting rates. For various transaction-related reasons, from time to time, our U.S. insurance subsidiaries, in particular Athene Annuity & Life Assurance Company (AADE), will reinsure business from third-party ceding companies. In these instances, the respective U.S. insurance subsidiary will generally retrocede a portion of the reinsured business to Athene Annuity Re, Ltd. (AARe) or ALRe (collectively, our Bermuda Reinsurance Subsidiaries).

Since inception, we have been involved in reinsurance and retrocession transactions with 23 third-party cedants. As of December 31, 2018, we had on-going flow reinsurance and retrocession agreements involving 11 third-party cedants, for a quota share of such cedants' new deposits, including both FIAs and MYGAs.

Institutional

Funding Agreements

We participate in an FABN program, which is a medium-term note program under which funding agreements are issued to a special-purpose trust that issues marketable notes. The notes are underwritten and marketed by major investment banks' broker-dealer operations and are sold to institutional investors. The proceeds of the issuance of notes are used by the trust to acquire a funding agreement from us with matching interest and maturity payment terms. We are also a member of the Federal Home Loan Bank (FHLB) and we have issued funding agreements to the FHLB in exchange for cash advances. The following represents the aggregate principal amount of funding agreement deposits:

	Years ended December 31,		
(In millions)	2018	2017	2016
FABN	$ —	$ 2,750	$ —
FHLB	650	250	—
Total funding agreement deposits	$ 650	$ 3,000	$ —

As of December 31, 2018, we had funding agreements of $2.7 billion outstanding under our FABN program and $926 million outstanding with the FHLB.

Pension Risk Transfer

Through PRT, we partner with institutions seeking to transfer and thereby reduce their obligation to pay future pension benefits to retirees and deferred participants. We have built an experienced team and continue to enhance our capabilities in this channel by, among other things, expanding into the deferred liability segment and offering a buy-in product. We work with advisors, brokers and consultants to source PRT transactions and design solutions that meet the needs of prospective PRT counterparties. We are focused on medium- and large-sized deals involving retirees and/or deferred participants that are structured as either a buyout or a buy-in transaction. We entered this channel during 2017 and from our entry through the year ended December 31, 2018, we had closed 11 deals involving more than 92,000 plan participants resulting in the issuance of group annuities in the aggregate principal amount of $4.8 billion.

We believe we have established ourselves as a trusted PRT solutions provider and expect that our experience in crafting customized PRT solutions and our improving credit profile will enable us to continue to source and execute PRT transactions. Our ability to design tailored solutions that meet the needs of our PRT counterparties was highlighted in our landmark transaction with Bristol-Myers Squibb Company (Bristol-Myers). Pursuant to that transaction, we provided Bristol-Myers with an innovative solution to facilitate the complete termination of its pension plan. In connection with the transaction, we agreed to provide a group annuity contract covering all obligations that remain after certain plan participants are permitted to elect to receive a lump sum payment in July 2019. The group annuity contract will cover up to $3.8 billion of remaining pension liabilities. The transaction is expected to close in August 2019, subject to customary closing conditions.

Acquisitions and Block Reinsurance

Acquisitions

Acquisitions are an important source of growth in our business. We have a proven ability to acquire businesses in complex transactions at terms favorable to us, manage the liabilities that we acquire and reinvest the associated assets. Through December 31, 2018, we have closed four acquisition transactions in the U.S.: Liberty Life Insurance Corporation (Liberty Life), Investors Insurance Corporation, Presidential Life Corporation and Aviva USA; and one international acquisition, Delta Lloyd Deutschland AG (DLD), collectively representing reserve liabilities backed by approximately $65.9 billion in total assets (net of $9.3 billion in assets ceded through reinsurance).

Item 1. Business

The acquisition of Aviva USA marked a significant milestone in our history. As a result of the acquisition we grew to approximately four times our size immediately prior to the acquisition (as measured by total assets). The acquisition significantly enhanced our retail channel, increased our scale, improved our infrastructure and further demonstrated our integration abilities, in this case having successfully integrated a company with a significantly larger employee headcount and IT and operational footprint.

We plan to continue leveraging our expertise in sourcing and evaluating transactions to profitably grow our business. We believe our demonstrated ability to source transactions, consummate complex transactions and reinvest assets into higher yielding investments as well as our relationship with Apollo provides us with distinct advantages relative to other acquirers.

In general, we seek to reinsure or otherwise dispose of those portions of the target company's business that we do not wish to retain, if any. Our largest reinsurance agreements ceding the obligations of such businesses are described below.

Global Atlantic Financial Group Limited (*Global Atlantic)* – As part of our acquisition of Aviva USA, we transferred the risk of substantially all of Aviva USA's life insurance business by reinsuring such business to Accordia Life and Annuity Company (Accordia) and First Allmerica Financial Life Insurance Company (FAFLIC), each a subsidiary of Global Atlantic. The transfer of such risk was achieved through entry into a combination of coinsurance and funds withheld agreements with Accordia and FAFLIC. We have outstanding obligations ceded under the coinsurance agreements with Accordia, which remain unnovated, of $2.7 billion of statutory reserves as of December 31, 2018. Accordia maintains a custody account and a trust account under these agreements or related retrocession agreements, with assets equal to or greater than an agreed-upon required statutory balance that, as of December 31, 2018, was $2.5 billion and $655 million, respectively.

Pursuant to the terms of the funds withheld agreement with FAFLIC, Athene Life Insurance Company of New York (ALICNY) maintains a funds withheld account with an agreed-upon statutory balance that as of December 31, 2018 was $277 million. Pursuant to the terms of the coinsurance agreements, FAFLIC maintains trust accounts with agreed-upon required statutory balances that, as of December 31, 2018, was $804 million in the aggregate. As of December 31, 2018, outstanding obligations ceded pursuant to the FAFLIC reinsurance agreements amounted to $1,305 million in statutory reserves.

We continue to have the primary legal obligation to satisfy claims and obligations relating to those policies not novated to Accordia or FAFLIC. As a consequence, if Accordia or FAFLIC were unable to satisfy its reinsurance obligations on such life policies, we would be responsible for satisfying those contractual obligations reinsured by Accordia or FAFLIC, respectively. We do not maintain a security interest in the custody account discussed above, and therefore in the event of an Accordia insolvency, the assets of the custody account may be available to satisfy the claims of Accordia's general creditors. In addition, in the event of an Accordia insolvency, our claims against Accordia would be subordinated to those of its policyholders. As of December 31, 2018, both Accordia and FAFLIC were rated A by A.M. Best Rating Services, Inc. (A.M. Best).

Protective Life Insurance Company (Protective) – On April 29, 2011, AADE ceded substantially all of its life and health business to Protective under a coinsurance agreement. As of December 31, 2018, the statutory book value of assets in the trust backing Protective's obligations under the coinsurance agreement was $1.4 billion and the outstanding obligations ceded pursuant to the arrangement amounted to $1.4 billion. In the event that Protective is unable to satisfy its reinsurance obligations with respect to the policies ceded and the trust assets prove insufficient to satisfy the resulting obligations, we would have the primary legal obligation to satisfy such deficiency. In the event of a Protective insolvency, our claim against Protective would be subordinated to those of its policyholders. As of December 31, 2018, Protective was rated A+ by A.M. Best.

Block Reinsurance

Through block reinsurance transactions, we partner with life and annuity companies to decrease their exposure to one or more products or to divest of lower-margin or non-core segments of their businesses. Unlike acquisitions in which we must acquire the assets or stock of a target company, block reinsurance allows us to contractually assume assets and liabilities associated with a certain book of business. In doing so, we contractually assume responsibility for only that portion of the business that we deem desirable, without assuming additional liabilities. The benefit of the block reinsurance structure was highlighted in the transaction with Voya, pursuant to which we reinsured $19 billion in fixed annuities without assuming any of Voya's variable annuities.

Investment Management

Investment activities are an integral part of our business and our net investment income is a significant component of our total revenues. Our investment philosophy is to invest a portion of our assets in securities that earn us incremental yield by taking liquidity risk and complexity risk and capitalizing on our long-dated and persistent liability profile to prudently achieve higher net investment earned rates, rather than assuming solely credit risk. Because we have remained disciplined in underwriting attractively priced liabilities, we have the ability to invest in a broad range of high quality assets to generate attractive earnings.

Item 1. Business

Our differentiated investment strategy benefits from our strategic relationship with Apollo and its indirect subsidiary, AAM. AAM provides a full suite of services for our investment portfolio, including direct investment management, asset allocation, mergers and acquisition asset diligence and certain operational support services, including investment compliance, tax, legal and risk management support. AAM provides portfolio management services for substantially all of our invested assets. As of December 31, 2018, of the total assets AAM managed, 82% were direct asset selection and 18% were indirect through sub-advising to Apollo and its affiliates, in order to access additional sourcing and underwriting capabilities. Substantially all of our assets subject to a sub-advisory arrangement are sub-advised by Apollo affiliates. AAM allocates portions of our asset portfolio to sub-advisors to manage based on market opportunities.

We are downside focused and our asset allocations reflect the results of stress testing. Additionally, we establish risk thresholds which in turn define risk tolerance across a wide range of factors, including credit risk, liquidity risk, concentration risk and caps on specific asset classes. We protect against rising interest rates, as our assets are generally shorter in effective duration than our liabilities, resulting in a risk profile that we believe could sustain substantial increases in interest rates over and above what is implied by current futures markets without sustaining net losses.

AAM's investment team and Apollo's credit portfolio managers employ their deep experience to assist us in sourcing and underwriting complex asset classes. AAM has selected a diverse array of corporate bonds and more structured, but highly rated, asset classes. We also maintain holdings in floating rate and less interest rate-sensitive investments, including collateralized loan obligations (CLO), non-agency residential mortgage-backed securities (RMBS) and various types of structured products. These asset classes permit us to earn incremental yield by assuming liquidity risk and complexity risk, rather than assuming solely credit risk.

In addition to our core fixed income portfolio, we opportunistically allocate 5–10% of our portfolio to alternative investments where we primarily focus on fixed income-like, cash flow-based investments. Our alternative investment strategy is inherently opportunistic rather than being derived from allocating a fixed percentage of assets to the asset class and the strategy is subject to internal concentration limits. Individual alternative investments are selected based on the investment's risk-reward profile, incremental effect on diversification and potential for attractive returns due to sector and/or market dislocations. We have a strong preference for alternative investments that have some or all of the following characteristics, among others: (1) investments that constitute a direct investment or an investment in a fund with a high degree of co-investment; (2) investments with credit- or debt-like characteristics (for example, a stipulated maturity and par value), or alternatively, investments with reduced volatility when compared to pure equity; or (3) investments that have less downside risk. In general, we target returns for alternative investments of 10% or higher on an internal rate of return basis over the expected lives of such investments.

Our asset portfolio is managed within the limits and constraints set forth in our Investment and Credit Risk Policy. Under this policy, we set limits on investments in our portfolio by asset class, such as corporate bonds, emerging markets securities, municipal bonds, non-agency RMBS, commercial mortgage-backed securities (CMBS), CLO, commercial mortgage whole loans and mezzanine loans and alternative investments. We also set credit risk limits for exposure to a single issuer that vary based on ratings. In addition, our asset portfolio is constrained by its scenario-based capital ratio limit and its stressed liquidity limit.

Outsourcing

With regard to our U.S. business, we outsource some portion or all of each of the following functions to third-party service providers:

- hosting of financial systems;
- service of existing policies;
- custody;
- policy administration;
- information technology development and maintenance;
- investment management; and
- call centers.

We closely manage our outsourcing partners and integrate their services into our operations. We believe that outsourcing such functions allows us to focus capital and our employees on our core business operations and perform higher utility functions, such as actuarial, product development and risk management. In addition, we believe an outsourcing model provides predictable pricing, service levels and volume capabilities and allows us to benefit from technological developments that enhance our customer self-service and sales processes that we would not otherwise be able to implement without reinvesting more of our own capital.

For our retail annuity business, all aspects of new business, including call centers and in-force administration is handled in-house. For some closed in-force blocks of business we partner with Alliance – One Services, Inc., Concentrix Insurance Administrative Solutions Corporation and Infosys McCamish Systems, LLC to provide policy administration services. For annuities issued in support of PRT transactions, we partner with Conduent Health Administration Inc. and Alight Administration Solutions LLC to provide administration services. For information technology services, we use some providers for managed services or supplemental labor, including Tata Consulting Services Limited and UST Global Inc., and for data center, infrastructure and related services we use a combination of OneNeck (a TDS company) for hosting and UST Global Inc. for managed services. For investment management services, we use AAM and Apollo. We believe we have a good relationship with our principal outsource service providers.

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Hedging Program and Derivatives

We use, and may continue to use, derivatives, including swaps, options, futures and forward contracts, and reinsurance contracts to hedge risks such as current or future changes in the fair value of our assets and liabilities, current or future changes in cash flows, changes in interest rates, equity markets, currency fluctuations and changes in longevity. Our hedging program is focused on hedging our economic risk exposures. See *Item 7A. Quantitative and Qualitative Disclosures About Market Risk* for additional information regarding the risks to which we are subject and the strategies that we employ to manage those risks.

Financial Strength Ratings

Financial strength and credit ratings directly affect our ability to access funding and the related cost of borrowing, the attractiveness of certain of our products to customers, our attractiveness as a reinsurer to potential ceding companies and requirements for derivatives collateral posting. Such ratings are periodically reviewed by the rating agencies.

Credit ratings represent the opinions of rating agencies regarding an entity's ability to repay its indebtedness. Financial strength ratings represent the opinions of rating agencies regarding the financial ability of an insurer or reinsurer to meet its obligations under an insurance policy or reinsurance arrangement and generally involve quantitative and qualitative evaluations by rating agencies of a company's financial condition and operating performance. Generally, rating agencies base their financial strength ratings upon information furnished to them by the respective company and upon their own investigations, studies and assumptions. Financial strength ratings are based upon factors of concern to policyholders, agents, intermediaries and ceding companies and are not directed toward the protection of investors. Credit and financial strength ratings are not recommendations to buy, sell or hold securities and they may be revised or revoked at any time at the sole discretion of the rating organization.

As of December 31, 2018, Fitch Ratings (Fitch), Standard & Poor's Rating Services (S&P) and A.M. Best had issued credit or financial strength ratings and outlook statements regarding us as follows:

Company	A.M. Best	S&P	Fitch
Athene Holding Ltd.			
Issuer Credit Rating/Counterparty Credit Rating/Issuer Default Rating	bbb	BBB+	BBB
Outlook	Stable	Stable	Positive
Athene Life Re Ltd.			
Financial Strength Rating	A	A	A-
Outlook	Stable	Stable	Positive
Athene Annuity & Life Assurance Company			
Financial Strength Rating	A	A	A-
Outlook	Stable	Stable	Positive
Athene Annuity & Life Assurance Company of New York			
Financial Strength Rating	A	A	A-
Outlook	Stable	Stable	Positive
Athene Annuity and Life Company			
Financial Strength Rating	A	A	A-
Outlook	Stable	Stable	Positive
Athene Life Insurance Company of New York			
Financial Strength Rating	A	Not Rated	Not Rated
Outlook	Stable	Not Rated	Not Rated

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Rating Agency	Financial Strength Rating Scale	Senior Unsecured Notes Credit Rating Scale
A.M. Best[1]	"A++" to "S"	"aaa" to "rs"
S&P[2]	"AAA" to "R"	"AAA" to "D"
Fitch[3]	"AAA" to "C"	"AAA" to "D"

[1] *A.M. Best's financial strength rating is an independent opinion of an insurer's or reinsurer's financial strength and ability to meet its ongoing insurance policy and contract obligations. It is based on a comprehensive quantitative and qualitative evaluation of a company's balance sheet strength, operating performance and business profile or, where appropriate, the specific nature and details of a security. The analysis may include comparisons to peers, industry standards and proprietary benchmarks as well as assessments of operating plans, philosophy, management, risk appetite and the implicit or explicit support of a parent or affiliate. A.M. Best's long-term credit ratings reflect its assessment of the ability of an obligor to pay interest and principal in accordance with the terms of the obligation. Ratings from "aa" to "ccc" may be enhanced with a "+" (plus) or "-" (minus) to indicate whether credit quality is near the top or bottom of a category. A.M. Best's short-term credit rating is an opinion as to the ability of the rated entity to meet its senior financial commitments on obligations maturing in generally less than one year.*

[2] *S&P's insurer financial strength rating is a forward-looking opinion about the financial security characteristics of an insurance organization with respect to its ability to pay under its insurance policies and contracts in accordance with their terms. Generic rating categories range from "AAA" to "D". A "+" or "-" indicates relative strength within a generic category. An S&P credit rating is an assessment of default risk, but may incorporate an assessment of relative seniority or ultimate recovery in the event of default. Short-term issuer credit ratings reflect the obligor's creditworthiness over a short-term time horizon.*

[3] *Fitch's financial strength ratings provide an assessment of the financial strength of an insurance organization. The National Insurer Financial Strength Rating is assigned to the insurance company's policyholder obligations, including assumed reinsurance obligations and policyholder obligations, such as guaranteed investment contracts. Within long-term and short-term ratings, a "+" or a "-" may be appended to a rating to denote relative status within major rating categories.*

In addition to the financial strength ratings, rating agencies use an outlook statement to indicate a medium or long-term trend which, if continued, may lead to a rating change. A positive outlook indicates a rating may be raised and a negative outlook indicates a rating may be lowered. A stable outlook is assigned when ratings are not likely to be changed. Outlooks should not be confused with expected stability of the issuer's financial or economic performance. A rating may have a stable outlook to indicate that the rating is not expected to change, but a stable outlook does not preclude a rating agency from changing a rating at any time without notice.

A.M. Best, S&P and Fitch review their ratings of insurance companies from time to time. There can be no assurance that any particular rating will continue for any given period of time or that it will not be changed or withdrawn entirely if, in the respective rating agency's judgment, circumstances so warrant. While the degree to which ratings adjustments will affect sales and persistency is unknown, we believe if our ratings were to be negatively adjusted for any reason, we could experience a material decline in the sales of our products and the persistency of our existing business. See *Item 1A. Risk Factors–Risks Relating to Our Business–A financial strength rating downgrade, potential downgrade or any other negative action by a rating agency could make our product offerings less attractive, inhibit our ability to acquire future business through acquisitions or reinsurance and increase our cost of capital, which could have a material adverse effect on our business* for further discussion about risks associated with financial strength ratings.

Competition

We operate in highly competitive markets. We face a variety of large and small industry participants, including diversified financial institutions and insurance and reinsurance companies. These companies compete in one form or another for the growing pool of retirement assets driven by a number of external factors such as the continued aging of the population and the reduction in safety nets provided by governments and private employers. As a result, scale and the ability to provide value-added services and build long-term relationships are important factors to compete effectively. See *Item 1A. Risk Factors–Risks Relating to Our Business–We operate in a highly competitive industry that includes a number of competitors, many of which are larger and more well-known than we are, which could limit our ability to achieve our growth strategies and could materially and adversely affect our business, financial condition, results of operations, cash flows and prospects* for further discussion on competitive risks. We believe that our leading presence in the retirement market, diverse range of capabilities and broad distribution network uniquely position us to effectively serve consumers' increasing demand for retirement solutions, particularly in the FIA market.

We face competition in the FIA market from traditional insurance carriers such as Allianz Life Insurance Company of North America (Allianz) and American Equity Investment Life Insurance Company. Principal competitive factors for FIAs are initial crediting rates, reputation for renewal crediting action, product features, brand recognition, customer service, cost, distribution capabilities and financial strength ratings of the provider. Competition may affect, among other matters, both business growth and the pricing of our products and services. See *Item 7.–Management's Discussion and Analysis of Financial Condition and Results of Operations–Industry Trends and Competition–Competition* for a discussion of our ranking and market share within the FIA market and the fixed annuity market more broadly.

Reinsurance markets are highly competitive, as well as cyclical by product and market. As a reinsurer, ALRe competes on the basis of many factors, including, among other things, financial strength, pricing and other terms and conditions of reinsurance agreements, reputation, service and experience in the types of business underwritten. The market impact of these and other factors related to reinsurance is generally not consistent across lines of business, domestic and international geographical areas and distribution channels. ALRe's competition includes other insurance and reinsurance companies, such as Reinsurance Group of America, Incorporated and Global Atlantic.

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We face strong competition within our institutional channel. With respect to funding agreements, namely those issued in connection with our FABN program, we compete with other insurers that have active FABN programs, such as MetLife, Inc. (MetLife) and American International Group, Inc. Within the funding agreement market, we compete primarily on the basis of perceived financial strength, interest rates and term. With respect to group annuities, we compete with other insurers that offer such annuities, such as MetLife and Prudential Financial, Inc. Within the PRT market, we compete primarily on the basis of price, underwriting and investment capabilities.

Finally, we face competition in the market for acquisition targets and profitable blocks of insurance. Such competition is likely to intensify as insurance businesses become more attractive acquisition targets for both other insurance companies and financial and other institutions and as the already substantial consolidation in the financial services industry continues. We believe that our demonstrated ability to source and consummate complex transactions is a competitive advantage over other similar acquirers. We also compete for potential acquisition and block reinsurance opportunities based on a number of factors including perceived financial strength, brand recognition, reputation and the pricing we are able to offer, which, to the extent we determine to finance a transaction, is in turn dependent on our ability to do so on suitable terms.

Employees

As of December 31, 2018, we had 1,275 employees located in Bermuda and the United States. We believe our employee relations are good. None of our employees located in Bermuda or the United States are subject to collective bargaining agreements and we are not aware of any current efforts to implement such agreements.

Regulation

Our U.S. insurance subsidiaries are licensed to transact insurance business in, and are subject to regulation and supervision by, all 50 states of the United States and the District of Columbia. ALRe and AARe, our Bermuda domiciled insurers, are subject to regulation and supervision by the Bermuda Monetary Authority (BMA) and compliance with all applicable Bermuda law and Bermuda insurance statutes and regulations, including but not limited to Bermuda's Insurance Act 1978 (Bermuda Insurance Act). Our U.S. insurance subsidiaries are licensed, regulated and supervised in all jurisdictions where they conduct insurance business. The extent of such regulation varies, however. Most jurisdictions have regulations and laws that require insurers and agents to be licensed and set standards of solvency and business conduct to be maintained by the insurer. Additionally, state statutes and regulations often require state approval of policy forms, policy language, rates and in some instances, marketing materials. Most states' statutes and regulations prescribe permitted types and concentrations of investments. Our U.S. insurance subsidiaries are required to file detailed annual financial statements with supervisory agencies in each of the jurisdictions in which they transact an insurance business.

United States

General

Each of our U.S. insurance subsidiaries, with the exception of Athene Re USA IV, Inc. (Athene Re IV) discussed further below, is organized and domiciled in one of the following states: Delaware, Iowa, or New York (each, an Athene Domiciliary State) and is also licensed in such state as an insurer. The insurance department of each Athene Domiciliary State regulates the applicable U.S. insurance subsidiary, and each U.S. insurance subsidiary is regulated by each of the insurance regulators in the other states where such company is authorized to transact insurance business. The primary purpose of such regulatory supervision is to protect policyholders rather than holders of any securities, such as the AHL common shares. Generally, insurance products underwritten by our U.S. insurance subsidiaries must be approved by the insurance regulators in each state in which they are sold.

As part of our acquisition of Aviva USA, we acquired a special-purpose insurance company, Athene Re IV, which is a subsidiary of Athene Annuity and Life Company (AAIA). Athene Re IV is domiciled in Vermont and provides reinsurance to AAIA in order to facilitate the reserve financing associated with a closed block of policies resulting from the demutualization of a prior insurance company currently part of AAIA. As part of the acquisition of AAIA, the liabilities associated with such closed block of insurance policies, including any exposure to payments due from such special-purpose insurance company subsidiary, were reinsured to Accordia. We do not write business that requires the use of captive reinsurers.

State insurance authorities have broad administrative powers over our U.S. insurance subsidiaries with respect to all aspects of their insurance business including: (1) licensing to transact business; (2) licensing of producers; (3) prescribing which assets and liabilities are to be considered in determining statutory surplus; (4) regulating premium rates for certain insurance products; (5) approving policy forms and certain related materials; (6) determining whether a reasonable basis exists as to the suitability of the annuity purchase recommendations producers make; (7) regulating unfair trade and claims practices; (8) establishing reserve requirements, solvency standards and minimum capital requirements (MCR); (9) regulating the amount of dividends that may be paid in any year; (10) regulating the availability of reinsurance or other substitute financing solutions, the terms thereof and the ability of an insurer to take credit on its financial statements for insurance ceded to reinsurers or other substitute financing solutions; (11) fixing maximum interest rates on life insurance policy loans, minimum crediting rates on accumulation products and minimum allowable surrender values; (12) regulating the type, amounts and valuations of investments permitted; (13) setting parameters for transactions with affiliates; and (14) regulating other matters.

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The rates, forms, terms and conditions of our U.S. insurance subsidiaries' reinsurance agreements with unaffiliated third parties generally are not directly subject to regulation by any state insurance department in the United States. This contrasts with primary insurance where, as discussed above, the policy forms and premium rates are generally regulated by state insurance departments.

From time to time, increased scrutiny has been placed upon the U.S. insurance regulatory framework, and a number of state legislatures have considered or enacted legislative measures that alter, and in many cases increase, state authority to regulate insurance and reinsurance companies. In addition to legislative initiatives of this type, the National Association of Insurance Commissioners (NAIC) and state insurance regulators are regularly involved in a process of reexamining existing laws and regulations and their application to insurance and reinsurance companies.

Furthermore, while the federal government in most contexts currently does not directly regulate the insurance business, federal legislation and administrative policies in a number of areas, such as employee benefits regulation, age, sex and disability-based discrimination, financial services regulation and federal taxation, can significantly affect the insurance business. It is not possible to predict the future impact of changing regulation on our operations. See *Item 1A. Risk Factors–Risks Relating to Insurance and Other Regulatory Matters*.

NAIC

The NAIC is an organization, the mandate of which is to benefit state insurance regulatory authorities and consumers by promulgating model insurance laws and regulations for adoption by the states. The NAIC also provides standardized insurance industry accounting and reporting guidance through the NAIC Accounting Manual. However, model insurance laws and regulations are only effective when adopted by the states, and statutory accounting and reporting principles continue to be established by individual state laws, regulations and permitted practices. Changes to the NAIC Accounting Manual or modifications by the various state insurance departments may affect the statutory capital and surplus of our U.S. insurance subsidiaries.

Some of the NAIC pronouncements, particularly as they affect accounting issues, take effect automatically in the various states without affirmative action by the states. Statutes, regulations and interpretations may be applied with retroactive impact, particularly in areas such as accounting and reserve requirements. Also, regulatory actions with prospective impact can potentially have a significant impact on products that we currently sell. The NAIC continues to work to reform state regulation in various areas, including comprehensive reforms relating to life insurance reserves.

In December 2012, the NAIC approved a new valuation manual containing a principle-based approach to life insurance company reserves. Principle-based reserving is designed to tailor the reserving process to specific products in an effort to create a principle-based modeling approach to reserving rather than the factor-based approach historically employed. Pursuant to the NAIC's Standard Valuation Law (SVL) principle-based reserving became effective prospectively on January 1, 2017. Delaware and Iowa have each adopted a form of the SVL. New York has also passed legislation to adopt principle-based reserving, which will become effective on January 1, 2020. On December 7, 2018, the New York State Department of Financial Services (NYSDFS) issued an emergency regulation to begin the implementation of principle-based reserving for life insurers.

Restrictions on Dividends and Other Distributions

Current law of two of the Athene Domiciliary States, Delaware and Iowa, permits the payment of dividends or distributions which, together with dividends or distributions paid during the preceding twelve months do not exceed the greater of (a) 10% of the insurer's surplus as regards policyholders as of the immediately preceding year end or (b) the net gain from operations of the insurer for the preceding twelve-month period ending as of the immediately preceding year end. Current law of New York permits the payment of dividends or distributions which, together with dividends or distributions paid during any calendar year, (1) is out of earned surplus and does not exceed the greater of (a) 10% of the insurer's surplus as regards policyholders as of the end of the immediately preceding calendar year or (b) the net gain from operations of the insurer for the immediately preceding calendar year, not including realized capital gains, not to exceed 30% of the insurer's surplus as regards policyholders as of the end of the immediately preceding calendar year or (2) do not exceed the lesser of (a) 10% of the insurer's surplus as regards policyholders as of the end of the immediately preceding calendar year or (b) the net gain from operations of the insurer for the immediately preceding calendar year, not including realized capital gains. Any proposed dividend in excess of these amounts is considered an extraordinary dividend or extraordinary distribution and may not be paid until it has been approved, or a 30-day waiting period has passed during which it has not been disapproved, by the Commissioner. Additionally, under current law of the Athene Domiciliary States, AAIA may only pay dividends from the insurer's earned profits on its business, which shall not include contributed capital or contributed surplus, and AADE may only pay dividends from that part of its available and accumulated surplus funds which is derived from realized net operating profits on its business and realized capital gains, and ALICNY may only pay dividends pursuant to the "greater of" standard described above from that part of its positive unassigned funds, excluding 85% of the change in net unrealized capital gains or losses less capital gains tax, for the immediately preceding calendar year. The Athene Domiciliary States' insurance laws and regulations also require that each of our U.S. insurance subsidiaries' surplus as regards policyholders following any dividend or distribution be reasonable in relation to such U.S. insurance subsidiary's outstanding liabilities and adequate to meet its financial needs.

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Credit for Reinsurance Ceded

The ability of a ceding insurer to take reserve and capital credit for the reinsurance purchased from reinsurance companies is a significant component of reinsurance regulation. Typically, a ceding insurer will only enter into a reinsurance agreement if it can obtain credit on its statutory basis financial statements against its reserves (report lower net reserves) and/or toward its MCR (the denominator in its risk-based capital (RBC) calculation) for the reinsurance ceded to the reinsurer. With respect to U.S.-domiciled ceding companies, credit is usually granted when the reinsurer is licensed or accredited in the state where the ceding company is domiciled. States also generally permit ceding insurers to take credit for reinsurance if the reinsurer: (1) is domiciled in a state with a credit for reinsurance law that is substantially similar to the credit for reinsurance law in the ceding insurer's state of domicile, and (2) meets certain financial requirements. Credit for reinsurance purchased from a reinsurer that does not meet the foregoing conditions is generally allowed to the extent that such reinsurer secures its obligations with qualified collateral.

AARe has provided, and may in the future provide, reinsurance to our U.S. insurance subsidiaries in the normal course of business. AAIA has entered into a funds withheld coinsurance agreement with AARe under which it will cede to AARe a 100% quota share of its respective obligations to repay the principal upon maturity or earlier termination and to make periodic interest payments under funding agreements issued by it. AADE has entered into a similar arrangement on a modco basis with ALRe, subject in certain cases to amounts retained by AADE and/or periodic payments based on reserve levels. Our U.S. insurance subsidiaries have similar arrangements with AARe with respect to substantially all of their other core business, under which between 80% and 100% of all such business is ceded to AARe on a modco basis, net of third party reinsurance. Our Bermuda Reinsurance Subsidiaries are not licensed, accredited or approved in any state in the U.S. and, consequently, must each collateralize its obligations to our U.S. insurance subsidiaries or any third-party cedant in order for any of our U.S. insurance subsidiaries or any third-party cedant to obtain credit against its reserves on its statutory basis financial statements (unless the basis for such reinsurance transaction is modco). AARe and ALRe are both domiciled in Bermuda, which has a regulatory regime deemed to be equivalent to the European Union (EU) Solvency II.

The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act) provides that only the state in which a ceding insurer is domiciled may regulate the financial statement credit for reinsurance taken by that ceding insurer; other states are no longer able to require additional collateral from unauthorized reinsurers or otherwise impose their own credit for reinsurance laws on ceding insurers that are licensed, but not domiciled, in such other states.

Under the amended Credit for Reinsurance Model Law and Regulation, collateral requirements may be reduced from 100% for unauthorized or non-accredited reinsurers meeting certain criteria as to financial strength and reliability that are domiciled in jurisdictions that are found to have strong systems of insurance regulation (each, a "Qualified Jurisdiction"). Pursuant to the Credit for Reinsurance Model Law and Regulation reinsurers are eligible to apply for "certified reinsurer" status and certified reinsurers are permitted to post collateral at reduced levels in the respective state. Delaware and Iowa have adopted the reduced collateral requirements under the Credit for Reinsurance Model Law and Regulation, and New York has adopted the reduced collateral requirements under a predecessor statute.

Bermuda has been approved as a "Qualified Jurisdiction" with respect to certain classes of insurers, including Class E insurers such as our Bermuda Reinsurance Subsidiaries. The recognition of Bermuda as a Qualified Jurisdiction permits our Bermuda Reinsurance Subsidiaries to apply for "certified reinsurer" status with the ability (if so certified) to post reduced collateral for coverage provided by our Bermuda Reinsurance Subsidiaries to ceding insurers in the United States (including our U.S. insurance subsidiaries). The amount of collateral required to be posted by an insurer with this designation varies based upon the insurers' credit rating. ALRe has been approved by the Delaware Department of Insurance as a certified reinsurer and is therefore eligible to post reduced collateral equal to 50% of statutory reserves ceded under coinsurance agreements with ceding companies domiciled in the state of Delaware, including AADE, with respect to new reinsurance agreements. ALRe has not been approved as a certified reinsurer in any other jurisdiction.

Statutory Investment Valuation Reserves

Life insurance companies domiciled in the U.S. are required to establish an asset valuation reserve (AVR) to stabilize statutory policyholder surplus from fluctuations in the market value of investments. The AVR consists of two components: (1) a "default component" for possible credit-related losses on fixed maturity investments and (2) an "equity component" for possible market-value losses on all types of equity investments, including real estate-related investments. Although future additions to the AVR will reduce the future statutory capital and surplus of our U.S. insurance subsidiaries, we do not believe that the impact under current regulations of such reserve requirements will materially affect our U.S. insurance subsidiaries. Insurers domiciled in the U.S. also are required to establish an interest maintenance reserve (IMR) for net realized capital gains and losses, net of tax, on fixed maturity investments where such gains and losses are attributable to changes in interest rates, as opposed to credit-related causes. The IMR provides a buffer to our statutory capital and surplus in the event we have to sell securities in an unrealized loss position. The IMR is required to be amortized into statutory earnings on a basis reflecting the remaining period to maturity of the fixed maturity securities. These reserves are required by state insurance regulatory authorities to be established as liabilities on a life insurer's statutory financial statements and may also be included in the liabilities assumed by our U.S. insurance subsidiaries pursuant to their reinsurance agreements with U.S.-based life insurer ceding companies.

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Policy and Contract Reserve Adequacy Analysis

The Athene Domiciliary States and other states have adopted laws and regulations with respect to policy and contract reserve sufficiency. Under applicable insurance laws, our U.S. insurance subsidiaries are each required to annually conduct an analysis of the adequacy of all life insurance and annuity statutory reserves. A qualified actuary appointed by each such subsidiary's board must submit an opinion annually for each such subsidiary which states that the statutory reserves make adequate provision, according to accepted actuarial standards of practice, for the anticipated cash flows resulting from the contractual obligations and related expenses of such subsidiary. The adequacy of the statutory reserves is considered in light of the assets held by such U.S. insurance subsidiary with respect to such reserves and related actuarial items, including, but not limited to, the investment earnings on such assets and the consideration anticipated to be received and retained under the related policies and contracts. At a minimum, such testing is done over a number of economic scenarios prescribed by the states, with the scenarios designed to stress anticipated cash flows for higher and/or lower future levels of interest rates. Our U.S. insurance subsidiaries may find it necessary to increase reserves, which may decrease their statutory surplus, in order to pass additional cash flow testing requirements.

U.S. Statutory Reports and Regulatory Examinations

Our U.S. insurance subsidiaries are required to file detailed annual reports, including financial statements, in accordance with prescribed statutory accounting rules, with regulatory officials in the jurisdictions in which they conduct business. In addition, each U.S. insurance subsidiary is required to file quarterly reports prepared on the same basis, though with considerably less detail.

As part of their routine regulatory oversight process, state insurance departments conduct periodic detailed examinations, generally once every three to five years, of the books, records, accounts and operations of insurance companies that are domiciled in their states. Examinations are generally carried out in cooperation with the insurance departments of other, non-domiciliary states under guidelines promulgated by the NAIC. We are currently undergoing such an examination for the period from January 1, 2014 through December 31, 2017. This exam is being led by the Delaware Department of Insurance in coordination with the Iowa Insurance Division and the NYSDFS. In connection with the exam, the Delaware Department of Insurance is conducting an exam of AADE and Athene Life Insurance Company (ALIC), the Iowa Insurance Division is conducting an exam of AAIA and Structured Annuity Reinsurance Company (STAR), and the NYSDFS is conducting an exam of Athene Annuity & Life Assurance Company of New York (AANY) and ALICNY. The exam began on April 1, 2018 and is expected to be completed by July 1, 2019.

Vermont insurance laws and regulations applicable to Athene Re IV require it to file financial statements with the Commissioner of the Insurance Division of the Vermont Department of Financial Regulation. Additionally, Athene Re IV is subject to periodic financial examinations by the Insurance Division of the Vermont Department of Financial Regulation.

Market Conduct Regulation

State insurance laws and regulations include numerous provisions governing the marketplace activities of insurers, including provisions governing claims settlement practices, the form and content of disclosure to consumers, illustrations, advertising, sales and complaint process practices. State regulatory authorities generally enforce these provisions through periodic market conduct examinations. In addition, our U.S. insurance subsidiaries must file, and in many jurisdictions and for some lines of business obtain regulatory approval for, rates and forms relating to the insurance written in the jurisdictions in which they operate. Our U.S. insurance subsidiaries are currently undergoing the following market conduct examinations, each in the ordinary course of business: (1) the Missouri Department of Insurance, Financial Institutions & Professional Registration is conducting a market conduct examination of AAIA, (2) the NYSDFS is conducting a market conduct examination of AANY, (3) the Iowa Insurance Division is conducting a market conduct examination of AAIA, (4) the Maryland Insurance Administration is conducting a market conduct examination of AAIA, and (5) the Minnesota Department of Commerce is conducting a market conduct examination of AAIA and AADE. The California Department of Insurance is completing a review of the rating and underwriting practices of AAIA, AADE and AANY and the Massachusetts Division of Insurance is completing a limited scope market analysis of AAIA and AADE.

Capital Requirements

Regulators of each state have discretionary authority in connection with our U.S. insurance subsidiaries' continued licensing to limit or prohibit sales to policyholders within their respective states if, in their judgment, the regulators determine that such entities have not maintained the required level of minimum surplus or capital or that the further transaction of business would be hazardous to policyholders.

In order to enhance the regulation of insurers' solvency, the NAIC adopted a model law to implement RBC requirements for life, health and property and casualty insurance and reinsurance companies. All states have adopted the NAIC's model law or a substantively similar law. The NAIC Risk-Based Capital for Insurers Model Act requires life insurance companies to submit an annual report (the Risk-Based Capital Report), which compares an insurer's total adjusted capital (TAC) to its authorized control level RBC (ACL), each such term as defined pursuant to applicable state law. A company's RBC is calculated by using a specified formula that applies factors to various risks inherent in the insurer's operations, including risks attributable to its assets, underwriting experience, interest rates and other business expenses. The factors are higher for those items deemed to have greater underlying risk and lower for items deemed to have less underlying risk. Statutory RBC is measured on two bases, ACL and company action level RBC (CAL), with ACL calculated as one-half of CAL. Regulators typically use ACL in assessing companies and reviewing solvency requirements. Companies themselves typically report and are compared using the CAL standard.

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The Risk-Based Capital Report is used by regulators to set in motion appropriate regulatory actions relating to insurers that show indications of weak or deteriorating conditions. RBC is an additional standard for MCR that insurers must meet to avoid being placed in rehabilitation or liquidation by regulators. The annual Risk-Based Capital Report, and the information contained therein, is not intended by the NAIC as a means to rank insurers.

RBC is a method of measuring the level of capital appropriate for an insurance company to support its overall business operations, in light of its size and risk profile. It provides a means of assessing capital adequacy, where the degree of risk taken by the insurer is the primary determinant. The value of an insurer's TAC in relation to its RBC, together with its trend in its TAC, is used as a basis for determining regulatory action that a state insurance regulator may be authorized or required to take with respect to an insurer. The four action levels include:

- CAL: The insurer is required to submit a plan for corrective action when its TAC is equal to or less than 200% of ACL;
- Regulatory Action Level: The insurer is required to submit a plan for corrective action and is subject to examination, analysis and specific corrective action when its TAC is equal to or less than 150% of ACL;
- ACL: Regulators may place the insurer under regulatory control when its TAC is equal to or less than 100% of ACL; and
- Mandatory Control Level: Regulators are required to place the insurer under regulatory control when its TAC is equal to or less than 70% of ACL.

TAC and RBC are calculated annually by insurers, as of December 31 of each year. As of December 31, 2018, each of our U.S. insurance subsidiaries' TAC was significantly in excess of the levels that would prompt regulatory action under the laws of the Athene Domiciliary States. As of December 31, 2018, the CAL RBC ratio of AADE (U.S. RBC ratio) was 421%. The calculation of RBC requires certain judgments to be made, and, accordingly, our U.S. insurance subsidiaries' current RBC may be greater or less than the RBC calculated as of any date of determination.

Insurance Regulatory Information System Ratios

The NAIC has established the Insurance Regulatory Information System (IRIS) to assist state insurance departments in their oversight of the financial condition of insurance companies operating in their respective states. IRIS is a series of financial ratios calculated by the NAIC based on financial information submitted by insurers on an annual basis. Each ratio has an established "usual range" of results. The NAIC shares the IRIS ratios calculated for each insurer with the interested state insurance departments. Generally, an insurance company will be required to explain ratios that fall outside the usual range, and may be subject to regulatory scrutiny and action if one or more of its ratios fall outside the specified ranges. None of our U.S. insurance subsidiaries are currently subject to non-ordinary course regulatory scrutiny based on their IRIS ratios.

Regulation of Investments

Each of our U.S. insurance subsidiaries is subject to laws and regulations in each Athene Domiciliary State that require diversification of its investment portfolio and limit the amounts of investments in certain asset categories, such as below-investment grade fixed income securities, real estate-related equity, partnerships, other equity investments, derivatives and alternative investments. Failure to comply with these laws and regulations would cause investments exceeding regulatory limitations to be treated as non-admitted assets for purposes of measuring statutory surplus and, in some instances, could require the divestiture of such non-qualifying investments. Accordingly, the investment laws in the Athene Domiciliary States could prevent our U.S. insurance subsidiaries from pursuing investment opportunities which they believe are beneficial to their shareholders, which could in turn preclude Athene from realizing its investment objectives.

Guaranty Associations

All 50 states and the District of Columbia have insurance guaranty fund laws requiring insurance companies doing business within those jurisdictions to participate in guaranty associations. Guaranty associations are organized to cover, subject to limits, contractual obligations under insurance policies issued by life insurance companies which later become impaired or insolvent. These associations levy assessments, up to prescribed limits, on each member insurer doing business in a particular state on the basis of their proportionate share of the premiums written by all member insurers in the lines of business in which the impaired or insolvent insurer previously engaged. Most states limit assessments in any year to 2% of the insurer's average annual premium for the three years preceding the calendar year in which the impaired insurer became impaired or insolvent. Some states permit member insurers to recover assessments paid through full or partial premium tax offsets, usually over a period of years. Assessments levied against our U.S. insurance subsidiaries by guaranty associations during the year ended December 31, 2018 were not material. While we cannot accurately predict the amount of future assessments or future insolvencies of competitors which would lead to such assessments, we believe that assessments with respect to pending insurance company impairments and insolvencies will not have a material effect on our financial condition, results of operations or cash flows.

Item 1. Business

Federal Oversight

Although the insurance business in the United States is primarily regulated by the states, federal initiatives can affect the businesses of our U.S. insurance subsidiaries in a variety of ways. From time to time, federal measures are proposed which may significantly affect the insurance business. These areas include financial services regulation, securities regulation, derivatives regulation, pension regulation, money laundering, privacy regulation, taxation and the economic and trade sanctions implemented by the Office of Foreign Assets Control (OFAC). OFAC maintains and enforces economic sanctions against certain foreign countries and groups and prohibits U.S. persons from engaging in certain transactions with certain persons or entities. OFAC has imposed civil penalties on persons, including insurance and reinsurance companies, arising from violations of its economic sanctions program. In addition, various forms of direct and indirect federal regulation of insurance have been proposed from time to time, including proposals for the establishment of an optional federal charter for insurance companies.

Title I of the Dodd-Frank Act established the Financial Stability Oversight Council (FSOC) and authorized the FSOC to designate non-bank financial companies as systemically important financial institutions (SIFIs), thereby subjecting them to enhanced prudential standards and supervision by the Board of Governors of the Federal Reserve System (Federal Reserve). The prudential standards for non-bank SIFIs include enhanced RBC requirements, leverage limits, liquidity requirements, single counterparty exposure limits, governance requirements for risk management, stress test requirements, special debt-to-equity limits for certain companies, early remediation procedures, and recovery and resolution planning. On April 21, 2017, the President of the United States issued an executive memorandum (Executive Memorandum) to the Secretary of the U.S. Department of the Treasury (Treasury Department), directing the Secretary of the Treasury Department to conduct a review of, and report to the President regarding, FSOC processes and imposing a temporary moratorium on non-emergency SIFI determinations and designations pending completion of such review and receipt of such report. The requested report, which the Treasury Department published on November 17, 2017, recommends significant changes to the FSOC processes for making SIFI determinations and designations. The Economic Growth, Regulatory Relief and Consumer Protection Act, which became effective May 24, 2018, made limited changes to Title I of the Dodd-Frank Act but did not make many of the changes recommended in the Treasury Department's report. As a result, there is considerable uncertainty as to the future of federal regulation of non-bank SIFIs. If the FSOC were to determine that Athene USA Corporation (Athene USA) or any of our U.S. subsidiaries is a non-bank SIFI, such entity would become subject to certain of these enhanced prudential standards.

The Dodd-Frank Act, which effected the most far-reaching overhaul of financial regulation in the U.S. in decades, established the Federal Insurance Office within the Treasury Department. While currently not having a general supervisory or regulatory authority over the business of insurance, the Director of the Federal Insurance Office performs various functions with respect to insurance, including serving as a non-voting member of the FSOC and making recommendations to the FSOC regarding non-bank financial companies to be designated as SIFIs.

The Dodd-Frank Act also authorizes the Federal Insurance Office to assist the Secretary of the Treasury Department in negotiating covered agreements. A covered agreement is an agreement between the United States and one or more foreign governments, authorities or regulatory entities, regarding prudential measures with respect to insurance or reinsurance. The Federal Insurance Office is further charged with determining, in accordance with the procedures and standards established under the Dodd-Frank Act, whether state laws are preempted by a covered agreement. Pursuant to this authority, in September 2017, the U.S. and the EU signed a covered agreement to address, among other things, reinsurance collateral requirements (EU Covered Agreement). In addition, on December 11, 2018, the Treasury Department and the Office of the U.S. Trade Representative announced their intent to sign a Bilateral Agreement between the U.S. and the UK on Prudential Measures Regarding Insurance and Reinsurance in anticipation of the UK's exit from the EU in March 2019 (UK Covered Agreement). The UK Covered Agreement is subject to a 90-day notification period to the U.S. Congress before it can be signed and come into effect. U.S. state regulators have 60 months, or five years, to adopt reinsurance reforms removing reinsurance collateral requirements for EU and UK reinsurers that meet the prescribed minimum conditions set forth in the applicable EU Covered Agreement or UK Covered Agreement or else state laws imposing such reinsurance collateral requirements may be subject to federal preemption. The NAIC is currently working to adopt amendments to the Credit for Reinsurance Model Law and Regulation to conform to the requirements of the EU Covered Agreement and UK Covered Agreement. The reinsurance collateral provisions of the EU Covered Agreement and the UK Covered Agreement may increase competition, in particular with respect to pricing for reinsurance transactions, by lowering the cost at which competitors of ALRe are able to provide reinsurance to U.S. insurers. We cannot predict with any certainty what impact the EU Covered Agreement or UK Covered Agreement will have on our business, whether either agreement will be implemented or what the impact of such implementation will be on our business.

FIAs

In recent years, the United States Securities and Exchange Commission (SEC) and state securities regulators have questioned whether FIAs, such as those sold by our U.S. insurance subsidiaries, should be treated as securities under the federal and state securities laws rather than as insurance products exempted from such laws. On December 17, 2008, the SEC voted to approve Rule 151A, and apply federal securities oversight to FIAs issued on or after January 12, 2011. On July 12, 2010, the District of Columbia Circuit Court of Appeals vacated Rule 151A. Under the Dodd-Frank Act, annuities that meet specific requirements are specifically exempted from being treated as securities by the SEC. We expect that the types of FIAs our U.S. insurance subsidiaries currently sell will meet applicable requirements for exemption from treatment as securities and therefore will remain exempt from being treated as securities by the SEC and state securities regulators. However, there can be no assurance that federal or state securities laws or state insurance laws and regulations will not be amended or interpreted to impose further requirements on FIAs. Treatment of these products as securities would require additional registration and licensing of these products and the agents selling them, as well as cause our U.S. insurance subsidiaries to seek new or additional marketing relationships for these products, any of which may impose significant restrictions on their ability to conduct business as currently operated.

Item 1. Business

Unclaimed Property Laws

Each of our U.S. insurance subsidiaries is subject to the laws and regulations of states and other jurisdictions concerning the identification, reporting and escheatment of abandoned or unclaimed money or property. State treasurers, controllers and revenue departments have been scrutinizing escheatment practices of life insurance companies with regard to unclaimed life insurance and annuity death benefits. As with state insurance regulators, state revenue authorities have been looking at how life insurance companies handle unreported deaths, maturity of life insurance and annuity contracts, and contracts that have exceeded limiting age to determine if the companies are appropriately determining when death benefits or other payments under the contracts should be treated as unclaimed property. State treasurers, controllers and revenue departments have audited life insurance companies, required escheatments and imposed interest penalties on amounts escheated for failure to escheat death benefits or other contract benefits when beneficiaries could not be found at the expiration of statutory dormancy periods.

Several states have enacted new laws or adopted new regulations mandating the use by insurance companies of the U.S. Social Security Administration's Social Security Death Index (Death Master File) or other similar databases to identify deceased persons and to implement more rigorous processes to find beneficiaries. In 2013, prior to our acquisition of Aviva USA, it entered into multi-state settlement agreements with the insurance regulators and treasurers for 48 states in connection with certain of its subsidiaries' use of the Death Master File. As part of the settlement, AAIA and its subsidiary ALICNY agreed to pay a $4 million assessment for examination, compliance and monitoring costs without admitting any liability or wrongdoing, and further agreed to adopt policies and procedures reasonably designed to ensure timely payment of valid claims to beneficiaries in accordance with insurance laws and to timely report and remit unclaimed proceeds to the appropriate states in connection with unpaid property laws. Our U.S. insurance subsidiaries could continue to be subject to risks related to unpaid benefits, the Death Master File, and the procedures required by the prior multi-state settlement as they relate to our annuity business. Furthermore, administrative challenges associated with implementing the procedures described above may make compliance with the multi-state settlement and applicable law difficult and could have a material and adverse effect on our results of operations.

AADE is currently undergoing a multi-state unclaimed property examination led by Verus Financial, on behalf of California, Florida, Georgia, Indiana, Louisiana, North Carolina, Ohio, Pennsylvania, Tennessee and Texas. AADE is also a defendant in a lawsuit filed by the West Virginia Treasurer, State of West Virginia ex rel. John D. Perdue v. Liberty Life Ins. Co., Case No. 12-C-419, pursuant to which the Treasurer alleges that Liberty Life, now known as AADE, failed to adopt reasonable procedures, such as using the Death Master File, to identify deceased insureds with unpaid death benefits and timely escheat those unclaimed benefits to the state. The Treasurer accordingly seeks to recover unpaid death benefits, statutory interest and penalties. We do not expect that these matters will have a material adverse effect on our business, financial condition, results of operations or cash flows.

Regulation of OTC Derivatives

We use derivatives to mitigate a wide range of risks in connection with our businesses, including options purchased to hedge the derivatives embedded in the FIAs that we have issued, and swaps, futures and/or options may be used to manage the impact of increased benefit exposures from our annuity products that offer guaranteed benefits. Title VII of the Dodd-Frank Act creates a comprehensive framework for the federal oversight and regulation of the OTC derivatives market and entities, such as us, that participate in the market and requires U.S. regulators to promulgate rules and regulations implementing its provisions. Regulations have been finalized and implemented in many areas and are being finalized for implementation in others.

The Dodd-Frank Act divides the regulatory responsibility for swaps in the United States between the SEC and the Commodity Futures Trading Commission (CFTC). The CFTC regulates swaps and swap entities, and the SEC regulates security-based swaps and security-based swap entities. The CFTC and the SEC have jointly finalized certain regulations under the Dodd-Frank Act, including critical rulemakings on the definitions of "swap," "security-based swap," "swap dealer," "security-based swap dealer," "major swap participant" and "major security-based swap participant." In addition, the CFTC has substantially finalized its required rulemaking under the Dodd-Frank Act, including regulations relating to the registration and regulation of swap dealers, major swap participants and swap execution facilities, reporting, recordkeeping, mandatory clearing, mandatory on-facility trade execution and mandatory minimum margin requirements. The SEC has yet to implement its regulatory regime for security-based swaps and market participants transacting in security-based swaps, including security-based swap dealers and major security-based swap participants subject to the SEC's oversight. As a result of this bifurcation and the different pace at which the agencies have promulgated and implemented regulations, different transactions are subject to different levels of regulation.

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The Dodd-Frank Act and the CFTC rules thereunder require us, in connection with certain swap transactions, to comply with mandatory clearing and on-facility trade execution requirements, and it is anticipated that the types of swaps subject to these requirements will be expanded over time. In addition, regulations promulgated under the Dodd-Frank Act require us to comply with mandatory minimum margin requirements for uncleared swaps and, in some instances, uncleared security-based swaps. Derivative clearing requirements and mandatory margin requirements could increase the cost of our risk mitigation and could have other implications. For example, increased margin requirements, combined with netting restrictions and restrictions on securities that qualify as eligible collateral, could reduce our liquidity and require increased holdings of cash and highly liquid securities with lower yields causing a reduction in income. In addition, the requirement that certain trades be centrally cleared through clearinghouses subjects us to documentation that is significantly more counterparty-favorable and may entitle counterparties to unilaterally change terms such as trading limits and the amount of margin required. The ability of any such counterparty to take such actions could create trading disruptions and liquidity concerns. Finally, the requirement that certain trades be centrally cleared through clearinghouses concentrates counterparty risk in both clearinghouses and clearing members. The failure of a clearinghouse could have a significant impact on the financial system. Even if a clearinghouse does not fail, large losses could force significant capital calls on clearinghouse members during a financial crisis, which could lead clearinghouse members to default. Because clearinghouses are still developing and the related bankruptcy process is untested, it is difficult to anticipate or identify all risks related to the default of a clearinghouse.

The Dodd-Frank Act and new regulations thereunder and similar regulations issued by non-U.S. jurisdictions that may indirectly apply to us could significantly increase the cost of derivative contracts, reduce the availability of derivatives to protect against risks we encounter, reduce our ability to monetize or restructure our existing derivative contracts, and increase our credit risk exposure. If we reduce our use of derivatives as a result of the Dodd-Frank Act and the regulations thereunder and other similar regulations, our results of operations may become more volatile and our cash flows may be less predictable which could adversely affect our financial performance. Additionally, we have always been subject to the risk that hedging and other management procedures might prove ineffective in reducing the risks to which insurance policies expose us or that unanticipated policyholder behavior or mortality, combined with adverse market events, could produce economic losses beyond the scope of the risk management techniques employed. Any such losses could be increased by the increased cost of entering into derivatives and the reduced availability of customized derivatives that might result from the implementation of the Dodd-Frank Act.

Notwithstanding the foregoing, the long-term future of Title VII of the Dodd-Frank Act and the related regulations implemented by the CFTC and the SEC and their impact on us remain uncertain and unpredictable, particularly in light of actions taken by the federal government. Two executive orders were issued in 2017 that established core principles for regulating the U.S. financial system and provided a framework for comprehensive change to current financial regulation. Additionally, the executive orders required federal agencies to designate a “Regulatory Reform Officer” and a “Regulatory Reform Task Force” to evaluate existing regulations and make recommendations to repeal, replace or modify regulations that, among others, inhibit job creation, are ineffective or impose costs that exceed benefits. In response to these executive orders, the CFTC announced its project to simplify and modernize the CFTC’s rules and regulations regarding derivatives within its jurisdiction. The CFTC has published various white papers that identify areas for regulatory streamlining and clarity and has indicated that staff is working on regulatory revisions to existing rules. While the CFTC has published some final rules reflecting regulatory revisions, it is anticipated that further regulatory revisions will continue to be forthcoming from the CFTC as a result of the on-going project. We cannot predict the impact of the executive orders on Title VII of the Dodd-Frank Act, derivatives regulatory schemes in other jurisdictions and our derivatives activities.

Consumer Protection Laws and Privacy and Data Security Regulation

Numerous other federal and state laws also affect our operations, including federal and state consumer protection laws. As part of the Dodd-Frank Act, Congress established the Consumer Financial Protection Bureau (CFPB) to supervise and regulate institutions that provide certain financial products and services to consumers. Although the consumer financial services subject to the CFPB’s jurisdiction generally exclude insurance business of the kind in which our U.S. insurance subsidiaries engage, the CFPB does have authority to regulate non-insurance consumer services which are offered by issuers of securities in our U.S. insurance subsidiaries’ investment portfolio.

Federal and state laws and regulations require financial institutions, including insurers, to protect the security and confidentiality of nonpublic personal information, including certain health-related and customer information, and to notify customers and other individuals about their policies and practices relating to their collection and disclosure of health-related and customer information and their practices relating to protecting the security and confidentiality of that information. State laws regulate use and disclosure of Social Security numbers and federal and state laws require notice to affected individuals, law enforcement, regulators and others if there is a breach of the security of certain nonpublic personal information, including Social Security numbers. In addition, state laws and regulations restrict the disclosure of the medical record and health status information obtained by insurers.

Federal and state lawmakers and regulatory bodies may be expected to consider additional or more detailed regulation regarding these subjects and the privacy and security of nonpublic personal information. Furthermore, the issues surrounding data security and the safeguarding of consumers’ protected information are under increasing regulatory scrutiny by state and federal regulators, particularly in light of the number and severity of recent U.S. companies’ data breaches. The Federal Trade Commission, the Federal Bureau of Investigation, the Federal Communications Commission, the NYSDFS and the NAIC have undertaken various studies, reports and actions regarding data security for entities under their respective supervision. Some states have recently enacted new insurance laws that require certain regulated entities to implement and maintain comprehensive information security programs to safeguard the personal information of insureds and enrollees.

Item 1. Business

On March 1, 2017, the NYSDFS enacted 23 NYCRR 500, a cybersecurity regulation governing financial companies. This rule requires banks, insurance companies, and other financial services institutions regulated by the NYSDFS, including us, to establish and maintain a cybersecurity program "designed to protect consumers and ensure the safety and soundness of New York State's financial services industry." Since the rule's effective date, we have committed significant time and resources to comply with the rule's requirements. We anticipate that the NYSDFS will examine the cybersecurity programs of financial institutions in the future and such examinations may result in additional regulatory scrutiny, expenditure of resources and possible regulatory actions and reputational harm.

In October 2017, the NAIC adopted a new Insurance Data Security Model Law, which is intended to establish the standards for data security and standards for the investigation and notification of data breaches applicable to insurance licensees in states adopting such law, with provisions that are generally consistent with the NYSDFS cybersecurity regulation discussed above. As with all NAIC model laws, this model law must be adopted by a state before becoming law in such state. We anticipate that more states will begin adopting the model law in the near term. Neither Delaware nor Iowa has adopted a version of the Insurance Data Security Model Law. The NAIC has also adopted a guidance document that sets forth twelve principles for effective insurance regulation of cybersecurity risks based on similar regulatory guidance adopted by the Securities Industry and Financial Markets Association and the "Roadmap for Cybersecurity Consumer Protections," which describes the protections to which the NAIC believes consumers should be entitled from their insurance companies, agents and other businesses concerning the collection and maintenance of consumers' personal information, as well as what consumers should expect when such information has been involved in a data breach. We expect cybersecurity risk management, prioritization and reporting to continue to be an area of significant regulatory focus by such regulatory bodies and self-regulatory organizations.

On June 28, 2018 the California Consumer Privacy Act of 2018 (CCPA) was signed into law. The CCPA is the first law passed in the U.S. that protects its residents' rights to have control over the data companies collect about them. The CCPA will go into effect on January 1, 2020 and the California Attorney General will begin enforcement on July 1, 2020. The bill was drafted and passed in short order and while the express purpose of the bill is clear, its application in practice is difficult to ascertain. We expect that additional revisions and/or guidance will be forthcoming. We are closely monitoring legislative changes in the rule and working to implement the requirements in their current form. We may be required to incur significant expense in order to meet the requirements of the CCPA.

The Gramm-Leach-Bliley Act of 1999, which implemented fundamental changes in the regulation of the financial services industry in the United States, includes privacy requirements for financial institutions, including obligations to protect and safeguard consumers' nonpublic personal information and records, and limitations on the re-disclosure and re-use of such information.

Our investment in a limited partnership which is in the business of originating residential mortgage loans (RML), as well as our direct investment in any residential or other mortgage loans, may expose us to various environmental and other regulation. For example, to the extent that we hold whole mortgage loans as part of our investment portfolio, we may be responsible for certain tax payments or subject to liabilities under the federal Comprehensive Environmental Response, Compensation and Liability Act of 1980. Additionally, we may be subject to regulation by the CFPB as a mortgage holder or property owner. We are currently unable to predict the impact of such regulation on our business.

Broker-dealers

Our securities operations, principally conducted by our limited purpose SEC-registered broker-dealer, Athene Securities, LLC, are subject to federal and state securities and related laws, and are regulated principally by the SEC, state securities authorities and the Financial Industry Regulatory Authority (FINRA). Athene Securities, LLC does not hold customer funds or safekeep customer securities or otherwise engage in any securities transactions. Athene Securities, LLC was the principal underwriter of a block of variable annuity contracts which has been closed to new investors since 2002. The closed block of variable annuity contracts was issued by a predecessor of AAIA. Athene Securities, LLC continues to receive concessions on those variable annuity contracts. Athene Securities, LLC also provides supervisory oversight to Athene employees who are registered representatives.

Athene Securities, LLC and employees or personnel registered with Athene Securities, LLC are subject to the Exchange Act and to regulation and examination by the SEC, FINRA and state securities commissioners. The SEC and other governmental agencies and self-regulatory organizations, as well as state securities commissions in the United States, have the power to conduct administrative proceedings that can result in censure, penalties and fines, disgorgement of profits, restitution to customers, cease-and-desist orders or suspension, termination or limitation of the activities of the regulated entity or its employees.

As a registered broker-dealer and member of various self-regulatory organizations, Athene Securities, LLC is subject to the SEC's net capital rule, which specifies the minimum level of net capital a broker-dealer is required to maintain and requires a minimum part of its assets to be kept in relatively liquid form. These net capital requirements are designed to measure the financial soundness and liquidity of broker-dealers. The net capital rule imposes certain requirements that may have the effect of preventing a broker-dealer from distributing or withdrawing capital and may require that prior notice to the regulators be provided prior to making capital withdrawals. Compliance with net capital requirements could limit operations that require the intensive use of capital, such as trading activities and underwriting, and may limit the ability of our broker-dealer subsidiaries to pay dividends to us.

Item 1. Business

Employee Retirement Income Security Act of 1974, as amended (ERISA)

We also may be subject to regulation by the U.S. Department of Labor (DOL) when providing a variety of products and services to employee benefit plans governed by ERISA. ERISA is a comprehensive federal statute that applies to U.S. employee benefit plans sponsored by private employers and labor unions. Plans subject to ERISA include pension and profit sharing plans and welfare plans, including health, life and disability plans. Among other things, ERISA imposes reporting and disclosure obligations, prescribes standards of conduct that apply to plan fiduciaries and prohibits transactions known as “prohibited transactions,” such as conflict-of-interest transactions, self-dealing and certain transactions between a benefit plan and a “party in interest.” ERISA also provides for a scheme of civil and criminal penalties and enforcement. Our insurance businesses provide services to employee benefit plans subject to ERISA. We are also subject to ERISA’s prohibited transaction rules for transactions with ERISA plans, which may affect our ability to, or the terms upon which we may, enter into transactions with those plans, even in businesses unrelated to those giving rise to “party in interest” status. The applicable provisions of ERISA and the U.S. Internal Revenue Code of 1986, as amended (Internal Revenue Code) are subject to enforcement by the DOL, the Internal Revenue Service (IRS) and the U.S. Pension Benefit Guaranty Corporation. Severe penalties are imposed for breach of duties under ERISA.

The SEC has indicated that it will work with the DOL to propose rules creating a uniform standard of conduct applicable to broker-dealers and investment advisers, which, if adopted, may affect the distribution of our products. The NAIC is working to propose changes to the SAT and some states separately are updating their suitability regulations to include the best interest concept. Should the SEC, NAIC or state-specific rules, once adopted, not align, the distribution of our products could be further complicated.

Bermuda

General

The Bermuda Insurance Act regulates the insurance business of our Bermuda Reinsurance Subsidiaries, and provides that no person may carry on any insurance business in or from within Bermuda unless registered as an insurer under such act by the BMA. The BMA is required by the Bermuda Insurance Act to determine whether the applicant is a fit and proper body to be engaged in the insurance business and, in particular, whether it has, or has available to it, adequate knowledge and expertise to operate an insurance business. See *–Fit and Proper Controllers* below.

The continued registration of an insurer is subject to the insurer complying with the terms of its registration and such other conditions as the BMA may impose from time to time. The Bermuda Insurance Act also grants to the BMA powers to supervise, investigate and intervene in the affairs of insurance companies.

The Bermuda Insurance Act imposes on Bermuda insurance companies solvency standards as well as auditing and reporting requirements. Certain significant aspects of the Bermuda insurance regulatory framework are set forth below.

Classification of Insurers

The Bermuda Insurance Act distinguishes between insurers carrying on long-term business, insurers carrying on special purpose business and insurers carrying on general business. Long-term business is generally defined as life, annuity and accident and health insurance, while general business broadly includes all types of insurance that are not long-term business (property and casualty business). Special purpose business is fully funded insurance business approved by the BMA to be written by a company registered as a Special Purpose Insurer. There are five classifications of insurers carrying on long-term business, ranging from Class A insurers (pure captives) to Class E insurers (larger commercial carriers). Class A insurers are subject to the lightest regulation and Class E insurers are subject to the strictest regulation.

Our Bermuda Reinsurance Subsidiaries, which are incorporated to carry on long-term business, are each registered as a Class E insurer which is the license class for long-term insurers and reinsurers with total assets of more than $500 million that are not registrable as a single-parent or multi-owner long-term captive insurer or reinsurer. Our Bermuda Reinsurance Subsidiaries are not licensed to conduct general business and have not sought authorization as reinsurers in any state or jurisdiction of the U.S. Consequently, in order for ceding companies of our Bermuda Reinsurance Subsidiaries to receive statutory reserve or RBC credit for the reinsurance provided, reinsurance transactions are typically structured in one of three ways: (1) coinsurance, where the respective Bermuda Reinsurance Subsidiary’s obligation to the applicable ceding company in connection with reinsurance transactions is secured by assets held in trust for the benefit of the applicable ceding company, (2) funds withheld, where, although the applicable Bermuda Reinsurance Subsidiary recognizes the insurance reserve liabilities, the assets to secure such liabilities are held and maintained by the applicable ceding company, or (3) modco, where both the insurance reserves and assets supporting the reserves are retained by the applicable ceding company.

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Cancellation of Insurer's Registration

The BMA could revoke or suspend the license of one or more of our Bermuda Reinsurance Subsidiaries in circumstances in which (1) it is shown that false, misleading or inaccurate information has been supplied to the BMA by the subsidiary or on its behalf for the purposes of any provision of the Bermuda Insurance Act, (2) the applicable Bermuda Reinsurance Subsidiary has ceased to carry on business, (3) the applicable Bermuda Reinsurance Subsidiary has persistently failed to pay fees due under the Bermuda Insurance Act, (4) the applicable Bermuda Reinsurance Subsidiary has been shown to have not complied with a condition attached to its registration or with a requirement made of it under the Bermuda Insurance Act, (5) the applicable Bermuda Reinsurance Subsidiary is convicted of an offense against a provision of the Bermuda Insurance Act or (6) the applicable Bermuda Reinsurance Subsidiary is, in the opinion of the BMA, found not to have been carrying on business in accordance with sound insurance principles.

Public Disclosure

The Bermuda Insurance Act provides the BMA with powers to set standards on public disclosure. Using this power, the BMA requires all commercial insurers and insurance groups, subject to certain exceptions, to prepare and publish a Financial Condition Report on their website.

Non-insurance Business

Pursuant to the Bermuda Insurance Act, as Class E insurers, our Bermuda Reinsurance Subsidiaries are not permitted to engage in non-insurance business unless such non-insurance business is ancillary to its core business. Non-insurance business means any business other than insurance business and includes carrying on investment business, managing an investment fund as operator, carrying on business as a fund administrator, carrying on banking business, underwriting debt or securities or otherwise engaging in investment banking, engaging in commercial or industrial activities and carrying on the business of management, sales or leasing of real property.

Annual Financial Statements, Annual Statutory Financial Return and Annual Capital and Solvency Return

Class E insurers must file annual statutory financial statements and annual audited financial statements prepared in accordance with accounting principles generally accepted in the U.S. (GAAP), International Financial Reporting Standards, accounting principles generally accepted in the UK or accounting principles generally accepted in Canada within four months of the end of each fiscal year, unless such deadline is specifically extended. The Bermuda Insurance Act prescribes rules for the preparation and substance of statutory financial returns, which include, in statutory form, an insurer information sheet, an auditor's report, a balance sheet, income statement, a statement of capital and surplus and notes thereto. The Statutory Financial Statements include detailed information and analysis regarding premiums, claims, reinsurance and investments of the insurer.

In addition, each year a Class E insurer is required to file with the BMA a capital and solvency return along with its annual statutory financial return. The prescribed form of capital and solvency return is comprised of: the BMA's Bermuda Solvency Capital Requirement (BSCR) model or an approved internal capital model in lieu thereof; a statutory economic balance sheet; the approved actuary's opinion; and several prescribed schedules, including a schedule of fixed income and equity investments by BSCR rating, a schedule of funds held by ceding reinsurers in segregated accounts/trusts by BSCR rating, a schedule of risk management and a schedule of eligible capital, among others. The BSCR is not available for public inspection.

Minimum Margin of Solvency (MMS), Enhanced Capital Requirement (ECR) and Restrictions on Dividends and Distributions

Class E insurers must at all times maintain an MMS and an ECR in accordance with the provisions of the Bermuda Insurance Act. The Bermuda Insurance Act mandates certain actions and filings with the BMA if an insurer fails to meet and/or maintain its ECR or MMS including the filing of a written report detailing the circumstances giving rise to the failure and the manner and time within which the insurer intends to rectify the failure.

The MMS a Class E insurer is required to maintain with respect to its long-term business is the greater of (1) $8 million, (2) 2% of the first $500 million of assets plus 1.5% of applicable assets above $500 million or (3) 25% of the ECR as reported at the end of the relevant year.

The BMA has embedded an economic balance sheet (EBS) framework as part of the BSCR that forms the basis for an insurer's ECR. The premise underlying the EBS framework is the idea that assets and liabilities should be valued on a consistent economic basis. Under the Bermuda Regulatory Framework there are two solvency calculations: (1) a Class E Insurer must have total statutory capital and surplus as reported on the insurer's statutory balance sheet greater than the MMS calculated pursuant to the Insurance Account Rules 2016; and (2) under the Insurance (Prudential Standards) (Class C, Class D and Class E Solvency Requirement) Rules 2011 an insurer is required to maintain available statutory economic capital and surplus to an amount that is equal to or exceeds the value of its ECR.

A Class E insurer's ECR is established by reference to the Class E BSCR model. The BSCR model provides a method for determining an insurer's capital requirements (statutory economic capital and surplus) by taking into account the risk characteristics of different aspects of the insurer's business. The BSCR formula establishes capital requirements for fourteen categories of risk: fixed income investment risk, equity investment risk, long-term interest rate/liquidity risk, currency risk, concentration risk, credit risk, operational risk and seven categories of long-term insurance risk. For each category, the capital requirement is determined by applying factors to asset, premium, reserve, creditor, probable maximum loss and operation items, with higher factors applied to items with greater underlying risk and lower factors for less risky items.

The BMA released the final amended Insurance (Prudential Standards) (Class C, Class D, and Class E Solvency Requirement) Amendment Rules 2018 (Prudential Rules) on July 17, 2018 that provides updates to certain aspects of the EBS framework. The Prudential Rules will take effect on January 1, 2019 and increase the ECR over a 10-year grade-in period.

As of December 31, 2018 and 2017, ALRe's EBS capital and surplus resulted in BSCR ratios of 340% and 354%, respectively. While not specifically referred to in the Bermuda Insurance Act, target capital level (TCL) is also an important threshold for statutory capital and surplus. TCL is equal to 120% of ECR as calculated pursuant to the BSCR formula. TCL serves as an early warning tool for the BMA. If an insurer fails to maintain statutory capital at least equal to its TCL, such failure will likely result in increased regulatory oversight by the BMA. A Class E insurer which at any time fails to meet its applicable ECR shall, upon becoming aware of such failure or upon having reason to believe that such a failure has occurred, immediately notify the BMA in writing. Within 14 days of such notification, such Class E insurer shall file with the BMA a written report containing details of the circumstances leading to the failure and a plan detailing the specific actions to be taken to rectify the failure, and the time within which the Class E insurer intends to rectify the failure. Within 45 days of becoming aware of such failure, or of having reason to believe that such a failure has occurred, such Class E insurer shall furnish the BMA with (1) unaudited statutory economic balance sheets and unaudited interim statutory financial statements prepared in accordance with GAAP covering such period as the BMA may require; (2) an opinion of the approved actuary in relation to total long-term business insurance technical provisions as set out in the statutory economic balance sheet, where applicable; (3) a long-term business solvency certificate in respect of the financial statements; and (4) a capital and solvency return reflecting an ECR prepared using post-failure data where applicable.

Under the Bermuda Insurance Act, an insurer is prohibited from declaring or paying a dividend if in breach of its ECR or MMS or if the declaration or payment of such dividend would cause such a breach. Where an insurer fails to meet its MMS on the last day of any financial year, it is prohibited from declaring or paying any dividends during the next financial year without the approval of the BMA. The Bermuda Insurance Act also prohibits our Bermuda Reinsurance Subsidiaries from paying a dividend in an amount exceeding 25% of the prior year's total statutory capital and surplus, unless at least two members of the respective Bermuda Reinsurance Subsidiary's board of directors and its principal representative sign and submit to the BMA an affidavit attesting that a dividend in excess of this amount would not cause such Bermuda Reinsurance Subsidiary to fail to meet its relevant margins. In certain instances, our Bermuda Reinsurance Subsidiaries would also be required to provide prior notice to the BMA in advance of the payment of dividends. In the event that such an affidavit is submitted to the BMA in accordance with the Bermuda Insurance Act, and further subject to the applicable Bermuda Reinsurance Subsidiary meeting its MMS and ECR, such Bermuda Reinsurance Subsidiary is permitted to distribute up to the sum of 100% of statutory surplus and an amount less than 15% of its total statutory capital. Distributions in excess of this amount require the approval of the BMA. Further, each of our Bermuda Reinsurance Subsidiaries must obtain the BMA's prior approval before reducing its total statutory capital as shown in its previous financial year statutory balance sheet by 15% or more. Each of our Bermuda Reinsurance Subsidiaries is also prohibited from declaring or paying any dividends unless the value of its long-term business assets exceeds its long-term business liabilities, as certified by its approved actuary, by the amount of the dividend and at least the MMS. These restrictions on declaring or paying dividends and distributions under the Bermuda Insurance Act are in addition to those under Bermuda's Companies Act 1981 (the Companies Act) which apply to all Bermuda companies. Under the Companies Act, a company may not declare or pay a dividend, or make a distribution out of contributed surplus, if there are reasonable grounds for believing that: (1) the company is, or would after the payment be, unable to pay its liabilities as they become due, or (2) the realizable value of the company's assets would thereby be less than its liabilities.

Eligible Capital

To enable the BMA to better assess the quality of the insurer's capital resources, a Class E insurer is required to disclose the makeup of its capital in accordance with the '3-tiered capital system.' Under this system, all of the insurer's capital instruments must be classified as either basic or ancillary capital. All capital instruments are further classified into one of three tiers based on their "loss absorbency" characteristics. Highest quality capital will be classified as Tier 1 Capital, lesser quality capital will be classified as either Tier 2 Capital or Tier 3 Capital. Under this regime, up to certain specified percentages of Tier 1, Tier 2 and Tier 3 Capital may be used to support the insurer's MMS, ECR and TCL. The Bermuda Insurance Act requires that Class E insurers have Tier 1 Capital equal to or greater than 50% of the value of its ECR, Tier 2 Capital not greater than Tier 1 Capital and Tier 3 Capital of not more than 17.65% of the aggregate of its Tier 1 Capital and Tier 2 Capital.

The characteristics of the capital instruments that must be satisfied to qualify as Tier 1, 2 and 3 Capital are set forth in the Insurance (Eligible Capital) Rules 2012, and any amendments thereto. Under those rules, Tier 1, 2 and 3 Capital may, until January 1, 2026, include capital instruments with the following characteristics: (1) non-redeemable or settled only with the issuance of an instrument of equal or higher quality upon a breach in the ECR (Tier 1, 2 and 3 Capital); (2) coupon payment on the instrument be cancellable or deferrable indefinitely, upon breach in the ECR (Tier 1 and 2 Capital); or (3) coupon payment on the instrument be cancellable or deferrable indefinitely upon breach in the MMS (Tier 3 Capital).

Where the BMA has previously approved the use of certain instruments for capital purposes, the BMA's consent will need to be obtained if such instruments are to remain eligible for use in satisfying the MMS and the ECR. We do not currently use any such instruments.

Item 1. Business

Code of Conduct

Every Bermuda registered insurer must comply with the Insurance Code of Conduct (Code of Conduct) which prescribes the duties and standards that must be complied with to ensure sound corporate governance, risk management and internal controls are implemented. The BMA will assess an insurer's compliance with the Code of Conduct in a proportionate manner relative to the nature, scale and complexity of its business. Failure to comply with the requirements of the Code of Conduct will be taken into account by the BMA in determining whether an insurer is conducting its business in a sound and prudent manner as prescribed by the Bermuda Insurance Act and may result in the BMA exercising its powers of intervention and investigation (see below) and, in the case of our Bermuda Reinsurance Subsidiaries, as Class E insurers, will be a factor in calculating the operational risk charge under each insurer's BSCR or approved internal model.

Fit and Proper Controllers

The BMA maintains supervision over the "controllers" of all registered insurers in Bermuda. For these purposes, a "controller" includes (1) the managing director of the registered insurer or its parent company, (2) the chief executive of the registered insurer or of its parent company, (3) a shareholder controller, and (4) any person in accordance with whose directions or instructions the directors of the registered insurer or its parent company are accustomed to act.

The definition of shareholder controller is set out in the Bermuda Insurance Act but generally refers to (1) a person who holds 10% or more of the shares carrying rights to vote at a shareholders' meeting of the registered insurer or its parent company, (2) a person who is entitled to exercise 10% or more of the voting power at any shareholders' meeting of such registered insurer or its parent company or (3) a person who is able to exercise significant influence over the management of the registered insurer or its parent company by virtue of its shareholding or its entitlement to exercise, or control the exercise of, the voting power at any shareholders' meeting.

Under the Bermuda Insurance Act, shareholder controller ownership is defined as follows:

Actual Shareholder Controller Voting Power	Defined Shareholder Controller Voting Power
10% or more but less than 20%	10%
20% or more but less than 33%	20%
33% or more but less than 50%	33%
50% or more	50%

Where the shares of a registered insurer, or the shares of its parent company, are traded on a recognized stock exchange, and such shareholder becomes a 10%, 20%, 33%, or 50% shareholder controller of the insurer, that shareholder shall, within 45 days, notify the BMA in writing that such shareholder has become, or as a result of a disposition ceased to be, a controller of any such category.

Under our bye-laws, we have imposed restrictions on the ownership by holders of our Class A common shares (other than the Apollo Group) controlling more than 9.9% of the voting power associated with our common shares. The voting rights exercisable by shareholders of the Company other than the Apollo Group will be limited so that Control Groups are not deemed to hold more than 9.9% of the total voting power conferred by our shares. In addition, our board of directors retains certain discretion to make adjustments to the aggregate number of votes attaching to the shares of any person or group that they consider fair and reasonable in all the circumstances to ensure that such person or group will not hold more than 9.9% of the total voting power represented by our then outstanding shares. As such, other than the Apollo Group (at the 33% shareholder controller level), no shareholder will be considered, according to the Bermuda Insurance Act, a shareholder controller of AARe or ALRe.

Any person or entity who contravenes the Bermuda Insurance Act by failing to give notice or knowingly becoming a controller of any description before the required 45 days has elapsed is guilty of an offense under Bermuda law and liable to a fine of $25,000 on summary conviction.

The BMA may file a notice of objection to any person or entity who has become a controller of any category when it appears that such person or entity is not, or is no longer, fit and proper to be a controller of the registered insurer. Before issuing a notice of objection, the BMA is required to serve upon the person or entity concerned a preliminary written notice stating the BMA's intention to issue formal notice of objection. Upon receipt of the preliminary written notice, the person or entity served may, within 28 days, file written representations with the BMA which shall be taken into account by the BMA in making its final determination. Any person or entity who continues to be a controller of any description after having received a notice of objection is guilty of an offense and liable on summary conviction to a fine of $25,000 (and a continuing fine of $500 per day for each day that the offense is continuing) or, if convicted on indictment, to a fine of $100,000 and/or 2 years in prison.

Item 1. Business

Notification of Material Changes

All registered insurers are required to give notice to the BMA of their intention to effect a material change within the meaning of the Bermuda Insurance Act. For the purposes of the Bermuda Insurance Act, the following changes are material: (1) the transfer or acquisition of insurance business, including portfolio transfers or corporate restructurings, pursuant to a court-approved scheme of arrangement under Section 25 of the Bermuda Insurance Act or Section 99 of the Companies Act, (2) the amalgamation with or acquisition of another firm, (3) engaging in unaffiliated, third-party business that is retail business, (4) the acquisition of a controlling interest in an undertaking that is engaged in non-insurance business which offers services and products to persons who are not affiliates of the insurer, (5) outsourcing all or substantially all of the company's actuarial, risk management, compliance or internal audit functions, (6) outsourcing all or a material part of an insurer's underwriting activity, (7) the transfer other than by way of reinsurance of all or substantially all of a line of business, (8) the expansion into a material new line of business, (9) the sale of an insurer and (10) outsourcing of an "officer" role, as such term is defined by the Bermuda Insurance Act.

As registered insurers, our Bermuda Reinsurance Subsidiaries may not take any steps to give effect to such a material change unless they have first served notice on the BMA that they intend to effect such material change and before the end of 30 days, either the BMA has notified the applicable Bermuda Reinsurance Subsidiary in writing that the BMA has no objection to such change or that period has lapsed without the BMA having issued a notice of objection.

Before issuing a notice of objection, the BMA is required to serve upon the applicable Bermuda Reinsurance Subsidiary a preliminary written notice stating the BMA's intention to issue formal notice of objection. Upon receipt of the preliminary written notice, the applicable Bermuda Reinsurance Subsidiary may, within 28 days, file written representations with the BMA, which the BMA would take into account in making its final determination.

Supervision, Investigation and Intervention

The BMA may appoint an inspector with powers to investigate the affairs of an insurer if the BMA believes that an investigation is required in the interests of the insurer's policyholders or potential policyholders. In order to verify or supplement information otherwise provided to the inspector, the BMA may direct an insurer to produce documents or information relating to matters connected with its business.

If it appears to the BMA that there is a risk of an insurer becoming insolvent, or that it is in breach of the Bermuda Insurance Act or any conditions imposed upon its registration, the BMA may, among other things, direct the insurer (1) not to take on any new insurance business, (2) not to vary any insurance contract if the effect would be to increase its liabilities, (3) not to make certain investments, (4) to liquidate certain investments, (5) to maintain or transfer to the custody of a specified bank, certain assets, (6) not to declare or pay any dividends or other distributions or to impose restrictions on such payments, (7) to limit its premium income, (8) not to enter into any specified transaction with any specified persons or persons of a specified class, (9) to provide the BMA with such financial information regarding the insurer as the BMA may request, (10) to obtain the opinion of an actuary loss reserve specialist for submission to the BMA, and (11) to remove a controller or officer.

Exchange Control

The permission of the BMA is required, pursuant to the provisions of the Exchange Control Act 1972 and related regulations, for all issuances and transfers of shares (which includes the Class A common shares) of Bermuda companies to or from a non-resident of Bermuda for exchange control purposes, other than in cases where the BMA has granted a general permission. The BMA, in its notice to the public dated June 1, 2005, has granted a general permission for the issue and subsequent transfer of any securities of a Bermuda company from and/or to a non-resident of Bermuda for exchange control purposes for so long as any "Equity Securities" of the company (which includes the Class A common shares) are listed on an "Appointed Stock Exchange" (which includes the New York Stock Exchange (NYSE)).

Economic Substance Act 2018 (ESA)

During 2017, the EU's Economic and Financial Affairs Council released a list of non-cooperative jurisdictions for tax purposes. The stated purpose of this list, and accompanying report, was to promote good governance worldwide in order to maximize efforts to prevent tax fraud and tax evasion. Bermuda was not on the list of non-cooperative jurisdictions, but was referenced in the report (along with approximately 40 other jurisdictions) as having committed to address concerns relating to economic substance by December 31, 2018. In accordance with that commitment, Bermuda enacted the ESA. Under the ESA, if a company is engaged in one or more "relevant activities" (which is defined to include insurance) it is required to maintain a substantial economic presence in Bermuda and to comply with the economic substance requirements set forth in the ESA. A company will comply with those economic substance requirements if it: (a) is managed and directed in Bermuda; (b) undertakes "core income generating activities" (as may be prescribed under the ESA) in Bermuda in respect of the relevant activity; (c) maintains adequate physical presence in Bermuda; (d) has adequate full time employees in Bermuda with suitable qualifications; and (e) incurs adequate operating expenditure in Bermuda in relation to the relevant activity undertaken by it.

Companies that carry on insurance as a relevant activity are deemed to comply with the economic substance requirements, with respect to their insurance business, if they comply with the existing provisions of (a) the Companies Act 1981 relating to corporate governance; and (b) the Insurance Act 1978, that are applicable to the economic substance requirements.

Europe

Corporation Tax Act 2010 (UK Tax Act)

AHL and ALRe are UK tax residents and as such, certain of their operations are subject to income tax under the UK Tax Act. We do not expect taxes paid pursuant to the UK Tax Act to be material to our results of operations. For further discussion regarding our effective and overall tax rates, see *Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations–Results of Operations–Taxes*. For risks related to UK tax residency, see *Item 1A. Risk Factors–Risks Relating to Taxation–AHL or its non-U.S. subsidiaries may be subject to U.S. federal income taxation*.

General Data Protection Regulation (GDPR)

The GDPR went into effect on May 25, 2018. It was enacted by the European Commission to regulate and protect data of individuals located within the EU. As tax residents of the UK, AHL and ALRe are likely subject to the territorial scope of the GDPR under Article 3(1). To the extent that AHL and/or ALRe is under the territorial scope of the GDPR, the regulation would only apply to the processing of personal data carried out in the context of such entity's UK activities. Currently, the volume of personal data processed in connection with each entity's UK activities is insignificant. We regularly monitor our business activities to ensure we are prepared for compliance, should the GDPR ever apply to our business more broadly.

Entity-Wide

NAIC

Group Capital – The NAIC is in the process of developing a methodology for the calculation of capital for all the entities in an insurance holding company system group, including non-U.S. entities. The goal is to provide U.S. regulators with a method to aggregate the available capital and the minimum capital of each entity in an insurance group in a way that applies to all insurance groups regardless of their structure. The NAIC has stated that the calculation will be a regulatory tool and will not constitute a requirement or standard. Nonetheless, any new group capital calculation methodology may incorporate existing risk-based capital concepts. It is not possible to predict what impact any such regulatory tool may have on our business.

Own Risk and Solvency Assessment (ORSA) Model Act – We are subject to the ORSA Model Act, which has been enacted by each Athene Domiciliary State, and requires insurance companies to assess the adequacy of their and their group's risk management and current and future solvency position. Under the ORSA Model Act, certain insurers must undertake an internal risk management review no less often than annually (but also at any time when there are significant changes to the risk profile of the insurer or its insurance group), in accordance with the NAIC's ORSA Guidance Manual, and prepare an ORSA Report assessing the adequacy of the insurer's risk management and capital in light of its current and future business plans. The ORSA Report is required to be filed annually with a company's lead state regulator and made available to other domiciliary regulators within the holding company system.

Corporate Governance Annual Disclosure Model Act and Model Regulation (together, the Corporate Governance Model Act) – In November 2014, the NAIC adopted the Corporate Governance Model Act, which requires an insurer to provide an annual disclosure regarding its corporate governance practices to its lead state and/or domestic regulator. As adopted by the NAIC, the requirements of the Corporate Governance Model Act became effective January 1, 2016, with the first annual disclosure due by June 1, 2016. The Corporate Governance Model Act must be adopted by the individual states for the new requirements to apply, and specifically in Delaware, Iowa and New York for the changes to apply to our U.S. insurance subsidiaries. Both Delaware and Iowa have adopted forms of the Corporate Governance Annual Disclosure Model Act. To date, New York has not adopted the Corporate Governance Model Act, and it is not possible to predict whether New York will adopt the Corporate Governance Model Act in the future; however, the NAIC has made the Corporate Governance Model Act part of its accreditation standards for state solvency regulation, which may motivate New York to adopt the Corporate Governance Model Act.

Insurance Holding Company Regulation – Each direct and indirect parent of our U.S. insurance subsidiaries (including AHL) is subject to the insurance holding company laws of each of the Athene Domiciliary States. These laws generally require an insurance holding company and insurers that are members of such holding company system to register with their U.S. insurance regulators and to file certain reports with those authorities, including information concerning their capital structure, ownership, financial condition, certain intercompany transactions and general business operations. Generally, under these laws, transactions between our U.S. insurance subsidiaries and their affiliates, including any reinsurance transactions, must be fair and reasonable and, if material or included within a specified category, require prior notice and approval or non-disapproval by the insurance department of each applicable Athene Domiciliary State.

Most states, including each of the Athene Domiciliary States, have insurance laws that require regulatory approval of a direct or indirect change of control of an insurer, which would include a change of control of its holding company. Laws such as these prevent any person from acquiring direct or indirect control of any of our U.S. insurance subsidiaries or their holding companies unless that person has filed a statement with specified information with the commissioner or director of the insurance department of the applicable Athene Domiciliary State (each, a Commissioner) and has obtained the Commissioner's prior approval. Under most states' statutes, including those of each of the Athene Domiciliary States, acquiring 10% or more of a voting interest in an insurance company or its parent company is presumptively considered a change of control, although such presumption may be rebutted. Accordingly, any person who acquires 10% or more of a voting interest in a direct or indirect parent of any of our U.S. insurance subsidiaries (or AHL) without the prior approval of the Commissioner of the applicable Athene Domiciliary State will be in violation of the applicable Athene Domiciliary State's law and may be subject to injunctive action requiring the disposition or seizure of those securities by the Commissioner or prohibiting the voting of those securities and to other actions determined by the Commissioner. Further, a willful violation of these laws is punishable in each Athene Domiciliary State as a criminal offense. In addition, the Model Insurance Holding Company System Regulatory Act (Amended Holding Company Model Act) requires any controlling person of a U.S. insurer seeking to divest its controlling interest in the insurance company to file with the relevant insurance Commissioner a confidential notice of the proposed divestiture at least thirty days prior to the cessation of control (unless a person acquiring control from the divesting party has filed notice of the proposed acquisition of control with the Commissioner). After receipt of the notice, the Commissioner must determine those instances in which the parties seeking to divest or to acquire a controlling interest will be required to file for or obtain approval of the transaction. These laws may discourage potential acquisition proposals and may delay, deter or prevent an acquisition of control of a direct or indirect parent of any of our U.S. insurance subsidiaries (including AHL) (in particular through an unsolicited transaction), even if the shareholders of such parent consider such transaction to be desirable. Our bye-laws include limitations on the voting power exercisable by shareholders of the Company other than the Apollo Group so that certain persons or groups (Control Groups) are deemed not to hold more than 9.9% of the total voting power conferred by our shares.

Holding company system regulations currently in effect in New York require prospective acquirers of New York domiciled insurers to provide detailed disclosure with respect to intended changes to the business operations of the insurer, and expressly authorize the NYSDFS to impose additional conditions on such acquisitions. Pursuant to these regulations, the NYSDFS may limit the changes that the acquirer may make to the insurer's business operations for a specified period of time following the acquisition without the NYSDFS' prior approval. In particular, the regulation provides the NYSDFS with the specific authority to require acquirers of New York domiciled life insurers to post assets in a trust account for the benefit of the target company's policyholders. In making such determination, the NYSDFS may consider whether the acquirer is, or is controlled by or under common control with, an investment manager such as Apollo. The NAIC has also published in its Financial Analysis Handbook specific narrative guidance for state insurance examiners to consider in reviewing applications for an acquisition of insurance and reinsurance companies by a private equity firm.

Although Athene Re IV is not subject to insurance holding company laws, the Vermont insurance regulator may use all or a part of the holding company law framework described above in determining whether to approve a proposed change of control.

Each of the Athene Domiciliary States has adopted a form of the Amended Holding Company Model Act, which requires each ultimate controlling party to file an annual enterprise risk report identifying the material risks within the insurance holding company system that could pose enterprise risk to the licensed companies. An enterprise risk is an activity or event involving affiliates of an insurer that could have a material adverse effect on the insurer or the insurer's holding company system.

In December 2014, the NAIC adopted additional amendments to the Amended Holding Company Model Act for consideration by the various states that address the authority of an insurance commissioner to act as the group-wide supervisor for an internationally active insurance group or to acknowledge the authority of another regulatory official, from another jurisdiction, to so act. These changes to the Amended Holding Company Model Act must be enacted by the individual states before they will become effective, and specifically in Delaware, Iowa and New York for the changes to apply to our U.S. insurance subsidiaries. Delaware has adopted a form of these changes to the Amended Holding Company Model Act, and Iowa has adopted similar provisions under a predecessor statute; however, these changes have not yet been adopted by New York and we cannot predict whether New York will do so in the future. However, the NAIC has made these changes to the Amended Holding Company Model Act part of its accreditation standards for state solvency regulation beginning January 1, 2020, which is likely to motivate states, including New York, to adopt these changes to the Amended Holding Company Model Act. It is not possible to predict with any degree of certainty the additional capital requirements, compliance costs or other burdens these changes may impose in the future.

In addition, the NAIC has adopted a revised Suitability in Annuity Transactions Model Regulation (SAT), which places new responsibilities upon issuing insurance companies with respect to the suitability of annuity sales, including responsibilities for training agents. Many states, including Athene Domiciliary States, have already enacted laws and/or regulations based on SAT, thus imposing suitability standards with respect to sales of FIAs and variable annuities. The NYSDFS issued a circular letter emphasizing insurers' obligations under laws and regulations based on SAT when replacing a deferred annuity contract with an immediate annuity contract. The NAIC is also considering amendments to the SAT to incorporate a "best interest" or similar standard with respect to the suitability of annuity sales; however, the development of such amendments may be delayed until the NAIC has further clarity around the related federal rules which are expected to be proposed by the SEC and the U.S. Department of Labor (DOL) in 2019. On July 22, 2018, the NYSDFS issued amendments to its regulation based on SAT to incorporate a "best interest" standard with respect to the suitability of life insurance and annuity sales, which amendments take effect on August 1, 2019. Future changes in such laws and regulations, including those that impose a "best interest" standard could adversely impact the way we market and sell our annuity products.

Item 1. Business

BMA

Group Supervision – The BMA may, in respect of an insurance group, determine whether it is appropriate for it to act as its group supervisor. An insurance group is defined as a group of companies that conducts exclusively, or mainly, insurance business. The BMA may make such determination where it ascertains that (1) the group is headed by a "specified insurer" (that is to say, it is headed by either a Class 3A, Class 3B or Class 4 general business insurer or a Class C, Class D or Class E long-term insurer or another class of insurer designated by order of the BMA); or (2) where the insurance group is not headed by a "specified insurer," where it is headed by a parent company which is incorporated in Bermuda or (3) where the parent company of the group is not a Bermuda company, in circumstances in which the BMA is satisfied that the insurance group is directed and managed from Bermuda or the insurer with the largest balance sheet total is a specified insurer.

When the BMA determines that it should act as the group supervisor, it shall designate a specified insurer that is a member of the insurance group to be the designated insurer (Designated Insurer) and it shall give to the Designated Insurer and other competent authorities written notice of its intention to act as group supervisor.

As group supervisor, the BMA will perform a number of supervisory functions including (1) coordinating the gathering and dissemination of information which is of importance for the supervisory task of other competent authorities, (2) carrying out a supervisory review and assessment of the insurance group, (3) carrying out an assessment of the insurance group's compliance with the rules on solvency, risk concentration, intra-group transactions and good governance procedures, (4) planning and coordinating, with other competent authorities, supervisory activities in respect of the insurance group, both as a going concern and in emergency situations, (5) coordinating any enforcement action that may need to be taken against the insurance group or any of its members and (6) planning and coordinating meetings of colleges of supervisors (consisting of insurance regulators) in order to facilitate the carrying out of the functions described above.

In carrying out its functions, the BMA may make rules for (1) assessing the financial situation and the solvency position of the insurance group and/or its members and (2) regulating intra-group transactions, risk concentration, governance procedures, risk management and regulatory reporting and disclosure.

Our Bermuda Reinsurance Subsidiaries are not currently subject to group supervision. The BMA may, however, exercise its authority to act as our group supervisor in the future.

Available Information

Our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to reports filed pursuant to Sections 13(a) and 15(d) of the Exchange Act are made available, free of charge, on or through the "Investors" portion of our website www.athene.com. Information contained on our website is not part of, nor is it incorporated by reference in, this report or any of our periodic reports. Reports filed with or furnished to the SEC will also be available as soon as reasonably practicable after they are filed with or furnished to the SEC and are available at the SEC's website at www.sec.gov.

Item 1A. Risk Factors

Risks Relating to Our Business

Our business, financial condition, results of operations, liquidity and cash flows depend on the accuracy of our management's assumptions and estimates, and we could experience significant gains or losses if these assumptions and estimates differ significantly from actual results.

We make and rely on certain assumptions and estimates regarding many matters related to our business, including interest rates, investment returns, expenses and operating costs, tax assets and liabilities, business mix, surrender activity, mortality and contingent liabilities. We also use these assumptions and estimates to make decisions crucial to our business operations, including establishing pricing, target returns and expense structures for our insurance subsidiaries' products and PRT transactions; determining the amount of reserves we are required to hold for our policy liabilities; the price we will pay to acquire or reinsure business; the hedging strategies to manage risks to our business and operations; and the amount of regulatory and rating agency capital that our insurance subsidiaries must hold to support their businesses. The factors influencing these assumptions and estimates cannot be calculated or predicted with certainty, and if our assumptions and estimates differ significantly from actual outcomes and results, our business, financial condition, results of operations, liquidity and cash flows may be materially and adversely affected. Certain of the assumptions relevant to our business are discussed in greater detail below.

- *Insurance Products and Liabilities* – Pricing of our annuity and other insurance products, whether issued by us or acquired through reinsurance or acquisitions, is based upon assumptions about persistency, mortality and the rates at which optional benefits are elected. A factor which may affect persistency for some of our products is the value of guaranteed minimum benefits. An increase in the value of guaranteed minimum benefits could result in our policies remaining in force longer than we have estimated, which could adversely affect our results of operations. This could be caused by extended periods of poor equity market performance and/or low interest rates, developments affecting customer perception and other factors outside our control. Alternatively, our persistency estimates could be negatively affected during periods of rising equity markets or interest rates or by other factors outside our control, which could result in fewer policies remaining in force than estimated. Therefore, our results will vary based on differences between actual and expected withdrawals from our subsidiaries' products.

  If emerging or actual experience deviates from our assumptions, such deviations could have a significant effect on our business, financial condition, results of operations, liquidity and cash flows. For example, a significant portion of our in-force and newly issued products contain riders that offer guaranteed lifetime income or death benefits. These riders expose us to mortality, longevity and policyholder behavior risks. If actual utilization of certain rider benefits is adverse when compared to our estimates used in setting our reserves for future policy benefits, these reserves may prove to be inadequate and we may be required to increase such reserves. More generally, deviations from our pricing expectations could result in our subsidiaries earning less of a spread between the investment income earned on our subsidiaries' assets and the interest credited to such products and other costs incurred in servicing the products, or may require our subsidiaries to make more payments under certain products than our subsidiaries had projected. We have limited experience to date on policyholder behavior for our guaranteed minimum benefit products. As a result, future experience could deviate significantly from our assumptions.

- *Determination of Fair Value* – We hold securities, derivative instruments and other assets and liabilities that must be, or at our election are, measured at fair value. Fair value represents the anticipated amount that would be received upon the sale of an asset or paid to transfer a liability in an orderly transaction. The determination of fair value involves the use of various assumptions and estimates, and considerable judgment may be required to estimate fair value. Accordingly, estimates of fair value are not necessarily indicative of the amounts that could be realized in a current or future market exchange. As such, changes in or deviations from the assumptions used in such valuations can significantly affect our financial condition and results of operations. During periods of market disruption, including periods of rapidly changing credit spreads or illiquidity, if trading becomes less frequent or market data becomes less observable, it will likely be difficult to value certain of our investments. Further, rapidly changing credit and equity market conditions could materially impact the valuation of investments as reported within our financial statements, and the period-to-period changes in value could vary significantly. Even if our assumptions and valuations are accurate at the time that they are made, the market value of these investments could subsequently decline, which could materially and adversely impact our financial condition, results of operations or cash flows.

- *Hedging Strategies* – We use, and may in the future use, derivatives and reinsurance contracts to hedge risks related to current or future changes in the fair value of our assets and liabilities; current or future changes in cash flows; changes in interest rates, equity markets and credit spreads; the occurrence of credit defaults; currency fluctuations; and changes in mortality and longevity. We use equity derivatives to hedge the liabilities associated with our FIAs. Our hedging strategies rely on assumptions and projections regarding our assets and liabilities, as well as general market factors and the creditworthiness of our counterparties, any or all of which may prove to be incorrect or inadequate. Accordingly, our hedging activities may not have the desired impact. We may also incur significant losses on hedging transactions.

- *Financial Statements* – The preparation of our consolidated financial statements requires management to make various estimates and assumptions that affect the amounts reported therein. These estimates include, but are not limited to, the fair value of investments, impairment of investments and valuation allowances, the valuation of derivatives, including embedded derivatives, DAC, DSI and VOBA, future policy benefit reserves, valuation allowances on deferred tax assets, and stock-based compensation. The assumptions and estimates required for these calculations involve judgment and by their nature are imprecise and subject to changes and revisions over time. Accordingly, our financial condition and results of operations may be adversely affected if actual results differ from assumptions or if assumptions are materially revised.

Item 1A. Risk Factors

The amount of statutory capital that our insurance and reinsurance subsidiaries have, or that they are required to hold, can vary significantly from time to time and is sensitive to a number of factors outside of our control.

Our U.S. insurance subsidiaries are subject to state regulations that provide for MCR based on RBC formulas for life insurance companies relating to insurance, business, asset, interest rate and certain other risks. Similarly, our Bermuda Reinsurance Subsidiaries are subject to MCR imposed by the BMA through the BMA's ECR and MMS.

In any particular year, our subsidiaries' capital ratios and/or statutory surplus amounts may increase or decrease depending on a variety of factors, most of which are outside of our control, including, but not limited to, the following:

- the amount of statutory income or losses generated by our insurance subsidiaries;
- the amount of additional capital our insurance subsidiaries must hold to support their business growth;
- changes in reserve requirements applicable to our insurance subsidiaries;
- changes in market value of certain securities in our investment portfolio;
- recognition of write-downs or other losses on investments held in our investment portfolio;
- changes in the credit ratings of investments held in our investment portfolio;
- the value of certain derivative instruments;
- changes in interest rates;
- credit market volatility;
- changes in policyholder behavior;
- changes in corporate tax rates;
- changes to the RBC formulas and interpretations of the NAIC instructions with respect to RBC calculation methodologies; and
- changes to the ECR, BSCR, or TCL formulas and interpretations of the BMA's instructions with respect to ECR, BSCR, or TCL calculation methodologies.

Nationally Recognized Statistical Rating Organizations (NRSROs) may also implement changes to their internal models, which differ from the RBC and BSCR capital models, that have the effect of increasing or decreasing the amount of statutory capital our subsidiaries must hold in order to maintain their current ratings. To the extent that one of our insurance subsidiary's solvency or capital ratios is deemed to be insufficient by one or more NRSROs, we may take actions either to increase the capitalization of the insurer or to reduce the capitalization requirements. If we are unable to accomplish such actions, NRSROs may view this as a reason for a ratings downgrade. In addition, as further discussed at *Item 1. Business–Regulatory–Entity-Wide–NAIC–Group Capital*, the NAIC is in the process of developing a methodology for the calculation of capital for all the entities in an insurance holding company system group. While it is not currently contemplated that the resulting calculation will serve as the basis for a standard or other requirement, the calculation, when established, might have an impact on the amount of statutory capital held by our subsidiaries individually and in the aggregate.

If a subsidiary's solvency or capital ratios reach certain minimum levels, it could subject us to further examination or corrective action imposed by our insurance regulators. Corrective actions may include limiting our subsidiaries' ability to write additional business, increased regulatory supervision, or seizure or liquidation of the subsidiary's business, each of which could materially and adversely affect our business, financial condition, results of operations, cash flows and prospects.

Interest rate fluctuations could adversely affect our business, financial condition, results of operations, liquidity and cash flows.

Interest rate risk is a significant market risk for us. We define interest rate risk as the risk of an economic loss due to changes in interest rates. This risk arises from our holdings in interest rate-sensitive assets (e.g., fixed income assets) and liabilities (e.g., fixed deferred and immediate annuities). Substantial and sustained increases or decreases in market interest rates could materially and adversely affect our business, financial condition, results of operations, liquidity and cash flows, including in the following respects:

- Significant changes in interest rates expose us to the risk of not realizing anticipated spreads between overall net investment earned rates and the crediting rates to our policyholders.

- Changes in interest rates may negatively affect the value of our assets and our ability to realize gains or avoid losses from the sale of those assets. Significant volatility in interest rates may have a larger adverse impact on certain assets in our investment portfolio that are highly structured or have limited liquidity.

- Changes in interest rates may cause changes in prepayment rates on certain fixed income assets within our investment portfolio. For instance, falling interest rates may accelerate the rate of prepayment on mortgage loans, while rising interest rates may decrease such prepayments below the level of our expectations. At the same time, falling interest rates may result in the lengthening of duration for our policies and liabilities due to the guaranteed minimum benefits contained in our products, while rising interest rates could lead to increased policyholder withdrawals and a shortening of duration for our liabilities. In either case, we could experience a mismatch in our assets and liabilities and potentially incur significant economic losses.

Item 1A. Risk Factors

- During periods of declining interest rates or a prolonged period of low interest rates, life insurance and annuity products may be relatively more attractive to consumers than other investment opportunities. This may cause our assumptions regarding persistency to prove inaccurate as our customers opt not to surrender or take withdrawals from their products, which may result in us experiencing greater claim costs than we had anticipated and/or cash flow mismatches between assets and liabilities.

- During periods of declining interest rates, we may have to reinvest the cash we receive as interest or return of principal on our investments into lower-yielding high-grade instruments or seek higher-yielding, but higher-risk instruments in an effort to achieve returns comparable with those attained during more stable interest rate environments.

- Certain securitized financial assets are accounted for based on expectations of future cash flows. To the extent future interest rates are lower than we have projected, we will experience slower accretion of discounts on these assets and will have a lower yield on our portfolio.

- An extended period of declining interest rates or a prolonged period of low interest rates may cause us to decrease the crediting rates of our products, thereby reducing their attractiveness.

- In periods of rapidly increasing interest rates, withdrawals from and/or surrenders of annuity contracts may increase as policyholders choose to seek higher investment returns elsewhere. Obtaining cash to satisfy these obligations may require our insurance subsidiaries to liquidate fixed income investments at a time when market prices for those assets are depressed. This may result in realized investment losses.

- An increase in market interest rates could reduce the value of certain of our alternative investments held as collateral under reinsurance agreements and require us to provide additional collateral, thereby reducing our available capital and potentially creating a need for additional capital which may not be available to us on favorable terms, or at all.

We operate in a highly competitive industry that includes a number of competitors, many of which are larger and more well-known than we are, which could limit our ability to achieve our growth strategies and could materially and adversely affect our business, financial condition, results of operations, cash flows and prospects.

We operate in highly competitive markets and compete with large and small industry participants. These companies compete for an increasing pool of retirement assets, driven primarily by aging of the U.S. population and the reduction in, and concerns about the viability of, financial safety nets historically provided by governments and employers. We face intense competition, including from U.S. and non-U.S. insurance and reinsurance companies, broker-dealers, financial advisors, asset managers and diversified financial institutions, with respect to both the products we offer and the acquisition and block reinsurance transactions we pursue. We compete based on a number of factors including perceived financial strength, credit ratings, brand recognition, reputation, quality of service, performance of our products, product features, scope of distribution and price. A decline in our competitive position as to one or more of these factors could adversely affect our profitability. In addition, we may in the future sacrifice our competitive or market position in order to improve our short-term profitability, particularly in the highly competitive retail markets, which may adversely affect our long-term growth and results of operations. Alternatively, we may sacrifice short-term profitability to maintain market share and long-term growth.

Many of our competitors are large and well-established and some have greater market share or breadth of distribution; offer a broader range of products, services or features; assume a greater level of risk; or have higher financial strength, claims-paying or credit ratings than we do. Our competitors may also have lower operating costs or return on capital requirements than we do which may allow them to price products, reinsurance arrangements or acquisitions more competitively. In recent years, there has been substantial consolidation among companies in the financial services industry due to economic turmoil resulting in increased competition from large, efficient, well-capitalized financial services firms. The competitive pressures arising from consolidation could result in increased pressure on the pricing of certain of our products and services, and could harm our ability to maintain or increase profitability. In addition, if our financial strength and credit ratings remain lower than the ratings of certain of our competitors, we may experience increased surrenders and/or an inability to reach sales targets, which may have a material and adverse effect on our growth, business, financial condition, results of operations, cash flows and prospects.

A significant portion of our retail annuities are sold through a proprietary distribution network.

We distribute annuity products through independent producers affiliated with certain IMOs. A significant portion of our retail annuity production results from sales of product in our BalancedChoice Annuity product series, which contains certain product features that are licensed from a third-party actuarial firm. Only IMOs which are affiliated with the Annexus Group are permitted to distribute the BalancedChoice Annuity product series. If we experienced a disruption in our relationship with the Annexus Group, it could have an adverse effect for a period of time on our annuity sales of this product series.

Item 1A. Risk Factors

Our investments are subject to market and credit risks that could diminish their value and these risks could be greater during periods of extreme volatility or disruption in the financial and credit markets, which could adversely impact our business, financial condition, results of operations, liquidity and cash flows.

Our investments and derivative financial instruments are subject to risks of credit defaults and changes in market values. Periods of macroeconomic weakness or recession, heightened volatility or disruption in the financial and credit markets could increase these risks, potentially resulting in other than temporary impairment of assets in our investment portfolio. We are also subject to the risk that cash flows generated from the collateral underlying the structured products we own may differ from our expectations in timing or amount. In addition, many of our classes of investments, but in particular our alternative investments, may produce investment income that fluctuates significantly from period to period. Any event reducing the estimated fair value of these securities, other than on a temporary basis, could have a material and adverse effect on our business, results of operations, financial condition, liquidity and cash flows. If our investment manager, AAM, fails to react appropriately to difficult market, economic and geopolitical conditions, our investment portfolio could incur material losses. Certain of our investments are more vulnerable to these risks than others, as described more fully below.

- *Fixed maturity and equity securities* – As of December 31, 2018, 79.3% of our total invested assets were invested in fixed maturity securities, equity securities, and short-term investments, including our investments in investment grade and high-yield corporate bonds and structured products, which include RMBS and CLOs. An economic downturn affecting the issuers or underlying collateral of these securities, a ratings downgrade affecting the issuers or guarantors of such securities, or similar trends and issues could cause the estimated fair value of our fixed income securities portfolio and our earnings to decline and the default rates of the fixed income securities in our portfolio to increase.

- *Collateralized loan obligations* – As of December 31, 2018, 7.5% of our total invested assets were invested in CLOs. Control over the CLOs in which we invest is exercised through collateral managers, who may take actions that could adversely affect our interests, and we may not have the right to direct collateral management. There may also be less information available to us regarding the underlying debt instruments held by CLOs than if we had invested directly in the debt of the underlying companies. Additionally, as subordinated interests, the estimated fair values of CLOs tend to be much more sensitive to adverse economic downturns and underlying borrower defaults than those of more senior securities. For example, as the secondary market pricing of the loans underlying CLOs deteriorated during the fourth quarter of 2008, it is our understanding that many investors were forced to raise cash by selling their interests in performing loans which resulted in a forced deleveraging cycle of price declines, compulsory sales and further price declines. While loan prices have recovered from the low levels experienced during the financial crisis, conditions in the large corporate leveraged loan market may deteriorate again, which may cause pricing levels to decline. Furthermore, our investments in CLOs are also subject to liquidity risk as there is a limited market for CLOs. Accordingly, we may suffer unrealized depreciation and could incur realized losses in connection with the sale of our CLO interests.

We have a risk management framework in place to identify, assess and prioritize risks, including the market and credit risks to which our investments are subject. As part of that framework, we test our investment portfolio based on various market scenarios. Under certain stressed market scenarios, unrealized losses on our investment portfolio could lead to material reductions in its carrying value. Under some extreme scenarios, total shareholders' equity could be negative for the period of time prior to any potential market recovery. See *Item 7A. Quantitative and Qualitative Disclosures About Market Risks*.

Our investments linked to real estate are subject to credit risk, market risk, servicing risk, loss from catastrophic events and other risks, which could diminish the value that we obtain from such investments.

As of December 31, 2018, 24.6% of our invested assets were linked to real estate, including 11.6% fixed maturity and equity securities, such as CMBS and RMBS, and 13.0% mortgage loans, including commercial mortgage loans (CML) and RML. Defaults by third parties in the payment or performance of their obligations underlying these assets could reduce our investment income and realized investment gains or result in the recognition of investment losses. For example, the value of our real estate-related assets depends in part on the financial condition of the borrowers, the value of the real properties underlying the mortgages and, for commercial properties, the financial condition of the tenants of the properties underlying those mortgages, as well as general and specific economic trends affecting the overall default rate. An unexpectedly high rate of default on mortgages held by a CMBS or RMBS may limit substantially the ability of the issuer of such security to make payments to holders of such securities, reducing the value of those securities or rendering them worthless. The risk of such defaults is generally higher in the case of mortgage securitizations that include "sub-prime" or "alt-A" mortgages. As of December 31, 2018, 19.0% of our holdings in assets linked to real estate were invested in such "sub-prime" mortgages and "alt-A" mortgages. Changes in laws and other regulatory developments relating to mortgage loans may impact the investments of our portfolio linked to real estate in the future. Additionally, cash flow variability arising from an unexpected acceleration in mortgage prepayment behavior can be significant, and could cause a decline in the estimated fair value of certain "interest only" securities or loans.

Item 1A. Risk Factors

The CML we hold, and CML underlying the CMBS that we hold, face both default and delinquency risk. Legislative proposals that would allow or require modifications to the terms of CML, an increase in the delinquency or default rate of our CML portfolio or geographic or sector concentration within our CML portfolio could materially and adversely impact our financial condition and results of operations. Our investments in RML and RMBS also present credit risk. Higher than expected rates of default or loss severities on our RML investments and the RML underlying our RMBS investments may adversely affect the value of such investments. A significant number of the mortgages underlying our RML and RMBS investments are concentrated in certain geographic areas. Any event that adversely affects the economic or real estate market in any of these areas could have a disproportionately adverse effect on our RML and RMBS investments. While we actively monitor our exposure to these and other risks inherent in this strategy, we cannot assure you that our hedging and risk management strategies will be effective. Any failure to manage these risks effectively could materially and adversely affect our financial condition and results of operations. A rise in home prices, concern regarding further changes to government policies designed to alter prepayment behavior, and increased availability of housing-related credit could combine to increase expected or actual prepayment speeds, which would likely lower the valuations of RML and the valuations of RMBS that we carry at a premium to par prices or that are structured as interest only securities and inverse interest only securities. In general, any significant weakness in the broader macro economy or significant problems in a particular real estate market may cause a decline in the value of residential properties securing the mortgages in that market, thereby increasing the risk of delinquency, default and foreclosure. This could, in turn, have a material adverse effect on our credit loss experience. As of December 31, 2018, of the 13.0% mortgage loans, 0.1% were in the process of foreclosure.

Control over the underlying assets in all of our real estate-related investments is exercised through servicers that we do not control. If a servicer is not vigilant in seeing that borrowers make their required periodic payments, borrowers may be less likely to make these payments, resulting in a higher frequency of delinquency and default. If a servicer takes longer to liquidate nonperforming mortgages, our losses related to those loans may be higher than we expected. Any failure by a servicer to service RMLs in which we are invested or which underlie a RMBS in which we are invested in a prudent, commercially reasonable manner could negatively impact the value of our investments in the related RML or RMBS.

Our investments in assets linked to real estate are also subject to loss in the event of catastrophic events, such as earthquakes, hurricanes, floods, tornadoes and fires. We have significant concentrations of real estate investments and collateral underlying investments linked to real estate in areas of the United States prone to catastrophe, including California, sections of the northeastern U.S., the South Atlantic states and the Gulf Coast. While loss experience in the event of a catastrophic event is contingent upon many factors, including the insured status of the underlying property and the seniority of our investment, in the case of structured securities, a catastrophic event impacting one or more of the aforementioned regions may cause some portion of the invested assets invested in assets linked to real estate to become impaired, which may have a material adverse impact on our financial condition and results of operations.

In addition to the credit and market risk that we face in relation to all of our real estate-related investments, certain of these investments may expose us to various environmental, regulatory and other risks. For example, our investment in RML could result in claims being assessed against us as a mortgage holder or property owner, including assignee liability, responsibility for tax payments, environmental hazards and other liabilities, including liabilities under the federal Comprehensive Environmental Response, Compensation and Liability Act of 1980. We may continue to be liable under such claims after foreclosing on a property securing a mortgage loan held by us. Additionally, we may be subject to regulation by the CFPB as a mortgage holder or property owner. We are currently unable to predict the impact of such regulation on our business. Any adverse environmental claim or regulatory action against us resulting from our investment in RML could adversely impact our reputation, business, financial condition and results of operations.

Many of our invested assets are relatively illiquid and we may fail to realize profits from these assets for a considerable period of time, or lose some or all of the principal amount we invest in these assets if we are required to sell our invested assets at a loss at inopportune times to cover policyholder withdrawals or to meet our insurance, reinsurance or other obligations.

We offer certain products that allow policyholders to withdraw their funds under defined circumstances. In order to meet such obligations, we seek to manage our liabilities and configure our investment portfolios to provide and maintain sufficient liquidity to support expected withdrawal demands and contract benefits and maturities. However, in order to provide necessary long-term returns and to achieve our strategic goals, a certain portion of our assets are relatively illiquid. Many of our investments are in securities that are not publicly traded or that otherwise lack liquidity, such as our privately placed fixed maturity securities, below investment grade securities, investments in mortgage loans and alternative investments.

We record our relatively illiquid types of investments at fair value. If we were forced to sell certain of our assets, there can be no assurance that we would be able to sell them for the values at which such assets are recorded and we might be forced to sell them at significantly lower prices. In many cases, we may be prohibited by contract or applicable securities laws from selling such securities for a period of time. When we hold a security or position, it is vulnerable to price and value fluctuations and may experience losses if we are unable to timely sell, hedge or transfer the position. Thus, it may be impossible or costly for us to liquidate positions rapidly in order to meet unexpected withdrawal or recapture obligations. This potential mismatch between the liquidity of our assets and liabilities could have a material and adverse effect on our business, financial condition, results of operations and cash flows.

Item 1A. Risk Factors

Our investment portfolio may be subject to concentration risk, particularly with respect to single issuers, including MidCap and AmeriHome; industries, including financial services; and asset classes, including real estate.

Concentration risk arises from exposure to significant asset defaults of a single issuer, industry or class of securities, based on economic conditions, geography or as a result of adverse regulatory or court decisions. When an investor's assets are concentrated and that particular asset or class of assets experiences significant defaults, the default of such assets could threaten the investor's financial condition. Our most significant potential exposures to concentration risk are our investments in MidCap, a provider of revolving and term debt facilities to middle market companies in North America and Europe, and in A-A Mortgage Opportunities, L.P. (A-A Mortgage) and its indirect investment in AmeriHome, a mortgage lender and mortgage servicer. As of December 31, 2018, our exposure, including loaned amounts, to MidCap was $791 million, which represented 0.7% of our total invested assets and 9.6% of total shareholders' equity. As of December 31, 2018, our exposure to A-A Mortgage was $463 million, which represented 0.4% of our total invested assets and 5.6% of total shareholders' equity. To the extent that we suffer a significant loss on our investment in MidCap or A-A Mortgage, our financial condition and results of operations could be adversely affected.

Our significant single issuer holdings, including MidCap and AmeriHome, are concentrated largely in the financial services industry and such businesses' activities largely focus upon providing financing to both individuals and entities. As a result, we have significant exposure to credit risk, which may be adversely impacted by changes in macroeconomic conditions, regulation and other factors. To the extent that such changes occur and cause a deterioration in the creditworthiness of the counterparties of these investees, we may suffer significant losses on our investments in these entities and our financial condition and results of operations could be adversely affected. In addition to the concentration risk arising from our investments in single issuers within the financial services industry, we have significant exposure to this industry as a result of the composition of investments in our broader investment portfolio. As of December 31, 2018, 15% of our total invested assets were invested in issuers within the financial services industry, excluding CLOs. Any macroeconomic, regulatory or other changes having an adverse impact on the financial services industry more broadly, could have a material and adverse effect on our business, financial condition, results of operations and cash flows.

As of December 31, 2018, 25% of our total invested assets were invested in real estate-related assets. Any significant decline in the value of real estate generally or the occurrence of any of the risks described above with respect to our real estate-related investments could materially and adversely affect our financial condition and results of operations.

Our investment portfolio may include investments in securities of issuers based outside the U.S., including emerging markets, which may be riskier than securities of U.S. issuers.

We may invest in securities of issuers organized or based outside the U.S. that may involve heightened risks in comparison to the risks of investing in U.S. securities, including unfavorable changes in currency rates and exchange control regulations, reduced and less reliable information about issuers and markets, less stringent accounting standards, illiquidity of securities and markets, higher brokerage commissions, transfer taxes and custody fees, local economic or political instability and greater market risk in general. In particular, investing in securities of issuers located in emerging market countries involves additional risks, such as exposure to economic structures that are generally less diverse and mature than, and to political systems that can be expected to have less stability than, those of developed countries; national policies that restrict investment by foreigners in certain issuers or industries of that country; the absence of legal structures governing foreign investment and private property; an increased risk of foreclosure on collateral located in such countries; a lack of liquidity due to the small size of markets for securities of issuers located in emerging markets; and price volatility.

As of December 31, 2018, 30% of the carrying value of our available-for-sale (AFS) securities, including related parties, was comprised of securities of issuers based outside of the U.S. and debt securities of foreign governments. Of our total AFS securities, including related parties, as of December 31, 2018, 9% were invested in CLOs of Cayman Islands issuers (for which the underlying assets are largely loans to U.S. issuers) and 21% were invested in other non-U.S. issuers. While we invest in securities of non-U.S. issuers, the currency denominations of such securities usually match the currency denominations of the liabilities that the assets support. When the currency denominations of the assets and liabilities do not match, we generally undertake hedging activities to eliminate or mitigate currency mismatch risk. See *Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations–Consolidated Investment Portfolio* for further information on international exposure.

Item 1A. Risk Factors

Our growth strategy includes acquisitions and block reinsurance transactions, and our ability to consummate these transactions on economically advantageous terms acceptable to us in the future is unknown.

We have grown and intend to grow our business in the future in part by acquisitions of other insurance companies and businesses, and through block reinsurance, each of which could require additional capital, systems development and skilled personnel. We may experience challenges identifying, financing, consummating and integrating such acquisitions and block reinsurance transactions. While we have reviewed various opportunities and have successfully completed transactions in the past to facilitate our growth, competition exists in the market for profitable blocks of insurance and businesses. Such competition is likely to intensify as insurance businesses become more attractive targets. It is also possible that merger and acquisition transactions will become less frequent, which could also make it more difficult for us to implement our growth strategy as we have done in the past. Thus, in the future, we may not be able to find suitable acquisition or block reinsurance opportunities that are available at attractive valuations, if at all. Even if we do find suitable opportunities, we may not be able to consummate the transactions on commercially acceptable terms. In addition, to the extent we determine to finance an acquisition or block reinsurance transaction, suitable financing arrangements may not be available on acceptable terms, on a timely basis, or at all. Our acquisition and block reinsurance transaction activities may also divert the attention of our management from our business, which may have an adverse effect on our business and results of operations.

If we are unable to attract and retain IMOs, agents, banks and broker-dealers, sales of our products may be adversely affected.

We distribute our annuity products through a variable cost distribution network, which includes approximately 55 IMOs, more than 36,000 independent agents, nine banks and 75 regional broker-dealers. We must attract and retain such marketers, agents and financial institutions to sell our products. In particular, insurance companies compete vigorously for productive and profitable agents. We compete with other life insurance companies for marketers, agents and financial institutions primarily on the basis of our financial position, support services, compensation, credit ratings and product features. Such marketers, agents and financial institutions may promote products offered by other life insurance companies that may offer a larger variety of products than we do. Our competitiveness for such marketers, agents and financial institutions also depends upon the long-term relationships we develop with them. There can be no assurance that such relationships will continue in the future. In addition, our growth plans include increasing the distribution of annuity products through small and mid-size banks and regional broker-dealers. If we are unable to attract and retain sufficient marketers and agents to sell our products or if we are not successful in expanding our distribution channels within the bank and broker-dealer markets, our ability to compete and our sales volumes and results of operations could be adversely affected.

Repurchase agreement programs subject us to potential liquidity and other risks.

We may engage in repurchase agreement transactions whereby we sell fixed income securities to third parties, primarily major brokerage firms or commercial banks, with a concurrent agreement to repurchase such securities at a determined future date. These repurchase agreements provide us with liquidity and in certain instances also allow us to earn spread income. Under such agreements we may be required to deliver additional securities or cash as margin to the counterparty if the value of the securities sold decreases prior to the repurchase date. If we are required to return significant amounts of cash collateral or post cash or securities as margin on short notice or have inadequate cash on hand as of the repurchase date, we may be forced to sell securities to meet such obligations and may have difficulty doing so in a timely manner or may be forced to sell securities in a volatile or illiquid market for less than we otherwise would have been able to realize under normal market conditions. Rehypothecation of subject securities by the counterparty may also create risk with respect to the counterparty's ability to perform its obligations to tender such securities on the repurchase date. Such facilities may not be available to us on favorable terms or at all in the future.

A financial strength rating downgrade, potential downgrade or any other negative action by a rating agency could make our product offerings less attractive, inhibit our ability to acquire future business through acquisitions or reinsurance and increase our cost of capital, which could have a material adverse effect on our business.

Various NRSROs review the financial performance and condition of insurers and reinsurers, including our subsidiaries, and publish their financial strength ratings as indicators of an insurer's ability to meet policyholder obligations. These ratings are important to maintaining public confidence in our insurance subsidiaries' products, our insurance subsidiaries' ability to market their products and our competitive position. Factors that could negatively influence this analysis include:

- changes to our business practices or organizational business plan in a manner that no longer supports our ratings;
- unfavorable financial or market trends;
- a need to increase reserves to support our outstanding insurance obligations;
- our inability to retain our senior management and other key personnel;
- rapid or excessive growth, especially through large reinsurance transactions or acquisitions, beyond the bounds of capital sufficiency or management capabilities as judged by the NRSROs;
- significant losses to our investment portfolio; and
- changes in NRSROs' capital adequacy assessment methodologies in a manner that would adversely affect the financial strength ratings of our insurance subsidiaries.

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Some other factors may also relate to circumstances outside of our control, such as views of the NRSRO and general economic conditions. Any downgrade or other negative action by a NRSRO with respect to the financial strength ratings of our insurance subsidiaries, or an entity we acquire, or our credit ratings, could materially adversely affect us and our ability to compete in many ways, including the following:

- reducing new sales of insurance products;
- harming relationships with or perceptions of distributors, IMOs, sales agents, banks and broker-dealers;
- increasing the number or amount of policy lapses or surrenders and withdrawals of funds, which may result in a mismatch of our overall asset and liability position;
- requiring us to offer higher crediting rates or greater policyholder guarantees on our insurance products in order to remain competitive;
- increase our borrowing costs;
- reducing our level of profitability and capital position generally or hindering our ability to raise new capital; or
- requiring us to collateralize obligations under or result in early or unplanned termination of hedging agreements and harming our ability to enter into new hedging agreements.

In order to improve or maintain their financial strength ratings, our subsidiaries may attempt to implement business strategies to improve their capital ratios. We cannot guarantee any such measures will be successful. We cannot predict what actions NRSROs may take in the future, and failure to improve or maintain current financial strength ratings could materially and adversely affect our business, financial condition, results of operations and cash flows.

We are subject to significant operating and financial restrictions imposed by our credit agreement and we are also subject to certain operating restrictions imposed by the indenture to which we are a party.

The credit agreement dated January 22, 2016, as amended, by and among AHL, ALRe, Athene USA and AARe, as borrowers, each lender from time to time party thereto and Citibank, N.A., as administrative agent (Credit Facility) contains various restrictive covenants which limit, among other things, AHL's, ALRe's, Athene USA's, and AARe's ability, and in certain instances, some or all of their subsidiaries' ability, to:

- incur additional indebtedness, make guarantees and enter into derivative arrangements;
- create liens on our or such subsidiaries' assets;
- make fundamental changes;
- engage in certain transactions with affiliates;
- make changes in the nature of our business; and
- pay dividends and distributions or repurchase our common shares.

These covenants, some of which are financial, may prevent or restrict us from capitalizing on business opportunities, including making additional acquisitions or growing our business. In addition, if AHL undergoes a "change of control" as defined in the Credit Facility, the lenders under the Credit Facility will have the right to terminate the facility and/or accelerate the maturity of all outstanding loans. As of December 31, 2018, we were in compliance with all covenants and no borrowings under the Credit Facility were outstanding. As a result of these restrictions and their effects on us, we may be limited in how we conduct our business and may be unable to raise additional debt financing to compete effectively or to take advantage of new business opportunities.

In addition to the covenants to which we are subject pursuant to our Credit Facility, AHL is also subject to certain limited covenants pursuant to the Indenture, dated January 12, 2018, by and between us and U.S. Bank National Association, as trustee (Base Indenture), as supplemented by the First Supplemental Indenture, dated as of January 12, 2018, by and among us and U.S. Bank National Association, as trustee (together with the Base Indenture, Indenture). The Indenture was entered into in connection with AHL's issuance of its 4.125% Senior Notes due 2028 and contains restrictive covenants which limit, subject to certain exceptions, AHL's and, in certain instances, some or all of its subsidiaries' ability to make fundamental changes, create liens on any capital stock of certain of AHL's subsidiaries, and sell or dispose of the stock of certain of AHL's subsidiaries. These covenants may prevent or restrict takeovers or business combinations that our shareholders might consider in their best interest.

The terms of any future indebtedness we may incur may contain additional restrictive covenants.

Item 1A. Risk Factors

We are subject to the credit risk of our counterparties, including ceding companies who reinsure business to ALRe, reinsurers who assume liabilities from our subsidiaries and derivative counterparties.

Our insurance subsidiaries may cede certain risks to third-party insurance companies through reinsurance. In connection with the acquisitions of our two largest U.S. insurance subsidiaries, we entered into reinsurance agreements with Protective and Global Atlantic to effectuate a sale of substantially all of the life insurance business that we received in connection with such acquisitions. Because these agreements involve reinsurance of entire business segments, each covers a much larger volume of business than would a traditional reinsurance agreement, thereby exposing us to a concentration of credit risk with respect to each of these two counterparties. Certain of Protective's financial obligations under its reinsurance agreement with us are secured by assets placed in a trust for our benefit and Global Atlantic is obligated to maintain assets in custody accounts for our benefit to support substantially all of its financial obligations under its reinsurance agreements with us. However, we do not have a security interest in the assets in the custody accounts supporting the Global Atlantic reinsurance agreements. Therefore, in the event of an insolvency of the Global Atlantic insurance company acting as reinsurer, our claims would be subordinated to those of such insurance company's policyholders and the assets in the relevant custody accounts may be available to satisfy the claims of such insurance company's general creditors in addition to our claims.

As with any reinsurance agreement, we remain liable to our policyholders if Protective or Global Atlantic fail to perform. Although each agreement provides that Protective and Global Atlantic, respectively, agree to indemnify us for losses sustained in connection with their respective performances of each agreement, such indemnification may not be adequate to compensate us for losses actually incurred in the event that Protective or Global Atlantic are either unable or unwilling to perform according to the agreements' terms. In addition to possible losses that could be incurred if our subsidiaries are forced to recapture these blocks, such subsidiaries may also face a substantial shortfall in capital to support the recaptured business, possibly resulting in material declines to the insurer's RBC ratio and/or creditworthiness and potentially expose the insurer to ratings downgrades, regulatory intervention, increased policyholder withdrawals or other negative effects.

ALRe and certain of our U.S. insurance subsidiaries reinsure liabilities from other insurance companies. Changes in the ratings, creditworthiness or market perception of such ceding companies or problems with the administration of policies reinsured to us could cause policyholders to surrender or lapse their policies in unexpected amounts. In addition, to the extent such ceding companies do not perform under their reinsurance agreements with us, we may not achieve the results we intended and could suffer unexpected losses. Our exposure to our subsidiaries' reinsurance counterparties could materially adversely affect our business, financial condition, results of operations and cash flows. In particular, our reinsurance agreement with VIAC exposes us to risks associated with impairments in financial strength or perceived financial strength of VIAC and its parent company Venerable Holdings, Inc (together with its subsidiaries, Venerable), an impairment to either of which may result in the surrender of policies earlier and in quantities greater than expected at the time the transaction was priced. In addition, Venerable will administer the fixed annuity block being reinsured. To the extent that Venerable fails to perform under our reinsurance agreement and associated arrangements, we may not achieve the return targets expected at the time the transaction was priced and our financial position and results of operations may thereby or otherwise be adversely affected.

In addition, we are exposed to credit loss in the event of nonperformance by our counterparties on derivative agreements. We seek to further reduce the risk associated with such agreements by entering into such agreements with large, well-established financial institutions. However, there can be no assurance that we will not suffer losses in the event a derivative counterparty fails to perform or fulfill its obligations.

We rely significantly on third parties for various services, and we may be held responsible for obligations that arise from the acts or omissions of third parties under their respective agreements with us if they are deemed to have acted on our behalf.

We rely significantly on third parties to provide various services that are important to our business, including investment, distribution and administrative services. As such, our business may be affected by the performance of those parties. Additionally, our operations are dependent on various technologies, some of which are provided or maintained by certain key outsourcing partners and other parties. See *Item 1. Business–Outsourcing* for certain of the functions that we outsource to third parties.

Many of our subsidiaries' products and services are sold through third-party intermediaries. In particular, our insurance businesses are reliant on such intermediaries to describe and explain these products and services to potential customers, and although we take precautions to avoid this result, such intermediaries may be deemed to have acted on our behalf. If that occurs, the intentional or unintentional misrepresentation of our subsidiaries' products and services in advertising materials or other external communications, or inappropriate activities by an intermediary or personnel employed by an intermediary could result in liability for us and have an adverse effect on our reputation and business prospects, as well as lead to potential regulatory actions or litigation involving or against us. In addition, we rely on third-party administrators (TPAs) to administer a portion of our annuity contracts, as well as our legacy life insurance business. Some of our reinsurers also use TPAs to administer business we reinsure to them. To the extent any of these TPAs do not administer such business appropriately, we have and may in the future experience customer complaints, regulatory intervention and other adverse impacts, which could affect our future growth and profitability. If any of these TPAs or their employees are found to have made material misrepresentations to our policyholders, violated applicable insurance, privacy or other laws and regulations or otherwise engaged in misconduct, we could be held liable for their actions and be subject to regulatory scrutiny, which could adversely affect our reputation, business prospects, financial condition, results of operations and cash flows.

Item 1A. Risk Factors

Our U.S. insurance subsidiaries have experienced increased service and administration complaints related to the conversion and administration of the block of life insurance business acquired in connection with our acquisition of Aviva USA and reinsured to affiliates of Global Atlantic. The life insurance policies included in this block have been and are currently being administered by AllianceOne, a subsidiary of DXC Technology Company, which was retained by such Global Atlantic affiliates to provide services on such policies. AllianceOne also administers certain annuity policies that were on Aviva USA's legacy policy administration systems that were also converted in connection with the acquisition of Aviva USA and have experienced similar service and administration issues.

As a result of the difficulties experienced with respect to the administration of such policies, we have received notifications from several state regulators, including but not limited to the NYSDFS, the California Department of Insurance and the Texas Department of Insurance, indicating, in each case, that the respective regulator planned to undertake a market conduct examination or enforcement proceeding of the applicable U.S. insurance subsidiary relating to the treatment of policyholders subject to our reinsurance agreements with affiliates of Global Atlantic and the conversion of such annuity policies, including the administration of such blocks by AllianceOne. On June 28, 2018 we entered into a consent order with the NYSDFS resolving that matter in a manner that, when considering the indemnification received from affiliates of Global Atlantic, did not have a material impact on our financial condition, results of operations or cash flows.

In addition to the foregoing, we have received inquiries, and expect to continue to receive inquiries, from other regulatory authorities regarding the conversion matter. In addition to the examinations and proceedings initiated to date, it is possible that other regulators may pursue similar formal examinations, inquiries or enforcement proceedings and that any examinations, inquiries and/or enforcement proceedings may result in fines, administrative penalties and payments to policyholders. While we do not expect the amount of any such fines, penalties or payments arising from these matters to be material to our financial condition, results of operations or cash flows, it is possible that such amounts could be material.

Pursuant to the terms of the reinsurance agreements between us and the relevant affiliates of Global Atlantic, the applicable affiliates of Global Atlantic have financial responsibility for the ceded life block and are subject to significant administrative service requirements, including compliance with applicable law. The agreements also provide for indemnification to us, including for administration issues.

Additionally, past or future misconduct by agents that distribute our subsidiaries' products or employees of our vendors could result in violations of law by us, regulatory sanctions and/or serious reputational or financial harm and the precautions we take to prevent and detect this activity may not be effective in all cases. Although we employ controls and procedures designed to monitor associates' business decisions and to prevent us from taking excessive or inappropriate risks, associates may take such risks regardless of such controls and procedures.

Foreign currency fluctuations may reduce our net income and our capital levels, adversely affecting our financial condition.

We are exposed to foreign currency exchange rate risk through the investments in our investment portfolio that are denominated in currencies other than the U.S. dollar or are issued by entities which primarily conduct their business outside of the U.S. We may employ various strategies (including hedging) to manage our exposure to foreign currency exchange risk. To the extent that these exposures are not fully hedged or the hedges are ineffective, our results or equity may be reduced by fluctuations in foreign currency exchange rates that could materially adversely affect our financial condition and results of operations.

Our business in Bermuda could be adversely affected by Bermuda employment restrictions.

As of December 31, 2018, we employed 28 non-Bermudians in our Bermuda office (other than spouses of Bermudians, holders of permanent residents' certificates, and holders of working residents' certificates). We may hire additional non-Bermudians as our business grows. Under Bermuda law, non-Bermudians (other than spouses of Bermudians, holders of permanent residents' certificates, and holders of working residents' certificates) generally may not engage in any gainful occupation in Bermuda without a valid government work permit (with certain exceptions). A work permit is generally granted or renewed upon showing that, after proper public advertisement, no Bermudian, spouse of a Bermudian, or holder of a permanent resident's or working resident's certificate who meets the minimum standards reasonably required by the employer has applied for the job. Work permit terms that are available for request range from three months to five years. We may not be able to use the services of one or more of our non-Bermudian employees if we are not able to obtain, or in certain instances renew, work permits for them, which could have a material adverse effect on our business, financial condition and results of operations.

Interruption or other operational failures in telecommunications, information technology and other operational systems or a failure to maintain the security, integrity, confidentiality or privacy of sensitive data residing on those systems, including as a result of human error, could have a material adverse effect on our business.

We are highly dependent on automated and information technology systems to record and process our internal transactions and transactions involving our customers, as well as to calculate reserves, value our investment portfolio and complete certain other components of our financial statements. We could experience a failure of one of these systems, our employees or agents could fail to monitor and implement enhancements or other modifications to a system in a timely and effective manner or our employees or agents could fail to complete all necessary data reconciliation or other conversion controls when implementing a new software system or modifications to an existing system. Additionally, anyone who is able to circumvent our security measures and penetrate our information technology systems could access, view, misappropriate, alter or delete information in the systems, including personally identifiable customer information and proprietary business information. Information security risks also exist with respect to the use of portable electronic devices, such as laptops, which are particularly vulnerable to loss and theft.

We believe that we have established and implemented appropriate security measures, controls and procedures to safeguard our information technology systems and to prevent unauthorized access to such systems and any data processed or stored in such systems, and we periodically evaluate and test the adequacy of such systems, controls and procedures. In addition, we have established a business continuity plan which is designed to ensure that we are able to maintain all aspects of our key business processes functioning in the midst of certain disruptive events, including any disruptions to or breaches of our information technology systems. Despite the implementation of security and back-up measures, our information technology systems may be vulnerable to physical or electronic intrusions, viruses or other attacks, programming errors and similar disruptions. We may also be subject to disruptions of any of these systems arising from events that are wholly or partially beyond our control (for example, natural disasters, acts of terrorism, epidemics, computer viruses and electrical or telecommunications outages). All of these risks are also applicable where we rely on outside vendors to provide services to us and/or our customers. The failure of any one of these systems for any reason, or errors made by our employees or agents, could in each case cause significant interruptions to our operations, which could harm our reputation, adversely affect our internal control over financial reporting or have a material adverse effect on our business, financial condition and results of operations.

We retain confidential information in our information technology systems and those of our business partners, and we rely on industry standard commercial technologies to maintain the security of those systems. Despite our implementation of network security measures, our servers could be subject to physical and electronic intrusions, and similar disruptions from unauthorized tampering with our computer systems. While we perform penetration tests and have adopted a number of measures to protect the security of customer and company data, and to our knowledge have not experienced a successful cyber attack that has resulted in any material compromise in the security of our information technology systems, there is no guarantee that such an attack will not occur or be successful in the future.

Any compromise of the security of our information technology systems that results in inappropriate disclosure or use of confidential information, including personally identifiable customer information, could damage the reputation of our brand in the marketplace, deter purchases of our products, subject us to heightened regulatory scrutiny or significant civil and criminal liability and require us to incur significant technical, legal and other expenses.

Even in the absence of a compromise in the security of our information technology systems, inappropriate disclosure or use of personally identifiable customer information may occur in the event of a compromise in the security of the information technology systems of our third-party advisors or business partners with whom we share such data. Any such inappropriate disclosure or use could likewise damage the reputation of our brand in the marketplace, deter purchases of our products, subject us to heightened regulatory scrutiny or significant civil and criminal liability and require us to incur significant technical, legal and other expenses.

We may be the target or subject of, and may be required to defend against or respond to, litigation, regulatory investigations or enforcement actions.

We operate in an industry in which various practices are subject to potential litigation, including class actions, and regulatory scrutiny. We, like other financial services companies, are involved in litigation and arbitration in the ordinary course of business and may be the subject of regulatory proceedings (including investigations and enforcement actions). Plaintiffs may seek large or indeterminate amounts of damages in litigation and regulators may seek large fines in enforcement actions. Given the large or indeterminate amounts sometimes sought, and the inherent unpredictability of litigation and enforcement actions, it is possible that an unfavorable resolution of one or more matters could have a material and adverse effect on our business, financial condition, results of operations and cash flows. See Item 3. Legal Proceedings for certain matters to which we are a party.

Uncertainty relating to the LIBOR calculation process and potential phasing out of LIBOR after 2021 may adversely affect the value of our investment portfolio and may further affect our ability to issue funding agreements bearing a floating rate of interest.

Regulators and law enforcement agencies in the UK and elsewhere have conducted civil and criminal investigations into whether the banks that contribute to the British Bankers' Association (BBA) in connection with the calculation of daily LIBOR may have been under-reporting or otherwise manipulating or attempting to manipulate LIBOR. A number of BBA member banks have entered into settlements with their regulators and law enforcement agencies with respect to this alleged manipulation of LIBOR.

Actions by the BBA, regulators or law enforcement agencies will result in changes to the manner in which LIBOR is determined or used and in the establishment of alternative reference rates. On July 27, 2017, the UK Financial Conduct Authority announced that it intends to stop persuading or compelling banks to submit LIBOR rates after 2021. The UK Financial Conduct Authority has indicated that it expects that the current member banks will voluntarily sustain LIBOR until the end of 2021, but they have no obligation to do so, and may discontinue their activities at any time. At this time, it is not possible to predict the effect of any such changes, any establishment of alternative reference rates or any other reforms to LIBOR that may be enacted in the United Kingdom or elsewhere.

Item 1A. Risk Factors

The Alternative Reference Rate Committee of the New York office of the Board of Governors of the Federal Reserve (ARRC), and the International Swaps and Derivatives Association (ISDA), have taken significant steps toward the development of consensus-based fallbacks and alternatives to LIBOR, which appear constructive for end-users, such as life insurers. The fallback proposals are intended to minimize disruptions if LIBOR is no longer usable. In addition, ISDA is amending its standard documentation to implement fallbacks for certain key interbank offered rates (IBORs). The fallbacks will apply if the relevant IBOR is permanently discontinued, based on defined triggers. There can be no assurance, however, that the alternative rates and fallbacks will be effective at preventing or mitigating disruption as a result of the transition. Should such disruption occur, it may adversely affect, among other things, (1) the trading market for LIBOR-based securities, including those held in our investment portfolio, (2) the market for derivative instruments, including those that we use to achieve our hedging objectives, and (3) our ability to issue funding agreements bearing a floating rate of interest. As of December 31, 2018, 17% of our invested assets were floating rate investments, some of which were referenced to LIBOR.

Risks Relating to Our Investment Manager

We rely on our investment management agreements with AAM for the management of our investment portfolio. AAM may terminate these arrangements at any time, and there are limitations on our ability to terminate such arrangements, which may adversely affect our investment results.

We rely on AAM to provide us with investment management services pursuant to various investment management agreements (IMAs). AAM relies in part on its ability to attract and retain key people, and the loss of services of one or more of the members of AAM's senior management could delay or prevent AAM from fully implementing our investment strategy.

IMA Termination Rights

Our bye-laws currently provide that we may not, and will cause our subsidiaries not to, terminate any IMA among us or any of our subsidiaries, on the one hand, and AAM, on the other hand, before any annual anniversary of October 31 (each such date, an IMA Termination Election Date) and any termination on an IMA Termination Election Date requires (i) the approval of two-thirds of our Independent Directors (as defined below) and (ii) written notice to AAM of such termination at least 30 days' prior to an IMA Termination Election Date. If our Independent Directors make any such election to terminate and notice of such termination is delivered, the termination will be effective on the second anniversary of the applicable IMA Termination Election Date (IMA Termination Effective Date). Notwithstanding the foregoing, (A) except as set forth in (B) below, our Independent Directors may only elect to terminate an IMA on an IMA Termination Election Date if two-thirds of our Independent Directors determine, in their sole discretion and acting in good faith, that either (i) there has been unsatisfactory long-term performance materially detrimental to us by AAM, or (ii) the fees being charged by AAM are unfair and excessive compared to a comparable asset manager (provided, that in either case such Independent Directors must deliver notice of any such determination to AAM and AAM will have until the applicable IMA Termination Effective Date to address such concerns, and provided, further, that in the case of such a determination that the fees being charged by AAM are unfair and excessive, AAM has the right to lower its fees to match the fees of such comparable asset manager) and (B) upon the determination by two-thirds of our Independent Directors, we or our subsidiaries may also terminate an IMA with AAM as a result of either (i) a material violation of law relating to AAM's advisory business, or (ii) AAM's gross negligence, willful misconduct or reckless disregard of AAM's obligations under the relevant agreement, and in either case the delivery of written notice at least 30 days' prior to such termination and such termination will be effective at the end of such 30-day period (the events described in the foregoing clauses (A) and (B) are referred to in more detail in our bye-laws as "AHL Cause"). For purposes of these provisions of the bye-laws, an "Independent Director" cannot be (x) an officer or employee of ours or any of our subsidiaries or (y) an officer or employee of (1) any member of the Apollo Group described in clauses (i) through (iv) of the definition of "Apollo Group" as set forth in our bye-laws or (2) AGM or any of its subsidiaries (excluding any subsidiary that constitutes any portfolio company (or investment) of (A) an investment fund or other investment vehicle whose general partner, managing member or similar governing person is owned, directly or indirectly, by AGM or by one or more of its subsidiaries or (B) a managed account agreement (or similar arrangement) whereby AGM or one or more of its subsidiaries serves as general partner, managing member or in a similar governing position). The limitations on our ability to terminate the IMAs with AAM could have a material adverse effect on our financial condition and results of operations.

Our organizational documents give our Independent Directors complete discretion, while acting in good faith, as to whether to determine if an AHL Cause event has occurred with respect to any IMA with AAM, and therefore our Independent Directors are under no obligation to make, and accordingly may exercise their discretion never to make, such a determination.

The boards of directors of AHL's subsidiaries may terminate an IMA with AAM relating to the applicable subsidiary if such subsidiary's board of directors determines that such termination is required in the exercise of its fiduciary duties. If our subsidiaries do elect to terminate any such agreement, other than as provided above, we may be in breach of our bye-laws, which could subject us to regulatory scrutiny, expose us to shareholder lawsuits and could have a negative effect on our financial condition and results of operations.

On September 20, 2018, we entered into a letter agreement (Letter Agreement) with AAM. In the Letter Agreement, (1) we confirmed that AHL's board of directors approved, and recommended that AHL's shareholders approve, the amendment and restatement of our bye-laws (Existing Bye-Laws) in substantially the form attached as an exhibit to the Letter Agreement (Proposed Bye-Laws) and (2) we agreed that we will seek the approval of AHL's shareholders of the amendment and restatement of our bye-laws in substantially such form at the next annual general meeting of AHL's shareholders.

Item 1A. Risk Factors

The Proposed Bye-Laws, if adopted as our bye-laws, will amend the initial IMA Termination Election Date (as defined in the Existing Bye-Laws) to be the fourth anniversary of the date on which the Proposed Bye-Laws are adopted as our bye-laws and each two-year anniversary thereafter. The Proposed Bye-Laws, if adopted as our bye-laws, will continue to permit us to terminate the IMA, or any New IMA (as each such term is defined in the Existing Bye-Laws), for AHL Cause.

Investment Management Fees

Further, except in limited circumstances, we currently pay AAM 0.40% per year on assets managed up to $65.8 billion and 0.30% per year on assets managed in excess of such amount. We pay additional fees to Apollo and its affiliates for providing sub-advisory services and acting as manager of investment funds in which we invest. Any such fees may be higher than what other investment managers may be willing to charge us currently for investment services. Because of the services and the unique acquisition opportunities provided by AAM and Apollo that we are able to access that many other companies cannot, we do not currently expect our board of directors or our Independent Directors would elect to terminate any IMA.

Pursuant to the Letter Agreement, we agreed to amend and restate the Sixth Amended and Restated Fee Agreement, dated June 7, 2018, between us and AAM (the "Existing Fee Agreement") in substantially the form attached as an exhibit to the Letter Agreement (the "Proposed Amended Fee Agreement"), subject to the approval by our shareholders of the Proposed Bye-Laws.

The Proposed Amended Fee Agreement provides for a monthly fee to be payable by us to AAM in arrears, with retroactive effect to the month beginning on January 1, 2019, in an amount equal to the following, to the extent not otherwise payable to Apollo pursuant to any one or more investment management or sub-advisory agreements or arrangements:

(1) a base management fee equal to the sum of (i) 0.225% per annum of the lesser of (A) the aggregate market value of substantially all of the assets in substantially all of the investment accounts of or relating to us (collectively, the Accounts) on December 31, 2018 (Backbook Value) and (B) the aggregate market value of substantially all of the assets in the Accounts at the end of the respective month, plus (ii) 0.15% per annum of the amount, if any (Incremental Value), by which the aggregate market value of substantially all of the assets in the Accounts at the end of the respective month exceeds the Backbook Value; plus

(2) with respect to each asset in an Account, subject to certain exceptions, that is managed by Apollo and that belongs to a specified asset class tier ("core," "core plus," "yield," and "high alpha"), a sub-allocation fee as follows, which will, in the case of assets acquired after January 1, 2019, be subject to a cap of 10% of the applicable asset's gross book yield, as further described in the Proposed Amended Fee Agreement:

- (i) 0.065% of the market value of "core assets," which include public investment grade corporate bonds, municipal securities, and agency RMBS;
- (ii) 0.13% of the market value of "core plus assets," which include private investment grade corporate bonds, first lien CML, and long-term fixed rate mortgages;
- (iii) 0.375% of the market value of "yield assets," which include non-agency RMBS, investment grade CLO, CMBS and other asset-backed securities (ABS) (other than RMBS), emerging market investments, below investment grade corporate bonds, residential mortgage loans, triple net leases, bank loans, investment grade infrastructure debt, and lower yielding floating rate mortgages;
- (iv) 0.70% of the market value of "high alpha assets," which include mezzanine CML, below investment grade CLO, preferred equity, assets originated by MidCap, higher yielding mortgages and below investment grade infrastructure debt; and
- (v) 0.00% of the market value of cash, treasuries, equities and alternatives.

The base management fee covers a range of investment services that we receive from Apollo, including investment management, asset allocation, mergers and acquisition asset diligence and certain operational support services such as investment compliance, tax, legal and risk management support, among others. Additionally, the Proposed Amended Fee Agreement provides for a possible payment by AAM to us, or a possible payment by us to AAM, equal to 0.025% of the Incremental Value as of the end of each year, beginning on December 31, 2019, depending upon the percentage of our investments that consist of core assets and core plus assets. If more than 60% of our invested assets that are subject to the sub-allocation fees are invested in core and core plus assets, we will receive a 0.025% fee reduction on the Incremental Value. If less than 50% of our invested assets that are subject to the sub-allocation fee are invested in core and core plus assets, we will pay an additional fee of 0.025% on Incremental Value.

Termination by AAM

Conversely, we may be adversely affected if AAM elects to terminate an IMA at a time when such agreement remains advantageous to us. We depend upon AAM to implement our investment strategy. However, AAM does not face the restrictions described above with regards to its ability to terminate any of its agreements with us and may terminate such agreements at any time. If AAM chooses to terminate such agreements, there is no assurance that we could find a suitable replacement or that certain of the opportunities made available to us as a result of our relationship with AAM and Apollo would be offered by a suitable replacement, and therefore our financial condition and results of operations could be adversely impacted by our failure to retain a satisfactory investment manager.

Item 1A. Risk Factors

Interruption or other operational failures in telecommunications, information technology and other operational systems at AAM or a failure to maintain the security, integrity, confidentiality or privacy of sensitive data residing on AAM's systems, including as a result of human error, could have a material adverse effect on our business.

We are highly dependent on AAM, as our investment manager, to maintain information technology and other operational systems to record and process its transactions with respect to our investment portfolio, which includes providing information that enables us to value our investment portfolio and may affect our financial statements. AAM could experience a failure of one of these systems, its employees or agents could fail to monitor and implement enhancements or other modifications to a system in a timely and effective manner or its employees or agents could fail to complete all necessary data reconciliation or other conversion controls when implementing a new software system or modifications to an existing system. Additionally, anyone who is able to circumvent AAM's security measures and penetrate its information technology systems could access, view, misappropriate, alter or delete information in the systems, including proprietary information relating to our investment portfolio. The maintenance and implementation of these systems at AAM is not within our control. Should AAM's systems fail to accurately record information pertaining to our investment portfolio, we may inadvertently include inaccurate information in our financial statements and experience a lapse in our internal control over financial reporting. The failure of any one of these systems at AAM for any reason, or errors made by its employees or agents, could cause significant interruptions to its operations, which could adversely affect our internal control over financial reporting or have a material adverse effect on our business, financial condition and results of operations.

The historical performance of AAM should not be considered as indicative of the future results of our investment portfolio, our future results or any returns expected on our common shares.

Our investment portfolio's returns have benefited historically from investment opportunities and general market conditions that currently may not exist and may not repeat themselves, and there can be no assurance AAM will be able to avail itself of profitable investment opportunities in the future. Furthermore, the historical returns of our investments managed by AAM are not directly linked to returns on our common shares, which are affected by various factors, one of which is the value of our investment portfolio. In addition, AAM is compensated based solely on our assets it manages, rather than by investment return targets. Accordingly, there can be no guarantee AAM will be able to achieve any particular return for our investment portfolio in the future.

Risks Relating to Insurance and Other Regulatory Matters

Our industry is highly regulated and we are subject to significant legal restrictions and these restrictions may have a material adverse effect on our business, financial condition, results of operations, liquidity, cash flows and prospects.

U.S. Laws and Regulations

Our U.S. subsidiaries are subject to a complex and extensive array of laws and regulations that are administered and enforced by state insurance regulators, state securities administrators, state banking authorities, the SEC, FINRA, the DOL, the IRS and the Office of the Comptroller of the Currency. See *Item 1. Business–Regulation–United States* for a summary of certain of the U.S. state and federal laws and regulations applicable to our business. Failure to comply with these laws and regulations could subject us to administrative penalties imposed by a particular governmental or self-regulatory authority, unanticipated costs associated with remedying such failure or other claims, harm to our reputation, or interruption of our operations, any of which could have a material and adverse effect on our financial position, results of operations and cash flows.

In addition to the foregoing risks, the financial services industry is the focus of increased regulatory scrutiny as various state and federal governmental agencies and self-regulatory organizations conduct inquiries and investigations into the products and practices of the companies within this industry. Governmental authorities in the United States and worldwide have become increasingly interested in potential risks posed by the insurance industry as a whole, and to commercial and financial systems in general. Among the proposals that are presently being considered is the possible introduction of global regulatory standards for the amount of capital that insurance groups must maintain across the group, such as the development of the risk-based global insurance capital standard for internationally active insurance groups being developed by the International Association of Insurance Supervisors as well as the U.S. group capital calculation being developed by the NAIC. See *Item 1. Business–Regulation–Entity-Wide–NAIC–Group Capital* for further discussion. While we cannot predict the exact nature, timing or scope of possible governmental initiatives, there may be increased regulatory intervention in the insurance and financial services industry in the future.

Bermuda Laws and Regulations

As a holding company, AHL is not subject to the laws of Bermuda governing insurance companies; however, our Bermuda Reinsurance Subsidiaries are registered in Bermuda under the Bermuda Insurance Act as Class E insurers and are subject to the Bermuda Insurance Act and the rules and regulations promulgated thereunder. See *Item 1. Business–Regulation–Bermuda* for a summary of certain of the Bermuda laws and regulations applicable to our business. Failure to comply with these laws and regulations could subject us to monetary penalties and/or restrictions on our business imposed by the BMA, unanticipated costs associated with remedying such failure or other claims, harm to our reputation, interruption of our operations, revocation of our certificate of incorporation or an adverse impact on our financial position or results of operations.

Item 1A. Risk Factors

Our failure to obtain or maintain approval of insurance regulators and other regulatory authorities as required for the operations of our insurance subsidiaries may have a material adverse effect on our business, financial condition, results of operations, liquidity, cash flows and prospects.

U.S. state regulators retain the authority to license insurers in their states and an insurer generally may not operate in a state in which it is not licensed. We have U.S. domiciled insurance subsidiaries that collectively are currently licensed to do business in all 50 states and the District of Columbia. Our ability to retain these licenses depends on our and our subsidiaries' ability to meet requirements established by the NAIC and adopted by each state such as RBC standards and surplus requirements.

Some of the factors influencing these licensing requirements, particularly factors such as changes in equity market levels, the value of certain derivative instruments that do not receive hedge accounting, the value and credit ratings of certain fixed-income and equity securities in our investment portfolio, interest rate changes and changes to the RBC formulas and the interpretation of the NAIC's instructions with respect to RBC calculation methodologies, are out of our control. In addition, licensing regulations differ as to products and jurisdictions and may be subject to interpretation as to whether certain licenses are required with respect to the manner in which we may sell or service some of our products in certain jurisdictions. The degree of complexity is heightened in the context of products that are issued through our institutional channel, including our PRT products, where one product may cover risks in multiple jurisdictions. On January 23, 2019, we received a letter from the NYSDFS, with respect to a recent PRT transaction, which expressed concerns with our interpretation and reliance upon certain exemptions from licensing in New York in connection with certain activities performed by employees in our PRT channel, including specific activities performed within New York. If the factors discussed above adversely affect us or a state regulator interprets a licensing requirement different than we do and we are unable to meet the requirements above, our subsidiaries could lose their licenses to do business in certain states; be subject to additional regulatory oversight; have their licenses suspended; be subject to rescission requests, fines, administrative penalties or payments to policyholders; or be subject to seizure of assets. A loss or suspension of any of our subsidiaries' licenses or an inability of any of our insurance subsidiaries to be able to sell or service certain of our insurance products in one or more jurisdictions may negatively impact our reputation in the insurance market and result in our subsidiaries' inability to write new business, distribute funds or pursue our investment/overall business strategy.

The licenses currently held by our U.S. domiciled insurance subsidiaries are limited in scope with respect to the products that may be sold within the respective jurisdictions. To the extent that our U.S. domiciled insurance subsidiaries seek to sell products for which we are not currently licensed, such subsidiaries would be required to become licensed in each of the respective jurisdictions in which such products are expected to be sold. There is no assurance that our U.S. domiciled insurance subsidiaries would be able to obtain the relevant licenses and the subsidiaries' inability to do so may impair our competitive position and reduce our growth prospects, causing our financial position, results of operations and cash flows to fall below our current expectations.

Our Bermuda Reinsurance Subsidiaries, as Bermuda domiciled insurers, are also required to maintain licenses. Each of our Bermuda Reinsurance Subsidiaries is licensed as a reinsurer in Bermuda. Bermuda insurance statutes and regulations and policies of the BMA require that our Bermuda Reinsurance Subsidiaries, among other things, maintain a minimum level of capital and surplus, satisfy solvency standards, restrict dividends and distributions, obtain prior approval or provide notification to the BMA, as the case may be, of ownership, transfer and disposition of Shareholder Controller shares, maintain a head office, and have certain officers resident in Bermuda, appoint and maintain a principal representative in Bermuda and provide for the performance of certain periodic examinations of itself and its financial conditions. A failure to meet these conditions may result in the suspension or revocation of a Bermuda Reinsurance Subsidiary's license to do business as a reinsurance company in Bermuda, which would mean that such Bermuda Reinsurance Subsidiary would not be able to enter into any new reinsurance contracts until the suspension ended or it became licensed in another jurisdiction. Any such suspension or revocation of a Bermuda Reinsurance Subsidiary's license would negatively impact its and our reputation in the reinsurance marketplace and could have a material adverse effect on our results of operations.

The process of obtaining licenses is time consuming and costly, and we may not be able to become licensed in jurisdictions other than those in which our subsidiaries are currently licensed and/or for products for which we are currently licensed. The modification of the conduct of our business resulting from our and our subsidiaries becoming licensed in certain jurisdictions or for certain products could significantly and negatively affect our business. In addition, our inability to comply with insurance statutes and regulations could significantly and adversely affect our business by limiting our ability to conduct business as well as subjecting us to penalties and fines.

Changes in the laws and regulations governing the insurance industry or otherwise applicable to our business, may have a material adverse effect on our business, financial condition, results of operations, liquidity, cash flows and prospects.

Certain of the laws and regulations to which we are subject are summarized in *Item 1. Business–Regulation*. Changes in the laws and regulations relevant to our business may have a material adverse effect on our business, financial condition, results of operations, liquidity, cash flows and prospects. Certain of the risks associated with changes in these laws and regulations are discussed in greater detail below.

Item 1A. Risk Factors

The Dodd-Frank Act makes sweeping changes to the regulation of financial services entities, products and markets. Historically, the federal government has not regulated the insurance business, however, the Dodd-Frank Act generally provides for enhanced federal supervision of financial institutions, including insurance companies in certain circumstances, and financial activities that represent a systemic risk to financial stability or the economy. Certain provisions of the Dodd-Frank Act are or may become applicable to us, our competitors or those entities with which we do business, including, but not limited to: the establishment of a comprehensive federal regulatory regime with respect to derivatives; the establishment of consolidated federal regulation and resolution authority over SIFIs; the establishment of the Federal Insurance Office; changes to the regulation of broker-dealers and investment advisors; changes to the regulation of reinsurance; changes to regulations affecting the rights of shareholders; the imposition of additional regulation over credit rating agencies; the imposition of concentration limits on financial institutions that restrict the amount of credit that may be extended to a single person or entity; and mandatory on-facility execution and clearing of certain derivative contracts.

Legislative or regulatory requirements imposed by or promulgated in connection with the Dodd-Frank Act may impact us in many ways, including, but not limited to: placing us at a competitive disadvantage relative to our competition or other financial services entities; changing the competitive landscape of the financial services sector or the insurance industry; making it more expensive for us to conduct our business; requiring the reallocation of significant company resources to government affairs; increasing our legal and compliance related activities and the costs associated therewith as the Dodd-Frank Act may permit the preemption of certain state laws when inconsistent with international agreements, such as the EU Covered Agreement and the UK Covered Agreement; and otherwise having a material adverse effect on the overall business climate as well as our financial condition and results of operations.

Heightened standards of sales conduct as a result of the ultimate adoption of rules proposed by SEC or the adoption of other similar proposed rules or regulations could also increase the compliance and regulatory burdens on our representatives, and could lead to increased litigation and regulatory risks, changes to our business model, a decrease in the number of our securities-licensed representatives and a reduction in the products we offer to our clients, any of which could have a material adverse effect on our business, financial condition and results of operations.

In addition, we expect the worldwide demographic trend of population aging will cause policymakers to continue to focus on the framework of U.S. and non-U.S. retirement systems, which may drive additional changes regarding the manner in which individuals plan for and fund their retirement, the extent of government involvement in retirement savings and funding, the regulation of retirement products and services and the oversight of industry participants. Any incremental requirements, costs and risks imposed on us in connection with such current or future legislative or regulatory changes, may constrain our ability to market our products and services to potential customers, and could negatively impact our profitability and make it more difficult for us to pursue our growth strategy.

Although our businesses are subject to regulation in each state in which they conduct business, in many instances the state insurance laws and regulations emanate from the NAIC. State insurance regulators and the NAIC regularly re-examine existing laws and regulations applicable to insurance companies and their products. Any proposed or future legislation or NAIC initiatives, if adopted, may be more restrictive on our ability to conduct business than current regulatory requirements or may result in higher costs or increased statutory capital and reserve requirements. Changes in these laws and regulations or interpretations thereof are often made for the benefit of the consumer and at the expense of the insurer and could have a material adverse effect on our domestic insurance subsidiaries' businesses, financial condition and results of operations. We and they are also subject to the risk that compliance with any particular regulator's interpretation of a legal or accounting issue may not result in compliance with another regulator's interpretation of the same issue, particularly when compliance is judged in hindsight. There is an additional risk that any particular regulator's interpretation of a legal or accounting issue may change over time to our detriment, or that changes to the overall legal or market environment, even absent any change of interpretation by a particular regulator, may cause us to change our views regarding the actions we need to take from a legal risk management perspective, which could necessitate changes to our practices that may, in some cases, limit our ability to grow and improve profitability.

Risks Relating to Taxation

The BEAT may significantly increase our tax liability.

The Tax Act introduced a new tax called the BEAT. The BEAT operates as a minimum tax and is generally calculated as a percentage (10% in 2019 – 2025, and 12.5% in 2026 and thereafter) of the "modified taxable income" of an "applicable taxpayer." Modified taxable income is calculated by adding back to a taxpayer's regular taxable income the amount of certain "base erosion tax benefits" with respect to certain payments made to foreign affiliates of the taxpayer, as well as the "base erosion percentage" of any net operating loss deductions. The BEAT applies for a taxable year only to the extent it exceeds a taxpayer's regular corporate income tax liability for such year (determined without regard to certain tax credits).

Certain of our reinsurance agreements require our U.S. subsidiaries (including all subsidiaries subject to U.S. federal income taxation) to pay or accrue substantial amounts to our non-U.S. reinsurance subsidiaries that would be characterized as "base erosion payments" with respect to which there are "base erosion tax benefits." However, in certain types of reinsurance transactions, it is not clear whether any amounts paid or accrued by non-U.S. reinsurance entities would be netted against amounts paid or accrued to such entities for purposes of calculating the "base erosion payments" and "base erosion tax benefits."

Tax authorities may disagree with our BEAT calculations, or the interpretations on which those calculations are based, and assess additional taxes, interest and penalties, and the uncertainty regarding the correct interpretation of the BEAT may make such disagreements more likely. We will establish our tax provision in accordance with GAAP.

However, there can be no assurance that this provision will accurately reflect the amount of federal income tax that we ultimately pay, as that amount could differ materially from the estimate. There may be material adverse consequences to our business if tax authorities successfully challenge our BEAT calculations, in light of the uncertainties described above.

In addition, we have made estimates regarding the effective and overall tax rates we expect to experience, which take into account the impacts of federal income tax, the BEAT, and excise tax. The determination of each such figure, or range of figures, involves numerous estimates and assumptions, including estimates and assumptions regarding our BEAT calculations. Such estimates and assumptions may prove incorrect. To the extent that actual experience differs from the estimates and assumptions inherent in our projections, our future effective and overall tax rates may deviate materially from the estimates provided and our financial condition and results of operations may be materially less favorable than are implied by the projections provided.

The term “related” is defined broadly under the BEAT and application of the definition and the tax attribution rules to which it refers can produce results that are hard to predict. We believe that other than our wholly-owned subsidiaries, none of our reinsurance counterparties should be treated as “related” to us for purposes of the BEAT, and therefore payments under our reinsurance arrangements with such counterparties are not subject to the BEAT. However, there is considerable uncertainty regarding the scope of the term “related” for BEAT purposes, and no assurances can be made that the IRS will not assert that one or more of our reinsurance counterparties are “related” to us for purposes of the BEAT. A successful challenge could have a material and adverse effect on our financial condition, results of operations and cash flows.

AHL or its non-U.S. subsidiaries may be subject to U.S. federal income taxation.

AHL and certain of its subsidiaries are incorporated under the laws of non-U.S. jurisdictions, including Bermuda. AHL, ALRe and their subsidiaries that are not treated as U.S Corporations under the Code (the Non-U.S. Subsidiaries, and together with AHL and ALRe, the Non-U.S. Companies) currently intend to operate in a manner that will not cause any to be treated as being engaged in a trade or business within the U.S. or subject to current U.S. federal income taxation on their net income. However, because there is considerable uncertainty as to when a foreign corporation is engaged in a trade or business within the United States, as the law is unclear and the determination is highly factual and must be made annually, there can be no assurance that the IRS will not successfully contend that a Non-U.S. Company is engaged in a trade or business in the U.S. If a Non-U.S. Company were considered to be engaged in a trade or business in the U.S., it could be subject to U.S. federal income taxation on a net basis on its income that is effectively connected with such U.S. trade or business (including branch profits tax on the portion of its earnings and profits that is attributable to such income). Any such U.S. federal income taxation could result in substantial tax liabilities and consequently could have a material adverse effect on our financial condition, results of operations and cash flows.

AHL and ALRe are UK tax residents and expect to qualify for the benefits of the income tax treaty between the U.S. and the UK (the Tax Treaty) because AHL’s Class A common shares are listed and regularly traded on the NYSE. Accordingly, AHL and ALRe are expected to qualify for exemptions from, or reduced rates of, U.S. tax on certain amounts that are from U.S. sources or connected with a U.S. trade or business, provided that they satisfy all of the requirements of the Tax Treaty. However, there can be no assurances that AHL and ALRe will continue to qualify for treaty benefits, particularly given the potential implications of the ESA, or will not have a U.S. permanent establishment to which their income is attributable. If either AHL or ALRe fails to qualify for treaty benefits or has a U.S. permanent establishment to which its income is attributable, it may incur greater tax costs than expected, which could have a material adverse effect on our financial condition, results of operations and cash flows.

U.S. persons who own our Class A common shares may be subject to U.S. federal income taxation at ordinary income rates on our undistributed earnings and profits.

AHL’s bye-laws generally limit the voting power of our Class A common shares (and certain other of our voting securities) such that no person owns (or is treated as owning) more than 9.9% of the total voting power of our common shares (with certain exceptions). AHL’s bye-laws also generally reduce the voting power of Class B common shares held by certain holders if (A) one or more U.S. persons that own (or are treated as owning) more than 9.9% of the total voting power of our common shares own (or are treated as owning) individually or in the aggregate more than 24.9% of the voting power or the value of our common shares or (B) a U.S. person that is classified as an individual, an estate or a trust for U.S. federal income tax purposes owns (or is treated as owning) more than 9.9% of the total voting power of our common shares. Additionally, AHL’s bye-laws require the board of AHL to refer certain decisions with respect to ALRe and our Non-U.S. subsidiaries to our shareholders, and to vote our shares in those subsidiaries accordingly. These provisions were intended to reduce the likelihood that AHL, ALRe or our Non-U.S. Subsidiaries will be treated as a CFC, other than for purposes of taking into account related person insurance income (RPII). However, the relevant attribution rules are complex and there is no definitive legal authority on whether the voting provisions included in AHL’s organizational documents are effective for purposes of the CFC provisions.

Moreover, the Tax Act eliminated the prohibition on “downward attribution” from non-U.S. persons to U.S. persons under Section 958(b)(4) of the Internal Revenue Code for purposes of determining constructive stock ownership under the CFC rules. As a result, our U.S. subsidiaries are deemed to own all of the stock of AHL’s Non-U.S. Subsidiaries for CFC purposes. Accordingly, AHL’s Non-U.S. Subsidiaries are currently treated as CFCs, without regard to whether the provisions of our bye-laws described above are effective for purposes of the CFC provisions. The legislative history under the Tax Act indicates that this change was not intended to cause ALRe or any of AHL’s Non-U.S. Subsidiaries to be treated as a CFC with respect to a 10% U.S. Shareholder (as defined below) that is not related to our U.S. subsidiaries. However, it is not clear whether the IRS or a court would interpret the change made by the Tax Act in a manner consistent with such indicated intent.

For any taxable year in which a Non-U.S. Company is treated as a CFC, each U.S. person treated as a "10% U.S. Shareholder" with respect to the Non-U.S. Company that held our common shares directly or indirectly through non-U.S. entities as of the last day in such taxable year that the relevant company was a CFC would generally be required to include in gross income as ordinary income its pro rata share of the relevant company's insurance and reinsurance income and certain other investment income, regardless of whether that income was actually distributed to such U.S. person (with certain adjustments). For tax years beginning on or after January 1, 2018, a "10% U.S. Shareholder" of a non-U.S. corporation includes any U.S. person that owns (or is treated as owning) stock of the non-U.S. corporation possessing 10% or more of the total voting power or total value of such non-U.S. corporation's stock. Any U.S. person that owns (or is treated as owning) 10% or more of the value of AHL should consult with their tax advisor regarding their investment in AHL.

In general, a non-U.S. corporation is a CFC if 10% U.S. Shareholders, in the aggregate, own (or are treated as owning) stock of the non-U.S. corporation possessing more than 50% of the voting power or value of such corporation's stock. However, this threshold is lowered to more than 25% for purposes of taking into account the insurance income of a non-U.S. corporation. Special rules apply for purposes of taking into account any RPII of a non-U.S. corporation, as described below.

In addition, if a U.S. person disposes of shares in a non-U.S. corporation and the U.S. person was a 10% U.S. Shareholder at any time when the corporation was a CFC during the five-year period ending on the date of disposition, any gain from the disposition will generally be treated as a dividend to the extent of the U.S. person's share of the corporation's undistributed earnings and profits that were accumulated during the period or periods that the U.S. person owned the shares while the corporation was a CFC (with certain adjustments). Also, a U.S. person may be required to comply with specified reporting requirements, regardless of the number of shares owned.

Because of the limitations in AHL's bye-laws referred to above, among other factors, we believe it is unlikely that any U.S. person that is treated as owning less than 10% of the total value of AHL would be a 10% U.S. Shareholder of any of the Non-U.S. Companies. However, because the relevant attribution rules are complex and there is no definitive legal authority on whether the voting provisions included in AHL's organizational documents are effective for purposes of the CFC provisions, there can be no assurance that this will be the case. Further, our ability to obtain information that would permit us to enforce the limitation described above may be limited. We will take reasonable steps to obtain such information, but there can be no assurance that such steps will be adequate or that we will be successful in this regard. Accordingly, we may not be able to fully enforce the limitation described above.

U.S. persons who own our Class A common shares may be subject to U.S. federal income taxation at ordinary income rates on a disproportionate share of our undistributed earnings and profits attributable to RPII.

If any of the Non-U.S. Companies is treated as recognizing RPII in a taxable year and is also treated as a CFC for such taxable year, each U.S. person that owns our Class A common shares directly or indirectly through non-U.S. entities as of the last day in such taxable year must generally include in gross income its pro rata share of the RPII, determined as if the RPII were distributed proportionately only to all such U.S. persons, regardless of whether that income is distributed (with certain adjustments). For this purpose, a Non-U.S. Company generally will be treated as a CFC if U.S. persons in the aggregate are treated as owning 25% or more of the total voting power or value of the Non-U.S. Company's stock at any time during the taxable year. We believe that the Non-U.S. Companies will be treated as CFCs for this purpose based on the current and expected ownership of our shares.

RPII generally is any income of a non-U.S. corporation attributable to insuring or reinsuring risks of a U.S. person that owns (or is treated as owning) stock of such non-U.S. corporation, or risks of a person that is "related" to such a U.S. person. For this purpose, (1) a person is "related" to another person if such person "controls," or is "controlled" by, such other person, or if both are "controlled" by the same persons, and (2) "control" of a corporation means ownership (or deemed ownership) of stock possessing more than 50% of the total voting power or value of such corporation's stock and "control" of a partnership, trust or estate for U.S. federal income tax purposes means ownership (or deemed ownership) of more than 50% by value of the beneficial interests in such partnership, trust or estate.

Athene and Apollo have considerable overlap in ownership. If it is determined that the same persons "control" both us and Apollo through owning (or being treated as owning) more than 50% of the vote or value of Athene and Apollo, substantially all of the income of the Non-U.S. Companies that are engaged in reinsurance might constitute RPII. This would trigger the adverse RPII consequences described above to all U.S. persons that hold our Class A common shares directly or indirectly through non-U.S. entities and would have a material adverse effect on the value of their investment in our Class A common shares.

Existing voting restrictions set forth in AHL's bye-laws are generally intended to prevent a person who owns (or is treated as owning) shares in Apollo from owning (or being treated as owning) any of the voting power of our Class A common shares, thus preventing persons who own (or are treated as owning) both AHL and Apollo from owning (or being treated as owning) more than 50% of the voting power of our stock. However, these restrictions do not prevent members of the Apollo Group from retaining the right to vote on newly acquired Class A common shares, should they choose to do so, nor do they prevent persons who own (or are treated as owning) both AHL and Apollo from owning (or being treated as owning) more than 50% of the value of our stock. AHL's bye-laws also generally provide that no person (nor certain direct or indirect beneficial owners or related persons to such person) who owns our common shares, other than a member of the Apollo Group, may acquire any shares of Apollo or otherwise make any investment that would cause such person, or any other person that is a U.S. person, to own (or be treated as owning) more than 50% of the vote or value of AHL's stock. Any holder of our common shares that violates this provision may be required, at the board's discretion, to sell its common shares or take any other reasonable action that the board deems necessary.

Because of the restrictions described above, among other factors, we believe it is likely that one or more exceptions under the RPII rules will apply such that U.S. persons will not be required to include any RPII in their gross income with respect to the Non-U.S. Companies. However, there can be no assurance that this will be the case. Further, our ability to obtain information that would permit us to enforce the restrictions described above may be limited. We will take reasonable steps to obtain such information, but there can be no assurance that such steps will be adequate or that we will be successful in this regard. Accordingly, we may not be able to fully enforce these restrictions.

U.S. persons who dispose of our Class A common shares may be required to treat any gain as ordinary income for U.S. federal income tax purposes and comply with other specified reporting requirements.

If a U.S. person disposes of shares in a non-U.S. corporation that is an insurance company that had RPII and the 25% threshold described above is met at any time when the U.S. person owned any shares in the corporation during the five-year period ending on the date of disposition, any gain from the disposition will generally be treated as a dividend to the extent of the U.S. person's share of the corporation's undistributed earnings and profits that were accumulated during the period that the U.S. person owned the shares (possibly whether or not those earnings and profits are attributable to RPII). In addition, the shareholder will be required to comply with specified reporting requirements, regardless of the amount of shares owned. We believe that these rules should not apply to a disposition of our Class A common shares because AHL is not itself directly engaged in the insurance business. We cannot assure you, however, that the IRS will not successfully assert that these rules apply to a disposition of our Class A common shares.

U.S. tax-exempt organizations that own our Class A common shares may recognize unrelated business taxable income.

A U.S. tax-exempt organization that directly or indirectly owns our Class A common shares generally will recognize unrelated business taxable income and be subject to additional U.S. tax filing obligations to the extent such tax-exempt organization is required to take into account any of our insurance income or RPII pursuant to the CFC and RPII rules described above. U.S. tax-exempt organizations should consult their own tax advisors regarding the risk of recognizing unrelated business taxable income as a result of the ownership of our Class A common shares.

U.S. persons who own our Class A common shares may be subject to adverse tax consequences if AHL is considered a passive foreign investment company for U.S. federal income tax purposes.

If AHL is considered a passive foreign investment company (PFIC) for U.S. federal income tax purposes, a U.S. person who directly or, in certain cases, indirectly owns our Class A common shares could be subject to adverse tax consequences, including a greater tax liability than might otherwise apply, an interest charge on certain taxes that are deemed deferred as a result of AHL's non-U.S. status and additional U.S. tax filing obligations, regardless of the number of shares owned.

We currently do not expect that AHL will be a PFIC for U.S. federal income tax purposes in the current taxable year or the foreseeable future because AHL, through its insurance subsidiaries, intends to qualify for the "active insurance" exception to PFIC treatment, which was amended as part of the Tax Act. We believe that AHL will qualify for the exception as amended. However, there is significant uncertainty regarding how the Tax Act will be interpreted and guidance may not be forthcoming. Therefore, we cannot assure you that AHL will not be treated as a PFIC. If AHL is treated as a PFIC, the adverse tax consequences described above generally would also apply with respect to a U.S. person's indirect ownership interest in any PFICs in which AHL directly or, in certain cases, indirectly, owns an interest.

Changes in U.S. tax law might adversely affect us or our shareholders.

The tax treatment of non-U.S. companies and their U.S. and non-U.S. insurance subsidiaries may be the subject of further tax legislation. No prediction can be made as to whether any particular proposed legislation will be enacted or, if enacted, what the specific provisions or the effective date of any such legislation would be, or whether it would have any effect on us. As such, we cannot assure you that future legislative, administrative or judicial developments will not result in an increase in the amount of U.S. tax payable by us or by an investor in our Class A common shares or reduce the attractiveness of our products. If any such developments occur, our business, financial condition, results of operations and cash flows could be materially and adversely affected.

Changes in U.S. tax law might adversely affect demand for our products.

Many of the products that we sell and reinsure benefit from one or more forms of tax-favored status under current U.S. federal and state income tax regimes. For example, we sell and reinsure annuity contracts that allow the policyholders to defer the recognition of taxable income earned within the contract. Future changes in U.S. federal or state tax law, could reduce or eliminate the attractiveness of such products, which could affect the sale of our products or increase the expected lapse rate with respect to products that have already been sold. Decreases in product sales or increases in lapse rates, in either case, brought about by changes in U.S. tax law, may result in a decrease in invested assets and therefore investment income and may have a material and adverse effect on our business, financial position, results of operations and cash flows.

There is U.S. income tax risk associated with reinsurance between U.S. insurance companies and their Bermuda affiliates.

If a reinsurance agreement is entered into among related parties, the IRS is permitted to reallocate or recharacterize income, deductions or certain other items, and to make any other adjustment, to reflect the proper amount, source or character of the taxable income of each of the parties. If the IRS were to successfully challenge our reinsurance arrangements, our financial condition, results of operations and cash flows could be adversely affected.

Item 1A. Risk Factors

We may become subject to U.S. withholding tax under certain U.S. tax provisions commonly known as FATCA.

Certain U.S. tax provisions commonly known as the Foreign Account Tax Compliance Act (FATCA) impose a 30% withholding tax on certain payments of U.S. source income to certain "foreign financial institutions" and "non-financial foreign entities." The withholding tax may also apply to certain "foreign passthru payments" made by foreign financial institutions at a future date. The U.S. government has signed an intergovernmental agreement to facilitate the implementation of FATCA with the government of Bermuda (Bermuda IGA). The Non-U.S. Companies intend to comply with the obligations imposed on them under FATCA and the Bermuda IGA, as applicable, to avoid being subject to withholding under FATCA on payments made to them or penalties. However, no assurance can be provided in this regard. We may become subject to withholding tax or penalties if we are unable to comply with FATCA.

If AHL is treated as engaged in a U.S. trade or business in any taxable year, all or a portion of the dividends on our Class A common shares may be treated as U.S. source income and may be subject to withholding and information reporting under FATCA unless a shareholder (and any intermediaries through which the shareholder holds its shares) establishes an exemption from such withholding and information reporting. As discussed above, we currently intend to limit our U.S. activities so that AHL is not considered to be engaged in a U.S. trade or business, although no assurances can be provided in this regard.

We are subject to the risk that Bermuda tax laws may change and that we may become subject to new Bermuda taxes following the expiration of a current exemption after 2035.

The Bermuda Minister of Finance, under the Exempted Undertakings Tax Protection Act 1966 of Bermuda, as amended, has given us an assurance that if any legislation is enacted in Bermuda that would impose tax computed on profits or income, or computed on any capital asset, gain or appreciation, or any tax in the nature of estate duty or inheritance tax, then the imposition of any such tax will not be applicable to us or any of our operations, shares, debentures or other obligations until March 31, 2035, except insofar as such tax applies to persons ordinarily resident in Bermuda or to any taxes payable by us in respect of real property owned or leased by us in Bermuda. Given the limited duration of the Bermuda Minister of Finance's assurance, we cannot assure you that we will not be subject to any Bermuda tax after March 31, 2035.

The impact of the OECD's recommendations on base erosion and profit shifting is uncertain and could impose adverse tax consequences on us.

In 2015, the OECD published final recommendations on base erosion and profit shifting (BEPS). These BEPS recommendations propose the development of rules directed at counteracting the effects of tax havens and preferential tax regimes in countries around the world. Beginning with 2017, some countries in which we do business, including Bermuda and the U.S., require certain multinational enterprises, including ours, to report detailed information regarding allocation of revenue, profit, and other information, on a country-by-country basis, which could increase scrutiny by foreign tax authorities.

The BEPS recommendations also include revisions to the definition of a "permanent establishment" and the rules for attributing profit to a permanent establishment. Other recommended actions relate to the goal of ensuring that transfer pricing outcomes are in line with value creation, noting that the current rules may facilitate the transfer of risks or capital away from countries where the economic activity takes place. We expect many countries to change their tax laws in response to this project, and several countries (including the U.S.) have already changed or proposed changes to their tax laws. Changes to tax laws could increase their complexity and the burden and costs of compliance. Additionally, such changes could also result in significant modifications to the existing transfer pricing rules and could potentially have an impact on our taxable profits in various jurisdictions.

Risks Relating to Investment in Our Class A Common Shares

The interest of the Apollo Group, which controls and is expected to continue to control 45% of the total voting power of AHL and holds a number of the seats on our board of directors, may conflict with those of other shareholders and could make it more difficult for you and other shareholders to influence significant corporate decisions.

The Apollo Group controls and is expected to continue to control 45% of the total voting power of AHL. As a result, the Apollo Group could exercise significant influence over all matters requiring shareholder approval for the foreseeable future, including approval of significant corporate transactions, appointment of members of our management, election of directors, approval of the termination of our IMAs and determination of our corporate policies, which may reduce the market price of our common shares. Even if the Apollo Group reduces its beneficial ownership below its current holdings or we raise additional equity from investors other than members of the Apollo Group, because of its control over 45% of our aggregate voting power for so long as any member of the Apollo Group owns at least one Class B common share, the Apollo Group will still be able to assert significant influence over our board of directors and certain corporate actions.

Item 1A. Risk Factors

The interests of our existing shareholders, particularly members of the Apollo Group, may conflict with the interests of our other shareholders. Actions that members of the Apollo Group take as shareholders may not be favorable to our other shareholders. For example, the concentration of voting power held by the Apollo Group, the significant representation on our board of directors by individuals who are employees of the Apollo Group, or the limitations on our ability to terminate any IMA with AAM could delay, defer or prevent a change of control of us or impede a merger, takeover or other business combination which another shareholder may otherwise view favorably. Members of the Apollo Group may, in their role as shareholders, vote in favor of a merger, takeover or other business combination transaction which our other shareholders might not consider in their best interests, including those transactions in which the Apollo Group may have an interest. In addition, as long as a business combination transaction were deemed to be in our best interests, our charter and bye-laws would not prevent us from entering into a business combination transaction that provided for the payment of different consideration to holders of the Class B common shares, which are held by the Apollo Group or its affiliates, than to the Class A common shares.

Our conflicts committee and our disinterested directors analyze certain of these conflicts to protect against potential harm resulting from conflicts of interest in connection with transactions that we have entered into or will enter into with Apollo or its affiliates. Specifically, our bye-laws require that the conflicts committee (in accordance with its charter and procedures) approve certain material transactions by and between us and Apollo or its affiliates, including entering into material agreements or the imposition of any new fee or increase in the rate at which fees are charged to us, subject to certain exceptions. See *Item 13. Certain Relationships and Related Transactions, and Director Independence*. These conflicts provisions will not, by themselves, prohibit transactions with Apollo or its affiliates. In addition, our conflicts committee may exclusively rely on information provided by AAM, including with respect to fees charged by AAM or Apollo or its affiliates, and with respect to the historical performance or fees of unrelated service providers used for comparison purposes, and may not independently verify the information so provided.

Our investment manager, AAM, is an indirect subsidiary of Apollo and charges us management fees based on our assets. Substantially all of our invested assets are managed by AAM. Our investment policies permit AAM to invest in securities of issuers affiliated with Apollo, including funds managed by Apollo, and to retain on our behalf and at our cost sub-advisors, including Apollo. AAM may make such investments or retain such sub-advisors at its discretion, subject only to the approval of our conflicts committee in certain cases and/or certain regulatory approvals. Accordingly, AAM may have a conflict of interest in managing our investments, including by retaining its affiliate, Apollo, to act as its sub-advisor, which would increase amounts payable by us for investment advisory services or could cause us to receive a lower return on our investments than if our investment portfolio was managed by another party. In addition, asset management fees are paid based on the amount of our invested assets regardless of the results of our operations. Therefore, Apollo could be incentivized to exercise its influence to cause us to increase our invested assets, which may have an adverse impact on our financial condition, results of operations and cash flows.

Certain of our investments are managed by other Apollo affiliates retained as sub-advisors by AAM to manage such investments. Currently, substantially all of the assets subject to sub-advisory arrangements are managed by Apollo affiliates. In addition, we have made investments in collective investment vehicles managed by Apollo affiliates, including seed investments in new investment vehicles or investment strategies offered by Apollo which have limited track records, as well as junior and subordinated tranches of structured investment vehicles which may assist Apollo in meeting certain regulatory requirements applicable to Apollo as the sponsor of such vehicles. Such Apollo affiliates charge us a sub-advisory fee, or charge such vehicles management fees, that independently, or when taken together with the fees charged by AAM, may not be the lowest fee available for similar sub-advisory or investment management services offered by unrelated managers. In addition, it is possible that such unrelated managers may perform better than the Apollo affiliates retained by AAM as sub-advisors or which manage such collective investment funds. Apollo is not obligated to devote any specific amount of time to our affairs, or to the funds in which we are invested and our bye-laws impose restrictions on our right to terminate any IMA or sub-advisory arrangement. Affiliates of Apollo manage and expect to continue to manage other client accounts, some of which have objectives similar to ours, including collective investment vehicles managed by Apollo and in which Apollo may have an equity interest. We will compete with other Apollo clients not only in terms of time spent on management of our portfolio, but also for allocation of assets that do not have significant supply. In addition, there may be different investment teams for AAM and Apollo investing in the same strategies for different clients, including us. As a result, we may compete with other Apollo clients for the same investment opportunities, potentially disadvantaging us. Apollo may also manage accounts whose advisory fee schedules, investment objectives and policies differ from ours, which may cause Apollo to allocate securities in a manner that may have an adverse effect on our ability to source appropriate assets and meet our strategic objectives. In addition, where AAM has retained an Apollo affiliate as our sub-advisor, it is possible that due to the fees charged by such sub-advisor in addition to the AAM fees that we pay, we may either experience a reduced return on an investment or may forego purchasing an investment that we would have purchased if such investment opportunity were sourced directly by AAM.

Under the Proposed Amended Fee Agreement, AAM would receive higher sub-allocation fees for investing in asset classes with higher alpha generating abilities. There is no assurance that higher returns will be achieved by investing in these asset classes. Accordingly, AAM is incentivized to increase the amount of investments subject to higher sub-allocation fees, which may result in greater risk to the returns in our investment portfolio. While we believe that each of we and AAM has implemented appropriate risk governance regarding asset allocation, it is possible that such incentives could result in increased holdings of assets with higher alpha generating abilities, and if such investments fail to perform, it could have an adverse impact on our investment results.

Item 1A. Risk Factors

From time to time, AAM or Apollo may acquire investments on our behalf which are senior or junior to other instruments of the same issuer that are held by, or acquired for, another AAM or Apollo client (for example, we may acquire junior debt while another Apollo client may acquire senior debt). In the event such an issuer enters bankruptcy or becomes otherwise insolvent, the client holding securities which are senior in preference may have the right to aggressively pursue the issuer's assets to fully satisfy the issuer's indebtedness to the client, and the client holding the investment which is junior in the capital structure may not have access to sufficient assets of the issuer to completely satisfy its claim against the issuer and may suffer a loss. AAM and Apollo have adopted procedures that are designed to enable AAM and Apollo to address such conflicts and to ensure that clients are treated fairly and equitably in these situations. However, given AAM's or Apollo's fiduciary obligations to the other client, AAM and Apollo may be unable to manage our investment in the same manner as would have been possible without the conflict of interest. In such event, we may receive less return on such investment than if another AAM or Apollo client was not in a different part of the capital structure of the issuer.

Apollo and its affiliates have diverse and expansive private equity, credit and real estate investment platforms, investing in numerous companies across many industries. If Apollo acquires or forms a company with a business strategy competing with ours, additional conflicts may arise between us and Apollo or between us and such company in executing our plans, including with respect to the allocation of investments or the ability to execute on corporate opportunities. Our bye-laws provide that Apollo and its members and affiliates (including certain of our directors) generally have no duty to refrain from engaging, directly or indirectly, in the same or similar business activities or lines of business that we do.

Apollo and its affiliates regularly obtain material non-public information regarding various potential acquisition or trading targets. When Apollo and its affiliates obtain material non-public information regarding a potential acquisition or trading target, AAM and Apollo become restricted from trading such acquisition or trading target's outstanding securities. Some of such securities may be potential investment opportunities for us, or may be owned by us and be potential disposition opportunities. The inability of AAM or Apollo to purchase or sell such investments on our behalf as a result of these restrictions may result in us acquiring investments that may otherwise underperform the restricted investments that AAM or Apollo would have acquired, or incurring losses on investments that AAM or Apollo would have sold, on our behalf, had such restrictions not been in place.

James R. Belardi, our Chief Executive Officer, also serves as Chief Executive Officer of AAM, owns a profits interest in the equity of AAM and receives compensation from AAM for services he provides to AAM. Accordingly, his involvement as a member of our board of directors and management team and as an officer and director of AAM may lead to a conflict of interest. Furthermore, certain members of our board of directors also serve on the board of directors of AAM or are employees of Apollo or its affiliates, which could also lead to potential conflicts of interest. See *Item 13. Certain Relationships and Related Transactions, and Director Independence*.

Our bye-laws contain provisions that cause a holder of Class A common shares to lose the right to vote the shares if the holder owns an equity interest in Apollo, AP Alternative Assets, L.P. (AAA) or certain other entities.

Our bye-laws contain provisions that impose restrictions on certain Class A common shares in order to reduce the likelihood that U.S. persons that directly or indirectly own our common shares will experience adverse tax consequences attributable to RPII. These provisions could cause a holder to lose the right to vote its Class A common shares if the holder or one of its affiliates owns (or is treated as owning) any equity interests (or instruments treated as equity interests) in Apollo or AAA, if the holder or one of its affiliates owns (or is treated as owning) any of our Class B common shares or if the holder or one of its affiliates is a member of the Apollo Group. These restrictions do not affect the transferability of Class A common shares and do not apply unless the holder or one of its affiliates meets one of these conditions.

Our bye-laws contain provisions that could discourage takeovers and business combinations that our shareholders might consider in their best interests, including provisions that prevent a holder of Class A common shares from having a significant stake in Athene.

Our bye-laws include certain provisions that could have the effect of delaying, deferring, preventing or rendering more difficult a change of control that holders of our Class A common shares might consider in their best interests. For example, our bye-laws prohibit holders of our Class A common shares and certain other classes of our common shares (other than those owned by the Apollo Group) from having more than 9.9% of the total voting power of our common shares. Subject to certain exceptions determined by our board on the basis set forth in our bye-laws, the votes attributable to a holder of Class A common shares above 9.9% of the total voting power of our common shares are redistributed to other holders of Class A common shares pro rata based on the then current voting power of each holder. Such adjustments are likely to result in a shareholder having voting rights in excess of its pro rata share of the voting power of our Class A common shares. Therefore, a shareholder's voting rights may increase above 5% of the aggregate voting power of the outstanding common shares, thereby possibly resulting in the shareholder becoming a reporting person subject to Schedule 13D or 13G filing requirements under the Exchange Act. These requirements could discourage any potential investment in our Class A common shares. In addition, our board is classified into three classes of directors, with directors of each class serving staggered three-year terms. Any change in the number of directors is required by our bye-laws to be apportioned among the classes so as to maintain the number of directors in each class as nearly equal as possible, and any additional director of any class elected to fill a vacancy resulting from an increase in such class or from the removal of a director will hold such directorship for a term that coincides with the remaining term of that class. Moreover, our bye-laws require specific advance notice procedures and other protocols for holders of common shares to make shareholder proposals and nominate directors. Among other requirements, a shareholder must meet the minimum requirements for eligible shareholders to submit shareholder proposals under Rule 14a-8 of the Exchange Act, and submit specific information and make specific undertakings in relation to the shareholder proposal or director nomination.

Any or all of these provisions could prevent holders of our Class A common shares from receiving the benefit from any premium to the market price of our Class A common shares offered by a bidder in a takeover context. Even in the absence of a takeover attempt, the existence of any of these provisions could adversely affect the prevailing market price of our Class A common shares if they were viewed as discouraging takeover attempts in the future.

AHL is a holding company with limited operations of its own. As a consequence, AHL's ability to pay dividends on its common shares and to make timely payments on its debt obligations will depend on the ability of its subsidiaries to make distributions or other payments to it, which may be restricted by law.

AHL is a holding company with limited business operations of its own. AHL's primary subsidiaries are insurance and reinsurance companies that own substantially all of our assets and conduct substantially all of our operations. Accordingly, AHL's payment of dividends and ability to make timely payments on its debt obligations is dependent, to a significant extent, on the generation of cash flow by its subsidiaries and their ability to make such cash or other assets available to it, by dividend or otherwise. Dividends or distributions that may be paid by AHL's insurance subsidiaries are limited or restricted by applicable insurance or other laws that are based in part on the prior year's statutory income and surplus, or other sources. See *Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations–Liquidity–Holding Company Liquidity*.

AHL's subsidiaries may not be able to, or may not be permitted to, make distributions to enable AHL to meet its obligations and pay dividends. These limitations on AHL's U.S. subsidiaries' abilities to pay dividends to AHL via its Bermuda subsidiaries may negatively impact AHL's financial condition, results of operations and cash flows.

Each subsidiary is a distinct legal entity and legal and contractual restrictions may also limit AHL's ability to obtain cash from its subsidiaries. In addition to the specific restrictions described above, AHL's subsidiaries, as members of its insurance holding company system, are subject to various statutory and regulatory restrictions on their ability to pay dividends to AHL, as further described in *Item 1. Business–Regulation–United States–Insurance Holding Company Regulation*.

AHL may in the future incur indebtedness in order to pay dividends to shareholders. If AHL did determine to incur additional indebtedness in order to pay dividends, such dividends would be subject to the terms of AHL's existing indebtedness as well as any credit agreement that AHL may enter into in the future. AHL does not currently anticipate paying any regular cash dividends on its common shares. Any decision to declare and pay dividends in the future will be made at the discretion of AHL's board of directors and will depend on, among other things, AHL's results of operations, financial condition, cash requirements, excess capital position, alternative uses of capital, contractual restrictions and other factors that AHL's board of directors may deem relevant. Therefore, any return on investment in AHL's common stock may be solely dependent upon the appreciation of the price of AHL's common stock on the open market, which may not occur.

Holders of our shares may have difficulty effecting service of process on us or enforcing judgments against us in the United States.

AHL is incorporated pursuant to the laws of Bermuda and is domiciled in Bermuda. In addition, certain of our directors and officers reside outside the United States, and a substantial portion of our assets are located in jurisdictions outside the United States. As such, we have been advised that there is doubt as to whether:

- a holder of our shares would be able to enforce, in the courts of Bermuda, judgments of U.S. courts against us or against persons who reside in Bermuda based upon the civil liability provisions of the U.S. federal securities laws; or
- a holder of our shares would be able to bring an original action in the Bermuda courts to enforce liabilities against us or our directors and officers who reside outside the United States based solely upon U.S. federal securities laws.

Further, we have been advised that there is no treaty in effect between the United States and Bermuda providing for the enforcement of judgments of U.S. courts, and there are grounds upon which Bermuda courts may not enforce judgments of U.S. courts. Because judgments of U.S. courts are not automatically enforceable in Bermuda, it may be difficult for you to recover against us based upon such judgments. Additionally, we have been advised that the United States and Bermuda do not currently have a treaty providing for reciprocal recognition and enforcement of judgments in civil and commercial matters. A Bermuda court may, however, impose civil liability on us or our directors or officers in a suit brought in the Supreme Court of Bermuda provided that the facts alleged constitute or give rise to a cause of action under Bermuda law. Certain remedies available under the laws of U.S. jurisdictions, including certain remedies under the U.S. federal securities laws, would not be allowed in Bermuda courts to the extent that they are contrary to public policy.

Our choice of forum provisions in our bye-laws may limit your ability to bring suits against us or our directors and officers.

Our bye-laws currently provide that if any dispute arises concerning the Companies Act or out of or in connection with our bye-laws, including any question regarding the existence and scope of any bye-law and/or whether there has been a breach of the Companies Act or our bye-laws by an officer or director (whether or not such a claim is brought in the name of a shareholder or in the name of the Company), any such dispute shall be subject to the exclusive jurisdiction of the Supreme Court of Bermuda. This choice of forum provision may limit a shareholder's ability to bring a claim in a judicial forum that the shareholder believes is favorable for disputes with us or our directors or officers, which may discourage lawsuits against us and our directors and officers. Alternatively, if a court were to find this provision of our bye-laws inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could adversely affect our business, financial condition, results of operations and cash flows.

Item 1A. Risk Factors

U.S. persons who own our shares may have more difficulty in protecting their interests than U.S. persons who are shareholders of a U.S. corporation.

The Companies Act, which applies to AHL, differs in certain material respects from laws generally applicable to U.S. corporations and their shareholders. Set forth below is a summary of certain significant provisions of the Companies Act and our bye-laws which differ in certain respects from provisions of Delaware corporate law. Because the following statements are summaries, they do not discuss all aspects of Bermuda law that may be relevant to us and our shareholders.

Interested Directors

Bermuda law provides that we cannot void any transaction we enter into in which a director has an interest, nor can such director be liable to us for any profit realized pursuant to such transaction, provided the nature of the interest is disclosed at the first opportunity at a meeting of directors, or in writing, to the directors. Under Delaware law such transaction would not be voidable if:

- the material facts as to such interested director's relationship or interests were disclosed or were known to the board of directors and the board of directors had in good faith authorized the transaction by the affirmative vote of a majority of the disinterested directors;
- such material facts were disclosed or were known to the shareholders entitled to vote on such transaction and the transaction was specifically approved in good faith by vote of the majority of shares entitled to vote thereon; or
- the transaction was fair to the corporation as of the time it was authorized, approved or ratified.

Under Delaware law, the interested director could be held liable for a transaction in which the director derived an improper personal benefit.

Shareholders' Suits

The rights of shareholders under Bermuda law are not as extensive as the rights of shareholders in many U.S. jurisdictions. Class actions and derivative actions are generally not available to shareholders under the laws of Bermuda. However, the Bermuda courts ordinarily would be expected to follow English case law precedent, which would permit a shareholder to commence an action in the name of the company to remedy a wrong done to the company where an act is alleged to be beyond the corporate power of the company, is illegal or would result in the violation of our memorandum of association or bye-laws. Furthermore, a Bermuda court would consider acts that are alleged to constitute a fraud against the minority shareholders or acts requiring the approval of a greater percentage of our shareholders than actually approved it. The winning party in such an action generally would be able to recover a portion of attorneys' fees incurred in connection with such action. Class actions and derivative actions generally are available to shareholders under Delaware law for, among other things, breach of fiduciary duty, corporate waste and actions not taken in accordance with applicable law. In such actions, the court has discretion to permit the winning party to recover attorneys' fees incurred in connection with such action.

Indemnification of Directors

We have entered into indemnification agreements with our directors and officers which provide that we will indemnify our directors and officers or any person appointed to any committee by the board of directors acting in their capacity as such for any loss arising or liability attaching to them by virtue of any rule of law in respect of any negligence, default, breach of duty or breach of trust of which such person may be guilty in relation to us other than in respect of his own fraud or dishonesty. We are also required to indemnify our directors and officers in any proceeding in which they are successful. The indemnification agreements are limited to those payments that are lawful under Bermuda law.

Furthermore, pursuant to our bye-laws, our shareholders have agreed to waive any claim or right of action such shareholder may have, whether individually or by or in right of AHL, against any director or officer of AHL on account of any action taken by such director or officer, or the failure of such director or officer to take any action in the performance of his or her duties with or for AHL or any subsidiary of AHL; provided that such waiver does not extend to any matter in respect of any fraud or dishonesty which may attach to such director or officer.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

We own our headquarters for U.S. operations, which is located in West Des Moines, IA and we lease our head office for Bermuda operations, which is located in Pembroke, Bermuda. Our Retirement Services segment includes our Iowa and Bermuda offices. We believe that for the foreseeable future our West Des Moines and Bermuda properties will be sufficient for us to conduct our current operations.

Item 3. Legal Proceedings

We are subject to litigation arising in the ordinary course of our business, including litigation principally relating to our FIA business. We cannot assure you that our insurance coverage will be adequate to cover all liabilities arising out of such claims. The outcomes of legal proceedings and claims brought against us are subject to significant uncertainty. There is significant judgment required in assessing both the probability of an adverse outcome and the determination as to whether an exposure can be reasonably estimated. In management's opinion, the ultimate disposition of any current legal proceedings or claims brought against us will not have a material effect on our financial condition, results of operations or cash flows. Litigation is, however, inherently uncertain and an adverse outcome from such litigation could have a material effect on the operating results of a particular reporting period.

From time to time, in the ordinary course of business and like others in the insurance and financial services industries, we receive requests for information from government agencies in connection with such agencies' regulatory or investigatory authority. Such requests can include financial or market conduct examinations, subpoenas or demand letters for documents to assist the government in audits or investigations. We and each of our U.S. insurance subsidiaries review such requests and notices and take appropriate action. We have been subject to certain requests for information and investigations in the past and could be subject to them in the future.

For a description of certain legal proceedings affecting us, see *Note 18 – Commitments and Contingencies – Litigation, Claims and Assessments* to the consolidated financial statements.

Item 4. Mine Safety Disclosures

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Market Information

Our Class A common shares trade on the NYSE under the symbol "ATH".

Shareholders

As of January 31, 2019, there were 161,378,611 Class A common shares outstanding and held of record by 218 shareholders, 25,433,465 Class B common shares outstanding and held of record by 13 shareholders, 3,358,890 Class M-1 common shares outstanding and held of record by six shareholders, 841,011 Class M-2 common shares outstanding and held of record by two shareholders, 1,001,110 Class M-3 common shares are outstanding and held of record by three shareholders, and 4,104,539 Class M-4 common shares outstanding and held of record by 108 shareholders.

Dividends

We do not currently pay dividends on any of our common shares and we currently intend to retain all available funds and any future earnings for use in the operation of our business. We may, however, pay cash dividends on our common shares, including our Class A common shares, in the future. Any future determination to pay dividends will be made at the discretion of our board of directors and will depend upon many factors, including our financial condition, earnings, legal and regulatory requirements, restrictions in our debt agreements and other factors our board of directors deems relevant. While we do not currently have any preference shares, if we issue such shares in the future, our board of directors may declare and pay a dividend on one or more classes of shares to the extent one or more classes of shares ranks senior to or has a priority over another class of shares.

Securities Authorized for Issuance under Equity Compensation Plans

See *Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters–Share Incentive Plan Information* for information regarding our equity compensation plans.

Recent Sales of Unregistered Securities

None.

Issuer Purchases of Securities

Purchases of common stock made by or on behalf of us or our affiliates during the three months ended December 31, 2018 are set forth below:

Period	(a) Total number of shares purchased[1]	(b) Average price paid per share	(c) Total number of shares purchased as part of publicly announced programs [1,2]	(d) Maximum number (or approximate dollar value) of shares that may yet be purchased under the plans or programs
October 1 – October 31, 2018	680	$ 47.44	—	$ —
November 1 – November 30, 2018	15	$ 45.54	—	$ —
December 1 – December 31, 2018	2,503,346	$ 39.93	2,503,346	$ 150,050,125

[1] *Differences in amounts between column (a) and (c) relate to shares withheld (under the terms of employee stock-based compensation plans) to offset tax withholding obligations that occur upon the delivery of outstanding shares underlying equity awards or upon the exercise of stock options.*

[2] *On December 10, 2018, we announced that our board of directors had approved an authorization for the repurchase of up to $250 million of our Class A shares. The authorization does not have a definitive expiration date, but may be terminated at any time at the sole discretion of our board of directors. See Note 11 – Common Stock to the consolidated financial statements for more information.*

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Item 6. Selected Financial Data

The following tables set forth our selected historical consolidated financial data, which should be read in conjunction with *Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations* and *Item 8. Financial Statements and Supplementary Data*. The information has been derived from our historical consolidated financial statements. In addition, the summary historical consolidated financial data presented below for the years ended December 31, 2015 and 2014 and as of December 31, 2016, 2015, and 2014 gives effect to the correction of certain immaterial errors, as discussed further in *Note 2 – Financial Statement Revisions* of the consolidated financial statements. Our historical results are not necessarily indicative of future results.

	Years ended December 31,				
(In millions, except percentages and per share data)	2018[1,3]	2017	2016	2015[2]	2014
Consolidated Statements of Income Data					
Total revenues	$ 6,543	$ 8,727	$ 4,105	$ 2,618	$ 4,101
Total benefits and expenses	5,368	7,263	3,393	2,023	3,562
Income before income taxes	1,175	1,464	712	595	539
Net income available to AHL shareholders	1,053	1,358	773	579	471
Adjusted operating income (a non-GAAP measure)	1,140	1,055	759	760	798
ROE	12.1%	16.9%	12.6%	11.7%	12.9%
Adjusted operating ROE (a non-GAAP measure)	13.9%	15.1%	12.6%	16.2%	25.0%
Earnings per share[4]					
Basic	$ 5.34	$ 6.95	$ 4.14	$ 3.31	$ 3.64
Diluted – Class A common shares	$ 5.32	$ 6.91	$ 4.04	$ 3.30	$ 3.58
Adjusted operating earnings per share (a non-GAAP measure)	$ 5.82	$ 5.39	$ 3.93	$ 4.34	$ 6.07
Weighted average common shares outstanding					
Basic[4]	197.1	195.3	186.8	175.1	129.5
Diluted – Class A common shares[4]	161.1	111.0	53.5	41.3	131.6
Adjusted operating common shares (a non-GAAP measure)[5]	195.9	195.9	193.4	175.2	131.6
Consolidated Balance Sheets Data					
Investments, including related parties	$ 107,632	$ 84,379	$ 72,433	$ 64,525	$ 60,631
Investments of consolidated variable interest entities	709	859	901	1,565	3,409
Total assets	125,505	100,161	86,740	80,864	82,739
Interest sensitive contract liabilities	96,610	68,099	61,580	57,306	60,646
Future policy benefits	16,704	17,557	14,562	14,533	11,133
Long-term debt	991	—	—	—	—
Borrowings of consolidated variable interest entities	—	—	—	500	2,017
Total liabilities	117,229	90,985	79,858	75,496	78,156
Total AHL shareholders' equity	8,276	9,176	6,881	5,367	4,550
Total adjusted shareholders' equity (a non-GAAP measure)	8,823	7,566	6,452	5,589	3,807
Book value per share	$ 42.45	$ 46.60	$ 35.78	$ 28.84	$ 32.26
Adjusted book value per share (a non-GAAP measure)	$ 45.59	$ 38.43	$ 32.85	$ 30.03	$ 26.55
Common shares outstanding[6]	195.0	196.9	192.3	186.1	141.0
Adjusted operating common shares outstanding (a non-GAAP measure)[5]	193.5	196.9	196.4	186.1	143.3

[1] *During the year ended December 31, 2018, we entered into agreements to reinsure blocks of fixed and fixed index annuities with VIAC, ReliaStar Life Insurance Company (RLI) and The Lincoln National Life Insurance Company (Lincoln). See Note 7 – Reinsurance to the consolidated financial statements for additional information.*

[2] *Reflects the acquisition of our former subsidiary Athora on October 1, 2015.*

[3] *Reflects the deconsolidation of Athora effective January 1, 2018. See Note 1 – Business, Basis of Presentation and Significant Accounting Policies to the consolidated financial statements for additional information.*

[4] *Basic earnings per share, including basic weighted average shares outstanding, includes all classes eligible to participate in dividends for each period presented. Diluted earnings per share on Class A shares, including diluted Class A weighted average shares outstanding, includes the dilutive impacts, if any, of Class B shares, Class M shares and any other stock-based awards. See Note 13 – Earnings Per Share to the consolidated financial statements for additional information regarding basic and diluted earnings per share.*

[5] *Represents Class A shares outstanding or weighted average shares outstanding assuming conversion or settlement of all outstanding items that are able to be converted to or settled in Class A shares, including the impacts of Class B shares, Class M shares and any other stock-based awards. For December 31, 2015 and prior, Class M shares were not included due to issuance restrictions which were contingent upon our IPO.*

[6] *Represents shares outstanding for all classes eligible to participate in dividends for each period presented. See Note 13 – Earnings Per Share to the consolidated financial statements for additional information regarding classes eligible to participate in dividends as of each period.*

Item 6. Selected Financial Data

Non-GAAP Measures—In addition to our results presented in accordance with GAAP, we present certain non-GAAP measures we commonly use. Management believes the use of these non-GAAP measures, together with the relevant GAAP measures, provides information that may enhance an investor's understanding of our results of operations and the underlying profitability drivers of our business. These measures should be considered supplementary to our results in accordance with GAAP and should not be viewed as a substitute for the GAAP measures. See *Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations–Key Operating and Non-GAAP Measures* for additional discussions regarding non-GAAP measures.

The following are reconciliations of adjusted operating income, weighted average shares outstanding – adjusted operating, and adjusted operating earnings per share to their corresponding GAAP measures, net income available to AHL shareholders, basic weighted average shares outstanding – Class A common shares, and basic earnings per share – Class A common shares, respectively:

	Years ended December 31,				
(In millions)	**2018**	**2017**	**2016**	**2015**	**2014**
Net income available to AHL shareholders	$ 1,053	$ 1,358	$ 773	$ 579	$ 471
Non-operating adjustments					
Investment gains (losses), net of offsets	(274)	199	47	(56)	152
Change in fair values of derivatives and embedded derivatives – FIAs, net of offsets	242	230	67	(30)	(28)
Integration, restructuring and other non-operating expenses	(22)	(68)	(22)	(58)	(279)
Stock compensation expense	(11)	(33)	(82)	(67)	(148)
Income tax (expense) benefit – non-operating	(22)	(25)	4	30	(24)
Less: Total non-operating adjustments	(87)	303	14	(181)	(327)
Adjusted operating income	$ 1,140	$ 1,055	$ 759	$ 760	$ 798

	Years ended December 31,				
(In millions)	**2018**	**2017**	**2016**	**2015**	**2014**
Basic weighted average shares outstanding – Class A	160.5	107.7	52.1	41.2	11.1
Conversion of Class B shares to Class A shares	29.3	81.6	134.5	133.9	118.4
Conversion of Class M shares to Class A shares	5.6	6.1	6.6	—	—
Effect of other stock compensation plans	0.5	0.5	0.2	0.1	—
Effect of equity swap	—	—	—	—	2.1
Weighted average shares outstanding – adjusted operating	195.9	195.9	193.4	175.2	131.6

	Years ended December 31,				
	2018	**2017**	**2016**	**2015**	**2014**
Basic earnings per share – Class A common shares	$ 5.34	$ 6.95	$ 4.14	$ 3.31	$ 3.64
Non-operating adjustments					
Investment gains (losses), net of offsets	(1.40)	1.02	0.24	(0.33)	1.16
Change in fair values of derivatives and embedded derivatives – FIAs, net of offsets	1.24	1.17	0.35	(0.17)	(0.23)
Integration, restructuring and other non-operating expenses	(0.12)	(0.35)	(0.12)	(0.33)	(2.12)
Stock compensation expense	(0.05)	(0.17)	(0.42)	(0.38)	(1.12)
Income tax (expense) benefit – non-operating	(0.11)	(0.13)	0.02	0.17	(0.18)
Less: Total non-operating adjustments	(0.44)	1.54	0.07	(1.04)	(2.49)
Effect of items convertible to or settled in Class A common shares	(0.04)	0.02	0.14	0.01	0.06
Adjusted operating earnings per share	$ 5.82	$ 5.39	$ 3.93	$ 4.34	$ 6.07

Item 6. Selected Financial Data

The following is a reconciliation of AHL shareholders' equity to adjusted shareholders' equity, which is used in calculating adjusted operating ROE and adjusted book value per share:

	December 31,				
(In millions)	2018	2017	2016	2015	2014
Total AHL shareholders' equity	$ 8,276	$ 9,176	$ 6,881	$ 5,367	$ 4,550
Less: AOCI	(472)	1,449	366	(241)	647
Less: Accumulated reinsurance unrealized gains and losses	(75)	161	63	19	96
Total adjusted shareholders' equity	$ 8,823	$ 7,566	$ 6,452	$ 5,589	$ 3,807

The following is a reconciliation of average AHL shareholders' equity to average adjusted shareholders' equity, which is used in calculating adjusted operating ROE:

	December 31,				
(In millions)	2018	2017	2016	2015	2014
Average AHL shareholders' equity	$ 8,726	$ 8,029	$ 6,124	$ 4,959	$ 3,648
Less: Average AOCI	489	908	63	203	359
Less: Average Accumulated reinsurance unrealized gains and losses	43	112	41	58	100
Average adjusted shareholders' equity	$ 8,194	$ 7,009	$ 6,020	$ 4,698	$ 3,189

The following is a reconciliation of adjusted operating common shares outstanding to its corresponding GAAP measure, Class A common shares outstanding:

	December 31,				
(In millions)	2018	2017	2016	2015	2014
Class A common shares outstanding	162.2	142.2	77.0	50.1	15.8
Conversion of Class B shares to Class A shares	25.4	47.4	111.8	136.0	125.2
Conversion of Class M shares to Class A shares	4.9	6.4	6.8	—	—
Effect of other stock compensation plans	1.0	0.9	0.8	—	—
Effect of equity swap	—	—	—	—	2.3
Adjusted operating common shares outstanding	193.5	196.9	196.4	186.1	143.3

The following is a reconciliation of adjusted book value per share to its corresponding GAAP measure, book value per share:

	December 31,				
	2018	2017	2016	2015	2014
Book value per share	$ 42.45	$ 46.60	$ 35.78	$ 28.84	$ 32.26
AOCI	2.42	(7.36)	(1.90)	1.29	(4.59)
Accumulated reinsurance unrealized gains and losses	0.39	(0.82)	(0.33)	(0.10)	(0.68)
Effect of items convertible to or settled in Class A common shares	0.33	0.01	(0.70)	—	(0.44)
Adjusted book value per share	$ 45.59	$ 38.43	$ 32.85	$ 30.03	$ 26.55

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

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Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with *Forward-Looking Statements, Item 1A. Risk Factors, Item 6. Selected Financial Data,* and *Item 8. Financial Statements* included within this report. The historical consolidated financial data presented within this section as of December 31, 2017 and for the years ended December 31, 2017 and 2016 gives effect to the correction of certain immaterial errors, as discussed further in *Note 2 – Financial Statement Revisions* to the consolidated financial statements.

Overview

We are a leading retirement services company that issues, reinsures and acquires retirement savings products designed for the increasing number of individuals and institutions seeking to fund retirement needs. We generate attractive financial results for our policyholders and shareholders by combining our two core competencies of (1) sourcing long-term, generally illiquid liabilities and (2) investing in a high quality investment portfolio, which takes advantage of the illiquid nature of our liabilities. Our steady and significant base of earnings generates capital that we opportunistically invest across our business to source attractively-priced liabilities and capitalize on opportunities.

We have established a significant base of earnings and, as of December 31, 2018, have an expected annual investment margin of 2–3% over the 9.1 year weighted-average life of our deferred annuities, which make up a substantial portion of our reserve liabilities. As of December 31, 2018, the weighted-average life of all products, including deferred annuities, payout annuities, PRT obligations, funding agreements and other products was 9.6 years.

We operate our core business strategies out of one reportable segment, Retirement Services. In addition to Retirement Services, we report certain other operations in Corporate and Other. Retirement Services is comprised of our U.S. and Bermuda operations which issue and reinsure retirement savings products and institutional products. Corporate and Other includes certain other operations related to our corporate activities and, prior to January 1, 2018, included our former German operations.

Our consolidated ROE for the year ended December 31, 2018 was 12.1% and our consolidated adjusted operating ROE was 13.9%. For the year ended December 31, 2018, in our Retirement Services segment, we generated an investment margin on deferred annuities of 2.65% and adjusted operating ROE of 18.4%. We currently maintain what we believe to be high capital ratios for our rating and, as of December 31, 2018, hold approximately $1 billion of excess capital, which we view as strategic capital available to reinvest into organic and inorganic growth opportunities.

The following table presents the deposits generated from our organic and inorganic channels:

	Years ended December 31,		
(In millions)	2018	2017	2016
Retail sales	$ 7,542	$ 5,353	$ 5,309
Flow reinsurance	2,423	875	3,449
Funding agreements	650	3,000	—
Pension risk transfer	2,581	2,253	—
Total organic deposits	13,196	11,481	8,758
Inorganic deposits	26,982	—	—
Total deposits	$ 40,178	$ 11,481	$ 8,758

Our organic channels, including retail, flow reinsurance and institutional products, provided deposits of $13.2 billion, $11.5 billion and $8.8 billion for the years ended December 31, 2018, 2017 and 2016, respectively. Withdrawals on our deferred annuities, maturities of our funding agreements, payments on payout annuities, and pension risk benefit payments (collectively, liability outflows), in the aggregate, were $8.9 billion, $5.8 billion and $5.4 billion for the years ended December 31, 2018, 2017 and 2016, respectively. We believe that our improving credit profile, our current product offerings, and product design capabilities as well as our growing reputation as both a seasoned funding agreement issuer and a reliable PRT counterparty will continue to enable us to grow our existing organic channels and allow us to source additional volumes of profitably underwritten liabilities in various market environments. We plan to continue to grow organically by expanding each of our retail, flow reinsurance and institutional distribution channels. We believe that we have the right people, infrastructure and scale to position us for continued growth.

Within our retail channel, we had fixed annuity sales of $7.5 billion, $5.4 billion and $5.3 billion for the years ended December 31, 2018, 2017 and 2016, respectively. The increase in our retail channel was driven by significant growth in our bank channel including the addition of new bank partners, the rising rate environment and new product introductions. We aim to grow our retail channel by deepening our relationships with our IMOs and independent agents. Our strong financial position and capital efficient products allow us to be a dependable partner with IMOs and consistently write new business. We work with our IMOs to develop customized, and at times exclusive, products that help drive sales. We expect our retail channel to continue to benefit from our improving credit profile and recent product launches. We believe this should support growth in sales at our desired cost of crediting through increased volumes via current IMOs, while also allowing us to continue to expand our bank and broker-dealer channels. We are implementing the necessary technology platform, hiring and training a specialized sales force, and have created products to capture new potential distribution opportunities.

In our flow reinsurance channel, we target reinsurance business consistent with our preferred liability characteristics and, as such, flow reinsurance provides another opportunistic channel for us to source long-term liabilities with attractive crediting rates. We generated deposits through our flow reinsurance channel of $2.4 billion, $875 million and $3.5 billion for the years ended December 31, 2018, 2017 and 2016, respectively. The increase in our flow reinsurance channel over prior year was driven by the addition of new partners, new product launches by our partners and the rising rate environment. We expect that our improving credit profile will help us to continue to source additional reinsurance partners, which will further diversify our flow reinsurance channel.

Within our institutional channel, we generated deposits of $3.2 billion, $5.3 billion and $0 million for the years ended December 31, 2018, 2017 and 2016, respectively. The decrease in our institutional channel is driven by the unfavorable market conditions for funding agreements. We issued funding agreements in the aggregate principal amount of $650 million, $3.0 billion and $0 million for the years ended December 31, 2018, 2017 and 2016, respectively. For the year ended December 31, 2018, we closed seven PRT transactions and issued group annuity contracts in the aggregate principal amount of $2.6 billion, compared to $2.3 billion for the year ended December 31, 2017. We expect to grow our institutional channel by continuing to engage in opportunistic issuances of funding agreements and in PRT transactions.

Our inorganic channels, including acquisitions and block reinsurance, provided deposits of $27.0 billion for the year ended December 31, 2018. On June 1, 2018, we closed on the Voya reinsurance transaction pursuant to which we entered into coinsurance and modco agreements with VIAC and RLI to reinsure a block of fixed and fixed indexed annuities providing $19.1 billion of deposits. On December 7, 2018, we entered into a modified coinsurance agreement with Lincoln, with an effective date of October 1, 2018, to reinsure an 80% quota share of fixed deferred and fixed indexed annuities providing $7.9 billion of deposits. Our inorganic channels have contributed significantly to our growth, and we expect that these channels will continue to be important sources of profitable growth in the future. We believe our internal transactions team, with support from Apollo, has an industry-leading ability to source, underwrite and expeditiously close transactions. With our relationship with Apollo, we are a solutions provider with a proven track record to close transactions, which we believe makes us the ideal partner to insurance companies seeking to restructure their business.

Deconsolidation Summary

On January 1, 2018, in connection with the closing of the Athora Offering, our equity interest in Athora was exchanged for common shares of Athora. See *Note 1 – Business, Basis of Presentation and Significant Accounting Policies* to the consolidated financial statements for further details regarding the deconsolidation of our German operations. The deconsolidation of Athora decreased our total assets by $6.3 billion and our invested assets by $6.0 billion. As of and after January 1, 2018, our interest in Athora is reflected as an alternative investment.

Industry Trends and Competition

Market Conditions

While the U.S. Federal Reserve has continued its process of policy rate normalization, longer dated Treasury yields have recently fallen, and the yield curve has flattened. Whether signaling low long-term inflation expectations, or a coming curve inversion, or simply due to supply dynamics in the global search for asset yield, the level of longer dated Treasury yields affects the yield we earn on invested assets. Despite this drop in Treasury yields, the spreads on most credit investments have widened, benefiting the yield of our new purchases. While current economic fundamentals appear strong, uncertainty about future fiscal policy, changes in tax policy, the scope of potential deregulation, the imposition of tariffs or other barriers to international trade and levels of global trade, the future path of the Federal Reserve's quantitative tightening, along with uncertainty about its ability to manage its normalization process and the impact on inflation and wage growth, may trigger continued volatility across financial markets, and specifically equity market volatility, which may adversely affect the hedging costs of our liability policy hedging program. Credit market volatility, which may widen credit spreads, benefits our investment purchases but may negatively affect the valuations of our in-force investment portfolio.

A volatile market environment may affect our ability to produce liability products that are profitable, have our desired risk profile, and are desirable to consumers. As a company with strong retirement, investment management and insurance capabilities, we expect that over the long term, market conditions resulting in higher Treasury yields and credit spreads will enhance the attractiveness of our portfolio of annuity products. We continue to monitor the behavior of our customers and other factors that react to market conditions, including annuitization rates and lapse rates, in order to best serve our customers and generate strong profitability to our shareholders.

Interest Rate Environment

As a retirement services company focused on issuing and reinsuring fixed annuities, we are affected by the monetary policy of the Federal Reserve in the United States as well as other central banks around the world. In spite of the Federal Reserve increasing federal funds rates again in December of 2018, interest rates in the United States remain lower than historical levels. The lower interest rates in part are due to a number of actions taken in recent years by the Federal Reserve in an effort to stimulate economic activity. Any future increases in federal funds rates are uncertain and will depend on the economic outlook.

Our investment portfolio consists predominantly of fixed maturity investments. See –*Consolidated Investment Portfolio*. If prevailing interest rates were to rise, we believe the yield on our new investment purchases may also rise and our investment income from floating rate investments would increase while the value of our existing investments may decline. If prevailing interest rates were to decline, it is likely that the yield on our new investment purchases may decline and our investment income from floating rate investments would decrease, while the value of our existing investments may increase. We address interest rate risk through managing the duration of the liabilities we source with assets we acquire through ALM modeling. As part of our investment strategy, we purchase floating rate investments, which we expect will perform well in a rising interest rate environment. Our investment portfolio includes $18.4 billion of floating rate investments, or 17% of our total invested assets as of December 31, 2018. The percentage of floating rate investments decreased from December 31, 2017 due to the investment portfolio received in the Voya and Lincoln reinsurance transactions having a lower proportion of floating rate investments and a refinement in our definition to only include short duration securities that are directly tied or linked to an index.

If prevailing interest rates were to rise, we believe our products would be more attractive to consumers and our sales would likely increase. In periods of prolonged low interest rates, the investment margin earned on deferred annuities may be negatively impacted by reduced investment income to the extent that we are unable to adequately reduce policyholder crediting rates due to policyholder guarantees in the form of minimum crediting rates or otherwise due to market conditions. As of December 31, 2018, most of our products were fixed annuities with 25% of our FIAs at the minimum guarantees and 47% of our fixed rate annuities at the minimum crediting rates. As of December 31, 2018, minimum guarantees on all of our deferred annuities, including those with crediting rates already at their minimum guarantees, were, on average, 100 to 110 basis points below the crediting rates on such deferred annuities, allowing us room to reduce rates before reaching the minimum guarantees. Our remaining liabilities are associated with immediate annuities, pension risk transfer obligations, funding agreements or life contracts for which we have little to no discretionary ability to change the rates of interest payable to the respective policyholder. A significant majority of our products have crediting rates that we may reset annually upon renewal following the expiration of the current guaranteed period. While we have the contractual ability to lower these crediting rates to the guaranteed minimum levels, our willingness to do so may be limited by competitive pressures.

See *Item 7A. Quantitative and Qualitative Disclosures About Market Risks*, which includes a discussion regarding interest rate and other significant risks and our strategies for managing these risks.

Demographics

Over the next four decades, the retirement-age population is expected to experience unprecedented growth. Technological advances and improvements in healthcare are projected to continue to contribute to increasing average life expectancy, and aging individuals must be prepared to fund retirement periods that will last longer than ever before. Further, many working households in the United States do not have adequate retirement savings. As a tool for addressing the unmet need for retirement planning, we believe that many Americans have begun to look to tax-efficient savings products with low-risk or guaranteed return features and potential equity market upside. Our tax-efficient savings products are well positioned to meet this increasing customer demand.

Competition

We operate in highly competitive markets. We face a variety of large and small industry participants, including diversified financial institutions and insurance and reinsurance companies. These companies compete in one form or another for the growing pool of retirement assets driven by a number of external factors such as the continued aging of the population and the reduction in safety nets provided by governments and private employers. In the markets in which we operate, scale and the ability to provide value-added services and build long-term relationships are important factors to compete effectively. We believe that our leading presence in the retirement market, diverse range of capabilities and broad distribution network uniquely position us to effectively serve consumers’ increasing demand for retirement solutions, particularly in the FIA market.

According to LIMRA, total fixed annuity market sales in the United States were $94.6 billion for the nine months ended September 30, 2018, an 18.3% increase from the same time period in 2017. In the total fixed annuity market, for the nine months ended September 30, 2018 (the most recent period for which specific market share data is available), we were the 5th largest company based on sales of $5.5 billion, translating to a 5.8% market share. For the nine months ended September 30, 2017, we had sales of $4.1 billion, translating to a 5.1% market share.

FIAs are one of the fastest growing annuity products, having grown from $27.3 billion in 2005 to $55.0 billion in sales for the year ended December 31, 2017. According to LIMRA, for the nine months ended September 30, 2018 (the most recent period for which specific market share data is available), we were the 2nd largest provider of FIAs based on sales of $4.7 billion, and our market share for the same period was 9.5%. For the nine months ended September 30, 2017, we were the 2nd largest provider of FIAs based on sales of $3.7 billion, translating to a 9.0% market share.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Key Operating and Non-GAAP Measures

In addition to our results presented in accordance with GAAP, we present certain financial information that includes non-GAAP measures. Management believes the use of these non-GAAP measures, together with the relevant GAAP measures, provides information that may enhance an investor's understanding of our results of operations and the underlying profitability drivers of our business. The majority of these non-GAAP measures are intended to remove from the results of operations the impact of market volatility (other than with respect to alternative investments) as well as integration, restructuring and certain other expenses which are not part of our underlying profitability drivers, as such items fluctuate from period to period in a manner inconsistent with these drivers. These measures should be considered supplementary to our results in accordance with GAAP and should not be viewed as a substitute for the corresponding GAAP measures. See *Non-GAAP Measure Reconciliations* for the appropriate reconciliations to the corresponding GAAP measures.

Adjusted Operating Income

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"):

- **Investment Gains (Losses), Net of Offsets—**Investment gains (losses), net of offsets, consist of the realized gains and losses on the sale of AFS securities, the change in assumed modco and funds withheld reinsurance embedded derivatives, unrealized gains and losses, impairments, and other investment gains and losses. Unrealized, impairments and other investment gains and losses are comprised of the fair value adjustments of trading securities (other than CLOs) and investments held under the fair value option, derivative gains and losses not hedging FIA index credits, and the net other-than-temporary impairment (OTTI) impacts recognized in operations net of the change in AmerUs Closed Block fair value reserve related to the corresponding change in fair value of investments and the change in unit-linked reserves related to the corresponding trading securities. Investment gains and losses are net of offsets related to DAC, DSI, and VOBA amortization and changes to guaranteed lifetime withdrawal benefit (GLWB) and guaranteed minimum death benefit (GMDB) reserves (together, GLWB and GMDB reserves represent rider reserves) as well as the MVAs associated with surrenders or terminations of contracts.

- **Change in Fair Values of Derivatives and Embedded Derivatives – FIAs, Net of Offsets—**Impacts related to the fair value accounting for derivatives hedging the FIA index credits and the related embedded derivative liability fluctuations from period to period. The index reserve is measured at fair value for the current period and all periods beyond the current policyholder index term. However, the FIA hedging derivatives are purchased to hedge only the current index period. Upon policyholder renewal at the end of the period, new FIA hedging derivatives are purchased to align with the new term. The difference in duration between the FIA hedging derivatives and the index credit reserves creates a timing difference in earnings. This timing difference of the FIA hedging derivatives and index credit reserves is included as a non-operating adjustment, net of offsets related to DAC, DSI, and VOBA amortization and changes to rider reserves.

  We primarily hedge with options that align with the index terms of our FIA products (typically 1–2 years). From an economic basis, we believe this is suitable because policyholder accounts are credited with index performance at the end of each index term. However, because the "value of an embedded derivative" in an FIA contract is longer-dated, there is a duration mismatch which may lead to mismatches for accounting purposes.

- **Integration, Restructuring, and Other Non-operating Expenses—**Integration, restructuring, and other non-operating expenses consist of restructuring and integration expenses related to acquisitions and block reinsurance costs as well as certain other expenses which are not related to our underlying profitability drivers or likely to re-occur in the foreseeable future.

- **Stock Compensation Expense—**Stock compensation expenses associated with our share incentive plans, excluding our long-term incentive plan, are not related to our underlying profitability drivers and fluctuate from time to time due to the structure of our plans.

- **Bargain Purchase Gain—**Bargain purchase gains associated with acquisitions are adjustments to net income as they are not related to our underlying profitability drivers.

- **Income Tax (Expense) Benefit – Non-operating—**The non-operating income tax expense represents the income tax effect of non-operating adjustments and is computed by applying the appropriate jurisdiction's tax rate to the non-operating adjustments that are subject to income tax.

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

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

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

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.

Retirement Services Net Investment Earned Rate, Cost of Crediting, Investment Margin on Deferred Annuities, Other Liability Costs and Operating Expenses

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.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

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.

Net investment earned rate, cost of crediting and investment margin on deferred annuities are non-GAAP measures we use to evaluate the profitability of our core deferred annuities business. Deferred annuities include our fixed rate annuities and FIAs, which account for approximately 85% of our Retirement Services reserve liabilities as of December 31, 2018. We believe measures like net investment earned rate, cost of crediting and investment margin on deferred annuities are useful 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.

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.

Invested Assets

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.

Reserve Liabilities

In managing our business we also analyze reserve liabilities, which does not correspond to total liabilities as disclosed in our consolidated financial statements and notes thereto. Reserve liabilities represents our policyholder liability obligations net of reinsurance and is used to analyze the costs of our liabilities. Reserve liabilities includes (a) the interest sensitive contract liabilities, (b) future policy benefits, (c) dividends payable to policyholders, and (d) other policy claims and benefits, offset by reinsurance recoverable, excluding policy loans ceded. Reserve liabilities is net of the ceded liabilities to third-party reinsurers as the costs of the liabilities are passed to such reinsurers and therefore we have no net economic exposure to such liabilities, assuming our reinsurance counterparties perform under our agreements. The majority of our ceded reinsurance is a result of reinsuring large blocks of life business following acquisitions. For such transactions, GAAP requires the ceded liabilities and related reinsurance recoverables to continue to be recorded in our consolidated financial statements despite the transfer of economic risk to the counterparty in connection with the reinsurance transaction.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Sales

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).

Consolidated Results of Operations

The following summarizes the consolidated results of operations:

	Years ended December 31,		
(In millions, except percentages)	2018	2017	2016
Revenues	$ 6,543	$ 8,727	$ 4,105
Benefits and expenses	5,368	7,263	3,393
Income before income taxes	1,175	1,464	712
Income tax expense (benefit)	122	106	(61)
Net income	$ 1,053	$ 1,358	$ 773
ROE	12.1%	16.9%	12.6%
Adjusted ROE	15.7%	18.0%	12.1%

Year Ended December 31, 2018 Compared to the Year Ended December 31, 2017

In this section, references to 2018 refer to the year ended December 31, 2018 and references to 2017 refer to the year ended December 31, 2017.

Net Income

Net income decreased by $305 million, or 22%, to $1.1 billion in 2018 from $1.4 billion in 2017. ROE and adjusted ROE decreased to 12.1% and 15.7% in 2018, respectively, from 16.9% and 18.0% in 2017, respectively. The decrease in net income was driven by a $2.2 billion decrease in total revenues, partially offset by a decrease in benefits and expenses of $1.9 billion.

Revenues

Total revenue decreased by $2.2 billion to $6.5 billion in 2018 from $8.7 billion in 2017. The decrease was driven by unfavorable changes in investment related gains and losses and VIE investment related gains and losses, partially offset by an increase in premiums, higher net investment income and an increase in product charges.

Investment related gains and losses decreased by $3.9 billion to a loss of $1.3 billion in 2018 from a gain of $2.6 billion in 2017, primarily due to the change in fair value of FIA hedging derivatives, the change in reinsurance embedded derivatives, an unfavorable change in gains and losses on trading securities and a $50 million gain on the sale of an equity security during 2017. The change in fair value of FIA hedging derivatives decreased by $2.8 billion driven by the weak performance of the indices upon which our call options are based. The majority of our call options are based on the S&P 500 index which experienced a 6.2% decrease in 2018, compared to a 19.4% increase in 2017. The reinsurance embedded derivatives decreased by $639 million primarily driven by a change in the value of the underlying assets related to credit spreads widening and the increase in U.S. treasury rates compared to the prior year, which benefited from credit spreads tightening. Both of these drivers were magnified by growth in the reinsurance block related to the Voya and Lincoln transactions. The unfavorable change in gains and losses on trading securities of $284 million was comprised primarily by a decrease in AmerUs Closed Block assets of $179 million related to higher losses resulting from credit spreads widening and the increase in U.S. treasury rates compared to prior year.

VIE investment related gains and losses decreased by $53 million to a loss of $18 million in 2018 from a gain of $35 million in 2017, primarily due to the decline in market value of public equity positions in one of our funds.

Premiums increased by $903 million to $3.4 billion in 2018 from $2.5 billion in 2017, driven by the Voya reinsurance inception premiums attributed to payout annuities with life contingencies, an increase in premiums from PRT transactions and an increase in premiums from flow reinsurance, partially offset by the deconsolidation of Germany.

Net investment income increased by $735 million to $4.0 billion in 2018 from $3.3 billion in 2017, primarily driven by earnings from growth in our investment portfolio attributed to the Voya and Lincoln reinsurance transactions as well as a strong increase in deposits over the prior twelve months. Additionally, net investment income increased due to higher floating rate investment income of $113 million related to higher short-term interest rates and strong alternative investment income, partially offset by the deconsolidation of our former German operations.

Product charges increased by $109 million to $449 million in 2018 from $340 million in the prior period, primarily driven by higher rider charges related to growth in the block of business and charges related to the addition of the Voya liabilities.

Benefits and Expenses

Total benefits and expenses decreased by $1.9 billion to $5.4 billion in 2018 from $7.3 billion in 2017. The decrease was driven by a decrease in interest sensitive contract benefits, a decrease in DAC, DSI and VOBA amortization, a decrease in dividends payable to policyholders and lower policy and other operating expenses, partially offset by an increase in future policy and other policy benefits.

Interest sensitive contract benefits decreased by $2.6 billion to $290 million in 2018 from $2.9 billion in 2017, primarily due to the change in FIA fair value embedded derivatives, partially offset by growth in the block of business. The change in FIA fair value embedded derivatives decreased by $2.7 billion primarily driven by the weak performance of the equity indices to which our FIA policies are linked, primarily the S&P 500 index, which experienced a 6.2% decrease in 2018, compared to a 19.4% increase in 2017 as well as a favorable change in discount rates used in our embedded derivative calculations as the current period experienced an increase in discount rates compared to 2017, which experienced a decrease in discount rates. Additionally, the FIA fair value embedded derivatives were favorably impacted by $309 million during our annual unlocking of assumptions, which was mainly driven by updating lapse assumptions.

DAC, DSI and VOBA amortization decreased by $179 million to $228 million in 2018 from $407 million in 2017, primarily due to the change in investment related gains and losses, a favorable decrease to our annual unlocking of assumptions of $66 million, and the net change in FIA derivatives, partially offset by an increase in the DAC asset balance related to block growth. Unlocking in 2018 was favorable by $82 million related to changes in lapse assumptions, while 2017 unlocking was favorable by $16 million related to changes to the net investment earned rate and mortality assumptions.

Dividends to policyholders decreased by $81 million to $37 million in 2018 from $118 million in 2017, primarily attributed to the deconsolidation of our former German subsidiaries.

Policy and other operating expenses decreased by $47 million to $625 million in 2018 from $672 million in 2017, primarily driven by $82 million related to the deconsolidation of Germany and lower stock compensation expense of $19 million as well as a decrease in restructuring and acquisition expenses mainly due to 2017 Germany restructuring and higher costs associated with acquisition and block reinsurance opportunities in 2017, partially offset by $41 million of interest expense related to our January 2018 debt issuance.

Future policy and other policy benefits increased by $987 million to $4.2 billion in 2018 from $3.2 billion in 2017, primarily attributable to the Voya reinsurance policyholder obligations at inception related to payout annuities with life contingencies, higher PRT obligations and an increase in rider reserves, partially offset by $247 million related to the deconsolidation of our former German subsidiaries and a decrease in the change in AmerUs Closed Block fair value liability. The increase in rider reserves of $251 million was primarily driven by an increase related to our annual unlocking of assumptions of $163 million, an increase related to the net change in FIA derivatives, growth in the block and unfavorable equity market performance compared to 2017, resulting in decreased index credits to policyholder accounts, which increased the amount needed to fund the rider reserve. Unlocking in 2018 was unfavorable by $212 million related to changes in lapse assumptions partially offset by utilization of certain rider benefits, while 2017 unlocking impacts were unfavorable by $49 million related to changes in the net investment earned rate and mortality assumptions. The favorable change in the AmerUs Closed Block fair value liability of $200 million was primarily driven by the increase in unrealized losses on the underlying investments related to credit spreads widening and the change in U.S. treasury rates compared to prior year.

Taxes

Income tax expense increased by $16 million to $122 million in 2018 from $106 million in 2017. The income tax expense for 2018 reflects the restructuring of our internal modco arrangements and implementation of additional reinsurance arrangements common in the insurance industry.

Our effective tax rates were 10% in 2018 and 7% in 2017. The effective tax rate excludes the impacts of an excise tax benefit of $2 million in 2018 and expense of $50 million in 2017, which are included in policy and other operating expenses on the consolidated statements of income. Our effective tax rates may vary period to period depending upon the relationship of income and loss subject to tax compared to consolidated income and loss before income taxes.

We currently expect that our effective tax rate and our overall tax rate, which includes the impacts of federal income tax, the BEAT and excise tax, will be between 9 and 10%, on average, over the near and medium term; however, we may experience significant fluctuations in these tax rates period-to-period, with certain periods falling outside of our expected range. Assuming that pre-tax income and adjusted operating income before tax are equal, the primary difference between our effective tax rate and our overall tax rate is the inclusion of excise taxes within the calculation of the overall tax rate. We currently expect excise taxes will be immaterial.

The estimated future effective tax rate and overall tax rate presented above incorporates various assumptions and actual results may vary. See *Item 1A. Risk Factors–Risks Relating to Taxation–The BEAT may significantly increase our tax liability*.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Year Ended December 31, 2017 Compared to the Year Ended December 31, 2016

In this section, references to 2017 refer to the year ended December 31, 2017 and references to 2016 refer to the year ended December 31, 2016.

Net Income

Net income increased by $585 million, or 76%, to $1.4 billion in 2017 from $773 million in 2016. ROE and adjusted ROE increased to 16.9% and 18.0%, respectively, from 12.6% and 12.1% in 2016, respectively, benefiting from the increase in net income. The increase in net income was driven by an increase in revenues of $4.6 billion, partially offset by a $3.9 billion increase in benefits and expenses.

Revenues

Total revenue increased by $4.6 billion to $8.7 billion in 2017 from $4.1 billion in 2016. The increase was driven by an increase in premiums, favorable changes in investment related gains and losses, an increase in net investment income and an increase in VIE investment related gains and losses.

Premiums increased by $2.2 billion to $2.5 billion in 2017 from $240 million in 2016, driven by premiums from PRT transactions as we entered the PRT market in 2017.

Investment related gains and losses increased by $1.9 billion to $2.6 billion in 2017 from $652 million in 2016, primarily due to the change in fair value of FIA hedging derivatives, the change in assumed reinsurance embedded derivatives, and higher realized gains on AFS securities. The change in fair value of FIA hedging derivatives increased by $1.6 billion driven by the performance of the indices upon which our call options are based. The majority of our call options are based on the S&P 500 index, which experienced a 19.4% increase in 2017, compared to a 9.5% increase in 2016. The assumed reinsurance embedded derivatives increased by $145 million driven by unrealized gains due to credit spreads tightening primarily on RMBS, as well as a favorable change in FIA hedging derivatives backing the reinsurance block and growth in the reinsurance block. Realized gains on AFS securities increased primarily due to a $50 million gain on the sale of equity securities.

Net investment income increased by $355 million to $3.3 billion in 2017 from $2.9 billion in 2016, primarily driven by a strong increase in fixed and other investment income driven by earnings from growth in our investment portfolio attributed to a strong increase in deposits during the year, and higher short-term interest rates resulting in higher floating rate investment income, partially offset by lower bond call income.

VIE investment related gains and losses increased by $88 million to a gain of $35 million in 2017 from a loss of $53 million in 2016, primarily driven by losses in 2016 resulting from a decline in market value of public equity positions in one of our funds, partially offset by 2016 benefiting from an increase of $82 million in the fair value of certain underlying investments in three of our consolidated VIEs, reflecting the removal of liquidity discounts related to marketability assumptions used in the determination of the fair value.

Benefits and Expenses

Total benefits and expenses increased by $3.9 billion to $7.3 billion in 2017 from $3.4 billion in 2016. The increase was driven by an increase in interest sensitive contract benefits, an increase in future policy and other policy benefits, an increase in DAC, DSI and VOBA amortization, an increase in dividends payable to policyholders and higher policy and other operating expenses.

Interest sensitive contract benefits increased by $1.5 billion to $2.9 billion in 2017 from $1.3 billion in 2016, primarily due to the change in FIA fair value embedded derivatives and higher interest credited to policyholders related to strong growth in deposits. The change in FIA fair value embedded derivatives increased by $1.5 billion, primarily driven by the performance of the equity indices to which our FIA policies are linked, primarily the S&P 500 index, which experienced a 19.4% increase in 2017, compared to a 9.5% increase in 2016. Additionally, the FIA fair value embedded derivatives were impacted by a decrease in discount rates used in our embedded derivative calculations compared to 2016.

Future policy and other policy benefits increased by $2.2 billion to $3.2 billion in 2017 from $1.0 billion in 2016, primarily attributable to $2.3 billion of policyholder obligations from our PRT transactions, partially offset by a favorable change in the rider reserves. The favorable change in rider reserves of $89 million was primarily driven by a decrease related to our annual unlocking of assumptions of $84 million, and favorable equity market performance compared to 2016 resulting in increased index credits to policyholder accounts, which lowered the amount needed to fund the rider reserve. The favorable change in rider reserves was partially offset by growth in the block of business and an increase related to the net change in FIA derivatives. Unlocking in 2017 was unfavorable $49 million related to impacts of the net investment earned rate and mortality assumptions, while 2016 unlocking impacts were unfavorable by $133 million.

DAC, DSI and VOBA amortization increased by $64 million to $407 million in 2017 from $343 million in 2016, primarily due to an increase related to the net change in FIA derivatives and growth in the DAC asset balance related to block growth, partially offset by $54 million favorable change in unlocking of assumptions, as well as favorable equity market performance. Unlocking in 2017 was favorable $16 million, primarily related to impacts of the net investment earned rate and mortality assumptions, while the 2016 unlocking impacts were unfavorable $38 million.

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Dividends to policyholders increased by $81 million to $118 million in 2017 from $37 million in 2016, primarily attributed to higher Germany dividends to policyholders due to higher participation in realized gains in 2017 and unrealized gains related to foreign currency forwards.

Policy and other operating expenses increased by $45 million to $672 million in 2017 from $627 million in 2016, primarily attributed to higher integration, restructuring and other non-operating expenses mainly due to Germany restructuring costs, and higher costs associated with acquisition and block reinsurance opportunities in 2017, partially offset by lower stock compensation expense due to the accelerated vesting of Class M restricted shares in 2016. The remaining increase was primarily attributed to growing our business and expanding our distribution channels.

Taxes

Income tax expense increased by $167 million to $106 million in 2017 from a benefit of $61 million in 2016. The increase was primarily driven by the release of a deferred tax valuation allowance in 2016 of $102 million related to a tax plan that allows us to use a significant portion of the U.S. non-life insurance companies' net operating losses. Additionally, the increase in income tax expense was attributed to an increase in income subject to U.S. income taxes of $140 million, or approximately a $49 million increase of tax based on a 35% U.S. statutory rate, primarily driven by higher investment realized gains, higher net change in FIA derivatives and lower DAC, DSI, VOBA amortization and rider reserves attributed to unlocking of assumptions and favorable equity market performance. The impact from U.S. tax reform enacted in December of 2017 was a benefit to net income of $7 million due to the lower U.S. tax rate impacts on our net deferred tax liabilities at the date of enactment.

Our effective tax rates were 7% in 2017 and (9)% in 2016. Our effective tax rates may vary year to year depending upon the relationship of income and loss subject to tax compared to consolidated income and loss before income taxes.

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Results of Operations by Segment

The following summarizes our adjusted operating income by segment:

(In millions, except percentages)	Years ended December 31,		
	2018	2017	2016
Net income	$ 1,053	$ 1,358	$ 773
Non-operating adjustments			
Realized gains (losses) on sale of AFS securities	13	137	77
Unrealized, impairments and other investment gains (losses)	(18)	(7)	(56)
Assumed modco and funds withheld reinsurance embedded derivatives	(402)	152	68
Offsets to investment gains (losses)	133	(83)	(42)
Investment gains (losses), net of offsets	(274)	199	47
Change in fair values of derivatives and embedded derivatives – FIAs, net of offsets	242	230	67
Integration, restructuring and other non-operating expenses	(22)	(68)	(22)
Stock compensation expense	(11)	(33)	(82)
Income tax (expense) benefit – non-operating	(22)	(25)	4
Less: Total non-operating adjustments	(87)	303	14
Adjusted operating income	$ 1,140	$ 1,055	$ 759
Adjusted operating income (loss) by segment			
Retirement Services	$ 1,201	$ 1,038	$ 808
Corporate and Other	(61)	17	(49)
Adjusted operating income	$ 1,140	$ 1,055	$ 759
Adjusted operating ROE	13.9%	15.1%	12.6%
Retirement Services adjusted operating ROE	18.4%	21.5%	19.3%

Year Ended December 31, 2018 Compared to the Year Ended December 31, 2017

Adjusted operating income increased by $85 million, or 8%, to $1.1 billion in 2018 from $1.1 billion in 2017. Adjusted operating ROE was 13.9%, down from 15.1% in 2017. The increase in adjusted operating income, was primarily driven by an increase in our Retirement Services segment of $163 million partially offset by a decrease in Corporate and Other of $76 million.

Our consolidated net investment earned rate was 4.54% in 2018, an increase from 4.47% in 2017, primarily due to the performance in our fixed and other investment portfolio. Fixed and other net investment earned rate was 4.37% in 2018, an increase from 4.26% in 2017, driven by higher floating rate investment income in 2018 and the deconsolidation of Germany, which lowered returns in 2017, partially offset by lower new money rates over the past year and lower returns on assets from the Voya and Lincoln reinsurance transactions. Alternative net investment earned rate was 8.51% in 2018, a decrease from 8.72% in 2017, driven by the decline in market value of public equity positions in two of our funds, partially offset by strong MidCap and Amerihome performance and higher income in one of our hedge funds.

Non-operating Adjustments

Non-operating adjustments decreased by $390 million to $(87) million in 2018 from $303 million in 2017. The decrease in non-operating adjustments was primarily driven by unfavorable assumed reinsurance embedded derivative impacts and a decrease in realized gains and losses on the sale of AFS securities, partially offset by lower non-operating expenses. Assumed reinsurance embedded derivative impacts were unfavorable by $554 million due to credit spreads widening compared to the prior year, which benefited from credit spreads tightening, and growth in the reinsurance block from the Voya and Lincoln transactions. Realized gains and losses decreased $124 million driven by gains on the sale of equity securities in 2017 and the redeployment of the investment portfolio received in the Voya transaction. Non-operating expenses were favorable compared to prior year as 2017 included higher acquisition and block reinsurance costs, Germany restructuring costs, and higher stock compensation expense due to 2017 vesting performance of shares.

Year Ended December 31, 2017 Compared to the Year Ended December 31, 2016

Adjusted operating income increased by $296 million, or 39%, to $1.1 billion in 2017 from $759 million in 2016. Adjusted operating ROE was 15.1%, up from 12.6% in the prior period. The increase in adjusted operating income was primarily driven by an increase in our Retirement Services segment of $230 million and an increase of $66 million in Corporate and Other.

Our consolidated net investment earned rate was 4.47% in 2017, an increase from 4.35% in 2016, primarily attributed to strong performance from our fixed and other investment portfolios and our alternative investment portfolio. Our alternative investment net investment earned rate was 8.72% in 2017, an increase from 7.64% in 2016, primarily attributed to the lower alternative returns in 2016 due to a decline in the market value of public equity positions in one of our funds, higher real estate income and higher AmeriHome income, partially offset by lower credit fund income, lower hedge fund income, as well as 2016 benefiting from an increase in the fair value of certain underlying investments of three funds which reflected the removal of liquidity discounts related to marketability assumptions used in the determination of the fair value.

Non-operating Adjustments

Non-operating adjustments increased by $289 million to $303 million in 2017 from $14 million in 2016. The increase in non-operating adjustments was primarily driven by a favorable net change in FIA derivatives, favorable assumed reinsurance embedded derivative impacts and a $50 million gain on the sale of equity securities. The net change in FIA derivatives was primarily driven by the performance of the equity indices to which our FIA policies are linked, partially offset by an unfavorable decrease in discount rates. Assumed reinsurance embedded derivative impacts were favorable due to RMBS credit spreads tightening.

Retirement Services

Retirement Services is comprised of our United States and Bermuda operations which issue and reinsure retirement savings products and institutional products. Retirement Services has retail operations, which provide annuity retirement solutions to our policyholders. Retirement Services also has reinsurance operations, which reinsure FIAs, MYGAs, traditional one year guarantee fixed deferred annuities, immediate annuities and institutional products from our reinsurance partners. In addition, our institutional operations, including funding agreements and PRT obligations, are included in our Retirement Services segment.

Year Ended December 31, 2018 Compared to the Year Ended December 31, 2017

Adjusted Operating Income

Adjusted operating income increased by $163 million, or 16%, to $1.2 billion in 2018, from $1.0 billion in 2017. Adjusted operating ROE was 18.4%, down from 21.5% in the prior period. The increase in adjusted operating income was driven by $35.8 billion of growth in our invested assets delivering attractive spread accretion over prior year primarily attributed to inorganic deposits from the Voya and Lincoln reinsurance transactions as well as strong organic deposits over the prior twelve months. Net investment earnings also benefited from higher floating rate income of $113 million related to higher short-term interest rates and higher alternative investment income attributed to the strong performance from MidCap and Amerihome and higher income in one of our hedge funds. Partially offsetting this increase were higher rider reserves and DAC amortization related to unfavorable equity market performance resulting in an unfavorable $21 million impact in 2018 compared to a favorable $152 million impact in 2017. Unlocking in 2018 was unfavorable by $13 million compared to a favorable $20 million impact in the prior year. Unlocking in 2018 reflected changes in lapse assumptions partially offset by utilization of certain rider benefits, while 2017 reflected changes in the net investment earned rate and mortality assumptions.

Investment Margin on Deferred Annuities

	Years ended December 31,	
	2018	2017
Net investment earned rate	4.60%	4.70%
Cost of crediting	1.95%	1.88%
Investment margin on deferred annuities	2.65%	2.82%

Net investment earned rate decreased due to the decline in fixed and other net investment earned rate, partially offset by the increase in alternative net investment earned rate. The fixed and other net investment earned rate decreased in 2018, to 4.36% from 4.48% in 2017 primarily attributed to lower returns on the assets from the Voya and Lincoln reinsurance transactions, lower new money rates on purchases compared to maturities over the past year and higher levels of cash during 2018, partially offset by higher floating rate investment income. The alternative net investments earned rate increased in 2018 to 11.15% from 10.01% in 2017, reflecting strong MidCap and AmeriHome performance and higher income in one of our hedge funds.

Cost of crediting on deferred annuities increased by 7 basis points to 1.95% in 2018, from 1.88% in 2017, driven by an increase in option costs due to higher volatility and short-term interest rates as well as a higher cost of crediting rate on the Voya reinsurance liabilities. We continue to focus on pricing discipline, managing interest rates credited to policyholders and managing the cost of options to fund the annual index credits on our FIA products.

Year Ended December 31, 2017 Compared to the Year Ended December 31, 2016

Adjusted Operating Income

Adjusted operating income increased by $230 million, or 28%, to $1.0 billion in 2017, from $808 million in 2016. Adjusted operating ROE was 21.5%, an increase from 19.3% in the prior period. The increase in adjusted operating income was primarily driven by an increase in fixed and other investment income and lower other liability costs, partially offset by higher adjusted operating income tax expense attributed to the 2016 deferred tax valuation allowance release of $102 million, lower alternative investment income and higher cost of crediting.

Net investment earnings increased $288 million driven primarily by earnings from growth in invested assets of $9.4 billion attributed to a strong increase in deposits during the year and higher short-term interest rates resulting in higher floating rate investment income, partially offset by lower bond call income. Alternative investment income was lower mainly driven by 2016 benefiting from a $37 million increase in the fair value of MidCap and a $15 million increase of certain underlying investments of another fund which reflected the removal of liquidity discounts related to marketability assumptions used in the determination of the fair value, as well as lower hedge fund income, partially offset by 2017 reflecting higher real estate income and higher AmeriHome income.

Other liability costs decreased $132 million driven by lower unlocking of assumptions and $100 million lower rider reserves and DAC amortization related to favorable equity market performance impacts, partially offset by growth in the block of business. Our annual unlocking of assumptions resulted in an increase to other liability costs of $20 million compared to an increase of $158 million in the prior year.

Cost of crediting increased $47 million driven by growth in our deferred annuity block of business, which was partially offset by rate actions and lower option costs.

Investment Margin on Deferred Annuities

	Years ended December 31,	
	2017	2016
Net investment earned rate	4.70%	4.72%
Cost of crediting	1.88%	1.96%
Investment margin on deferred annuities	2.82%	2.76%

Net investment earned rate decreased by 2 basis points to 4.70% in 2017 from 4.72% in 2016. Although fixed and other net investment earned rates increased over the prior year, this was more than offset by lower alternative net investment earned rates. The alternative net investment earned rate decreased to 10.01% from 12.26% in the prior period, mainly due to 2016 benefiting from an increase in the fair value of MidCap and another fund which reflected the removal of liquidity discounts related to marketability assumptions used in the determination of the fair value, as well as lower hedge fund income, partially offset by 2017 reflecting higher real estate income and higher AmeriHome income. Fixed and other net investment earned rates increased in 2017 to 4.48% from 4.41% in the prior period, primarily attributed to higher short-term interest rates resulting in higher floating rate investment income and higher cash balances during the prior year, partially offset by lower bond call income.

Cost of crediting on deferred annuities decreased by 8 basis points to 1.88% in 2017, from 1.96% in 2016. The decrease in cost of crediting was driven by rate actions and lower option costs.

Corporate and Other

Corporate and Other includes certain other operations related to our corporate activities and prior to January 1, 2018, included our former German operations, which were primarily comprised of participating long-duration savings products. Included in Corporate and Other are corporate allocated expenses, merger and acquisition costs, debt costs, certain integration and restructuring costs, certain stock-based compensation and intersegment eliminations. In Corporate and Other, we also hold capital in excess of the level of capital we hold in Retirement Services to support our operating strategy.

Adjusted Operating Income (Loss)

Adjusted operating income (loss) decreased by $78 million to $(61) million in 2018, from $17 million in 2017. The decrease in adjusted operating income (loss) was mainly driven by lower alternative investment income related to the decline in market value of public equity positions in two of our funds and debt costs from our debt issuance in January 2018. Our former German operations, which deconsolidated on January 1, 2018, had adjusted operating income of $2 million in 2017.

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Adjusted operating income (loss) increased by $66 million to $17 million in 2017, from $(49) million in 2016. The increase in adjusted operating income (loss) was mainly driven by higher alternative investment income and higher allocation of fixed and other investment income, partially offset by higher Corporate operating expenses and lower Germany adjusted operating income of $2 million, a decrease of $14 million over 2016. Alternative investment income increased primarily due to losses in 2016 related to a decline in the market value of public equity positions in one of our funds, partially offset by lower credit fund income and 2016 benefiting from a $29 million increase in the fair value of certain underlying investments of one fund which reflected the removal of liquidity discounts related to marketability assumptions used in the determination of the fair value.

Consolidated Investment Portfolio

We had consolidated investments, including related parties, of $107.6 billion and $84.4 billion as of December 31, 2018 and 2017, respectively. Our investment strategy seeks to achieve sustainable risk-adjusted returns through the disciplined management of our investment portfolio against our long-duration liabilities, coupled with the diversification of risk. The investment strategies utilized by our investment managers focus primarily on a buy and hold asset allocation strategy that may be adjusted periodically in response to changing market conditions and the nature of our liability profile. Substantially all of our investment portfolio is managed by AAM, an indirect subsidiary of Apollo founded for the express purpose of managing our portfolio. AAM provides a full suite of services for our investment portfolio, including direct investment management, asset allocation, mergers and acquisition asset diligence, and certain operational support services, including investment compliance, tax, legal and risk management support. Our relationship with AAM and Apollo allows us to take advantage of our generally illiquid liability profile by identifying investment opportunities with an emphasis on earning incremental yield by taking liquidity and complexity risk rather than assuming solely credit risk. The deep experience of the AAM investment team and Apollo's credit portfolio managers assists us in sourcing and underwriting complex asset classes. AAM has selected a diverse array of corporate bonds and more structured, but highly rated asset classes. We also maintain holdings in floating rate and less rate-sensitive instruments, including CLOs, non-agency RMBS and various types of structured products. In addition to our fixed income portfolio, we opportunistically allocate 5–10% of our portfolio to alternative investments where we primarily focus on fixed income-like, cash flow-based investments.

Our invested assets, which are those that directly back our policyholder liabilities as well as surplus assets (as previously discussed in *Key Operating and Non-GAAP Measures*), were $111.0 billion and $82.3 billion as of December 31, 2018 and 2017, respectively. AAM managed, directly and indirectly, substantially all of our invested assets as of December 31, 2018, comprising a diversified portfolio of fixed maturity and other securities. AAM's knowledge of our funding structure and regulatory requirements allows it to design customized strategies and investments for our portfolio.

Our asset portfolio is managed within the limits and constraints set forth in our Investment and Credit Risk Policy. Under this policy, we set limits on investments in our portfolio by asset class, such as corporate bonds, emerging markets securities, municipal bonds, non-agency RMBS, CMBS, CLOs, commercial mortgage whole loans and mezzanine loans and investment funds. We also set credit risk limits for exposure to a single issuer that vary based on the issuer's ratings. In addition, our investment portfolio is constrained by its scenario-based capital ratio limit and its stressed liquidity limit.

The following table presents the carrying values of our total investments and investments in related parties:

	December 31, 2018		December 31, 2017	
(In millions, except percentages)	Carrying Value	Percent of Total	Carrying Value	Percent of Total
AFS securities, at fair value	$ 59,265	55.1%	$ 61,008	72.3%
Trading securities, at fair value	1,949	1.8%	2,183	2.6%
Equity securities, at fair value	216	0.2%	803	0.9%
Mortgage loans, net of allowances	10,340	9.6%	6,233	7.4%
Investment funds	703	0.6%	699	0.8%
Policy loans	488	0.4%	542	0.6%
Funds withheld at interest	15,023	14.0%	7,085	8.4%
Derivative assets	1,043	1.0%	2,551	3.0%
Real estate	—	—%	624	0.7%
Short-term investments	191	0.2%	201	0.2%
Other investments	122	0.1%	133	0.2%
Total investments	89,340	83.0%	82,062	97.1%
Investment in related parties				
AFS securities, at fair value	1,437	1.3%	410	0.5%
Trading securities, at fair value	249	0.2%	307	0.4%
Equity securities, at fair value	120	0.1%	—	—%
Mortgage loans	291	0.3%	—	—%
Investment funds	2,232	2.1%	1,310	1.6%
Funds withheld at interest	13,577	12.6%	—	—%
Short-term investments	—	—%	52	0.1%
Other investments	386	0.4%	238	0.3%
Total related party investments	18,292	17.0%	2,317	2.9%
Total investments including related party	$ 107,632	100.0%	$ 84,379	100.0%

The increase in our total investments, including related party, as of December 31, 2018 of $23.3 billion compared to December 31, 2017 was mainly driven by significant growth in our inorganic and organic deposits, investment of the proceeds from our debt issuance in January and reinvestment of earnings. These were partially offset by the deconsolidation of our former German operations of $5.9 billion and the change in unrealized gains and losses on AFS securities. Inorganic growth as of December 31, 2018, reflects $17.2 billion of assets from the Voya reinsurance transactions and $7.2 billion of assets from the Lincoln reinsurance transaction, while organic deposits were $13.2 billion less liability outflows of $8.9 billion. Unrealized gains and losses on AFS securities decreased $3.3 billion attributed to credit spreads widening and an increase in U.S. treasury rates in 2018.

Our investment portfolio consists largely of high quality fixed maturity securities, loans and short-term investments, as well as additional opportunistic holdings in investment funds and other instruments, including a small amount of equity holdings. Fixed maturity securities and loans include publicly issued corporate bonds, government and other sovereign bonds, privately placed corporate bonds and loans, mortgage loans, CMBS, RMBS, CLOs, and other asset-backed securities (ABS).

While the substantial majority of our investment portfolio has been allocated to corporate bonds and structured credit products, a key component of our investment strategy is the opportunistic acquisition of investment funds with attractive risk and return profiles. Our investment fund portfolio consists of funds that employ various strategies including real estate and other real asset funds, credit funds, private equity funds and hedge funds. We have a strong preference for assets that have some or all of the following characteristics, among others: (1) investments that constitute a direct investment or an investment in a fund with a high-degree of co-investment; (2) investments with credit- or debt-like characteristics (for example, a stipulated maturity and par value), or alternatively, investments with reduced volatility when compared to pure equity; or (3) investments that have less downside risk. We acquired certain investment funds from AAA Investor (which are classified as private equity investments and consolidated VIEs) as a one-time capital contribution by our largest shareholder in advance of the Aviva USA acquisition. With respect to investment fund portfolios that we received in these transactions, we actively reinvest these investments in our preferred credit-oriented strategies over time as we liquidate these holdings.

We hold derivatives for economic hedging purposes to reduce our exposure to the cash flow variability of assets and liabilities, equity market risk, interest rate risk, credit risk, and to a lesser extent, foreign exchange risk. Our primary use of derivative instruments relates to providing the income needed to fund the annual indexed credits on our FIA products. We primarily use fixed indexed options to economically hedge FIA products that guarantee the return of principal to the policyholder and credit interest based on a percentage of the gain in a specific market index.

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With respect to derivative positions, we transact with highly rated counterparties, and do not expect the counterparties to fail to meet their obligations under the contracts. We generally use industry standard agreements and annexes with bilateral collateral provisions to further reduce counterparty credit exposure.

AFS Securities

We invest with the intent to hold investments to maturity. In selecting investments, we attempt to source investments that match our future cash flow needs. However, we may sell any of our investments in advance of maturity in order to timely satisfy our liabilities as they become due or in order to respond to a change in the credit profile or other characteristics of the particular investment.

AFS securities are carried at fair value on our consolidated balance sheets. Changes in fair value of our AFS securities, net of related DAC, DSI and VOBA amortization and the change in rider reserves, are charged or credited to other comprehensive income, net of tax. Declines in fair value that are other than temporary are recorded as realized losses in the consolidated statements of income, net of any applicable non-credit component of the loss, which is recorded as an adjustment to other comprehensive income.

The distribution of our AFS securities, including related parties, by type is as follows:

	December 31, 2018				
(In millions, except percentages)	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value	Percent of Total
AFS securities					
U.S. government and agencies	$ 57	$ —	$ —	$ 57	0.1%
U.S. state, municipal and political subdivisions	1,183	117	(7)	1,293	2.1%
Foreign governments	162	2	(3)	161	0.3%
Corporate	38,018	394	(1,315)	37,097	61.1%
CLO	5,658	2	(299)	5,361	8.8%
ABS	4,915	53	(48)	4,920	8.1%
CMBS	2,390	27	(60)	2,357	3.9%
RMBS	7,642	413	(36)	8,019	13.2%
Total AFS securities	60,025	1,008	(1,768)	59,265	97.6%
AFS securities – related party					
CLO	587	—	(25)	562	0.9%
ABS	875	4	(4)	875	1.5%
Total AFS securities – related party	1,462	4	(29)	1,437	2.4%
Total AFS securities including related party	$ 61,487	$ 1,012	$ (1,797)	$ 60,702	100.0%

	December 31, 2017				
(In millions, except percentages)	Amortized Cost	Unrealized Gains	Unrealized Losses	Fair Value	Percent of Total
AFS securities					
U.S. government and agencies	$ 63	$ 1	$ (2)	$ 62	0.1%
U.S. state, municipal and political subdivisions	996	171	(2)	1,165	1.9%
Foreign governments	2,575	116	(8)	2,683	4.4%
Corporate	35,173	1,658	(171)	36,660	59.6%
CLO	5,039	53	(8)	5,084	8.3%
ABS	3,941	53	(27)	3,967	6.5%
CMBS	1,994	48	(21)	2,021	3.3%
RMBS	8,721	652	(7)	9,366	15.2%
Total AFS securities	58,502	2,752	(246)	61,008	99.3%
AFS securities – related party					
CLO	353	7	—	360	0.6%
ABS	50	—	—	50	0.1%
Total AFS securities – related party	403	7	—	410	0.7%
Total AFS securities including related party	$ 58,905	$ 2,759	$ (246)	$ 61,418	100.0%

We maintain a diversified AFS portfolio of corporate fixed maturity securities across industries and issuers, and a diversified portfolio of structured securities. The composition of our AFS securities, including related parties, is as follows:

	December 31, 2018		December 31, 2017	
(In millions, except percentages)	Fair Value	Percent of Total	Fair Value	Percent of Total
Corporate				
Industrial other[1]	$ 11,706	19.3%	$ 12,026	19.6%
Financial	11,809	19.5%	11,824	19.3%
Utilities	9,055	14.9%	8,296	13.5%
Communication	2,313	3.8%	2,607	4.2%
Transportation	2,214	3.6%	1,907	3.1%
Total corporate	37,097	61.1%	36,660	59.7%
Other government-related securities				
U.S. state, municipal and political subdivisions	1,293	2.1%	1,165	1.9%
Foreign governments	161	0.3%	2,683	4.4%
U.S. government and agencies	57	0.1%	62	0.1%
Total non-structured securities	38,608	63.6%	40,570	66.1%
Structured securities				
CLO	5,923	9.8%	5,444	8.9%
ABS	5,795	9.5%	4,017	6.5%
CMBS	2,357	3.9%	2,021	3.3%
RMBS				
Agency	59	0.1%	87	0.1%
Non-agency	7,960	13.1%	9,279	15.1%
Total structured securities	22,094	36.4%	20,848	33.9%
Total AFS securities including related party	$ 60,702	100.0%	$ 61,418	100.0%

[1] *Includes securities within various industry segments including capital goods, basic industry, consumer cyclical, consumer non-cyclical, industrial and technology.*

The fair value of our AFS securities, including related parties, was $60.7 billion and $61.4 billion as of December 31, 2018 and 2017, respectively. The decrease was mainly driven by the deconsolidation of our former German operations and the change in unrealized gains and losses on AFS securities. Unrealized gains and losses on AFS securities decreased attributed to credit spreads widening and an increase in U.S. treasury rates in 2018. These were partially offset by strong growth in deposits over liability outflows, assets from the Voya coinsurance transaction and the investment of the proceeds from our debt issuance in January 2018.

The Securities Valuation Office (SVO) of the NAIC is responsible for the credit quality assessment and valuation of securities owned by state regulated insurance companies. Insurance companies report ownership of securities to the SVO when such securities are eligible for filing on the relevant schedule of the NAIC Financial Statement Blank. The SVO conducts credit analysis on these securities for the purpose of assigning an NAIC designation and/or unit price. Subject to the important exceptions discussed below, if a security has been rated by a Nationally Recognized Statistical Rating Organization (NRSRO), the SVO utilizes that rating and assigns an NAIC designation based upon the following system (General Ratings Process):

NAIC designation	NRSRO equivalent rating
1	AAA/AA/A
2	BBB
3	BB
4	B
5	CCC
6	CC and lower

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The NRSRO ratings methodology is focused on the likelihood of recovery of all contractual payments, including principal at par, regardless of an investor's carrying value. In effect, the NRSRO rating assumes that the holder is the original purchaser at par. In contrast, the SVO's loan-backed and structured securities (LBaSS) methodology is focused on determining the risk associated with the recovery of the amortized cost of each security. Because the NAIC's methodology explicitly considers amortized cost and the likelihood of recovery of such amount, we view the NAIC's methodology as the most appropriate way to view our fixed maturity portfolio for purposes of evaluating credit quality since a large portion of our holdings were purchased and are carried at significant discounts to par.

The SVO has developed a ratings process and provides instruction on both modeled and non-modeled LBaSS. For modeled LBaSS, the process is specific to the non-agency RMBS and CMBS asset classes. In order to establish ratings at the individual security level, the SVO obtains loan-level analysis of each RMBS and CMBS using a selected vendor's proprietary financial model. The SVO ensures that the vendor has extensive internal quality-control processes in place and the SVO conducts its own quality-control checks of the selected vendor's valuation process. The SVO has retained the services of Blackrock, Inc. (Blackrock) to model non-agency RMBS and CMBS owned by U.S. insurers for all years presented herein. Blackrock provides five prices (breakpoints), based on each U.S. insurer's statutory book value price, to utilize in determining the NAIC designation for each modeled LBaSS.

Prior to January 1, 2019, certain non-modeled LBaSS (including CLOs and ABS, other than RMBS and CMBS) underwent ratings evaluation by an NAIC credit rating provider (CRP). Such securities were subject to an exemption from the General Ratings Process (MFE Exemption) and received NAIC designations through a prescribed process (MFE Process). Pursuant to the MFE Process, CRP ratings were translated to an NAIC designation equivalent. If the translation process resulted in an NAIC designation equivalent of NAIC 1 or NAIC 6, then such designation was considered the final NAIC designation. If the translation process resulted in an NAIC designation equivalent of NAIC 2 through NAIC 5, then the NAIC designation equivalent was used to select the appropriate breakpoint from a pricing matrix and such breakpoint was applied to the amortized cost or fair value (in each instance, as a percentage of par), as applicable, to determine the final NAIC designation. Effective January 1, 2019, the MFE Exemption was eliminated, and as a result, NAIC designations for all non-modeled LBaSS are thereafter determined through the General Ratings Process.

The NAIC designation determines the associated level of RBC that an insurer is required to hold for modeled LBaSS owned by the insurer. In general, under the modeled LBass process and, prior to January 1, 2019, the non-modeled LBaSS processes, the larger the discount to par value at the time of determination, the higher the NAIC designation the LBaSS will have.

A summary of our AFS securities, including related parties, by NAIC designation (with our former German operations applying NRSRO ratings to map to NAIC designations) is as follows:

	December 31, 2018			December 31, 2017		
(In millions, except percentages)	Amortized Cost	Fair Value	Percent of Total	Amortized Cost	Fair Value	Percent of Total
NAIC designation						
1	$ 31,106	$ 31,311	51.6%	$ 30,906	$ 32,447	52.8%
2	26,682	25,871	42.6%	24,147	25,082	40.9%
Total investment grade	57,788	57,182	94.2%	55,053	57,529	93.7%
3	2,866	2,746	4.5%	2,978	3,040	5.0%
4	591	533	0.9%	789	765	1.2%
5	235	232	0.4%	70	66	0.1%
6	7	9	0.0%	15	18	0.0%
Total below investment grade	3,699	3,520	5.8%	3,852	3,889	6.3%
Total AFS securities including related party	$ 61,487	$ 60,702	100.0%	$ 58,905	$ 61,418	100.0%

Substantially all of our AFS portfolio, 94.2% and 93.7% as of December 31, 2018 and 2017, respectively, was invested in assets considered investment grade with a NAIC designation of 1 or 2.

A summary of our AFS securities, including related parties, by NRSRO ratings is set forth below:

(In millions, except percentages)	December 31, 2018		December 31, 2017	
	Fair Value	Percent of Total	Fair Value	Percent of Total
NRSRO rating agency designation				
AAA/AA/A	$ 19,690	32.4%	$ 19,739	32.1%
BBB	23,326	38.4%	22,817	37.2%
Non-rated[1]	9,624	15.9%	9,056	14.7%
Total investment grade	52,640	86.7%	51,612	84.0%
BB	2,670	4.4%	3,063	5.0%
B	875	1.4%	1,148	1.9%
CCC	2,340	3.9%	2,696	4.4%
CC and lower	1,296	2.1%	2,302	3.8%
Non-rated[1]	881	1.5%	597	0.9%
Total below investment grade	8,062	13.3%	9,806	16.0%
Total AFS securities including related party	$ 60,702	100.0%	$ 61,418	100.0%

[1] *Securities denoted as non-rated by the NRSRO were classified as investment or non-investment grade according to the security's respective NAIC designation.*

Consistent with the NAIC Process and Procedures Manual, an NRSRO rating was assigned based on the following criteria: (a) the equivalent S&P rating when the security is rated by one NRSRO; (b) the equivalent S&P rating of the lowest NRSRO when the security is rated by two NRSROs; and (c) the equivalent S&P rating of the second lowest NRSRO when the security is rated by three or more NRSROs. If the lowest two NRSRO ratings are equal, then such rating will be the assigned rating. NRSRO ratings available for the periods presented were S&P, Fitch, Moody's Investor Service, DBRS, and Kroll Bond Rating Agency, Inc.

The portion of our AFS portfolio that was considered below investment grade based on NRSRO ratings was 13.3% and 16.0% as of December 31, 2018 and 2017, respectively. The primary driver of the difference in the percentage of securities considered below investment grade by NRSROs as compared to the securities considered below investment grade by the NAIC is the difference in methodologies between the NRSRO and NAIC for RMBS due to investments acquired and/or carried at a discount to par value, as discussed above.

As of December 31, 2018 and 2017, the non-rated securities shown above were comprised of 56% and 58%, respectively, of corporate private placement securities for which we have not sought individual ratings from the NRSRO, and 30% and 31%, respectively, of RMBS, many of which were acquired at a significant discount to par. We rely on internal analysis of credit risk and designations assigned by the NAIC. As of December 31, 2018 and 2017, 92% and 94%, respectively, of the non-rated securities were designated NAIC 1 or 2.

Asset-backed Securities – We invest in ABS which are securitized by pools of assets such as consumer loans, automobile loans, student loans, insurance-linked securities, operating cash flows of corporations and cash flows from various types of business equipment. Our AFS ABS holdings were $5.8 billion and $4.0 billion as of December 31, 2018 and 2017, respectively. The increase in our AFS ABS portfolio is mainly due to attractive investments made during the year as new deposits and the Voya and Lincoln investment portfolios are deployed. As of December 31, 2018 and 2017, our AFS ABS portfolio included $5.4 billion (92% of the total) and $3.8 billion (94% of the total), respectively, of securities that are considered investment grade based on NAIC designations, while $5.2 billion (89% of the total) and $3.6 billion (89% of the total), respectively, of securities were considered investment grade based on NRSRO ratings.

Collateralized Loan Obligations – We also invest in CLOs which pay principal and interest from cash flows received from underlying corporate loans. These holdings were $5.9 billion and $5.4 billion as of December 31, 2018 and 2017, respectively.

A summary of our AFS CLO portfolio, including related parties, by NAIC designations and NRSRO quality ratings is as follows:

	December 31, 2018		December 31, 2017	
(In millions, except percentages)	Fair Value	Percent of Total	Fair Value	Percent of Total
NAIC designation				
1	$ 3,005	50.7%	$ 2,388	43.8%
2	2,498	42.2%	2,246	41.3%
Total investment grade	5,503	92.9%	4,634	85.1%
3	393	6.7%	777	14.3%
4	20	0.3%	33	0.6%
5	7	0.1%	—	—%
6	—	—%	—	—%
Total below investment grade	420	7.1%	810	14.9%
Total AFS CLO including related party	$ 5,923	100.0%	$ 5,444	100.0%
NRSRO rating agency designation				
AAA/AA/A	$ 2,921	49.3%	$ 2,016	37.0%
BBB	2,829	47.8%	2,676	49.2%
Non-rated[1]	—	—%	113	2.1%
Total investment grade	5,750	97.1%	4,805	88.3%
BB	146	2.4%	612	11.2%
B	27	0.5%	27	0.5%
CCC	—	—%	—	—%
CC and lower	—	—%	—	—%
Total below investment grade	173	2.9%	639	11.7%
Total AFS CLO including related party	$ 5,923	100.0%	$ 5,444	100.0%

[1] *Securities denoted as non-rated by the NRSRO were classified as investment or non-investment grade according to the security's respective NAIC designations.*

As of December 31, 2018 and 2017, a majority of our AFS CLO portfolio, 92.9% and 85.1%, respectively, was invested in assets considered to be investment grade based upon an application of the NAIC's methodology. As of December 31, 2018 and 2017, 97.1% and 88.3%, respectively, of of our AFS CLO portfolio was considered investment grade based on NRSRO ratings.

Commercial Mortgage-backed Securities – A portion of our AFS portfolio is invested in CMBS. CMBS are constructed from pools of commercial mortgages. These holdings were $2.4 billion and $2.0 billion as of December 31, 2018 and 2017, respectively. As of December 31, 2018 and 2017, our AFS CMBS portfolio included $2.1 billion (91% of the total) and $1.9 billion (95% of the total), respectively, of securities that are considered investment grade based on NAIC designations, while $1.6 billion (66% of the total) and $1.4 billion (70% of the total), respectively, of securities were considered investment grade based on NRSRO ratings.

Residential Mortgage-backed Securities – As part of our core investment strategy, a portion of our AFS portfolio is invested in RMBS. RMBS are securities constructed from pools of residential mortgages and backed by payments from those pools. These holdings were $8.0 billion and $9.4 billion as of December 31, 2018 and 2017, respectively.

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A summary of our AFS RMBS portfolio by NAIC designations and NRSRO quality ratings is as follows:

	December 31, 2018		December 31, 2017	
(In millions, except percentages)	Fair Value	Percent of Total	Fair Value	Percent of Total
NAIC designation				
1	$ 7,415	92.5%	$ 8,714	93.0%
2	269	3.3%	360	3.8%
Total investment grade	7,684	95.8%	9,074	96.8%
3	207	2.6%	213	2.3%
4	106	1.3%	73	0.8%
5	22	0.3%	6	0.1%
6	—	—%	—	—%
Total below investment grade	335	4.2%	292	3.2%
Total AFS RMBS	$ 8,019	100.0%	$ 9,366	100.0%
NRSRO rating agency designation				
AAA/AA/A	$ 487	6.1%	$ 335	3.6%
BBB	220	2.7%	347	3.7%
Non-rated[1]	2,932	36.6%	2,866	30.6%
Total investment grade	3,639	45.4%	3,548	37.9%
BB	332	4.1%	415	4.4%
B	301	3.8%	417	4.5%
CCC	2,259	28.2%	2,580	27.5%
CC and lower	1,292	16.1%	2,298	24.5%
Non-rated[1]	196	2.4%	108	1.2%
Total below investment grade	4,380	54.6%	5,818	62.1%
Total AFS RMBS	$ 8,019	100.0%	$ 9,366	100.0%

[1] *Securities denoted as non-rated by the NRSRO were classified as investment or non-investment grade according to the security's respective NAIC designations.*

A significant majority of our AFS RMBS portfolio, 95.8% and 96.8% as of December 31, 2018 and 2017, respectively, was invested in assets considered to be investment grade based upon an application of the NAIC's methodology to our holdings of RMBS. The NAIC's methodology with respect to RMBS gives explicit effect to the amortized cost at which an insurance company carries each such investment. Because we invested in RMBS after the stresses related to U.S. housing had caused significant downward pressure on prices of RMBS, we carry most of our investments in RMBS at significant discounts to par value, which results in an investment grade NAIC designation. In contrast, our understanding is that in setting ratings, NRSROs focus on the likelihood of recovering all contractual payments, including principal at par value. As a result of a fundamental difference in approach, as of December 31, 2018 and 2017, NRSRO characterized 45.4% and 37.9%, respectively, of our AFS RMBS portfolio as investment grade.

Unrealized Losses

Our investments in AFS securities, including related parties, are reported at fair value with changes in fair value recorded in other comprehensive income. Certain of our AFS securities, including related parties, have experienced declines in fair value that we consider temporary in nature. As of December 31, 2018, our AFS securities, including related party, had a fair value of $60.7 billion, which was 1.3% below amortized cost of $61.5 billion. As of December 31, 2017, our AFS securities, including related party, had a fair value of $61.4 billion, which was 4.3% above amortized cost of $58.9 billion. These investments are held to support our product liabilities, and we currently have the intent and ability to hold these securities until sale or maturity, and believe the securities will recover the amortized cost basis prior to sale or maturity.

The following tables reflect the unrealized losses on the AFS portfolio, including related parties, by NAIC designations:

(In millions, except percentages)	December 31, 2018					
	Amortized Cost of AFS Securities with Unrealized Loss	Gross Unrealized Losses	Fair Value of AFS Securities with Unrealized Loss	Fair Value to Amortized Cost Ratio	Fair Value of Total AFS Securities	Gross Unrealized Losses to Total AFS Fair Value
NAIC designation						
1	$ 15,373	$ (545)	$ 14,828	96.5%	$ 31,311	(1.7)%
2	19,152	(1,035)	18,117	94.6%	25,871	(4.0)%
Total investment grade	34,525	(1,580)	32,945	95.4%	57,182	(2.8)%
3	2,308	(147)	2,161	93.6%	2,746	(5.4)%
4	500	(65)	435	87.0%	533	(12.2)%
5	88	(5)	83	94.3%	232	(2.2)%
6	2	—	2	100.0%	9	— %
Total below investment grade	2,898	(217)	2,681	92.5%	3,520	(6.2)%
Total AFS securities including related party	$ 37,423	$ (1,797)	$ 35,626	95.2%	$ 60,702	(3.0)%

(In millions, except percentages)	December 31, 2017					
	Amortized Cost of AFS Securities with Unrealized Loss	Gross Unrealized Losses	Fair Value of AFS Securities with Unrealized Loss	Fair Value to Amortized Cost Ratio	Fair Value of Total AFS Securities	Percent of Loss to Total AFS Fair Value NAIC Designation
NAIC designation						
1	$ 4,901	$ (100)	$ 4,801	98.0%	$ 32,447	(0.3)%
2	4,284	(82)	4,202	98.1%	25,082	(0.3)%
Total investment grade	9,185	(182)	9,003	98.0%	57,529	(0.3)%
3	881	(19)	862	97.8%	3,040	(0.6)%
4	451	(40)	411	91.1%	765	(5.2)%
5	60	(5)	55	91.7%	66	(7.6)%
6	5	—	5	100.0%	18	— %
Total below investment grade	1,397	(64)	1,333	95.4%	3,889	(1.6)%
Total AFS securities including related party	$ 10,582	$ (246)	$ 10,336	97.7%	$ 61,418	(0.4)%

The gross unrealized losses on AFS securities, including related parties, were $1.8 billion and $246 million as of December 31, 2018 and 2017, respectively. The increase in unrealized losses was driven by credit spreads widening and the increase in U.S. treasury rates during year ended December 31, 2018.

Other-Than-Temporary Impairments

For our OTTI policy and the identification of securities that could potentially have impairments, see *Note 1 – Business, Basis of Presentation and Significant Accounting Policies* and *Note 3 – Investments* to the consolidated financial statements, as well as *Critical Accounting Estimates and Judgments.*

During the years ended December 31, 2018, 2017 and 2016, we recorded $18 million, $33 million and $30 million, respectively, of OTTI losses. OTTI losses in 2018 were primarily related to corporate fixed maturities, while OTTI losses in 2017 were primarily related to corporate fixed maturities, real estate and mortgage loans. OTTI losses in 2016 were primarily related to state, municipal and political subdivisions, corporate fixed maturities and ABS. The OTTI losses we have experienced for the years ended December 31, 2018, 2017 and 2016 translate into 2 basis points, 4 basis points and 4 basis points, respectively, of average invested assets.

International Exposure

A portion of our AFS securities are invested in securities with international exposure. As of December 31, 2018 and 2017, 30% and 33%, respectively, of the carrying value of our AFS securities, including related parties, was comprised of securities of issuers based outside of the United States and debt securities of foreign governments. These securities are either denominated in U.S. dollars or do not expose us to significant foreign currency risk as a result of foreign currency swap arrangements.

The following table presents our international exposure in our AFS portfolio, including related parties, by country or region:

	December 31, 2018			December 31, 2017		
(In millions, except percentages)	Amortized Cost	Fair Value	Percent of Total	Amortized Cost	Fair Value	Percent of Total
Country of risk						
Ireland	$ 578	$ 552	3.0%	$ 498	$ 511	2.6%
Italy	36	35	0.2%	59	64	0.3%
Spain	62	62	0.4%	209	225	1.1%
Portugal	—	—	—%	1	1	0.0%
Total Ireland, Italy, Greece, Spain and Portugal[1]	676	649	3.6%	767	801	4.0%
Other Europe	6,335	6,133	33.3%	8,087	8,395	42.0%
Total Europe	7,011	6,782	36.9%	8,854	9,196	46.0%
Non-U.S. North America	9,261	8,906	48.4%	8,048	8,220	41.2%
Australia & New Zealand	1,731	1,696	9.2%	1,443	1,481	7.4%
Central & South America	448	445	2.4%	481	508	2.6%
Africa & Middle East	228	226	1.2%	193	196	1.0%
Asia/Pacific	351	345	1.9%	321	327	1.6%
Supranational	—	—	—%	39	41	0.2%
Total	$ 19,030	$ 18,400	100.0%	$ 19,379	$ 19,969	100.0%

[1] *As of each of the respective periods, we had no holdings in Greece.*

Approximately 93.9% and 90.9% of these securities are investment grade by NAIC designation as of December 31, 2018 and 2017, respectively. As of December 31, 2018, 9% of our AFS securities, including related parties, were invested in CLOs of Cayman Islands issuers (for which underlying investments are largely loans to U.S. issuers) and 21% were invested in securities of non-U.S. issuers.

Portugal, Ireland, Italy, Greece and Spain continue to represent credit risk as economic conditions in these countries continue to be volatile, especially within the financial and banking sectors. We had $649 million and $801 million as of December 31, 2018 and 2017, respectively, of exposure in these countries.

As of December 31, 2018, we held UK and Channel Islands AFS securities of $2.3 billion, or 4% of our AFS securities, including related parties. As of December 31, 2018, these securities were in a net unrealized loss position of $122 million. Our investment managers analyze each holding for credit risk by economic and other factors of each country and industry.

Trading Securities

Trading securities, including related parties, were $2.2 billion and $2.5 billion as of December 31, 2018 and 2017, respectively. Trading securities are primarily comprised of AmerUs Closed Block securities for which we have elected the fair value option valuation, CLO equity tranche securities, structured securities with embedded derivatives, and investments which support various reinsurance arrangements.

Mortgage Loans

The following is a summary of our mortgage loan portfolio by collateral type:

	December 31, 2018		December 31, 2017	
(In millions, except percentages)	Net Carrying Value	Percent of Total	Net Carrying Value	Percent of Total
Property type				
Office building	$ 2,221	20.9%	$ 1,187	19.0%
Retail	1,660	15.6%	1,223	19.6%
Hotels	1,040	9.8%	928	14.9%
Industrial	1,196	11.2%	944	15.2%
Apartment	791	7.4%	525	8.4%
Other commercial[1]	389	3.7%	440	7.1%
Total net commercial mortgage loans	7,297	68.6%	5,247	84.2%
Residential loans	3,334	31.4%	986	15.8%
Total mortgage loans, net of allowances	$ 10,631	100.0%	$ 6,233	100.0%

[1] *Other commercial loans include investments in nursing homes, other healthcare institutions, parking garages, storage facilities and other commercial properties.*

We invest a portion of our investment portfolio in mortgage loans, which are generally comprised of high quality commercial first lien and mezzanine real estate loans. Our mortgage loan holdings were $10.6 billion and $6.2 billion as of December 31, 2018 and 2017, respectively. This included $2.1 billion and $1.8 billion of mezzanine mortgage loans as of December 31, 2018 and 2017, respectively. The increase in mortgage loans is mainly driven by an increase in RML purchases during 2018, purchases of triple net leases and the addition of mortgage loans from the Voya reinsurance transaction. We have acquired mortgage loans through acquisitions and reinsurance arrangements, as well as through an active program to invest in new mortgage loans. We invest in CMLs on income producing properties including hotels, apartments, retail and office buildings, and other commercial and industrial properties. Our RML portfolio primarily consists of first lien RMLs collateralized by properties located in the U.S. Loan-to-value ratios at the time of loan approval are generally 75% or less.

Our mortgage loans are primarily stated at unpaid principal balance, adjusted for any unamortized premium or discount, and net of valuation allowances. Interest income is accrued on the principal amount of the loan based on the loan's contractual interest rate. Amortization of premiums and discounts is recorded using the effective interest method. Interest income, amortization of premiums and discounts, and prepayment fees are reported in net investment income.

It is our policy to cease to accrue interest on loans that are over 90 days delinquent. For loans less than 90 days delinquent, interest is accrued unless it is determined that the accrued interest is not collectible. If a loan becomes over 90 days delinquent, it is our general policy to initiate foreclosure proceedings unless a workout arrangement to bring the loan current is in place. As of December 31, 2018 and 2017, we had $48 million and $28 million, respectively of mortgage loans that were 90 days past due, of which $15 million and $1 million, respectively, were in the process of foreclosure.

See *Note 3 – Investments* to the consolidated financial statements for information regarding valuation allowance for collection loss, impairments, loan-to-value, and debt service coverage.

As of December 31, 2018 and 2017, we had not recorded any new specific loan valuation allowances. For the years ended December 31, 2018, 2017 and 2016, we recorded $0 million, $3 million and $0 million, respectively, of impairments through net income. We have established a general and specific loan valuation allowance in the aggregate amount of $2 million as of December 31, 2018 and 2017.

Investment Funds and Variable Interest Entities

Our investment funds investment strategy primarily focuses on funds with core holdings of credit assets, real assets, real estate, preferred equity and income producing assets. Our investment strategy focuses on sourcing assets with some or all of the following characteristics, among others: (1) investments that constitute a direct investment or an investment in a fund with a high degree of co-investment; (2) investments with credit- or debt-like characteristics (for example, a stipulated maturity and par value), or alternatively, investments with reduced volatility when compared to pure equity; or (3) investments that have less downside risk.

Our investment funds generally meet the definition of a variable interest entity (VIE), and in certain cases these investment funds are consolidated in our financial statements because we meet the criteria of the primary beneficiary. See *Note 5 – Variable Interest Entities* to the consolidated financial statements for further discussion on our investment funds that meet the criteria for consolidation and the accounting treatment for them.

The following table illustrates our consolidated VIE positions:

(In millions, except percentages)	December 31, 2018		December 31, 2017	
	Carrying Value	Percent of Total	Carrying Value	Percent of Total
Assets of consolidated VIEs				
Investments				
Trading securities	$ 35	4.9%	$ 48	5.5%
Equity securities	50	7.0%	240	27.8%
Investment funds	624	87.7%	571	66.1%
Cash and cash equivalents	2	0.3%	4	0.5%
Other assets	1	0.1%	1	0.1%
Total assets of consolidated VIEs	$ 712	100.0%	$ 864	100.0%
Liabilities of consolidated VIEs				
Other liabilities	$ 1	100.0%	$ 2	100.0%
Total liabilities of consolidated VIEs	$ 1	100.0%	$ 2	100.0%

The following table illustrates our investment funds, including related party positions of our non-consolidated VIEs and investment funds owned by consolidated VIEs:

(In millions, except percentages)	December 31, 2018		December 31, 2017	
	Carrying Value	Percent of Total	Carrying Value	Percent of Total
Investment funds				
Private equity	$ 253	7.1%	$ 271	10.5%
Real estate and other real assets	231	6.5%	161	6.2%
Natural resources	4	0.1%	4	0.2%
Hedge funds	43	1.2%	61	2.4%
Credit funds	172	4.8%	202	7.8%
Total investment funds	703	19.7%	699	27.1%
Investment funds – related parties				
Public equities	63	1.8%	—	—%
Private equity – A-A Mortgage	463	13.0%	403	15.6%
Private equity – other	554	15.6%	180	7.0%
Real estate and other real assets	651	18.3%	297	11.5%
Natural resources	104	2.9%	74	2.9%
Hedge funds	98	2.8%	93	3.6%
Credit funds	299	8.4%	263	10.2%
Total investment funds – related parties	2,232	62.8%	1,310	50.8%
Investment funds owned by consolidated VIEs				
Private equity – MidCap	552	15.5%	528	20.4%
Credit funds	1	0.0%	21	0.8%
Real estate and other real assets	71	2.0%	22	0.9%
Total investment funds owned by consolidated VIEs	624	17.5%	571	22.1%
Total investment funds, including related parties and funds owned by consolidated VIEs	$ 3,559	100.0%	$ 2,580	100.0%

Overall, the total investment funds, including related party and consolidated VIEs, were $3.6 billion and $2.6 billion as of December 31, 2018 and 2017, respectively. See *Note 3 – Investments* to the consolidated financial statements for further discussion regarding how we account for our investment funds. Our investment fund portfolio is subject to a number of market related risks including interest rate risk and equity market risk. Interest rate risk represents the potential for changes in the investment fund's net asset values resulting from changes in the general level of interest rates. Equity market risk represents potential for changes in the investment fund's net asset values resulting from changes in equity markets or from other external factors which influence equity markets. The interest rate risk and equity market risk to which our investment funds are subject expose us to potential volatility in our earnings period-over-period. We actively monitor our exposure to these risks.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Funds Withheld at Interest

Funds withheld at interest represents a receivable for amounts contractually withheld by ceding companies in accordance with modco and funds withheld reinsurance agreements in which we act as the reinsurer. Generally, assets equal to statutory reserves are withheld and legally owned by the ceding company. We hold funds withheld at interest receivables with related parties including those held with VIAC. As of December 31, 2018, the significant majority of the ceding companies holding the assets pursuant to such reinsurance agreements had a financial strength rating of A- or better.

The funds withheld at interest is comprised of the host contract and an embedded derivative. We are subject to the investment performance on the withheld assets with the total return directly impacting the host contract and the embedded derivative. Interest accrues at a risk free rate on the host receivable and is recorded as net investment income in the consolidated statements of income. The embedded derivative in our reinsurance agreements is similar to a total return swap on the income generated by the underlying assets held by the ceding companies. The change in the embedded derivative is recorded in investment related gains (losses). Although we do not directly control the underlying investments in the funds withheld at interest, in each instance the ceding company has hired AAM to manage the withheld assets in accordance with our investment guidelines.

The following summarizes the underlying investment composition of the funds withheld at interest, including related parties:

	December 31, 2018		December 31, 2017	
(In millions, except percentages)	Carrying Value	Percent of Total	Carrying Value	Percent of Total
Fixed maturity securities				
U.S. government and agencies	$ 77	0.3 %	$ —	—%
U.S. state, municipal and political subdivisions	563	2.0 %	117	1.6%
Foreign governments	145	0.5 %	—	—%
Corporate	16,267	56.9 %	2,095	29.6%
CLO	1,990	7.0 %	669	9.4%
ABS	1,601	5.6 %	886	12.5%
CMBS	575	2.0 %	290	4.1%
RMBS	1,876	6.6 %	1,551	21.9%
Equity securities	66	0.2 %	28	0.4%
Mortgage loans	3,815	13.3 %	792	11.2%
Investment funds	660	2.3 %	376	5.3%
Derivative assets	77	0.3 %	78	1.1%
Short-term investments	641	2.2 %	16	0.2%
Cash and cash equivalents	455	1.6 %	132	1.9%
Other assets and liabilities	(208)	(0.8)%	55	0.8%
Total funds withheld at interest including related party	$ 28,600	100.0 %	$ 7,085	100.0%

As of December 31, 2018 and 2017, we held $28.6 billion and $7.1 billion, respectively, of funds withheld at interest receivables, including related party. The increase in funds withheld at interest is mainly due to $14.0 billion of modco reinsurance agreements from the Voya reinsurance transaction and $7.2 billion from the Lincoln reinsurance transaction, both as of December 31, 2018. Approximately 96.6% and 94.2% of the fixed maturity securities within the funds withheld at interest are investment grade by NAIC designation as of December 31, 2018 and 2017, respectively.

Derivative Instruments

We hold derivative instruments for economic hedging purposes to reduce our exposure to cash flow variability of assets and liabilities, equity market risk, interest rate risk, credit risk and foreign exchange risk. The types of derivatives we may use include interest rate swaps, foreign currency swaps and forward contracts, total return swaps, credit default swaps, variance swaps, futures and fixed indexed options.

A discussion regarding our derivative instruments and how such instruments are used to manage risk is included in *Note 4 – Derivative Instruments* to the consolidated financial statements.

As part of our risk management strategies, management continually evaluates our derivative instrument holdings and the effectiveness of such holdings in addressing risks identified in our operations.

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Invested Assets

The following summarizes our invested assets:

(In millions, except percentages)	December 31, 2018		December 31, 2017			
	Invested Asset Value[1]	Percent of Total	U.S. and Bermuda Invested Asset Value	Germany Invested Asset Value	Invested Asset Value[1]	Percent of Total
Corporate	$ 55,772	50.2%	$ 37,059	$ 1,536	$ 38,595	46.9%
CLO	8,275	7.5%	5,914	—	5,914	7.2%
Credit	64,047	57.7%	42,973	1,536	44,509	54.1%
RMBS	9,814	8.9%	10,532	—	10,532	12.8%
Mortgage loans	14,423	13.0%	6,858	165	7,023	8.5%
CMBS	3,018	2.7%	2,322	—	2,322	2.8%
Real estate held for investment	—	—%	—	625	625	0.8%
Real estate	27,255	24.6%	19,712	790	20,502	24.9%
ABS	7,706	6.9%	4,824	—	4,824	5.9%
Alternative investments	4,492	4.1%	3,692	137	3,829	4.6%
State, municipal, political subdivisions and foreign government	2,122	1.9%	1,347	2,411	3,758	4.5%
Unit-linked assets	—	—%	—	407	407	0.5%
Equity securities	467	0.4%	192	128	320	0.4%
Short-term investments	765	0.7%	228	—	228	0.3%
U.S. government and agencies	134	0.1%	29	35	64	0.1%
Other investments	15,686	14.1%	10,312	3,118	13,430	16.3%
Cash and equivalents	2,881	2.6%	2,504	296	2,800	3.4%
Policy loans and other	1,165	1.0%	761	296	1,057	1.3%
Total invested assets	$ 111,034	100.0%	$ 76,262	$ 6,036	$ 82,298	100.0%

[1] *See Key Operating and Non-GAAP Measures for the definition of invested assets.*

Our total invested assets were $111.0 billion and $82.3 billion as of December 31, 2018 and 2017, respectively. As of December 31, 2018, our total invested assets were mainly comprised of 50.2% of corporate securities, 26.0% of structured securities, 13.0% of mortgage loans and 4.1% of alternative investments. Corporate securities included $14.8 billion of private placements, which represented 13% of our total invested assets. The increase in total invested assets as of December 31, 2018 from 2017 was primarily driven by $17.0 billion of invested assets from the Voya reinsurance transaction and $7.5 billion of invested assets from the Lincoln reinsurance transaction, strong organic growth in deposits exceeding liability outflows, investment of the proceeds of our debt issuance in January 2018 and reinvestment of earnings, partially offset by the deconsolidation of our former Germany operations.

In managing our business we utilize invested assets as presented in the above table. Invested assets do not correspond to the total investments, including related parties, on our consolidated balance sheets, as discussed previously in *Key Operating and Non-GAAP Measures*. Invested assets represent the investments that directly back our reserve liabilities and surplus assets. We believe this view of our portfolio provides a view of the assets for which we have economic exposure. We adjust the presentation for funds withheld and modco transactions to include or exclude the underlying investments based upon the contractual transfer of economic exposure to such underlying investments. We also deconsolidate any VIEs in order to show the net investment in the funds, which are included in the alternative investments line above.

Invested assets is utilized by management to evaluate our investment portfolio. Invested asset figures are used in the computation of net investment earned rate, which allows us to analyze the profitability of our investment portfolio. Invested assets is also used in our risk management processes for asset purchases, product design and underwriting, stress scenarios, liquidity, and ALM.

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Alternative Investments

The following summarizes our alternative investments:

	December 31, 2018		December 31, 2017	
(In millions, except percentages)	Invested Asset Value	Percent of Total	Invested Asset Value	Percent of Total
Retirement Services				
Credit funds	$ 518	11.5%	$ 524	13.7%
Private equity – MidCap	552	12.3%	528	13.8%
Private equity – A-A Mortgage (AmeriHome)	568	12.7%	496	12.9%
Private equity – other	724	16.1%	349	9.1%
Mortgage and real assets	1,254	27.9%	643	16.8%
Hedge funds	169	3.8%	467	12.2%
Public equities	—	—%	1	0.0%
Natural resources and other real assets	55	1.2%	35	0.9%
Total Retirement Services alternative investments	3,840	85.5%	3,043	79.4%
Corporate and Other				
Credit funds	168	3.7%	260	6.7%
Private equity – other	171	3.8%	205	5.4%
Public equities[1]	100	2.2%	170	4.5%
Natural resources and other real assets	213	4.8%	151	4.0%
Total Corporate and Other alternative investments	652	14.5%	786	20.6%
Total alternative investments	$ 4,492	100.0%	$ 3,829	100.0%

[1] As of December 31, 2018, the significant holdings were investments in Caesars Entertainment Corporation (ticker: CZR) and OneMain Holdings, Inc. (ticker: OMF).

Alternative investments were $4.5 billion and $3.8 billion as of December 31, 2018 and 2017, respectively, representing 4.1% and 4.6% of our total invested assets portfolio as of December 31, 2018 and 2017, respectively.

Alternative investments do not correspond to the total investment funds, including related parties and VIEs, on our consolidated balance sheets. As discussed above in the invested assets section, we adjust the GAAP presentation for funds withheld and modco and de-consolidate VIEs. We also include CLO equity tranche securities in alternative investments due to their underlying characteristics and equity-like features.

Through our relationship with Apollo and AAM, we have indirectly invested in companies that meet the key characteristics we look for in alternative investments. Two of our largest alternative investments are in asset originators, MidCap and AmeriHome, both of which, from time to time, provide us with access to assets for our investment portfolio.

MidCap

Our equity investment in MidCap is held indirectly through an investment fund, AAA Investment (Co Invest VII), L.P. (CoInvest VII), of which MidCap constitutes substantially all the fund's investments. MidCap is a commercial finance company that provides various financial products to middle-market businesses in multiple industries, primarily located in the U.S. MidCap primarily originates and invests in commercial and industrial loans, including senior secured corporate loans, working capital loans collateralized mainly by accounts receivable and inventory, senior secured loans collateralized by portfolios of commercial and consumer loans and related products and secured loans to highly capitalized pharmaceutical and medical device companies, and commercial real estate loans, including multifamily independent-living properties, assisted living, skilled nursing and medical office properties, warehouse, office building, hotel and other commercial use properties and multifamily properties. MidCap originates and acquires loans using borrowings under financing arrangements that it has in place with numerous financial institutions. MidCap's earnings are primarily driven by the difference between the interest earned on its loan portfolio and the interest accrued under its outstanding borrowings. As a result, MidCap is primarily exposed to the credit risk of its loan counterparties and prepayment risk. Additionally, financial results are influenced by related levels of middle-market business investment and interest rates.

Our alternative investment in CoInvest VII is substantially comprised of its investment in MidCap, which was $552 million and $528 million as of December 31, 2018 and 2017, respectively. Our investment in CoInvest VII largely reflects any contributions to and distributions from CoInvest VII and the fair value of MidCap. CoInvest VII returned a net investment earned rate of 14.48%, 8.93% and 15.15% for the years ended December 31, 2018, 2017, and 2016, respectively. Alternative investment income from CoInvest VII was $81 million, $50 million and $79 million for the years ended December 31, 2018, 2017, and 2016, respectively. The increase in alternative investment income for 2018 compared to 2017 was driven by favorable valuation adjustment, higher loan volumes and increased assets under management. The decrease in alternative investment income for 2017 compared to 2016 was due to 2016 benefiting from a $37 million increase in the fair value of MidCap related to the removal of liquidity discounts related to marketability assumptions used in the determination of MidCap's fair value.

AmeriHome

Our equity investment in AmeriHome is held indirectly through A-A Mortgage, of which AmeriHome is currently the fund's only investment. AmeriHome is a mortgage origination platform and an aggregator of mortgage servicing rights. AmeriHome acquires mortgage loans from retail originators and re-sells the loans to the Federal National Mortgage Association, the Federal Home Loan Mortgage Corporation, the Government National Mortgage Association and other investors. AmeriHome retains the mortgage servicing rights on the loans that it sells and employs a subservicer to perform servicing operations, including payment collection. AmeriHome's earnings are primarily driven by two sources: gains or losses on the sale of mortgage loans and the difference between the fee that it charges for mortgage servicing and the fee charged by the subservicer. As a result, AmeriHome's financial results are influenced by interest rates and related housing demand. AmeriHome is primarily exposed to credit risk related to the accuracy of the representations and warranties in the loans that AmeriHome acquires and prepayment risk, which prematurely terminates fees related to mortgage servicing.

Our alternative investment in A-A Mortgage was $568 million and $496 million as of December 31, 2018 and 2017, respectively. Our investment in A-A Mortgage represents our proportionate share of its net asset value, which largely reflects any contributions to and distributions from A-A Mortgage and the fair value of AmeriHome. A-A Mortgage returned a net investment earned rate of 13.15%, 12.01% and 11.62% for the years ended December 31, 2018, 2017, and 2016, respectively. Alternative investment income from A-A Mortgage was $72 million, $58 million and $41 million for the years ended December 31, 2018, 2017 and 2016, respectively. The increase in alternative investment income of $14 million, or 24%, for 2018 compared to 2017 was driven by strong originations and an increase in balance sheet size. The increase in alternative investment income for 2017 compared to 2016 was driven by increases in its overall balance sheet size, origination volumes and retained mortgage servicing rights.

Public Equities

We indirectly hold public equity positions through our equity investments in a few alternative investments. Although the carrying value of these securities is minor, such securities have resulted in volatility in our statements of income in recent periods. As of December 31, 2018 and 2017, we indirectly held public equity positions of $100 million and $171 million, respectively. As of December 31, 2018, the most significant equity positions were investments in Caesars Entertainment Corporation (Caesars) and OneMain Holdings, Inc. (OneMain). Caesars is held indirectly through our investment in AAA Investment (Co Invest VI), L.P. (CoInvest VI). As of each of December 31, 2018 and 2017, we held approximately 5.5 million shares of Caesars, with a market value of $37 million and $69 million, respectively. As of December 31, 2018 and 2017, we held approximately 2.8 million and no shares, respectively, of OneMain, with a market value of $63 million and $0 million, respectively.

Non-GAAP Measure Reconciliations

The reconciliations to the nearest GAAP measure for adjusted operating income is included in the *Consolidated Results of Operations* section.

The reconciliation of shareholders' equity to adjusted shareholders' equity, which is included in adjusted book value per share, adjusted debt to capital ratio, adjusted ROE and adjusted operating ROE, is as follows:

	December 31,		
(In millions)	2018	2017	2016
Total AHL shareholders' equity	$ 8,276	$ 9,176	$ 6,881
Less: AOCI	(472)	1,449	366
Less: Reinsurance unrealized gains and losses	(75)	161	$ 63
Total adjusted shareholders' equity	$ 8,823	$ 7,566	$ 6,452
Segment adjusted shareholders' equity			
Retirement Services	$ 7,807	$ 5,237	$ 4,409
Corporate and Other	1,016	2,329	2,043
Total adjusted shareholders' equity	$ 8,823	$ 7,566	$ 6,452

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The reconciliation of average shareholders' equity to average adjusted shareholders' equity, which is included in adjusted ROE and adjusted operating ROE is as follows:

	Years ended December 31,		
(In millions)	2018	2017	2016
Average AHL shareholders' equity	$ 8,726	$ 8,029	$ 6,124
Less: Average AOCI	489	908	63
Less: Average reinsurance unrealized gains and losses	43	112	41
Average adjusted shareholders' equity	$ 8,194	$ 7,009	$ 6,020
Segment average adjusted shareholders' equity			
Retirement Services	$ 6,522	$ 4,823	$ 4,186
Corporate and Other	1,672	2,186	1,834
Average adjusted shareholders' equity	$ 8,194	$ 7,009	$ 6,020

The reconciliation of net income to adjusted net income, which is included in adjusted ROE is as follows:

	Years ended December 31,		
(In millions)	2018	2017	2016
Net income	$ 1,053	$ 1,358	$ 773
Reinsurance unrealized (gains) and losses	236	(98)	(44)
Adjusted net income	$ 1,289	$ 1,260	$ 729

The reconciliation of net investment income to net investment earnings and earned rate is as follows:

	Years ended December 31,					
	2018		2017		2016	
(In millions, except percentages)	Dollar	Rate	Dollar	Rate	Dollar	Rate
GAAP net investment income	$ 4,004	4.30 %	$ 3,269	4.27 %	$ 2,914	4.19 %
Reinsurance embedded derivative impacts	301	0.32 %	191	0.25 %	189	0.27 %
Net VIE earnings	37	0.04 %	77	0.10 %	1	0.00 %
Alternative income gain (loss)	(34)	(0.04)%	(20)	(0.03)%	(39)	(0.06)%
Held for trading amortization	(76)	(0.08)%	(94)	(0.12)%	(35)	(0.05)%
Total adjustments to arrive at net investment earnings/earned rate	228	0.24 %	154	0.20 %	116	0.16 %
Total net investment earnings/earned rate	$ 4,232	4.54 %	$ 3,423	4.47 %	$ 3,030	4.35 %
Retirement Services	$ 4,188	4.60 %	$ 3,241	4.70 %	$ 2,953	4.72 %
Corporate and Other	44	1.99 %	182	2.42 %	77	1.08 %
Total net investment earnings/earned rate	$ 4,232	4.54 %	$ 3,423	4.47 %	$ 3,030	4.35 %
Retirement Services average invested assets	$ 90,995		$ 69,014		$ 62,558	
Corporate and Other average invested assets	2,182		7,541		7,113	
Consolidated average invested assets	$ 93,177		$ 76,555		$ 69,671	

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The reconciliation of interest sensitive contract benefits to Retirement Services' cost of crediting on deferred annuities, and the respective rates, is as follows:

	Years ended December 31,					
	2018		2017		2016	
(In millions, except percentages)	Dollar	Rate	Dollar	Rate	Dollar	Rate
GAAP interest sensitive contract benefits	$ 290	0.40 %	$ 2,866	5.06 %	$ 1,343	2.59 %
Interest credited other than deferred annuities	(163)	(0.22)%	(125)	(0.22)%	(111)	(0.22)%
FIA option costs	886	1.20 %	607	1.07 %	558	1.07 %
Product charges (strategy fees)	(98)	(0.13)%	(73)	(0.13)%	(53)	(0.10)%
Reinsurance embedded derivative impacts	49	0.07 %	37	0.07 %	29	0.06 %
Change in fair value of embedded derivatives – FIAs	436	0.59 %	(2,252)	(3.98)%	(778)	(1.50)%
Negative VOBA amortization	31	0.04 %	40	0.07 %	48	0.09 %
Unit-linked change in reserves	—	— %	(29)	(0.05)%	(15)	(0.03)%
Other changes in interest sensitive contract liabilities	—	— %	(5)	(0.01)%	(2)	0.00 %
Total adjustments to arrive at cost of crediting on deferred annuities	1,141	1.55 %	(1,800)	(3.18)%	(324)	(0.63)%
Retirement Services cost of crediting on deferred annuities	$ 1,431	1.95 %	$ 1,066	1.88 %	$ 1,019	1.96 %
Average account value	$ 73,567		$ 56,589		$ 51,921	

The reconciliation of GAAP benefits and expenses to other liability costs is as follows:

	Years ended December 31,		
(In millions)	2018	2017	2016
GAAP benefits and expenses	$ 5,368	$ 7,263	$ 3,393
Premiums	(3,368)	(2,465)	(240)
Product charges	(449)	(340)	(281)
Other revenues	(26)	(37)	(34)
Cost of crediting	(496)	(423)	(432)
Change in fair value of embedded derivatives – FIA, net of offsets	327	(2,404)	(844)
DAC, DSI and VOBA amortization related to investment gains and losses	110	(65)	(26)
Rider reserves related to investment gains and losses	16	(16)	(3)
Policy and other operating expenses, excluding policy acquisition expenses	(394)	(435)	(395)
VIE operating expenses	(1)	—	(13)
AmerUs closed block fair value liability	112	(68)	(49)
Policyholder dividends	—	(84)	(23)
Other	10	(30)	(29)
Total adjustments to arrive at other liability costs	(4,159)	(6,367)	(2,369)
Other liability costs	$ 1,209	$ 896	$ 1,024
Retirement Services	$ 1,209	$ 839	$ 971
Corporate and Other	—	57	53
Consolidated other liability costs	$ 1,209	$ 896	$ 1,024

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The reconciliation of policy and other operating expenses to operating expenses is as follows:

(In millions)	Years ended December 31, 2018	2017	2016
Policy and other operating expenses	$ 625	$ 672	$ 627
Interest expense	(57)	(16)	(9)
Policy acquisition expenses, net of deferrals	(232)	(237)	(232)
Integration, restructuring and other non-operating expenses	(22)	(68)	(22)
Stock compensation expenses	(11)	(33)	(82)
Total adjustments to arrive at operating expenses	(322)	(354)	(345)
Operating expenses	$ 303	$ 318	$ 282
Retirement Services	$ 242	$ 212	$ 206
Corporate and Other	61	106	76
Consolidated operating expenses	$ 303	$ 318	$ 282

The reconciliation of total investments, including related parties, to invested assets is as follows:

(In millions)	December 31, 2018	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

The reconciliation of total investment funds, including related parties and VIEs, to alternative investments within invested assets is as follows:

(In millions)	December 31, 2018	2017
Investment funds, including related parties and VIEs	3,559	2,580
CLO equities included in trading securities	125	182
Financial Credit Investment special-purpose vehicle included in trading securities related party	—	287
Investment funds within funds withheld at interest	660	416
Royalties, other assets included in other investments and other assets	71	76
Net assets of the VIE, excluding investment funds	50	288
Unrealized (gains) losses and other adjustments	27	—
Total adjustments to arrive at alternative investments	933	1,249
Alternative investments	4,492	3,829

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The reconciliation of total liabilities to reserve liabilities is as follows:

	December 31,	
(In millions)	2018	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

Liquidity and Capital Resources

There are two forms of liquidity relevant to our business, funding liquidity and balance sheet liquidity. Funding liquidity relates to the ability to fund operations. Balance sheet liquidity relates to our ability to liquidate or rebalance our balance sheet without incurring significant costs from fees, bid-offer spreads, or market impact. We manage our liquidity position by matching projected cash demands with adequate sources of cash and other liquid assets. Our principal sources of liquidity, in the ordinary course of business, are operating cash flows and holdings of cash, cash equivalents and other readily marketable assets.

Our investment portfolio is structured to ensure a strong liquidity position over time in order to permit timely payment of policy and contract benefits without requiring asset sales at inopportune times or at depressed prices. In general, liquid assets include cash and cash equivalents, highly rated corporate bonds, unaffiliated preferred stock and unaffiliated public common stock, all of which generally have liquid markets with a large number of buyers. The carrying value of these assets as of December 31, 2018 was $52.8 billion. Although our investment portfolio does contain assets that are generally considered illiquid for liquidity monitoring purposes (primarily mortgage loans, policy loans, real estate, investment funds, and affiliated common stock), there is some ability to raise cash from these assets if needed. In periods of economic downturn we may maintain higher cash balances than required to manage our liquidity risk and to take advantage of market dislocations as they arise. We have access to additional liquidity through our $1.0 billion revolving credit facility, which was undrawn as of December 31, 2018 and has a remaining term of approximately two years. On January 3, 2018, we filed a registration statement on Form S-3 ASR (Shelf Registration Statement), which, subject to market conditions and other factors, provides us with access to the capital markets and on January 12, 2018, we issued $1.0 billion of senior unsecured notes under our Shelf Registration Statement. In addition, through our membership in the FHLB, we are eligible to borrow under variable rate short-term federal funds arrangements to provide additional liquidity.

We proactively manage our liquidity position to meet cash needs while minimizing adverse impacts on investment returns. We analyze our cash-flow liquidity over the upcoming 12 months by modeling potential demands on liquidity under a variety of scenarios, taking into account the provisions of our policies and contracts in force, our cash flow position, and the volume of cash and readily marketable securities in our portfolio. We also monitor our liquidity profile under more severe scenarios.

We perform a number of stress tests and analyses to assess our ability to meet our cash flow requirements, as well as the ability of our reinsurance and insurance subsidiaries to meet their collateral obligations. Among these analyses, we manage to the following ALM limits:

- our projected net cumulative cash flows, including both new business and target levels of new investments under a "plan scenario" and a "moderately severe scenario" event, are non-negative over a rolling 12-month horizon;
- we hold enough cash, cash equivalents and other discounted liquid limit assets to cover 12 months of AHL's and Athene USA's projected obligations, including debt servicing costs
  - minimum of 50% of expenses and 100% of debt servicing to be held in cash and cash equivalents at AHL operating accounts
  - minimum of 50% of any required AHL – Athene USA inter-company loan commitments to be held in cash and cash equivalents by AHL
  - dividends from ALRe sufficient to support the ongoing operations of AHL must be available under moderate and substantial stress scenarios
  - for purposes of administering this test, liquid limit assets are discounted by 25% and include public corporate bonds rated A- or above, liquid ABS (defined as prime auto, auto floorplan, Tier 1 subprime auto, auto lease, prime credit cards, equipment lease or utility stranded assets; RMBS with weighted average lives less than three years rated A- or above and CMBS with weighted average lives less than three years rated AAA- or above
- we seek to maintain sufficient capital and surplus at ALRe to meet the following collateral and capital maintenance calls under a substantial stress event, such as the failure of a major financial institution (Lehman event):
  - collateral calls from modco and third-party reinsurance contracts
  - AARe capital maintenance calls arising from AARe collateral calls from modco reinsurance contracts; and
  - U.S. regulated entity capital maintenance calls from nonmodco activity.

Insurance Subsidiaries' Liquidity

Operations

The primary cash flow sources for our insurance subsidiaries include retirement services product inflows (premiums), investment income, principal repayments on our investments, and net transfers from separate accounts and financial product deposits. Uses of cash include investment purchases, payments to policyholders for surrenders and withdrawals, maturity payments on funding agreements, policy acquisition costs, and general operating costs.

Our policyholder obligations are generally long-term in nature. However, one liquidity risk is an extraordinary level of early policyholder withdrawals. We include provisions within our annuity policies, such as surrender charges and MVAs, which are intended to protect us from early withdrawals. As of December 31, 2018 and 2017, approximately 78% and 86%, respectively, of our deferred annuity liabilities were subject to penalty upon surrender. In addition, as of December 31, 2018 and 2017, approximately 65% and 72%, respectively, of policies contained MVAs that may also have the effect of limiting early withdrawals if interest rates increase. Our funding agreements, group annuities and payout annuities are generally non-surrenderable.

Membership in Federal Home Loan Bank

Through our membership in the FHLB, we are eligible to borrow under variable rate short-term federal funds arrangements to provide additional liquidity. The borrowings must be secured by eligible collateral such as mortgage loans, eligible CMBS or RMBS, government or agency securities and guaranteed loans. There were no outstanding borrowings under these arrangements as of December 31, 2018 or 2017.

We have issued funding agreements to the FHLB in exchange for cash advances. These funding agreements were issued in an investment spread strategy, consistent with other investment spread operations. As of December 31, 2018 and 2017, we had funding agreements outstanding with the FHLB in the aggregate principal amount of $926 million and $573 million, respectively.

The maximum FHLB indebtedness by a member is determined by the amount of collateral pledged, and cannot exceed a specified percentage of the member's total statutory assets dependent on the internal credit rating assigned to the member by the FHLB. As of December 31, 2018, the total maximum borrowings under the FHLB facility were limited to $17.2 billion. However, our ability to borrow under the facility is constrained by the availability of assets that qualify as eligible collateral under the facility and by the Iowa Code requirement that we maintain funds equivalent to our legal reserve in certain permitted investments, from which we exclude pledged assets. Considering these limitations, we estimate that as of December 31, 2018 we had the ability to draw up to a total of approximately $1.5 billion, inclusive of borrowings then outstanding. This estimate is based on our internal analysis and assumptions, and may not accurately measure collateral which is ultimately acceptable to the FHLB. Drawing such amounts would have an adverse impact on AAIA's RBC ratio, which may further restrict our ability or willingness to draw up to our estimated capacity.

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Cash Flows

Our cash flows were as follows:

	Years ended December 31,		
(In millions)	2018	2017	2016
Net income	$ 1,053	$ 1,358	$ 773
Payment at inception of reinsurance agreements, net	(394)	—	—
Non-cash revenues and expenses	2,215	1,812	426
Net cash provided by operating activities	2,874	3,170	1,199
Sales, maturities and repayments of investments	17,069	17,893	13,783
Purchases of investments	(24,852)	(24,165)	(16,293)
Other investing activities	(390)	503	(151)
Net cash used in investing activities	(8,173)	(5,769)	(2,661)
Capital contributions	2	1	1
Deposits on investment-type policies and contracts	10,262	9,056	5,791
Withdrawals on investment-type policies and contracts	(6,205)	(4,843)	(4,617)
Net changes of cash collateral posted for derivative transactions	(1,354)	940	516
Net proceeds and repayment of debt	998	—	—
Consolidated VIE repayment on borrowings	—	—	(500)
Other financing activities	4	(106)	(36)
Net cash provided by financing activities	3,707	5,048	1,155
Effect of exchange rate changes on cash and cash equivalents	—	32	(13)
Net (decrease) increase in cash and cash equivalents[1]	$ (1,592)	$ 2,481	$ (320)

[1] *Includes cash and cash equivalents, restricted cash, and cash and cash equivalents of consolidated VIEs*

Cash flows from operating activities

The primary cash inflows from operating activities include net investment income, annuity considerations and insurance premiums. The primary cash outflows from operating activities are comprised of benefit payments and operating expenses. Our operating activities generated cash flows totaling $2.9 billion, $3.2 billion and $1.2 billion for the years ended December 31, 2018, 2017 and 2016, respectively. The decrease in cash provided by operating activities for the year ended December 31, 2018 compared to 2017 was primarily driven by the ceding commissions related to the Voya and Lincoln reinsurance transactions, higher tax refunds in 2017 and higher commissions due to strong retail sales, partially offset by an increase in net investment income reflecting an increase in our investment portfolio and an increase in PRT premiums. The increase in cash provided by operating activities for the year ended December 31, 2017 compared to 2016 was primarily driven by an increase in PRT premiums and due to an increase in net investment income reflecting an increase in our investment portfolio attributed to the strong growth in deposits.

Cash flows from investing activities

The primary cash inflows from investing activities are the sales, maturities and repayments of investments. The primary cash outflows from investing activities are the purchases and acquisitions of new investments. Our investing activities used cash flows totaling $8.2 billion, $5.8 billion and $2.7 billion for the years ended December 31, 2018, 2017 and 2016, respectively. The change in cash used in investing activities for the year ended December 31, 2018 compared to 2017 was primarily attributed to the purchase of investments related to the increase in deposits over liability outflows, the investment of proceeds from our debt issuance, the deconsolidation of AGER Bermuda Holding Ltd. and its subsidiaries and the reinvestment of earnings. The increase in cash used from investing activities for the year ended December 31, 2017 compared to 2016, was primarily attributed to the purchase of investments related to the increase in deposits over liability outflows, as well as the reinvestment of earnings.

Cash flows from financing activities

The primary cash inflows from financing activities are deposits on our investment-type policies, changes of cash collateral posted for derivative transactions, capital contributions and proceeds from borrowing activities. The primary cash outflows from financing activities are withdrawals on our investment-type policies, changes of cash collateral posted for derivative transactions and repayments of outstanding borrowings. Our financing activities provided cash flows totaling $3.7 billion, $5.0 billion and $1.2 billion for the years ended December 31, 2018, 2017 and 2016, respectively. The change in cash provided from financing activities for the year ended December 31, 2018 compared to 2017 was primarily attributed to the change in cash collateral posted for derivative transactions and lower funding agreement issuances in 2018, partially offset by proceeds from the issuance of debt. The change in cash provided from financing activities for the year ended December 31, 2017 compared to 2016 was primarily attributed to the increase in annuity and funding agreement deposits over liability outflows, the favorable change in cash collateral posted for derivative transactions and the settling of borrowings of our CMBS VIE funds in 2016.

Holding Company Liquidity

AHL is a holding company whose primary liquidity needs include the cash-flow requirements relating to its corporate activities, including its day-to-day operations, debt servicing and strategic transactions, such as acquisitions. The primary source of AHL's cash flow is dividends from its subsidiaries, which are expected to be adequate to fund cash flow requirements based on current estimates of future obligations.

The ability of AHL's insurance subsidiaries to pay dividends is limited by applicable laws and regulations of the jurisdictions where the subsidiaries are domiciled, as well as agreements entered into with regulators. These laws and regulations require, among other things, the insurance subsidiaries to maintain minimum solvency requirements and limit the amount of dividends these subsidiaries can pay.

Subject to these limitations and prior notification to the appropriate regulatory agency, the U.S. insurance subsidiaries are permitted to pay ordinary dividends based on calculations specified under insurance laws of the relevant state of domicile. Any distributions above the amount permitted by statute in any twelve month period are considered to be extraordinary dividends, and the approval of the appropriate regulator is required prior to payment. AHL does not currently plan on having the U.S. subsidiaries pay any dividends to ALRe.

Dividends from ALRe are projected to be the primary source of AHL's liquidity. Under the Bermuda Insurance Act, ALRe is prohibited from paying a dividend in an amount exceeding 25% of the prior year's statutory capital and surplus, unless at least two members of ALRe's board of directors and its principal representative in Bermuda sign and submit to the BMA an affidavit attesting that a dividend in excess of this amount would not cause ALRe to fail to meet its relevant margins. In certain instances, ALRe would also be required to provide prior notice to the BMA in advance of the payment of dividends. In the event that such an affidavit is submitted to the BMA in accordance with the Bermuda Insurance Act, and further subject to ALRe meeting its relevant margins, ALRe is permitted to distribute up to the sum of 100% of statutory surplus and an amount less than 15% of its total statutory capital. Distributions in excess of this amount require the approval of the BMA.

The following table summarizes the dividends and other distributions our insurance subsidiaries were permitted to pay to AHL without the need for insurance regulatory approval and without regard to any withholding tax, subject to meeting solvency requirements when applicable:

	December 31,	
(In millions)	2018	2017
Subsidiary name (jurisdiction of domicile)		
Athene Life Re Ltd. (Bermuda)	$ 5,942	$ 5,022
Athene Annuity & Life Assurance Company (Delaware)	154	103

As of December 31, 2018, the maximum dividend that AADE could pay absent regulatory approval from the Delaware Department of Insurance was $154 million. However, other regulations requiring AADE to hold surplus outside of surplus in subsidiaries could effectively limit the amount that AADE can dividend while staying in compliance with such state regulations. Pursuant to these other regulations and requirements, the limit that AADE could dividend, as of December 31, 2018, would be $310 million. Any dividends from AHL's other U.S. statutory entities in excess of the amounts allowed for AADE would not be able to be remitted to AHL without regulatory approval from the Delaware Department of Insurance.

The maximum distribution permitted by law or contract is not necessarily indicative of our actual ability to pay such distributions, which may be further restricted by business and other considerations, such as the potential imposition of withholding tax and the impact of such distributions on surplus, which could affect our ratings or competitive position and the amount of premiums that can be written. Specifically, the level of capital needed to maintain desired financial strength ratings from rating agencies, including S&P, A.M. Best and Fitch, is of particular concern when determining the amount of capital available for distributions. AHL believes its insurance subsidiaries have sufficient statutory capital and surplus, combined with additional capital available to be provided by AHL, to meet their financial strength ratings objectives. Finally state insurance laws and regulations require that the statutory surplus of our insurance subsidiaries following any dividend or distribution must be reasonable in relation to their outstanding liabilities and adequate for the insurance subsidiaries' financial needs.

Other Sources of Funding

If needed, we may seek to secure additional funding at the holding company level by means other than dividends from subsidiaries, such as by drawing on our undrawn $1.0 billion credit facility or by pursuing future issuances of debt or equity securities to third-party investors. See *Note 10 – Debt* to the consolidated financial statements for more information regarding our $1.0 billion credit facility. However, such additional funding may not be available on terms favorable to us or at all, depending on our financial condition, results of operations or prevailing market conditions. In addition, certain covenants in our credit facility prohibit us from incurring any debt not expressly permitted thereby, which may limit our ability to pursue future issuances of debt. Specifically, our credit facility prohibits us from incurring any debt if, on a pro-forma basis, the debt would cause us to exceed a Consolidated Debt to Capitalization Ratio (as such term is defined in the credit facility) of 35%. Certain other sources of liquidity potentially available at the holding company level are discussed below.

Shelf Registration

Under our Shelf Registration Statement, subject to market conditions, we have the ability to issue, in indeterminate amounts, debt securities, preferred shares, depositary shares, Class A common shares, warrants and units. On January 12, 2018 we issued $1.0 billion in aggregate principal amount of 4.125% Senior Notes due January 2028 under our Shelf Registration Statement.

Intercompany Note

AHL has an unsecured revolving note payable with ALRe, which permits AHL to borrow up to $250 million with a fixed interest rate of 1.25% and a maturity date of June 1, 2020. As of December 31, 2018 and 2017, the revolving note payable had an outstanding balance of $105 million and $0 million, respectively. In February 2019, the revolving note payable agreement was amended to increase the borrowing capacity to $1 billion and to extend the maturity date to March 31, 2024.

Use of Captives

While our business strategy does not involve the use of captives, as a result of the Aviva USA acquisition, we acquired a captive reinsurer that was formed in 2011 and domiciled in the state of Vermont and we ceded certain liabilities to this captive reinsurer. The statutory reserves of the affiliated captive reinsurer are supported by a combination of funds withheld receivable assets and letters of credit issued by an unaffiliated financial institution. The reinsurance activities within the captive reinsurer are eliminated in consolidation. As discussed in *Note 16 – Statutory Requirements* to the consolidated financial statements, a prescribed practice of the state of Vermont allows the captive to include the face amount of issued and outstanding letters of credit in the amount of $153 million as of each of December 31, 2018 and 2017 as admitted assets in its statutory financial statements.

The NAIC and certain state insurance departments have scrutinized insurance companies' use of affiliated captive reinsurers. It is uncertain what, if any, regulatory changes will result from this heightened scrutiny. A potential outcome, although not considered likely, is the prohibition on the continued use of captive reinsurance subsidiaries. If the use of existing captive reinsurance subsidiaries were discontinued, we would likely incur early termination fees with respect to the financing structure and diminished statutory capital position. The effect of potential regulatory changes regarding the use of captives on our consolidated financial condition and results of operations, although believed unlikely to be material, is uncertain at this time.

Capital Resources

As of December 31, 2018 and 2017, our U.S. insurance companies' TAC, as defined by the NAIC, was $2.2 billion and $1.9 billion, respectively, and our U.S. RBC ratio was 421% and 490%. Each U.S. domestic insurance subsidiary's state of domicile imposes minimum RBC requirements that were developed by the NAIC. The formulas for determining the amount of RBC specify various weighting factors that are applied to financial balances or various levels of activity based on the perceived degree of risk. Regulatory compliance is determined by a ratio of TAC to its authorized control level RBC (ACL). Our TAC was significantly in excess of all regulatory standards as of December 31, 2018 and 2017, respectively.

ALRe statutory capital was $9.7 billion and $7.0 billion as of December 31, 2018 and 2017, respectively. During 2018, AHL contributed its wholly owned subsidiary, Athene USA, to ALRe. ALRe adheres to BMA regulatory capital requirements to maintain statutory capital and surplus to meet the MMS and maintain minimum EBS capital and surplus to meet the enhanced capital requirement. Under the EBS framework, ALRe's assets are recorded at market value and its insurance reserves are determined by reference to nine prescribed scenarios, with the scenario resulting in the highest reserve balance being ultimately required to be selected. ALRe's EBS capital and surplus was $12.0 billion and $7.7 billion, resulting in a BSCR ratio of 340% and 354% as of December 31, 2018 and 2017, respectively. An insurer must have a BSCR ratio of 100% or greater to be considered solvent by the BMA. As of December 31, 2018 and 2017, ALRe held the appropriate capital to adhere to these regulatory standards. In evaluating our capital position and the amount of capital needed to support our Retirement Services segment, we review our ALRe capital by applying the NAIC RBC factors. As of December 31, 2018 and 2017, our ALRe RBC was 405% and 562%, respectively. The decrease in ALRe RBC was driven by the capital charges related to the Voya and Lincoln reinsurance agreements, alternative investment deployment, the increase in deposits and impacts resulting from the Tax Act. Although the updates to the RBC factors to reflect the reduction in the corporate income tax rate from 35% to 21% lowered our ALRe RBC ratio, we do not believe this materially impacted the level of capital that we deem appropriate to run our business. We believe that we enjoy a strong capital position in light of our risks and that we are well positioned to meet policyholder and other obligations. We also believe that our strong capital position, as well as our excess capital position, provides us the opportunity to take advantage of market dislocations as they arise.

Share Repurchase Program

In the fourth quarter of 2018, our board of directors approved a share repurchase program, which authorizes us to repurchase up to $250 million of Class A shares. We repurchased 2.5 million Class A shares for $100 million under this authorization during the year ended December 31, 2018. Subsequent to December 31, 2018 and through February 22, 2019, we repurchased an additional 1.2 million Class A shares for $47 million.

Balance Sheet and Other Arrangements

Balance Sheet Arrangements

Contractual Obligations

The following table summarizes estimated future payments on our contractual obligations as of December 31, 2018:

	Payments Due by Period				
(In millions)	Total	2019	2020-2021	2022-2023	2024 and thereafter
Interest sensitive contract liabilities	$ 96,610	$ 8,240	$ 16,041	$ 17,932	$ 54,397
Future policy benefits	16,704	282	578	617	15,227
Other policy claims and benefits	142	142	—	—	—
Dividends payable to policyholders	118	5	10	10	93
Long-term debt[1]	1,392	41	83	83	1,185
Total	$ 114,966	$ 8,710	$ 16,712	$ 18,642	$ 70,902

[1] *The obligations for long-term debt payments include contractual maturities of principal and estimated future interest payments based on the terms of the debt agreement, as described in Note 10 – Debt to the consolidated financial statements.*

We also have other obligations related to collateral on derivatives, investment fund commitments and funds withheld liabilities which have not been included in the above table as the timing and amount of each of the return on the collateral, the fulfillment of the commitments and the funds withheld liabilities are uncertain. See *Note 18 – Commitments and Contingencies* to the consolidated financial statements for further discussion on the investment fund commitments.

Other

In the normal course of business, we invest in various investment funds which are considered VIEs, and we consolidate a VIE when we are considered the primary beneficiary of the entity. For further discussion of our involvement with VIEs, see *Note 5 – Variable Interest Entities* to the consolidated financial statements.

Off Balance Sheet Arrangements

None.

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Critical Accounting Estimates and Judgments

The preparation of consolidated financial statements in conformity with GAAP requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of any contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Amounts based on such estimates involve numerous assumptions subject to varying and potentially significant degrees of judgment and uncertainty, particularly related to the future performance of the underlying business, and will likely change in the future as additional information becomes available. Critical estimates and assumptions are evaluated on an ongoing basis based on historical developments, market conditions, industry trends and other information that is reasonable under the circumstances. There can be no assurance that actual results will conform to estimates and assumptions and that reported results of operations will not be materially affected by the need to make future accounting adjustments to reflect periodic changes in these estimates and assumptions. Critical accounting estimates are impacted significantly by our methods, judgments and assumptions used in the preparation of the consolidated financial statements and should be read in conjunction with our significant accounting policies described in *Note 1 – Business, Basis of Presentation and Significant Accounting Policies* to the consolidated financial statements. The following summary of our critical accounting estimates is intended to enhance one's ability to assess our financial condition and results of operations and the potential volatility due to changes in estimates.

Investments

We are responsible for the fair value measurement of certain investments presented in our consolidated financial statements. We perform regular analysis and review of our valuation techniques, assumptions and inputs utilized in determining fair value to evaluate if the valuation approaches are appropriate and consistently applied, and the various assumptions are reasonable. We also perform quantitative and qualitative analysis and review of the information and prices received from commercial pricing services and broker-dealers, to verify it represents a reasonable estimate of the fair value of each investment. In addition, we utilize both internally-developed and commercially-available cash flow models to analyze the reasonableness of fair values utilizing credit spread and other market assumptions, where appropriate. For investment funds, we typically recognize our investment, including those for which we have elected the fair value option, based on net asset value information provided by the general partner or related asset manager. For a discussion of our investment funds for which we have elected the fair value option, see *Note 6 – Fair Value* to the consolidated financial statements.

Valuation of Fixed Maturity and Equity Securities

The following table presents the fair value of fixed maturity and equity securities, including those with related parties and those held by consolidated VIEs, by pricing source and fair value hierarchy:

	December 31, 2018			
(In millions)	Total	Level 1	Level 2	Level 3
Fixed maturity securities				
AFS securities				
Priced via commercial pricing services	$ 46,799	$ 36	$ 46,416	$ 347
Priced via independent broker-dealer quotations	12,824	16	10,519	2,289
Priced via other methods	1,079	2	522	555
Trading securities				
Priced via commercial pricing services	1,032	—	1,032	—
Priced via independent broker-dealer quotations	1,017	3	801	213
Priced via other methods	149	—	—	149
Trading securities of consolidated VIEs	35	—	—	35
Total fixed maturity securities including related party	62,935	57	59,290	3,588
Equity securities				
Priced via commercial pricing services	204	31	173	—
Priced via independent broker-dealer quotations	11	9	—	2
Priced via other methods	121	—	—	121
Equity securities of consolidated VIEs	50	37	—	13
Total equity securities including related party	386	77	173	136
Total fixed maturity and equity securities including related party	$ 63,321	$ 134	$ 59,463	$ 3,724
Percent of total	100.0%	0.2%	93.9%	5.9%

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

We measure the fair value of our securities based on assumptions used by market participants in pricing the assets, which may include inherent risk, restrictions on the sale or use of an asset, or nonperformance risk. The estimate of fair value is the price that would be received to sell a security in an orderly transaction between market participants in the principal market, or the most advantageous market in the absence of a principal market, for that security. Market participants are assumed to be independent, knowledgeable, able and willing to transact an exchange while not under duress. The valuation of securities involves considerable judgment, is subject to considerable variability and is revised as additional information becomes available. As such, changes in, or deviations from, the assumptions used in such valuations can significantly affect our consolidated financial statements. Financial markets are susceptible to severe events evidenced by rapid depreciation in security values accompanied by a reduction in asset liquidity. Our ability to sell securities, or the price ultimately realized upon the sale of securities, depends upon the demand and liquidity in the market and increases the use of judgment in determining the estimated fair value of certain securities. Accordingly, estimates of fair value are not necessarily indicative of the amounts that could be realized in a current or future market exchange.

For fixed maturity securities, we obtain the fair values, when available, based on quoted prices in active markets that are regularly and readily obtainable. Generally, these are liquid securities and the valuation does not require significant management judgment. When quoted prices in active markets are not available, fair value is based on market standard valuation techniques, giving priority to observable inputs. We obtain the fair value for most marketable bonds without an active market from several commercial pricing services. The pricing services incorporate a variety of market observable information in their valuation techniques, including benchmark yields, broker-dealer quotes, credit quality, issuer spreads, bids, offers, and other reference data. For certain fixed maturity securities without an active market, an internally-developed discounted cash flow or other approach is utilized to calculate the fair value. A discount rate is used, which adjusts a market comparable base rate for securities with similar characteristics for credit spread, market illiquidity or other adjustments. The fair value of privately placed fixed maturity securities are based on the credit quality and duration of comparable marketable securities, which may be securities of another issuer with similar characteristics. In some instances, we use a matrix-based pricing model, which considers the current level of risk-free interest rates, corporate spreads, credit quality of the issuer, and cash flow characteristics of the security. We also consider additional factors, such as net worth of the borrower, value of collateral, capital structure of the borrower, presence of guarantees, and our evaluation of the borrower's ability to compete in its relevant market.

For equity securities, we obtain the fair value, when available, based on quoted market prices. Other equity securities, typically private equities or equity securities not traded on an exchange, are valued based on other sources, such as commercial pricing services or brokers. Effective with the adoption of *Financial Instruments – Recognition and Measurement (ASU 2016-01)* on January 1, 2018, subsequent changes in fair value are recognized in net income.

Other-Than-Temporary Impairments

The evaluation of securities for OTTIs is a quantitative and qualitative process done on a case-by-case basis, which is subject to risks and uncertainties and involves significant estimates and judgments by management. Changes in the estimates and judgments used in such analysis can have a significant impact on our consolidated results of operations.

We review and analyze our securities on an ongoing basis for changes in market interest rates, credit issues, changes in business climate, management changes, litigation, government actions, and other similar factors. Indicators of impairment may include changes in the issuers' credit ratings and outlook, the frequency of late payments, pricing levels, key financial ratios, financial statements, revenue forecasts and cash flow projections. We consider relevant facts and circumstances in evaluating whether a credit or interest rate-related impairment of a security is other-than-temporary. Relevant facts and circumstances include: (1) the extent and length of time the fair value has been below cost; (2) the reasons for the decline in fair value; (3) the issuer's financial position and access to capital; and (4) for fixed maturity securities, our intent to sell a security or whether it is more-likely-than-not we will be required to sell the security before the recovery of its cost or amortized cost which, in some cases, may extend to maturity and for equity securities prior to the adoption of ASU 2016-01 on January 1, 2018, our ability and intent to hold the security for a period of time that allows for the recovery in value. An extended and severe unrealized loss position on a fixed maturity security may not have any impact on the ability of the issuer to service all scheduled principal and interest payments. Accordingly, such an unrealized loss position may not impact our evaluation of recoverability of all contractual cash flows or the ability to recover an amount at least equal to the security's cost or amortized cost based on the present value of the expected future cash flows to be collected. To the extent we determine a security is deemed to be other-than-temporarily impaired, an impairment loss is recognized.

The recognition of impairment losses on fixed maturity securities is dependent on the facts and circumstances related to the specific security. If we intend to sell a security or it is more-likely-than-not that we would be required to sell a security before the recovery of its cost or amortized cost, less any recorded credit loss, we recognize a loss in other-than-temporary impairment losses on the consolidated statements of income for the difference between cost or amortized cost and fair value. If neither of these two conditions exists, then the recognition of the loss is bifurcated and we recognize the credit loss portion in other-than-temporary impairment losses on the consolidated statements of income and the non-credit loss portion in AOCI on the consolidated balance sheets. Impairment losses on equity securities are recognized in investment related gains (losses) on the consolidated statements of income prior to the adoption of ASU 2016-01. Effective January 1, 2018, equity securities are no longer evaluated for impairment as all changes in fair value are recognized in net income.

We estimate the amount of the credit loss component of a fixed maturity security impairment as the difference between amortized cost and the present value of the expected cash flows of the security. The present value is determined using estimated cash flows discounted at the effective interest rate implicit to the security at the date of purchase or the current yield to accrete an asset-backed or floating-rate security. The techniques and assumptions for establishing the estimated cash flows vary depending on the type of security. A structured security's cash flow estimates are based on security-specific facts and circumstances that may include collateral characteristics, expectations of delinquency and default rates, loss severity, prepayments and structural support, including subordination and guarantees. A non-structured security's cash flow estimates are derived from scenario-based outcomes of expected corporate restructurings or the disposition of assets using security-specific facts and circumstances including timing, security interests and loss severity.

Future Policy Benefits

The future policy benefit liabilities associated with long duration contracts include endowment contracts, term and whole-life products, accident and health, disability, and deferred and immediate annuities with life contingencies. Liabilities for non-participating long duration contracts are established using accepted actuarial valuation methods which require us to make certain assumptions regarding expenses, investment yields, mortality, morbidity, and persistency, with a provision for adverse deviation, at the date of issue or acquisition. As of December 31, 2018, the reserve investment yield assumptions for non-participating contracts range from 3.31% to 5.44% and are specific to our expected earned rate on the asset portfolio supporting the reserves. Liabilities for participating long-duration contracts were established using acceptable actuarial valuation methods, which required the use of guaranteed interest and mortality assumptions. Participating long-duration contracts resulted from our previously consolidated German subsidiaries. We base other key assumptions, such as mortality and morbidity, on industry standard data adjusted to align with actual company experience, if necessary. Premium deficiency tests are performed periodically using current assumptions, without provisions for adverse deviation, in order to test the appropriateness of the established reserves. If the reserves using current assumptions are greater than the existing reserves, the excess is recorded and the initial assumptions are revised.

Liabilities for Guaranteed Living Withdrawal Benefits and Guaranteed Minimum Death Benefits

We issue and reinsure deferred annuity contracts which contain GLWB and GMDB riders. We establish future policy benefits for GLWB and GMDB by estimating the expected value of withdrawal and death benefits in excess of the projected account balance. We recognize the excess proportionally over the accumulation period based on total actual and expected assessments. The methods we use to estimate the liabilities have assumptions about policyholder behavior, which includes lapses, withdrawals and utilization of the benefit riders; mortality; and market conditions affecting the account balance growth.

Projected policyholder lapse and withdrawal behavior assumptions are set in one of two ways. For certain blocks of business, this behavior is a function of our predictive analytics model which considers various observable inputs. For the remaining blocks of business, these assumptions are set at the product level by grouping individual policies sharing similar features and guarantees and reviewed periodically against experience. Base lapse rates consider the level of surrender charges and are dynamically adjusted based on the level of current interest rates relative to the guaranteed rates and the amount by which any rider guarantees are in a net positive position. Rider utilization assumptions consider the number and timing of policyholders electing the riders. We track and update this assumption as experience emerges. Mortality assumptions are set at the product level and generally based on standard industry tables, adjusted for historical experience and a provision for mortality improvement. Projected guaranteed benefit amounts in excess of the underlying account balances are considered over a range of scenarios in order to capture our exposure to the guaranteed withdrawal and death benefits.

The assessments used to accrue liabilities are based on interest margins, rider charges, surrender charges and realized gains (losses). As such, future reserve changes are sensitive to changes in investment results and the impacts of shadow adjustments, which represent the impact of assuming unrealized gains (losses) are realized in future periods. As of December 31, 2018, the GLWB and GMDB liability balance, including the impacts of shadow adjustments, totaled $3.3 billion. The increase (decrease) to the GLWB and GMDB liability balance, including the impacts of shadow adjustments from hypothetical changes in projected assessments, changes in the discount rate and annual equity growth is summarized as follows:

(In millions)	December 31, 2018
+10% assessments	$ (97)
−10% assessments	108
+100 bps discount rate	97
−100 bps discount rate	(110)
1% higher annual equity growth	(42)
1% lower annual equity growth	43

Derivatives

Valuation of Embedded Derivatives on FIAs

We issue and reinsure products, primarily FIA products, or purchase investments that contain embedded derivatives. If we determine the embedded derivative has economic characteristics not clearly and closely related to the economic characteristics of the host contract, and a separate instrument with the same terms would qualify as a derivative instrument, the embedded derivative is bifurcated from the host contract and accounted for separately, unless the fair value option is elected on the host contract. Under the fair value option, bifurcation of the embedded derivative is not necessary as the entire contract is carried at fair value with all related gains and losses recognized in investment related gains (losses) on the consolidated statements of income. Embedded derivatives are carried on the consolidated balance sheets at fair value in the same line item as the host contract.

FIA and indexed universal life insurance contracts allow the policyholder to elect a fixed interest rate return or an equity market component for which interest credited is based on the performance of certain stock market indices. The equity market option is an embedded derivative, similar to a call option. The benefit reserve is equal to the sum of the fair value of the embedded derivative and the host (or guaranteed) component of the contracts. The fair value of the embedded derivatives is computed as the present value of benefits attributable to the excess of the projected policy contract values over the projected minimum guaranteed contract values. The projections of policy contract values are based on assumptions for future policy growth, which include assumptions for expected index credits on the next policy anniversary date, future equity option costs, volatility, interest rates, and policyholder behavior. The projections of minimum guaranteed contract values include the same assumptions for policyholder behavior as were used to project policy contract values. The embedded derivative cash flows are discounted using a rate that reflects our own credit rating. The host contract is established at contract inception as the initial account value less the initial fair value of the embedded derivative and accreted over the policy's life. The host contract accretion rate is updated each quarter so that the present value of actual and expected guaranteed cash flows is equal to the initial host value. Changes in the fair value of embedded derivatives associated with FIAs and indexed universal life insurance contracts are reflected in interest sensitive contract benefits on the consolidated statements of income.

In general, the change in the fair value of the embedded derivatives will not directly correspond to the change in fair value of the hedging derivative assets. The derivatives are intended to hedge the index credits expected to be granted at the end of the current term. The options valued in the embedded derivatives represent the rights of the policyholder to receive index credits over the entire period the FIAs are expected to be in force, which are typically much longer than the current term of the options. From an economic basis we believe it is suitable to hedge with options that align with index terms of our FIA products because policyholder accounts are credited with index performance at the end of each index term. However, because the value of an embedded derivative in an FIA contract is longer-dated, there is a duration mismatch which may lead to differences in the recognition of income and expense for accounting purposes.

A significant assumption in determining policy liabilities for FIAs is the vector of rates used to discount the excess projected contract values. The change in risk free rates is expected to drive most of the movement in the discount rates between periods. Changes to credit spreads for a given credit rating as well as any change to our credit rating requiring a revised level of nonperformance risk would also be factors in the changes to the discount rate. If the discount rates used to discount the excess projected contract values were to fluctuate, there would be a resulting change in reserves for FIAs recorded through the consolidated statements of income.

As of December 31, 2018, we had embedded derivative liabilities classified as Level 3 in the fair value hierarchy of $8.0 billion. The increase (decrease) to the embedded derivatives on FIA products from hypothetical changes in discount rates is summarized as follows:

(In millions)	December 31, 2018
+100 bps discount rate	$ (697)
−100 bps discount rate	800

However, these estimated effects do not take into account potential changes in other variables, such as equity price levels and market volatility, which can also contribute significantly to changes in carrying values. Therefore, the quantitative impact presented in the table above does not necessarily correspond to the ultimate impact on the consolidated financial statements. In determining the ranges, we have considered current market conditions, as well as the market level of discount rates that can reasonably be anticipated over the near-term. For additional information regarding sensitivities to interest rate risk and public equity risk, see *Item 7A. Quantitative and Qualitative Disclosures About Market Risks*.

Valuation of Embedded Derivatives in Modco or Funds Withheld

Reinsurance agreements written on a funds withheld or modco basis contain embedded derivatives. The right to receive or obligation to pay the total return on the assets supporting the funds withheld at interest or funds withheld liability, respectively, represents a total return swap with a floating rate leg. The fair value of the embedded derivatives on funds withheld and modco agreements is computed as the unrealized gain (loss) on the underlying assets and is recognized in funds withheld at interest and funds withheld liability on the consolidated balance sheets for assumed and ceded agreements, respectively. The change in the fair value of the embedded derivatives is recorded in investment related gains (losses) on the consolidated statements of income.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Valuation of Derivative Contracts

Derivative contracts can be exchange-traded or OTC. Exchange-traded derivative contracts (for example, futures) typically fall within Level 1 of the fair value hierarchy depending on trading activity. OTC derivative contracts (for example, swaps) are valued using valuation models or an income approach using third-party broker-dealer valuations. Valuation models require a variety of inputs, including contractual terms, market prices, yield curves, credit curves, measures of volatility, prepayment rates, and correlation of the inputs. We consider and incorporate counterparty credit risk in the valuation process through counterparty credit rating requirements and monitoring of overall exposure. We also evaluate and include our own nonperformance risk in valuing derivative liabilities. The majority of our derivatives trade in liquid markets; therefore, the model inputs and model selection does not involve significant judgment. As of December 31, 2018, we had derivative contract assets classified in the fair value hierarchy as Level 1 of $9 million, Level 2 of $1,034 million and Level 3 of $0 million. As of December 31, 2018, we had derivative contract liabilities classified in the fair value hierarchy as Level 1 of $3 million, Level 2 of $78 million and Level 3 of $4 million.

Deferred Acquisition Costs, Deferred Sales Inducements, and Value of Business Acquired

Costs related directly to the successful acquisition of new or renewal insurance or investment contracts are deferred to the extent they are recoverable from future premiums or gross profits. These costs consist of commissions and policy issuance costs, as well as sales inducements credited to policyholder account balances. We perform periodic tests, including at issuance, to determine if the deferred costs are recoverable. If it is determined that the deferred costs are not recoverable, we record a cumulative charge to the current period.

Deferred costs related to universal life-type policies and investment contracts with significant revenue streams from sources other than investment of the policyholder funds are amortized over the lives of the policies, based upon the proportion of current period gross profits to the present value of estimated gross profits to be earned over the life of the policies. Gross profits include investment spread margins, surrender charge income, policy administration, changes in the GLWB and GMDB reserves, and realized gains (losses) on investments. Current period gross profits for FIAs also include the change in fair value of both freestanding and embedded derivatives.

Our estimates of future gross profits and margins are based on assumptions using accepted actuarial methods related to policyholder behavior and mortality, yields on investments supporting the liabilities, future interest credited amounts (including indexed related credited amounts on FIA products), surrender and other policy charges as applicable, and the level of expenses necessary to maintain the policies over their expected lives. Each reporting period, we update estimated gross profits with actual gross profits as part of the amortization process. We also periodically revise the key assumptions used in the amortization calculation which results in revisions to the estimated future gross profits. The effects of changes in assumptions are recorded as unlocking in the period in which the changes are made.

We establish VOBA for blocks of insurance contracts acquired through the acquisition of insurance entities. The fair value of the liabilities purchased is determined using market participant assumptions at the time of acquisition and represents the amount an acquirer would expect to be compensated to assume the contracts. We record the fair value of the liabilities assumed in two components: reserves and VOBA. Reserves are established using our best estimate assumptions, as previously discussed in future policy benefits. VOBA is the difference between the fair value of the liabilities and the reserves. VOBA can be either positive or negative. Any negative VOBA is recorded to the same financial statement line on the consolidated balance sheets as the associated reserves. Positive VOBA is recorded in DAC, DSI and VOBA on the consolidated balance sheets.

VOBA associated with immediate annuity contracts classified as long-duration contracts is amortized at a constant rate in relation to net policyholder liabilities. For universal life-type policies and investment contracts with significant revenue streams from sources other than investment of policyholder funds, VOBA is amortized in relation to the present value of estimated gross profits using methods consistent with those used to amortize DAC and DSI. Negative VOBA is amortized at a constant rate in relation to applicable net policyholder liabilities.

Estimated future gross profits vary based on a number of factors, but are typically most sensitive to changes in investment spread margins, which are the most significant component of gross profits. If estimated gross profits for all future years on business in force were to change, including the impacts of shadow adjustments, there would be a resulting increase or decrease to the balances of DAC, DSI and VOBA recorded as an increase or decrease to amortization of DAC, DSI, and VOBA on the consolidated statements of income or AOCI.

Actual gross profits will depend on actual margins, including the changes in the value of embedded derivatives. The most sensitive assumption in determining the value of the embedded derivative is the vector of rates used to discount the excess projected contract values. If the discount rates used to discount the excess projected contract values were to change, there would be a resulting increase or decrease to the balances of DAC, DSI and VOBA recorded as an increase or decrease in amortization of DAC, DSI, and VOBA on the consolidated statements of income.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

As of December 31, 2018, DAC, DSI and VOBA totaled $5.9 billion. The increases (decreases) to DAC, DSI and VOBA from hypothetical changes in estimated future gross profits and the embedded derivative discount rate are summarized as follows:

	December 31, 2018			
(In millions)	DAC	DSI	VOBA	Total
+10% estimated future gross profits	$ 35	$ 15	$ 45	$ 95
−10% estimated future gross profits	(39)	(18)	(50)	(107)
+100 bps discount rate	(92)	(34)	(36)	(162)
−100 bps discount rate	82	34	41	157

Stock-based Compensation

We have adopted various stock-based compensation plans in order to align incentive compensation to our employees, our directors and employees of AAM with our long-term performance. See *Note 11 – Common Stock* and *Note 12 – Stock-based Compensation* to the consolidated financial statements for additional information regarding our stock-based compensation plans, and *Note 17 – Related Parties* to the consolidated financial statements regarding our relationship with AAM. Under these stock-based compensation plans, we may issue non-qualified stock options, incentive stock options, rights to purchase shares, restricted shares, restricted stock units (RSUs), and other awards which may be settled in, or based upon, our Class A common shares.

We have issued Class M common shares and RSUs, which will be settled in Class A common shares assuming that such awards are exchanged for Class A common shares upon payment of a conversion price. Under the terms of the plans, a portion of the Class M common shares and RSUs is subject to time-based vesting conditions (Tranche 1), and the remainder (Tranche 2) is subject to vesting conditions based on the proceeds realized or deemed to be realized by certain holders of our Class A common shares, as defined in each incentive plan (Relevant Investors), except for the Tranche 2 Class M-1, M-2 and M-3 common shares, which became fully vested upon modification in 2016. Additionally, certain Class M-4 common shares were issued with time-based vesting conditions and market hurdles based on the price of our Class A common shares attaining certain targets following our initial public offering. We have also issued long-term incentive plan (LTIP) awards that consist of time and performance-based RSUs and time-based stock options for Class A common shares. The performance-based LTIP awards vest upon the Company meeting certain adjusted operating income and ROE targets.

We recognize the fair value of stock-based compensation over a participant's requisite service period through a charge to compensation expense and a corresponding entry to equity or a liability based on the vesting criteria and other pertinent terms of the awards. The compensation expense for Tranche 1 Class M common shares, Tranche 1 Class M RSUs and LTIP awards is generally recognized ratably over the vesting period. The compensation expense for Tranche 2 Class M common shares, other than those vested upon modification, and Tranche 2 Class M RSUs is recognized based on a combination of the probability of the Relevant Investors achieving certain performance hurdles and the assumed period to attain those performance hurdles. The Class M-4 common shares with share price market hurdles were entirely contingent on the completion of our initial public offering, therefore, expense recognition commenced upon completion of our initial public offering and will continue over the derived service period. Changes in our estimates and assumptions, including the number of stock awards that ultimately vest, may cause us to realize material changes in stock-based compensation expense in the future.

Our stock-based compensation plans also allow for the purchase by certain of our employees and directors and our affiliates of Class A common shares at either fair market value or a discounted price as approved by our compensation committee. Additionally, we may issue restricted Class A common shares to management and our affiliates. Class A common shares are accounted for as equity awards and the related compensation expense is recognized ratably over the vesting period, if any. The compensation expense for Class A common shares is calculated based on the grant date fair value of the Class A common shares less the purchase price, multiplied by the number of shares awarded.

Valuation Methodology and Assumptions

We determine the fair value of the Class M common shares, RSUs and LTIP stock options using the Black-Scholes option pricing model. To estimate an award's fair value using the Black-Scholes option pricing model, it is necessary to develop assumptions of the expected term, expected volatility, expected dividend yield and the risk-free interest rate. The expected term and expected volatility assumptions are generally the most sensitive of the assumptions in the Black-Scholes model with variability in these assumptions having a more significant impact on the award's fair value than the assumptions on the expected dividend yield or risk-free interest rate, if all other assumptions are held equal. We have assumed no dividends as we have not declared any common stock dividends to date and do not expect to declare common stock dividends in the near future. The risk-free interest rate is derived from the U.S. Constant Maturity Treasury yield at the valuation date, with maturity corresponding to the weighted-average expected term.

Expected Term

The Black-Scholes model uses a single input for the award's expected term (the weighted average expected term), the anticipated time period between the valuation date and the exercise date or post-vesting cancellation date, to estimate an employee award's fair value. Developing the expected term assumption is highly subjective as employees may exercise options at widely varying times. A change in the expected term may have a significant effect on the fair value of the award. For more information regarding our expected term assumptions, see *Note 12 – Stock-based Compensation* to the consolidated financial statements.

Expected Volatility

Volatility is a statistical measurement of the magnitude of stock's price variance over a given historical period and is used to determine the expected variability of the returns on a company's stock. Volatility may have a significant impact on the fair value of a share-based event. Given that a more volatile stock has greater upside potential than a less volatile stock, an award tied to a high volatility stock has greater value than an award tied to a low-volatility stock, assuming all other assumptions are equal.

Absent an established history in a public market for our shares, we have estimated volatility of our share price based on the published historical volatilities of publicly-traded insurance company peers. For more information regarding our expected volatility assumptions, see *Note 12 – Stock-based Compensation* to the consolidated financial statements.

Consolidation

We consolidate all entities in which we hold a controlling financial interest as of the financial statement date whether through a majority voting interest or otherwise, including those investment funds that meet the definition of a VIE in which we are determined to be the primary beneficiary. If we are not the primary beneficiary, the general partner or another limited partner may consolidate the investment fund, and we record the investment as an equity-method investment. See *Note 5 – Variable Interest Entities* to the consolidated financial statements.

The determination as to whether an entity qualifies as a VIE depends on the underlying facts and circumstances surrounding each entity. Our assessment of whether an entity is a VIE may require significant judgment. Those judgments may include, but are not limited to: (1) determining whether the total equity investment at risk is sufficient to permit the entity to finance its activities without additional subordinated financial support; (2) evaluating whether the holders of the equity investment at risk, as a group, lack any characteristics of a controlling financial interest, such as the obligation to absorb losses, right to receive expected residual returns or the ability to make decisions that have a significant effect on the success of the entity; and (3) determining whether the equity investors' voting rights are not proportional to their economic rights, and whether substantially all of the activities of the entity either involve or are conducted on behalf of an investor with disproportionately fewer voting rights.

Judgments are also made in determining whether we, as a variable interest holder, are required to consolidate the VIE as its primary beneficiary. Determining whether we are the primary beneficiary may require significant judgment. Generally, the primary beneficiary is the party that has both the power to direct the activities that most significantly impact the VIE's economic performance and the right to receive benefits or obligation to absorb losses that could be potentially significant to the VIE. This analysis considers related party and de-facto agent relationships, as well as indirect interests we may hold in the entity being evaluated. For example, we may not be deemed to control the VIE; however, to the extent the controlling party is a related party or a de-facto agent, we perform an additional assessment to determine if substantially all of the activities of the VIE are conducted on our behalf and we are therefore the primary beneficiary. This assessment is primarily qualitative and focused on the relationship between us and the VIE being evaluated, but also includes an analysis of the VIE's economic impacts we receive. Additionally, in situations where the related parties share power or are under common control, we evaluate the nature of the relationship and activities of the parties involved to determine which party within the related-party group is most closely associated with the VIE and therefore required to consolidate.

Additionally, determining whether a VIE meets the criteria of an investment company is qualitative in nature and may involve significant judgment. The significance of this distinction relates to whether the investment fund retains the specialized accounting afforded investment companies.

To be deemed an investment company an entity must, at a minimum, meet the following fundamental criteria: (1) obtain funds from one or more investors and provides the investor(s) with defined investment management services, (2) commit to its investor(s) that its business purpose and only substantive activities are investing funds solely for returns from capital appreciation, investment income, or both, and (3) it or its affiliates do not obtain or have the objective of obtaining returns or benefits from an investee or its affiliates that are not normally attributable to ownership interests or that are other than capital appreciation or investment income.

If the three fundamental characteristics are met, we evaluate whether the entity possesses some or all of the following typical characteristics that are generally associated with an investment company: (1) has more than one investment, (2) has more than one investor, (3) has investors that are not related parties of the parent entity (if there is a parent) and the investment manager, (4) has ownership interests in the form of equity or partnership interests, and (5) manages substantially all of its investments on a fair value basis. Lacking one or more of these characteristics does not preclude an entity from being considered an investment company. All relevant facts and circumstances are taken into consideration in making a final determination.

Income Taxes

In determining our income taxes, management is required to interpret complex income tax laws and regulations. We are subject to examinations by federal, state, local and foreign income tax authorities that may give rise to different interpretations of these complex laws and regulations. Due to the nature of the examination process, it generally takes years before these examinations are completed and these matters are resolved. We recognize the tax benefit from an uncertain tax position only if it is more-likely-than-not that the tax position will be sustained on examination by the relevant taxing authorities based on the technical merits of our position. For those tax positions that meet the more-likely-than-not recognition threshold, we recognize the largest amount of tax benefit that is more than 50 percent likely to be realized upon ultimate settlement with the related tax authority. The aggregate amount of any additional income tax liabilities that may result from these examinations, if any, is not expected to have a material impact on our consolidated financial results. For more information regarding income taxes, see *Note 15 – Income Taxes* to the consolidated financial statements.

Accounting for income taxes represents our estimate of various events and transactions based on management's judgment and interpretation of the laws and regulations enacted as of the reporting date. Deferred tax assets and liabilities resulting from temporary differences between the financial reporting and tax basis of assets and liabilities are measured at the balance sheet date using enacted tax rates expected to apply to taxable income in the years the temporary differences are expected to reverse. We routinely evaluate the likelihood of realizing the benefit of our deferred tax assets and may record a valuation allowance if, based on all available evidence, we determine that it is more-likely-than-not some portion of the tax benefit will not be realized. We have deferred tax assets primarily related to reserve valuation differences, net operating losses, DAC and employee benefit plans.

On a quarterly basis, we test the value of deferred tax assets for impairment at the taxpaying-component level within each tax jurisdiction. Significant judgment and estimates are required in determining whether valuation allowances should be established as well as the amount of such allowances. When making such determination, consideration is given to, among other things, the following:

- sufficient taxable income within the allowed carryback or carryforward periods;
- future reversals of existing taxable temporary differences, including any tax planning strategies that could be utilized;
- nature or character (e.g., ordinary vs. capital) of the deferred tax assets and liabilities; and
- future taxable income exclusive of reversing temporary differences and carryforwards.

We may be required to change the provision for income taxes in certain circumstances. Examples of such circumstances include when the ultimate deductibility of certain items is challenged by taxing authorities, when it becomes clear that certain items will not be challenged, when forecasted results used in determining valuation allowances on deferred tax assets significantly change, or when receipt of new information indicates the need for adjustment in valuation allowances. Additionally, future events such as changes in tax legislation could have an impact on the provision for income tax and the effective tax rate. Any such changes could significantly affect the amounts reported in our consolidated financial statements in the period to which these changes apply.

We have not provided for withholding taxes on undistributed earnings of our U.S. subsidiaries on our consolidated financial statements as of December 31, 2018. Although withholding taxes may apply in the event a dividend is paid by our U.S. subsidiaries, we have not accrued withholding taxes as we do not intend to remit these earnings. The cumulative amount potentially subject to withholding tax, if distributed, as well as the determination of the potential associated tax liability, is not practicable to compute. Any dividends remitted to AHL from ALRe are not subject to withholding tax.

Impact of Recent Accounting Pronouncements

For a discussion of new accounting pronouncements affecting us, see *Note 1 – Business, Basis of Presentation and Significant Accounting Policies* to the consolidated financial statements.

Item 7A.   Quantitative and Qualitative Disclosures About Market Risks

Risk Management Framework

The function of our risk management framework is to identify, assess and prioritize risks to ensure that both senior management and the board of directors understand and can manage our risk profile. The processes supporting risk management are designed to ensure that our risk profile is consistent with our stated risk appetite and that we maintain sufficient capital to support our corporate plan, while meeting the requirements imposed by our policyholders, shareholders, and regulators. Risk management strives to enable us to maximize the value of our existing business platform to shareholders, preserve our ability to realize business and market opportunities under moderately stressful market conditions, and to withstand the impact of severely adverse events.

The risk management framework includes a governance committee structure that supports accountability in current risk-based decision making, and effective risk management. Governance committees are established at three levels: the board of directors, AHL management, and subsidiary management. We utilize a host of assessment tools to monitor and assess our risk profile, results of which are shared with senior management periodically at management level committees such as the management risk committee (MRC) and the management investment committee (MIC) and with the board of directors quarterly. Business management retains the primary responsibility for day-to-day management of risk.

Risk Management

The risk management team structure consists of an enterprise risk management (ERM) team, a derivatives trading team and an asset risk team. The risk management team is led by our Chief Risk Officer, who reports to the chair of the AHL Risk Committee. Our risk management team is comprised of approximately 30 dedicated, full-time employees.

Asset and Liability Management

Asset and liability risk management is a joint effort that spans business management and the entire risk management team. Processes established to analyze and manage the risks of our assets and liabilities include but are not limited to:

- analyzing our liabilities to ascertain their sensitivity to behavioral variations and changes in market conditions and actuarial assumptions;
- analyzing interest rate risk, cash flow mismatch, and liquidity risk management;
- performing scenario and stress analyses to examine their impacts on capital and earnings;
- performing cash flow testing and capital modeling;
- modeling the values of the derivatives embedded in our policy liabilities so that they can be effectively hedged;
- hedging unwanted risks, including from embedded derivatives, interest rate exposures and currency risks;
- reviewing our corporate plan and strategic objectives, and identifying prospective risks to those objectives under normal and stressed economic, behavioral and actuarial conditions; and
- providing appropriate risk reports that show consolidated risk exposures from assets and liabilities as well as the economic consequences of stress events and scenarios.

Market Risk and Management of Market Risk Exposures

Market risk is the risk of incurring losses due to adverse changes in market rates and prices. Included in market risk are potential losses in value due to credit and counterparty risk, interest rate risk, currency risk, commodity price risk and equity price risk. We are primarily exposed to credit risk, interest rate risk and equity price risk.

Credit Risk and Counterparty Risk

In order to operate our business model, which is based on earning spread income, we must bear credit risk. However, as we assume credit risk through our investment, reinsurance and hedging activities, we endeavor to ensure that risk exposures remain diversified, that we are adequately compensated for the risks we assume and that the level of risk is consistent with our risk appetite and objectives.

Credit risk is a key risk taken in the asset portfolio, as the credit spread on our investments is what drives our spread income. We manage credit risk by avoiding idiosyncratic risk concentrations, understanding and managing our systematic exposure to economic and market conditions through stress testing, monitoring investment activity daily and distinguishing between price and default risk from credit exposures. Concentration and portfolio limits are designed to ensure that exposure to default and impairment risk is sufficiently modest so as to not represent a solvency risk to us, even in severe economic conditions.

The investment teams within AAM, which manage substantially all of our fixed income assets, focus on in-depth, bottom-up portfolio construction, and disciplined risk management. Their approach to taking credit risk is formulated based on:

- a fundamental view on existing and potential opportunities at the security level;
- an assessment of the current risk/reward proposition for each market segment;
- identification of downside risks and assigning a probability for those risks; and
- establishing a plan for best execution of the investment action.

Item 7A. Quantitative and Qualitative Disclosures About Market Risks

A dedicated set of AHL risk managers, who are on-site with AAM, monitor the asset risks to ensure that such risks are consistent with our risk appetite, standards for committing capital, and overall strategic objectives. Our risk management team is also a key contributor to the OTTI/credit impairment evaluation process.

In addition to credit-risk exposures from our investment portfolio, we are also exposed to credit risk from our counterparty exposures from our derivative hedging and reinsurance activities. Derivative counterparty risk is managed by trading on a collateralized basis with counterparties under International Swaps and Derivatives Association ("ISDA") documents with a credit support annex having low or zero-dollar collateral thresholds.

We utilize reinsurance to mitigate risks that are inconsistent with our strategy or objectives. For example, we have reinsured much of the mortality risk we would otherwise have accumulated through our various acquisitions, allowing us to focus on our core annuity business. These reinsurance agreements expose us to the credit risk of our counterparties. We manage this risk to avoid counterparty risk concentrations through various mechanisms: utilization of reinsurance structures such as funds withheld or modco so as to retain ownership of the assets and limit counterparty risk to the cost of replacing the counterparty; diversification across counterparties; and when possible, novating policies to eliminate counterparty risk altogether.

Interest Rate Risk

Significant interest rate risk may arise from mismatches in the timing of cash flows from our assets and liabilities. Management of interest rate risk at the company-wide level, and at the various operating company levels, is one of the main risk management activities in which senior management engages.

Depending upon the materiality of the risk and our assessment of how we would perform across a spectrum of interest rate environments, we may seek to mitigate interest rate risk using on-balance-sheet strategies (portfolio management) or off-balance-sheet strategies (derivative hedges such as interest rate swaps and futures). We monitor ALM metrics (such as key-rate durations and convexity) and employ quarterly cash flow testing requirements across all of our insurance companies to assure the asset and liability portfolios are managed to maintain net interest rate exposures at levels that are consistent with our risk appetite. We have established a set of exposure and stress limits to communicate our risk tolerance and to ensure adherence to those risk tolerance levels. Risk management personnel and the MRC and MIC (together, management committees) are notified in the event that risk tolerance levels are exceeded. Depending on the specific risk threshold that is exceeded, the appropriate management committee then makes a decision as to what actions, if any, should be undertaken.

Active portfolio management is performed by the investment managers at AAM, with direction from the management committees. ALM risk is also managed by the management committees. The performance of our investment portfolio managed by AAM is reviewed periodically by the management committees and the board of directors. The management committees strive to improve returns to shareholders and protect policyholders, while dynamically managing the risk within our expectations.

Equity Risk

Our FIAs require us to make payments to policyholders that are dependent on the performance of equity market indices. We seek to minimize the equity risk from our liabilities by economically defeasing this equity exposure with granular, policy-level-based hedging. In addition, our investment portfolio can be invested in strategies involving public and private equity positions, though in general, we have limited appetite for passive, public equity investments.

The equity index hedging framework implemented is one of static core hedges with dynamic overlays. Unique policy-level liability options are matched with static OTC options. Residual risk arising from policyholder behavior and other trading constraints (for example minimum trade size) are managed dynamically by decomposing the risk of the portfolio (asset and liability positions) into market risk measures which are managed to pre-established risk limits. The portfolio risks are measured overnight and rebalanced daily to ensure that the risk profile remains within risk appetite. Valuation is done at the position level, and risks are aggregated and shown at the level of each underlying index. Risk measures that have term structure sensitivity, such as index volatility risk, and interest rate risk, are monitored and risk managed along the term structure.

We are also exposed to equity risk in our alternative investment portfolio. The form of those investments is typically a limited partnership interest in a fund. We currently target fund investments that have characteristics resembling fixed income investments versus those resembling pure equity investments, but as holders of partnership positions, our investments are generally held as equity positions. Alternative investments are comprised of several categories, including at the most liquid end of the spectrum "liquid strategies," (which is mostly exposure to publicly traded equities), followed by "hedge funds," "credit funds," "private equity," and "real assets."

Our investment mandate in our alternative investment portfolio is inherently opportunistic. Each investment is examined and analyzed on its own merits to gain a full understanding of the risks present, and with a view toward determining likely return scenarios, including the ability to withstand stress in a downturn. We have a strong preference for alternative investments that have some or all of the following characteristics, among others: (1) investments that constitute a direct investment or an investment in a fund with a high degree of co-investment; (2) investments with credit- or debt-like characteristics (for example, a stipulated maturity and par value), or alternatively, investments with reduced volatility when compared to pure equity; or (3) investments that have less downside risk.

Item 7A. Quantitative and Qualitative Disclosures About Market Risks

Alternative investments are monitored in real-time across the variety of markets that they span. The alternative investment portfolio is monitored to ensure diversification across asset classes and strategy, and the portfolio's performance under stress scenarios is evaluated routinely as part of management and board of director reviews. Since alternative investments are marked-to-market on our balance sheet, risk analyses focus on potential changes in market value across a variety of market stresses. In cases where investment performance has not met expectations, or where the balance of risk and reward has shifted against us, we will seek to exit the investment as quickly as possible, and minimize our downside exposure in doing so.

Currency Risk

We manage our currency risk so as to maintain minimal exposure to currency fluctuations. We attempt to hedge completely the currency risk arising in our investment portfolio or FIA products. In general, we match currency exposure of assets and liabilities. When the currency denominations of the assets and liabilities do not match, we generally undertake hedging activities to eliminate or mitigate currency mismatch risk.

Scenario Analysis

We evaluate our exposure to market risk through internally defined modeling of our portfolio performance during times of economic stress. We manage our business, capital and liquidity needs to withstand stress scenarios and target capital we believe will maintain our current ratings in a moderate recession scenario and will allow us to continue to be rated investment grade under a substantially severe financial crisis akin to the Lehman scenario in 2008. In the recession scenario, we calibrate recessionary shocks to several key risk factors (including but not limited to, S&P 500, BBB corporate spreads, high yield corporate spreads and 2 year and 10 year U.S. Treasury yields) using data from the 1991, 2001, and 2008 recessions, and estimate mark to market impacts to the various sectors in our portfolio using regression analysis of their credit spreads to the key risk factors. To estimate OTTI impacts, we use historical default, stressed recovery, and ratings migration rates from the aforementioned recessionary periods. In the Lehman scenario, we use credit spread and interest rate movements between September 12, 2008 and December 15, 2008 to estimate mark to market changes, and we use one-year default probabilities from 2008, along with stressed recovery and ratings migration rates, to estimate OTTI impacts. We review the impacts of our stress test analyses quarterly with management.

Sensitivities

Interest Rate Risk

We assess interest rate exposures for financial assets and financial liabilities using hypothetical stress tests and exposure analyses. Assuming all other factors are constant, if there was an immediate, parallel increase in interest rates of 25 basis points from levels as of December 31, 2018, we estimate a net decrease to our point-in-time pre-tax income from changes in the fair value of these financial instruments of $199 million. The net change in fair value for these financial instruments would directly impact the current period gross profits and assessments used in the calculations of DAC, DSI, and VOBA amortization and changes to rider reserves, resulting in an additional decrease to our pre-tax income of $23 million. If there were a similar parallel increase in interest rates from levels as of December 31, 2017, we estimate a net increase to our point-in-time pre-tax income from changes in the fair value of these financial instruments of $63 million with an offsetting decrease to pre-tax income of $46 million from DAC, DSI, and VOBA amortization and changes in rider reserves. The decrease in the estimated outcome of the sensitivity analysis as of December 31, 2018 when compared to that as of December 31, 2017 was driven by the Voya and Lincoln reinsurance transactions, which substantially increased our exposure to funds withheld and modco reinsurance embedded derivatives that are included in our pre-tax income. The financial instruments included in the sensitivity analysis are carried at fair value and changes in fair value are recognized in earnings. These financial instruments include derivative instruments, embedded derivatives and certain fixed maturity securities. The sensitivity analysis excludes those financial instruments carried at fair value that recognize changes in fair value in equity, such as AFS fixed maturity securities.

Assuming a 25 basis point increase in interest rates that persists for a 12-month period, the estimated impact to adjusted operating income would be an increase of approximately $25 – $30 million. This is driven by an increase in investment income from floating rate assets, offset by DAC, DSI and VOBA amortization and rider reserve change, all calculated without regard to future changes to assumptions. We are unable to make forward-looking estimates regarding the impact on net income of changes in interest rates that persist for a period of time as a result of an inability to determine how such changes will affect certain of the items that we characterize as "non-operating adjustments" in our reconciliation between net income and adjusted operating income. See *Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations–Results of Operations by Segment* for the reconciliation of net income to adjusted operating income for certain historical periods. The impact of changing rates on these non-operating adjustments is likely to be significant. See above for a discussion regarding the estimated impact on net income of an immediate, parallel increase in interest rates of 25 basis points from levels as of December 31, 2018, which discussion encompasses the impact of such an increase on certain of the non-operating adjustment items.

Item 7A. Quantitative and Qualitative Disclosures About Market Risks

The models used to estimate the impact of a 25 basis point change in market interest rates incorporate numerous assumptions, require significant estimates and assume an immediate change in interest rates without any discretionary management action to counteract such a change. Consequently, potential changes in our valuations indicated by these simulations will likely be different from the actual changes experienced under any given interest rate scenarios and these differences may be material. Because we actively manage our assets and liabilities, the net exposure to interest rates can vary over time. However, any such decreases in the fair value of fixed maturity securities, unless related to credit concerns of the issuer requiring recognition of an OTTI, would generally be realized only if we were required to sell such securities at losses to meet liquidity needs.

Public Equity Risk

We assess public equity market risk for financial assets and financial liabilities using hypothetical stress tests and exposure analyses. Assuming all other factors are constant, if there were a decline in public equity market prices of 10% as of December 31, 2018, we estimate a net decrease to our pre-tax income from changes in the fair value of these financial instruments of $214 million. The net change in fair value for these financial instruments would directly impact the current period gross profits and assessments used in the calculations of DAC, DSI, and VOBA amortization and changes to rider reserves, resulting in an offsetting increase to our pre-tax income of $74 million. As of December 31, 2017, we estimate that a decline in public equity market prices of 10% would cause a net decrease to our pre-tax income from changes in the fair value of these financial instruments of $298 million with an offsetting increase to our pre-tax income of $111 million from DAC, DSI, and VOBA amortization and changes in rider reserves. The decrease in the estimated outcome of the sensitivity analysis as of December 31, 2018 when compared to that as of December 31, 2017 is driven by equity market declines during 2018 which has resulted in less equity exposure to further public equity market price declines. The financial instruments included in the sensitivity analysis are carried at fair value and changes in fair value are recognized in earnings. These financial instruments include public equity investments, derivative instruments and the FIA embedded derivative.

Item 8. Financial Statements and Supplementary Data

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholders
of Athene Holding Ltd.:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Athene Holding Ltd. and its subsidiaries (the "Company") as of December 31, 2018 and 2017, and the related consolidated statements of income, comprehensive income (loss), equity, and cash flows for each of the three years in the period ended December 31, 2018, including the related notes and financial statement schedules listed in the index appearing under Item 15(2) (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company did not maintain, in all material respects, effective internal control over financial reporting as of December 31, 2018, based on criteria established in Internal Control - Integrated Framework (2013) issued by the COSO because a material weakness in internal control over financial reporting existed as of that date related to ineffective controls over the process to value the host contracts within fixed indexed annuity liabilities.

A material weakness is a deficiency, or a combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the annual or interim financial statements will not be prevented or detected on a timely basis. The material weakness referred to above is described in Management's Annual Report on Internal Control over Financial Reporting appearing under Item 9A. We considered this material weakness in determining the nature, timing, and extent of audit tests applied in our audit of the 2018 consolidated financial statements, and our opinion regarding the effectiveness of the Company's internal control over financial reporting does not affect our opinion on those consolidated financial statements.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in management's report referred to above. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ PricewaterhouseCoopers LLP
Des Moines, Iowa
February 27, 2019

We have served as the Company's auditor since 2015.

ATHENE HOLDING LTD.
Consolidated Balance Sheets

	December 31,	
(In millions)	2018	2017
Assets		
Investments		
Available-for-sale securities, at fair value (amortized cost: 2018 – $60,025 and 2017 – $58,502)	$ 59,265	$ 61,008
Trading securities, at fair value	1,949	2,183
Equity securities, at fair value	216	803
Mortgage loans, net of allowances (portion at fair value: 2018 – $32 and 2017 – $41)	10,340	6,233
Investment funds (portion at fair value: 2018 – $182 and 2017 – $145)	703	699
Policy loans	488	542
Funds withheld at interest (portion at fair value: 2018 – $57 and 2017 – $312)	15,023	7,085
Derivative assets	1,043	2,551
Real estate (portion held for sale: 2017 – $32)	—	624
Short-term investments, at fair value	191	201
Other investments (portion at fair value: 2018 – $52 and 2017 – $0)	122	133
Total investments	89,340	82,062
Cash and cash equivalents	2,911	4,888
Restricted cash	492	105
Investments in related parties		
Available-for-sale securities, at fair value (amortized cost: 2018 – $1,462 and 2017 – $403)	1,437	410
Trading securities, at fair value	249	307
Equity securities, at fair value	120	—
Mortgage loans	291	—
Investment funds (portion at fair value: 2018 – $201 and 2017 – $30)	2,232	1,310
Funds withheld at interest (portion at fair value: 2018 – $(110) and 2017 – $0)	13,577	—
Short-term investments, at fair value	—	52
Other investments	386	238
Accrued investment income (related party: 2018 – $25 and 2017 – $10)	682	652
Reinsurance recoverable (related party: 2018 – $344 and 2017 – $0; portion at fair value: 2018 – $1,676 and 2017 – $1,824)	5,534	5,332
Deferred acquisition costs, deferred sales inducements and value of business acquired	5,907	2,972
Other assets (related party: 2018 – $357 and 2017 – $0)	1,635	969
Assets of consolidated variable interest entities		
Investments		
Trading securities, at fair value – related party	35	48
Equity securities, at fair value – related party	50	240
Investment funds (related party: 2018 – $583 and 2017 – $571; portion at fair value: 2018 – $567 and 2017 – $549)	624	571
Cash and cash equivalents	2	4
Other assets	1	1
Total assets	$ 125,505	$ 100,161

(Continued)

See accompanying notes to consolidated financial statements

ATHENE HOLDING LTD.
Consolidated Balance Sheets

	December 31,	
(In millions, except per share data)	2018	2017
Liabilities and Equity		
Liabilities		
Interest sensitive contract liabilities (related party: 2018 – $16,850 and 2017 – $0; portion at fair value: 2018 – $8,901 and 2017 – $8,904)	$ 96,610	$ 68,099
Future policy benefits (related party: 2018 – $1,259 and 2017 – $0; portion at fair value: 2018 – $2,173 and 2017 – $2,428)	16,704	17,557
Other policy claims and benefits (related party: 2018 – $10 and 2017 – $0)	142	211
Dividends payable to policyholders	118	1,025
Long-term debt	991	—
Derivative liabilities	85	134
Payables for collateral on derivatives	969	2,323
Funds withheld liability (related party: 2018 – $337 and 2017 – $0; portion at fair value: 2018 – $(1) and 2017 – $22)	721	407
Other liabilities (related party: 2018 – $59 and 2017 – $64)	888	1,227
Liabilities of consolidated variable interest entities	1	2
Total liabilities	117,229	90,985
Commitments and Contingencies (Note 18)		
Equity		
Common stock		
Class A – par value $0.001 per share; authorized: 2018 and 2017 – 425.0 shares; issued and outstanding: 2018 – 162.4 and 2017 – 142.4 shares	—	—
Class B – par value $0.001 per share; convertible to Class A; authorized: 2018 and 2017 – 325.0 shares; issued and outstanding: 2018 – 25.4 and 2017 – 47.4 shares	—	—
Class M-1 – par value $0.001 per share; contingently convertible to Class A; authorized: 2018 and 2017 – 7.1 shares; issued and outstanding: 2018 – 3.4 and 2017 – 3.4 shares	—	—
Class M-2 – par value $0.001 per share; contingently convertible to Class A; authorized: 2018 and 2017 – 5.0 shares; issued and outstanding: 2018 – 0.8 and 2017 – 0.9 shares	—	—
Class M-3 – par value $0.001 per share; contingently convertible to Class A; authorized: 2018 and 2017 – 7.5 shares; issued and outstanding: 2018 – 1.0 and 2017 – 1.1 shares	—	—
Class M-4 – par value $0.001 per share; contingently convertible to Class A; authorized: 2018 and 2017 – 7.5 shares; issued and outstanding: 2018 – 4.1 and 2017 – 4.7 shares	—	—
Additional paid-in capital	3,462	3,472
Retained earnings	5,286	4,255
Accumulated other comprehensive income (loss) (related party: 2018 – $(25) and 2017 – $48)	(472)	1,449
Total shareholders’ equity	8,276	9,176
Total liabilities and equity	$ 125,505	$ 100,161

(Concluded)

See accompanying notes to consolidated financial statements

ATHENE HOLDING LTD.
Consolidated Statements of Income

	Years ended December 31,		
(In millions, except per share data)	2018	2017	2016
Revenues			
Premiums (related party: 2018 – $679, 2017 – $0 and 2016 – $0)	$ 3,368	$ 2,465	$ 240
Product charges (related party: 2018 – $34, 2017 – $0 and 2016 – $0)	449	340	281
Net investment income (related party investment income: 2018 – $539, 2017 – $220 and 2016 – $226; and related party investment expense: 2018 – $349, 2017 – $318 and 2016 – $295)	4,004	3,269	2,914
Investment related gains (losses) (related party: 2018 – $(77), 2017 – $(16) and 2016 – $(38))	(1,324)	2,572	652
Other-than-temporary impairment investment losses			
Other-than-temporary impairment losses	(24)	(29)	(32)
Other-than-temporary impairment losses reclassified to (from) other comprehensive income	6	(4)	2
Net other-than-temporary impairment losses	(18)	(33)	(30)
Other revenues	26	37	34
Revenues of consolidated variable interest entities			
Net investment income (related party: 2018 – $55, 2017 – $42 and 2016 – $44)	56	42	67
Investment related gains (losses) (related party: 2018 – $(21), 2017 – $35 and 2016 – $(25))	(18)	35	(53)
Total revenues	6,543	8,727	4,105
Benefits and expenses			
Interest sensitive contract benefits (related party: 2018 – $63, 2017 – $0 and 2016 – $0)	290	2,866	1,343
Amortization of deferred sales inducements	54	63	39
Future policy and other policy benefits (related party: 2018 – $707, 2017 – $0 and 2016 – $0)	4,187	3,200	1,030
Amortization of deferred acquisition costs and value of business acquired	174	344	304
Dividends to policyholders	37	118	37
Policy and other operating expenses (related party: 2018 – $42, 2017 – $13 and 2016 – $22)	625	672	627
Operating expenses of consolidated variable interest entities	1	—	13
Total benefits and expenses	5,368	7,263	3,393
Income before income taxes	1,175	1,464	712
Income tax expense (benefit)	122	106	(61)
Net income	$ 1,053	$ 1,358	$ 773
Earnings per share			
Basic – Classes A, B, M-1, M-2, M-3 and M-4[1]	$ 5.34	$ 6.95	$ 4.14
Diluted – Class A	5.32	6.91	4.04
Diluted – Class B	5.34	6.95	4.14
Diluted – Class M-1	5.34	6.95	0.20
Diluted – Class M-2[1]	5.31	5.05	*N/A*
Diluted – Class M-3[1]	5.31	3.86	*N/A*
Diluted – Class M-4[1]	4.11	3.10	*N/A*

N/A – Not applicable

[1] *Basic and diluted earnings per share for Class M-2, M-3 and M-4 were applicable only for the years ended December 31, 2018 and 2017. See Note 13 – Earnings Per Share for further discussion.*

See accompanying notes to consolidated financial statements

ATHENE HOLDING LTD.
Consolidated Statements of Comprehensive Income (Loss)

	Years ended December 31,		
(In millions)	2018	2017	2016
Net income	$ 1,053	$ 1,358	$ 773
Other comprehensive income (loss), before tax			
Unrealized investment gains (losses) on available-for-sale securities	(2,442)	1,312	882
Noncredit component of other-than-temporary impairment losses on available-for-sale securities	(6)	4	(2)
Unrealized gains (losses) on hedging instruments	146	(105)	(5)
Pension adjustments	3	(1)	—
Foreign currency translation adjustments	(11)	20	(8)
Other comprehensive income (loss), before tax	(2,310)	1,230	867
Income tax expense (benefit) related to other comprehensive income	(431)	334	260
Other comprehensive income (loss)	(1,879)	896	607
Comprehensive income (loss)	$ (826)	$ 2,254	$ 1,380

See accompanying notes to consolidated financial statements

ATHENE HOLDING LTD.
Consolidated Statements of Equity

(In millions)	Common stock	Additional paid-in capital	Retained earnings	Accumulated other comprehensive income (loss)	Total Athene Holding Ltd. shareholders' equity	Noncontrolling interest	Total equity
Balance at December 31, 2015	$ —	$ 3,281	$ 2,327	$ (241)	$ 5,367	$ 1	$ 5,368
Net income	—	—	773	—	773	—	773
Other comprehensive income	—	—	—	607	607	—	607
Issuance of shares, net of expenses	—	1	—	—	1	—	1
Stock-based compensation	—	153	—	—	153	—	153
Retirement or repurchase of shares	—	(14)	(6)	—	(20)	—	(20)
Balance at December 31, 2016	—	3,421	3,094	366	6,881	1	6,882
Net income	—	—	1,358	—	1,358	—	1,358
Other comprehensive income	—	—	—	896	896	—	896
Issuance of shares, net of expenses	—	1	—	—	1	—	1
Stock-based compensation	—	50	—	—	50	—	50
Retirement or repurchase of shares	—	—	(10)	—	(10)	—	(10)
Adoption of accounting standard	—	—	(187)	187	—	—	—
Other changes in equity of noncontrolling interests	—	—	—	—	—	(1)	(1)
Balance at December 31, 2017	—	3,472	4,255	1,449	9,176	—	9,176
Adoption of accounting standards	—	—	39	(42)	(3)	—	(3)
Net income	—	—	1,053	—	1,053	—	1,053
Other comprehensive loss	—	—	—	(1,879)	(1,879)	—	(1,879)
Issuance of shares, net of expenses	—	2	—	—	2	—	2
Stock-based compensation	—	32	—	—	32	—	32
Retirement or repurchase of shares	—	(44)	(61)	—	(105)	—	(105)
Balance at December 31, 2018	$ —	$ 3,462	$ 5,286	$ (472)	$ 8,276	$ —	$ 8,276

See accompanying notes to consolidated financial statements

ATHENE HOLDING LTD.
Consolidated Statements of Cash Flows

	Years ended December 31,		
(In millions)	2018	2017	2016
Cash flows from operating activities			
Net income	$ 1,053	$ 1,358	$ 773
Adjustments to reconcile net income to net cash provided by operating activities:			
Amortization of deferred acquisition costs and value of business acquired	174	344	304
Amortization of deferred sales inducements	54	63	39
Accretion of net investment premiums, discounts and other	(178)	(192)	(172)
Payment at inception of reinsurance agreements, net (related party: 2018 – $(407))	(394)	—	—
Stock-based compensation	26	45	84
Net investment (income) loss (related party: 2018 – $(103), 2017 – $(63) and 2016 – $(51))	(84)	(53)	(25)
Net recognized (gains) losses on investments and derivatives (related party: 2018 – $(8), 2017 – $8 and 2016 – $34)	1,095	(2,180)	(342)
Policy acquisition costs deferred	(919)	(493)	(601)
Changes in operating assets and liabilities:			
Accrued investment income (related party: 2018 – $(15), 2017 – $0 and 2016 – $0)	(66)	(91)	(34)
Interest sensitive contract liabilities (related party: 2018 – $30, 2017 – $0 and 2016 – $0)	(365)	2,564	956
Future policy benefits, other policy claims and benefits, dividends payable to policyholders and reinsurance recoverable (related party: 2018 – $109, 2017 – $0 and 2016 – $0)	2,457	2,019	331
Funds withheld assets and liabilities (related party: 2018 – $113, 2017 – $0 and 2016 – $0)	270	(419)	(128)
Other assets and liabilities	(266)	238	(42)
Consolidated variable interest entities related:			
Net recognized (gains) losses on investments and derivatives (related party: 2018 – $20, 2017 – $(36) and 2016 – $3)	17	(36)	25
Other operating activities, net	—	3	31
Net cash provided by operating activities	2,874	3,170	1,199

(Continued)

See accompanying notes to consolidated financial statements

ATHENE HOLDING LTD.
Consolidated Statements of Cash Flows

	Years ended December 31,		
(In millions)	2018	2017	2016
Cash flows from investing activities			
Sales, maturities and repayments of:			
Available-for-sale securities (related party: 2018 – $181, 2017 – $131 and 2016 – $78)	$ 12,121	$ 12,634	$ 9,211
Trading securities (related party: 2018 – $30, 2017 – $55 and 2016 – $26)	348	156	356
Equity securities (related party: 2018 – $29, 2017 – $22 and 2016 – $0)	132	985	742
Mortgage loans (related party: 2018 – $13, 2017 – $0 and 2016 – $0)	1,373	1,669	1,176
Investment funds (related party: 2018 – $305, 2017 – $349 and 2016 – $293)	481	496	420
Derivative instruments and other invested assets (related party: 2018 – $2, 2017 – $0 and 2016 – $0)	1,859	1,503	468
Real estate	—	4	36
Short-term investments (related party: 2018 – $172, 2017 – $65 and 2016 – $55)	538	351	870
Purchases of:			
Available-for-sale securities (related party: 2018 – $(811), 2017 – $(186) and 2016 – $(86))	(15,435)	(18,883)	(11,797)
Trading securities (related party: 2018 – $(4), 2017 – $0 and 2016 – $(39))	(54)	(89)	(473)
Equity securities (related party: 2018 – $(149), 2017 – $0 and 2016 – $(20))	(334)	(847)	(714)
Mortgage loans (related party: 2018 – $(389), 2017 – $0 and 2016 – $0)	(5,745)	(2,428)	(1,157)
Investment funds (related party: 2018 – $(1,140), 2017 – $(509) and 2016 – $(441))	(1,375)	(660)	(535)
Derivative instruments and other invested assets (related party: 2018 – $(150), 2017 – $0 and 2016 – $0)	(1,348)	(738)	(686)
Real estate	—	(76)	(39)
Short-term investments (related party: 2018 – $(121), 2017 – $(117) and 2016 – $0)	(478)	(421)	(873)
Consolidated variable interest entities related:			
Sales, maturities and repayments of investments (related party: 2018 – $203, 2017 – $85 and 2016 – $22)	217	95	504
Purchases of investments (related party: 2018 – $(31), 2017 – $(23) and 2016 – $(19))	(83)	(23)	(19)
Deconsolidation of Athora Holding Ltd.	(296)	—	—
Cash settlement of derivatives	18	(4)	34
Other investing activities, net	(112)	507	(185)
Net cash used in investing activities	(8,173)	(5,769)	(2,661)

(Continued)

See accompanying notes to consolidated financial statements

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ATHENE HOLDING LTD.
Consolidated Statements of Cash Flows

(In millions)	Years ended December 31, 2018	2017	2016
Cash flows from financing activities			
Capital contributions	$ 2	$ 1	$ 1
Proceeds from short-term debt	183	—	—
Repayment of short-term debt	(183)	—	—
Proceeds from long-term debt	998	—	—
Deposits on investment-type policies and contracts (related party: 2018 – $151, 2017 – $0 and 2016 – $0)	10,262	9,056	5,791
Withdrawals on investment-type policies and contracts (related party: 2018 – $(252), 2017 – $0 and 2016 – $0)	(6,205)	(4,843)	(4,617)
Payments for coinsurance agreements on investment-type contracts, net	(2)	(33)	(89)
Consolidated variable interest entities related:			
Repayment on borrowings	—	—	(500)
Net change in cash collateral posted for derivative transactions	(1,354)	940	516
Repurchase of common stock	(105)	(10)	(20)
Other financing activities, net	111	(63)	73
Net cash provided by financing activities	3,707	5,048	1,155
Effect of exchange rate changes on cash and cash equivalents	—	32	(13)
Net (decrease) increase in cash and cash equivalents	(1,592)	2,481	(320)
Cash and cash equivalents at beginning of year[1]	4,997	2,516	2,836
Cash and cash equivalents at end of year[1]	$ 3,405	$ 4,997	$ 2,516
Supplementary information			
Cash paid (refunded) for taxes	$ 52	$ (64)	$ (31)
Cash paid for interest	26	—	9
Non-cash transactions			
Deposits on investment-type policies and contracts through reinsurance agreements (related party: 2018 – $17,619, 2017 – $0 and 2016 – $0)	26,532	663	3,441
Withdrawals on investment-type policies and contracts through reinsurance agreements (related party: 2018 – $1,050, 2017 – $0 and 2016 – $0)	1,843	482	448
Investments received from settlements on reinsurance agreements	52	73	47
Investments received from pension risk transfer premiums	435	334	—
Investments exchanged for related party investments	95	26	—
Related party investments exchanged for investments	115	—	—
Investment in Athora Holding Ltd. received upon deconsolidation	108	—	—
Ceding commission on reinsurance agreements settled in investments	266	—	—

[1] *Includes cash and cash equivalents, restricted cash, and cash and cash equivalents of consolidated variable interest entities.*

(Concluded)

See accompanying notes to consolidated financial statements

1. Business, Basis of Presentation and Significant Accounting Policies

Athene Holding Ltd. (AHL), a Bermuda exempted company, together with its subsidiaries (collectively, Athene, we, our, us, or the Company), is a leading retirement services company that issues, reinsures and acquires retirement savings products in all U.S. states and the District of Columbia.

We conduct business primarily through the following consolidated subsidiaries:

- Our non-U.S. reinsurance subsidiaries, to which AHL's other insurance subsidiaries and third party ceding companies directly and indirectly reinsure a portion of their liabilities, including Athene Life Re Ltd. (ALRe), a Bermuda exempted company; and
- Athene USA Corporation, an Iowa corporation (together with its subsidiaries, Athene USA).

Consolidation and Basis of Presentation—Our consolidated financial statements include our wholly owned subsidiaries, investees we control and any variable interest entities (VIEs) where we are the primary beneficiary. Investments in entities that we do not control, but have the ability to exercise significant influence over operating and financing decisions, other than investments for which we have elected the fair value option, are accounted for under the equity method. Intercompany balances and transactions have been eliminated.

For entities that are consolidated, but not 100% owned, we allocate a portion of the income or loss and corresponding equity to the owners other than the Company. We include the aggregate of the income or loss and corresponding equity that is not owned by the Company in noncontrolling interests in the consolidated financial statements.

We report investments in related parties and assets and liabilities of consolidated VIEs separately, as further described in the accounting policies that follow.

We have prepared the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America (GAAP), which requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the period. Actual experience could materially differ from these estimates and assumptions. Our principal estimates impact:

- fair value of investments;
- impairment of investments and valuation allowances;
- derivatives valuation, including embedded derivatives;
- deferred acquisition costs (DAC), deferred sales inducements (DSI) and value of business acquired (VOBA);
- future policy benefit reserves;
- valuation allowances on deferred tax assets; and
- stock-based compensation.

Additional details around these principal estimates and assumptions are discussed in the significant accounting policies that follow and the related footnote disclosures.

Deconsolidation – AGER Bermuda Holding Ltd. and its subsidiaries, now known as Athora Holding Ltd. (Athora), was our consolidated subsidiary for the years ended December 31, 2017 and 2016. In April 2017, Athora entered into subscription agreements pursuant to which Athora secured commitments to purchase new common shares in Athora (Athora Offering). On January 1, 2018, the Athora Offering closed and Athora called capital from all of its investors, excluding us. In connection with the closing of the Athora Offering, our equity interest in Athora was exchanged for new common shares of Athora and our interest in Athora was reduced such that immediately after the closing of the Athora Offering, we held 10% of the aggregate voting power of and less than 50% of the economic interest in Athora. Our interest in Athora has since been held as a related party investment rather than a consolidated subsidiary. We did not recognize a material amount in the consolidated statements of income upon deconsolidation in 2018.

Summary of Significant Accounting Policies

Investments

Fixed Maturity Securities – Fixed maturity securities includes bonds, collateralized loan obligations (CLO), asset-backed securities (ABS), residential mortgage-backed securities (RMBS), commercial mortgage-backed securities (CMBS) and redeemable preferred stock. We classify fixed maturity securities as available-for-sale (AFS) or trading at the time of purchase and subsequently carry them at fair value. Fair value hierarchy and valuation methodologies are discussed in *Note 6 – Fair Value*. Classification is dependent on a variety of factors including our expected holding period, election of the fair value option and asset and liability matching.

AFS Securities – Unrealized gains and losses on AFS securities, net of tax and adjustments to DAC, DSI, VOBA and future policy benefits, if applicable, are generally reflected in accumulated other comprehensive income (loss) (AOCI) on the consolidated balance sheets. Unrealized gains or losses relating to identified risks within AFS securities in fair value hedging relationships are reflected in investment related gains (losses) on the consolidated statements of income.

Trading Securities – We elected the fair value option for certain fixed maturity securities. These fixed maturity securities are classified as trading, with changes to fair value included in investment related gains (losses) on the consolidated statements of income. Although the securities are classified as trading, the trading activity related to these investments is primarily focused on asset and liability matching activities and is not intended to be an income strategy based on active trading. As such, the activity related to these investments on the consolidated statements of cash flows is classified as investing activities. Trading securities includes mutual funds supporting unit-linked investment contracts.

We generally record security transactions on a trade date basis, with any unsettled trades recorded in other assets or other liabilities on the consolidated balance sheets.

Equity Securities – Equity securities includes common stock, mutual funds and non-redeemable preferred stock. Equity securities are carried at fair value with subsequent changes in fair value recognized in net income effective January 1, 2018. Prior to January 1, 2018, the accounting for subsequent changes in the fair value of an equity security was dependent on its classification as AFS or trading as discussed previously.

Purchased Credit Impaired (PCI) Investments – We purchase certain structured securities, primarily RMBS, and re-performing mortgage loans having experienced deterioration in credit quality since their issuance which meet the definition of PCI investments. We determined, based on our expectations as to the timing and amount of cash flows expected to be received, that it was probable at acquisition that we would not collect all contractually required payments, including both principal and interest, while also considering the effects of any prepayments for these PCI investments. Based on these assumptions, the difference between the undiscounted expected future cash flows of the PCI investment and the recorded investment represents the initial accretable yield, which is accreted into investment income, net of related expenses, over its remaining life on a level-yield basis. The difference between the contractually required payments on the PCI investment and the undiscounted expected future cash flows represents the non-accretable difference at acquisition. Over time, based on actual payments received and changes in estimates of undiscounted expected future cash flows, the accretable yield and the non-accretable difference can change. PCI investments are presented on the consolidated financial statements consistent with AFS securities or mortgage loans depending on the underlying investment.

Quarterly, we evaluate the undiscounted expected future cash flows associated with PCI investments based on updates to key assumptions. Changes to undiscounted expected future cash flows due solely to the changes in the contractual benchmark interest rates on variable rate PCI investments will change the accretable yield prospectively. Declines in undiscounted expected future cash flows due to further credit deterioration, as well as changes in the expected timing of the cash flows, can result in the recognition of an other-than-temporary impairment (OTTI) charge for PCI securities or a valuation allowance for PCI loans. Significant increases in undiscounted expected future cash flows are recognized prospectively as an adjustment to the accretable yield.

Mortgage Loans – Mortgage loans are primarily stated at unpaid principal balance, adjusted for any unamortized premium or discount, and net of valuation allowances. Interest income is accrued on the principal amount of the loan based on its contractual interest rate. We record amortization of premiums and discounts using the effective yield method and contractual cash flows on the underlying loan. We accrue interest on loans until it is probable we will not receive interest or the loan is 90 days past due. Interest income, amortization of premiums and discounts, and prepayment fees are reported in net investment income on the consolidated statements of income. We have also elected the fair value option on a portion of our mortgage loans.

Investment Funds – We invest in certain non-fixed income, alternative investments in the form of limited partnerships or similar legal structures (investment funds). For investment funds in which we have determined we are not the primary beneficiary, and therefore not required to consolidate, we typically record these investments using the equity method of accounting, where the cost is recorded as an investment in the fund, or we have elected the fair value option. Adjustments to the carrying amount reflect our pro rata ownership percentage of the operating results as indicated by net asset value (NAV) in the investment fund financial statements, which can be on a lag of up to three months when investee information is not received in a timely manner.

We record our proportionate share of investment fund income within net investment income on the consolidated statements of income. Contributions paid or distributions received by us are recorded directly to the investment fund balance as an increase to carrying value or as a return of capital, thus reducing our carrying value.

Policy Loans – Policy loans are funds provided to policyholders in return for a claim on the policy's account value. The funds provided are limited to a specified percentage of the account balance. The majority of policy loans do not have a stated maturity and the balances and accrued interest are repaid with proceeds from the policy account balance. Policy loans are reported at the unpaid principal balance. Interest income is recorded as earned using the contract interest rate and is reported in net investment income on the consolidated statements of income.

Funds Withheld at Interest – Funds withheld at interest represents a receivable for amounts contractually withheld by ceding companies in accordance with funds withheld coinsurance (funds withheld) and modified coinsurance (modco) reinsurance agreements in which we act as reinsurer. Generally, assets equal to statutory reserves are withheld and legally owned by the ceding company, and any excess or shortfall is settled periodically. The underlying agreements contain embedded derivatives as discussed below.

Real Estate – Real estate investments are stated at cost less accumulated depreciation. Depreciation is recorded on a straight-line basis over the estimated useful life of the asset, which is typically 40 years, and is included in net investment income on the consolidated statements of income. We periodically review our real estate investments for impairment and test for recoverability when events or changes in circumstances indicate the carrying value may not be recoverable and exceeds its estimated fair value. We recognize an impairment to fair value if the carrying amount of a property exceeds the expected undiscounted cash flows.

Real estate investments for which we have committed to a plan to sell within one year and are actively marketing are classified as held for sale. Real estate held for sale is stated at the lower of depreciated cost as of the date we committed to a plan to sell or estimated fair value less expected disposition costs.

Short-term Investments – Short-term investments consists of financial instruments with maturities of greater than three months but less than twelve months when purchased. Short-term debt securities are accounted for as trading or AFS consistent with our policies for those investments. Short-term loans are carried at amortized cost. Fair values are determined consistent with methodologies described in *Note 6 – Fair Value* for the respective investment type.

Investment Income – We recognize investment income as it accrues or is legally due, net of investment management and custody fees. Investment income on fixed maturity securities includes coupon interest, as well as the amortization of any premium and the accretion of any discount. Investment income on equity securities represents dividend income and preferred coupons interest. Realized gains and losses on sales of investments are included in investment related gains (losses) on the consolidated statements of income. Realized gains and losses on investments sold are determined based on a first-in first-out method.

Other-Than-Temporary Impairment – We identify securities that could potentially have impairments that are other-than-temporary by monitoring market events for changes in market interest rates, credit issues, changes in business climate, management changes, litigation, government actions and other similar factors. Indicators of impairment may include changes in the issuers' credit ratings and outlook, frequency of late payments, pricing levels, key financial ratios, financial statements, revenue forecasts and cash flow projections.

We review securities on a case-by-case basis to determine whether an other-than-temporary decline in value exists and whether losses should be recognized. We consider relevant facts and circumstances in evaluating whether a credit or interest rate-related impairment of a security is other-than-temporary. Relevant facts and circumstances include: (1) the extent and length of time the fair value has been below cost; (2) the reasons for the decline in fair value; (3) the issuer's financial position and access to capital; and (4) for fixed maturity securities, our intent to sell a security or whether it is more likely than not that we will be required to sell the security before the recovery of its cost or amortized cost which, in some cases, may extend to maturity and for equity securities prior to January 1, 2018, our ability and intent to hold the security for a period of time that allows for the recovery in value. To the extent we determine that a security is other-than-temporarily impaired, an impairment loss is recognized.

The recognition of impairment losses on fixed maturity securities is dependent upon the facts and circumstances related to the specific security. If we intend to sell a security or it is more likely than not that we would be required to sell a security before the recovery of its cost or amortized cost, less any recorded credit loss, we recognize a loss in other-than-temporary impairment losses on the consolidated statements of income for the difference between cost or amortized cost and fair value. If neither of these two conditions exists, then the recognition of the loss is bifurcated and we recognize the credit loss portion in other-than-temporary impairment losses on the consolidated statements of income and the non-credit loss portion in AOCI on the consolidated balance sheets. Impairment losses on equity securities were recognized in investment related gains (losses) on the consolidated statements of income prior to January 1, 2018. Effective January 1, 2018, equity securities are no longer evaluated for impairment as all changes in fair value are recognized in net income.

We estimate the amount of the credit loss component of a fixed maturity security impairment as the difference between amortized cost and the present value of the expected cash flows of the security. The present value is determined using the estimated cash flows discounted at the effective interest rate implicit to the security at the date of purchase or the current yield to accrete an asset-backed or floating rate security. The techniques and assumptions for establishing the estimated cash flows vary depending on the type of security. A structured security's cash flow estimates are based on security-specific facts and circumstances that may include collateral characteristics, expectations of delinquency and default rates, loss severity, prepayments and structural support, including subordination and guarantees. A non-structured security's cash flow estimates are derived from scenario-based outcomes of expected corporate restructurings or the disposition of assets using security-specific facts and circumstances including timing, security interests and loss severity.

In periods after an OTTI is recognized on a fixed maturity security, we report the impaired security as if it had been purchased on the date it was impaired and continue to estimate the present value of the estimated cash flows of the security. Accordingly, the discount (or reduced premium) based on the new cost basis is accreted into net investment income over the remaining term of the fixed maturity security in a prospective manner based on the amount and timing of estimated future cash flows.

We impair a mortgage loan when it is probable we will not collect all amounts due under the agreement. We establish a general valuation allowance on mortgage loans based on loss history. Additionally, we establish a valuation allowance on individual loans based on expected losses from future dispositions or settlement, including foreclosures. We calculate the allowance based on how much the carrying value exceeds one of these values:

- the present value of expected future cash flows discounted at the loan's original effective interest rate;
- the value of the loan's collateral if it is in the process of foreclosure or otherwise collateral dependent; or
- the loan's fair value if the loan is being sold.

We first apply any interest accrued or received on the net carrying amount of the impaired loan to the principal of the loan, and once the principal is repaid, we include amounts received in net investment income. We limit accrued interest income on impaired loans to 90 days of interest. Once accrued interest on the impaired loan is received, we recognize interest income on a cash basis. Loans deemed uncollectible or in foreclosure are charged off against the valuation allowances, and subsequent recoveries, if any, are credited to the valuation allowances. Changes in valuation allowances are reported in investment related gains (losses) on the consolidated statements of income.

The cost of other invested assets is adjusted for impairments in value deemed to be other-than-temporary in the period in which the determination is made. These impairments are included within other-than-temporary impairment losses on the consolidated statements of income, and the cost basis of the investment securities is reduced accordingly. We do not change the revised cost basis for subsequent recoveries in value.

Derivative Instruments—We invest in derivatives to hedge the risks experienced in our ongoing operations, such as equity, interest rate and cash flow risks, or for other risk management purposes, which primarily involve managing liability risks associated with our indexed annuity products and reinsurance agreements. Derivatives are financial instruments whose values are derived from interest rates, foreign exchange rates, financial indices or other underlying notional amounts. Derivative assets and liabilities are carried at fair value on the consolidated balance sheets. We elect to present any derivatives subject to master netting provisions as a gross asset or liability and gross of collateral. Disclosures regarding balance sheet presentation of derivatives subject to master netting agreements are discussed in *Note 4 – Derivative Instruments*. We may designate derivatives as cash flow or fair value hedges.

Hedge Documentation and Hedge Effectiveness – To qualify for hedge accounting, at the inception of the hedging relationship, we formally document our designation of the hedge as a cash flow or fair value hedge and our risk management objective and strategy for undertaking the hedging transaction. In this documentation, we identify how the hedging instrument is expected to hedge the designated risks related to the hedged item, the method that will be used to retrospectively and prospectively assess the hedging instrument's effectiveness and the method which will be used to measure ineffectiveness. A derivative designated as a hedging instrument must be assessed as being highly effective in offsetting the designated risk of the hedged item. Hedge effectiveness is formally assessed at inception and periodically throughout the life of the designated hedging relationship.

For a cash flow hedge, all changes in the fair value of the hedging derivative are reported within AOCI beginning January 1, 2018, and the related gains or losses on the derivative are reclassified into the consolidated statements of income when the cash flows of the hedged item affect earnings. Prior to January 1, 2018, any portion deemed to be ineffective was reported in investment related gains (losses) on the consolidated statements of income each reporting period as effectiveness was assessed.

For a fair value hedge, changes in the fair value of the hedging derivative and changes in the fair value of the hedged item related to the designated risk being hedged, are reported on the consolidated statements of income according to the nature of the risk being hedged. Additionally, changes in the fair value of amounts excluded from the assessment of effectiveness are recorded in earnings.

We discontinue hedge accounting prospectively when: (1) we determine the derivative is no longer highly effective in offsetting changes in the estimated cash flows or fair value of a hedged item; (2) the derivative expires, is sold, terminated, or exercised; or (3) the derivative is de-designated as a hedging instrument. When hedge accounting is discontinued, the derivative continues to be carried on the consolidated balance sheets at fair value, with changes in fair value recognized in investment related gains (losses) on the consolidated statements of income.

For a derivative not designated as a hedge, changes in the derivative's fair value and any income received or paid on derivatives at the settlement date are included in investment related gains (losses) on the consolidated statements of income.

Embedded Derivatives **–** We issue and reinsure products, primarily fixed indexed annuity products, or purchase investments that contain embedded derivatives. If we determine the embedded derivative has economic characteristics not clearly and closely related to the economic characteristics of the host contract, and a separate instrument with the same terms would qualify as a derivative instrument, the embedded derivative is bifurcated from the host contract and accounted for separately, unless the fair value option is elected on the host contract. Under the fair value option, bifurcation of the embedded derivative is not necessary as the entire contract is carried at fair value with all related gains and losses recognized in investment related gains (losses) on the consolidated statements of income. Embedded derivatives are carried on the consolidated balance sheets at fair value in the same line item as the host contract.

Fixed indexed annuity and indexed universal life insurance contracts allow the policyholder to elect a fixed interest rate return or an equity market component for which interest credited is based on the performance of certain stock market indices. The equity market option is an embedded derivative, similar to a call option. The benefit reserve is equal to the sum of the fair value of the embedded derivative and the host (or guaranteed) component of the contracts. The fair value of the embedded derivatives is computed as the present value of benefits attributable to the excess of the projected policy contract values over the projected minimum guaranteed contract values. The projections of policy contract values are based on assumptions for future policy growth, which include assumptions for expected index credits on the next policy anniversary date, future equity option costs, volatility, interest rates and policyholder behavior. The projections of minimum guaranteed contract values include the same assumptions for policyholder behavior as were used to project policy contract values. The embedded derivative cash flows are discounted using a rate that reflects our own credit rating. The host contract is established at contract inception as the initial account value less the initial fair value of the embedded derivative and accreted over the policy's life. The host contract accretion rate is updated each quarter so that the present value of actual and expected guaranteed cash flows is equal to the initial host value. Changes in the fair value of embedded derivatives associated with fixed indexed annuities and indexed universal life insurance contracts are included in interest sensitive contract benefits on the consolidated statements of income.

Additionally, reinsurance agreements written on a funds withheld or modco basis contain embedded derivatives. The right to receive or obligation to pay the total return on the assets supporting the funds withheld at interest or funds withheld liability, respectively, represents a total return swap with a floating rate leg. The fair value of embedded derivatives on funds withheld and modco agreements is computed as the unrealized gain (loss) on the underlying assets and is included in the funds withheld at interest and funds withheld liability lines on the consolidated balance sheets for assumed and ceded agreements, respectively. The change in the fair value of the embedded derivatives is recorded in investment related gains (losses) on the consolidated statements of income. Assumed and ceded earnings from funds withheld at interest, funds withheld liability and changes in the fair value of embedded derivatives are reported in operating activities on the consolidated statements of cash flows. Contributions to and withdrawals from funds withheld at interest and funds withheld liability are reported in operating activities on the consolidated statements of cash flows.

Variable Interest Entities—An entity that does not have sufficient equity to finance its activities without additional financial support, or in which the equity investors, as a group, do not have the characteristics typically afforded to common shareholders is a VIE. The determination as to whether an entity qualifies as a VIE depends on the facts and circumstances surrounding each entity and may require significant judgment. Our investment funds generally qualify as VIEs and are evaluated for consolidation under the VIE model.

We are required to consolidate a VIE if we are the primary beneficiary, defined as the variable interest holder with both the power to direct the activities that most significantly impact the VIE's economic performance and rights to receive benefits or obligations to absorb losses that could be potentially significant to the VIE. We determine whether we are the primary beneficiary of an entity based on a qualitative assessment of the VIE's capital structure, contractual terms, nature of the VIE's operations and purpose and our relative exposure to the related risks of the VIE. Since affiliates of Apollo Global Management, LLC (AGM and, together with its subsidiaries, Apollo), a related party, are the decision makers in certain of the investment funds, we and a member of our related party group may together have the characteristics of the primary beneficiary of an investment fund. In this situation, we have concluded we are not under common control, as defined by GAAP, with the related party, and therefore consolidate in the circumstances when substantially all of the activities of the VIE are conducted on our behalf. We reassess the VIE and primary beneficiary determinations on an ongoing basis.

For entities that we do not consolidate but have significant influence over the entities' operations, we record our investment under the equity method of accounting. If we do not consolidate and do not have significant influence, generally on investment funds in which we own a less than a 3% interest, we elect the fair value option.

See *Note 5 – Variable Interest Entities* for discussion of our interest in entities that meet the definition of a VIE.

Business Combinations and Goodwill—Business combination transactions are accounted for under the acquisition method. Accordingly, the purchase consideration is allocated to assets and liabilities based on their estimated fair value at the acquisition date. The consideration for the net assets acquired is determined prior to the assessment of the fair value of the net assets at the acquisition date. We have identified several intangible assets acquired in business combinations including VOBA, acquired distribution channels and state licenses. We value VOBA as described below under *–Deferred Acquisition Costs, Deferred Sales Inducements and Value of Business Acquired*. We value distribution channels using the multi-period excess earnings method under the income approach and the state licenses using the market approach. Intangible assets related to distribution channels and state licenses are included in other assets on the consolidated balance sheets.

Goodwill represents the excess of purchase consideration over the acquisition date fair value of net assets acquired and is included in the other assets on the consolidated balance sheets. Goodwill is not amortized but reviewed for impairment annually or more frequently if events occur or circumstances change indicating potential impairment has occurred. If the acquisition date fair value of the net assets acquired exceeds the purchase consideration in a business combination, a bargain purchase gain is recorded on the consolidated statements of income.

Reinsurance—We assume and cede insurance and investment contracts under coinsurance, funds withheld and modco. We follow reinsurance accounting for transactions that provide indemnification against loss or liability relating to insurance risk (risk transfer). To meet risk transfer requirements, a reinsurance agreement must transfer insurance risk arising from uncertainties about both underwriting and timing risks. Cessions under reinsurance do not discharge our obligations as the primary insurer, unless the requirements of assumption reinsurance have been met. We generally have the right of offset on reinsurance contracts, but have elected to present reinsurance settlement amounts due to and from the Company on a gross basis.

Assets and liabilities assumed or ceded under coinsurance, funds withheld, or modco are presented gross on the consolidated balance sheets. For investment contracts, the change in assumed and ceded reserves are presented net in interest sensitive contract benefits on the consolidated statements of income. For insurance contracts, the change in assumed and ceded reserves and benefits are presented net in future policy and other policy benefits on the consolidated statements of income. Assumed or ceded premiums are included in premiums on the consolidated statements of income.

Accounting for reinsurance requires the use of assumptions, particularly related to the future performance of the underlying business and the potential impact of counterparty credit risks. We attempt to minimize our counterparty credit risk through the structuring of the terms of our reinsurance agreements, including the use of trusts, and we monitor credit ratings of counterparties for signs of declining credit quality. When a ceding company does not report information on a timely basis, we record accruals based on the best available information at the time, which includes the reinsurance agreement terms and historical experience. We periodically compare actual and anticipated experience to the assumptions used to establish reinsurance assets and liabilities. See *Note 7 – Reinsurance* for more information.

Funds Withheld and ModCo – For business assumed or ceded on a funds withheld or modco basis, a funds withheld segregated portfolio, comprised of invested assets and other assets is maintained by the ceding entity, which is sufficient to support the current balance of statutory reserves. The fair value of the funds withheld is recorded as a funds withheld asset or liability and any excess or shortfall in relation to statutory reserves is settled periodically.

Cash and Cash Equivalents—Cash and cash equivalents include deposits and short-term highly liquid investments with a maturity of less than 90 days from the date of acquisition. Amounts included are readily convertible to known amounts of cash and are subject to an insignificant risk of change in value.

Restricted Cash—Restricted cash primarily consists of cash and cash equivalents held in funds in trust as part of certain coinsurance agreements to secure statutory reserves and liabilities of the coinsured parties. Restricted cash is reported separately on the consolidated balance sheets, but is included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period amounts shown on the consolidated statements of cash flows.

Investments in Related Parties—Investments in related parties and associated earnings, other comprehensive income and cash flows are separately identified on the consolidated financial statements and accounted for consistently with the policies described above for each category of investment. Investments in related parties are primarily a result of investments over which Apollo can exercise significant influence.

Deferred Acquisition Costs, Deferred Sales Inducements and Value of Business Acquired

Deferred Acquisition Costs and Deferred Sales Inducements – Costs related directly to the successful acquisition of new, or renewal of, insurance or investment contracts are deferred to the extent they are recoverable from future premiums or gross profits. These costs consist of commissions and policy issuance costs, as well as sales inducements credited to policyholder account balances, and are included in deferred acquisition costs, deferred sales inducements and value of business acquired on the consolidated balance sheets. We perform periodic tests, including at issuance, to determine if the deferred costs are recoverable. If we determine that the deferred costs are not recoverable, we record a cumulative charge to the current period.

Deferred costs related to universal life-type policies and investment contracts with significant revenue streams from sources other than investment of the policyholder funds are amortized over the lives of the policies, based upon the proportion of current period gross profits to the present value of gross profits to be earned over the life of the policies. Gross profits include investment spread margins, surrender charge income, policy administration, changes in the guaranteed lifetime withdrawal benefit (GLWB) and guaranteed minimum death benefit (GMDB) reserves and realized gains and losses on investments. Current period gross profits for fixed indexed annuities also include the change in fair value of both freestanding and embedded derivatives. Estimates of the future gross profits and margins are based on assumptions using accepted actuarial methods related to policyholder behavior and mortality, yields on investments supporting the liabilities, future interest credited amounts (including indexed related credited amounts on fixed indexed annuity products), surrender and other policy changes as applicable, and the level of expenses necessary to maintain the policies over their expected lives. Each reporting period, we update estimated gross profits with actual gross profits as part of the amortization process and adjust the DAC and DSI balances due to the other comprehensive income (OCI) effects of unrealized investment gains and losses on AFS securities. We also periodically revise the key assumptions used in the amortization calculation, which results in revisions to the estimated future gross profits. The effects of changes in assumptions are recorded as unlocking in the period in which the changes are made.

Deferred costs related to investment contracts without significant revenue streams from sources other than investment of the policyholder funds are amortized using the effective interest method. The effective interest method amortizes the deferred costs by discounting the future liability cash flows at a break-even rate. The break-even rate is solved such that the present value of future liability cash flows is equal to the net liability at the inception of the contract.

Value of Business Acquired – We establish VOBA for blocks of insurance contracts acquired through the acquisition of insurance entities. We record the fair value of the liabilities assumed in two components: reserves and VOBA. Reserves are established using our best estimate assumptions consistent with the policies described below for future policy benefits and interest sensitive contract liabilities. VOBA is the difference between the fair value of the liabilities and the reserves. VOBA can be either positive or negative. Any negative VOBA is recorded to the same financial statement line on the consolidated balance sheets as the associated reserves. Positive VOBA is recorded in deferred acquisition costs, deferred sales inducements and value of business acquired on the consolidated balance sheets. We perform periodic tests to determine if the VOBA remains recoverable. If we determine that VOBA is not recoverable, we record a cumulative charge to the current period.

VOBA associated with investment contracts without significant revenue streams from sources other than investment of the policyholder funds is amortized using the effective interest method. VOBA associated with immediate annuity contracts classified as long duration contracts is amortized at a constant rate in relation to net policyholder liabilities. For universal life-type policies and investment contracts with significant revenue streams from sources other than investment of policyholder funds, VOBA is amortized in relation to the present value of estimated gross profits using methods consistent with those used to amortize DAC and DSI. Negative VOBA is amortized at a constant rate in relation to applicable net policyholder liabilities.

See *Note 8 – Deferred Acquisition Costs, Deferred Sales Inducements and Value of Business Acquired* for further discussion.

Interest Sensitive Contract Liabilities—Universal life-type policies and investment contracts include fixed indexed and traditional fixed annuities in the accumulation phase, funding agreements, universal life insurance, fixed indexed universal life insurance, unit-linked contracts and immediate annuities without significant mortality risk (which includes pension risk transfer (PRT) annuities without life contingencies). We carry liabilities for fixed annuities, universal life insurance, unit-linked contracts and funding agreements at the account balances without reduction for potential surrender or withdrawal charges, except for a block of universal life business ceded to Global Atlantic Financial Group Limited (together with its subsidiaries, Global Atlantic) which we carry at fair value. Liabilities for immediate annuities without significant mortality risk are calculated as the present value of future liability cash flows and policy maintenance expenses discounted at contractual interest rates. For a discussion regarding our indexed products, refer above to the embedded derivative discussion.

Changes in the interest sensitive contract liabilities, excluding deposits and withdrawals, are recorded in interest sensitive contract benefits or product charges on the consolidated statements of income. Interest sensitive contract liabilities are not reduced for amounts ceded under reinsurance agreements which are reported as reinsurance recoverable on the consolidated balance sheets. See the reinsurance accounting policy discussed in *–Reinsurance* above and *Note 7 – Reinsurance* for more information on reinsurance.

Future Policy Benefits—We issue contracts classified as long-duration, which includes endowments, term and whole life, accident and health, disability, and deferred and immediate annuities with life contingencies (which includes PRT annuities with life contingencies). Liabilities for non-participating long-duration contracts are established using accepted actuarial valuation methods which require the use of assumptions related to expenses, investment yields, mortality, morbidity and persistency, with a provision for adverse deviation, at the date of issue or acquisition. As of December 31, 2018, the reserve investment yield assumptions for non-participating contracts range from 3.31% to 5.44% and are specific to our expected earned rate on the asset portfolio supporting the reserves. Liabilities for participating long-duration contracts were established using accepted actuarial valuation methods, which required the use of guaranteed interest and mortality assumptions. Participating long-duration contracts resulted from our previously consolidated German subsidiaries. We base other key assumptions, such as mortality and morbidity, on industry standard data adjusted to align with actual company experience, if necessary.

For long-duration contracts, the assumptions are locked in at contract inception and only modified if we deem the reserves to be inadequate. We periodically review actual and anticipated experience compared to the assumptions used to establish policy benefits. If the net GAAP liability (gross reserves less DAC, DSI and VOBA) is less than the gross premium liability, impairment is deemed to have occurred, and the DAC, DSI and VOBA asset balances are reduced until the net GAAP liability is equal to the gross premium liability. If the DAC, DSI and VOBA asset balances are completely written off and the net GAAP liability is still less than the gross premium liability, then an additional liability is recorded to arrive at the gross premium liability.

We issue and reinsure deferred annuity contracts which contain GLWB and GMDB riders. We establish future policy benefits for GLWB and GMDB by estimating the expected value of withdrawal and death benefits in excess of the projected account balance. We recognize the excess proportionally over the accumulation period based on total actual and expected assessments. The methods we use to estimate the liabilities have assumptions about policyholder behavior, which includes lapses, withdrawals and use of benefit riders; mortality; and market conditions affecting the account balance growth.

Future policy benefits includes liabilities for no-lapse guarantees on universal life insurance and fixed indexed universal life insurance. We establish future policy benefits for no-lapse guarantees by estimating the expected value of death benefits paid after policyholder account balances have been exhausted. We recognize these benefits proportionally over the life of the contracts based on total expected assessments. The methods we use to estimate the liabilities have assumptions about policyholder behavior, mortality and market conditions affecting the account balance growth.

For the liabilities associated with GLWB and GMDB riders and no-lapse guarantees, each reporting period, we update expected excess benefits and assessments with actual excess benefits and assessments and adjust the liability balances due to the OCI effects of unrealized investment gains and losses on AFS securities. We also periodically revise the key assumptions used in the calculation of the liabilities which results in revisions to the expected excess benefits and assessments. The effects of changes in assumptions are recorded as unlocking in the period in which the changes are made.

Changes in future policy benefits other than the adjustment for the OCI effects of unrealized investment gains and losses on AFS securities, are recorded in future policy and other policy benefits on the consolidated statements of income. Future policy benefits are not reduced for amounts ceded under reinsurance agreements which are reported as reinsurance recoverable on the consolidated balance sheets. See the reinsurance accounting policy discussed in *–Reinsurance* above and *Note 7 – Reinsurance* for more information on reinsurance.

Closed Block Business—Two closed blocks of policies were established in connection with the reorganization of two predecessor subsidiaries from mutual companies to stock companies, collectively referred to as the Closed Blocks, and individually referred to as the AmerUs Life Insurance Company (AmerUs) closed block (AmerUs Closed Block) and the Indianapolis Life Insurance Company (ILICO) closed block (ILICO Closed Block). Insurance policies which had a dividend scale in effect as of each closed block establishment date were included in the respective closed block. The Closed Blocks were designed to give reasonable assurance to owners of insurance policies included therein that, after the reorganization, assets would be available to maintain the dividend scales and interest credits in effect prior to the reorganization, if the experience underlying such scales and crediting continued. The assets, including related revenue, allocated to the Closed Blocks will accrue solely to the benefit of the policyholders included in the Closed Blocks until they no longer exist. A policyholder dividend obligation is required to be established for earnings in the Closed Blocks that are not available to the shareholders. We have elected the fair value option for the AmerUs Closed Block and the ILICO Closed Block. See *Note 9 – Closed Block* for more information on the Closed Blocks.

Other Policy Claims and Benefits—Other policy claims and benefits include amounts payable relating to in course of settlements (ICOS) and incurred but not reported (IBNR) liabilities associated with interest sensitive contract liabilities and future policy benefits. For traditional life and universal life policies, ICOS claim liabilities are established when we are notified of the death of the policyholder but the claim has not been paid as of the reporting date. For immediate annuities and supplemental contracts, ICOS claim liabilities are established to accrue suspended benefit payments between the date of notification of death and the date of verification of death.

We determine IBNR claim liabilities using studies of past experience. The time that elapses from the death or claim date to when the claim is reported to us can vary significantly by product type, but generally ranges between one to six months for life business. We estimate IBNR claims on an undiscounted basis, using actuarial estimates of historical claims expense, adjusted for current trends and conditions. These estimates are continually reviewed and the ultimate liability may vary significantly from the amount recognized.

Dividends Payable to Policyholders—Participating policies entitle the policyholders to receive dividends based on actual interest, mortality, morbidity and expense experience for the year. Dividends are distributed to the policyholders through annual or terminal dividends which the board of directors of the applicable insurance subsidiary approves. As of December 31, 2018 and 2017, 10% and 26%, respectively, of life policies, inclusive of ceded policies, were participating, and the related liability is recorded in dividends payable to policyholders on the consolidated balance sheets. Premiums related to participating policies represented 26%, 52% and 45% of total life insurance direct premiums and deposits for the years ended December 31, 2018, 2017 and 2016, respectively.

As of December 31, 2017, all of the non-separate account unit-linked policies were paying dividends, and the related liability was recorded in dividends payable to policyholders on the consolidated balance sheets for our previously consolidated German subsidiaries. There were no material deposits related to non-separate account unit-linked policies paying dividends for the years ended December 31, 2017 and 2016. Non-separate account unit-linked policies represented an insignificant percentage of our interest sensitive contracts in force as of December 31, 2017.

Policyholder dividend liabilities are recorded in dividends payable to policyholders on the consolidated balance sheets and policyholder dividends are recorded in dividends to policyholders on the consolidated statements of income. For participating policies issued by our previously consolidated German subsidiaries, dividends payable to policyholders includes an adjustment to recognize timing differences between GAAP and local statutory earnings that reverse and enter into future calculations of dividends to policyholders. Except for changes due to unrealized gains or losses on AFS securities, the change in this adjustment is recorded in dividends to policyholders on the consolidated statements of income. Changes in this adjustment due to unrealized gains or losses on AFS securities are recorded in OCI.

Share Repurchase—When shares are repurchased, we can choose to record treasury shares or account for the repurchase as a constructive retirement. We have accounted for share repurchases as constructive retirement, whereby we reduce common stock and additional paid-in capital by the amount of the original issuance, with any excess purchase price recorded as a reduction to retained earnings. Under this method, issued and outstanding shares are reduced by the shares repurchased, and no treasury stock is recognized on the consolidated balance sheets.

Stock-Based Compensation—We have compensation plans under which stock-based awards may be granted to our employees and directors and employees of Athene Asset Management, L.P. (AAM) as described in *Note 12 – Stock-based Compensation*. We recognize the fair value of stock-based compensation over a participant's requisite service period through a charge to compensation expense and a corresponding entry to equity or a liability based on vesting criteria and other pertinent terms of the awards. Stock-based awards are accounted for as equity awards in instances where the awards' vesting is linked to a market, performance or service condition. Equity awards are generally expensed based on the grant date fair value. Stock-based awards are accounted for as liabilities in instances where the awards' vesting is linked to a factor other than a market, performance or service condition. Liability awards are remeasured each reporting period until settlement. In the event of an award modification, we recognize any additional value arising from the modification as compensation cost and determine whether the modified award should be accounted for prospectively as an equity or liability award.

Earnings Per Share—We compute basic earnings per share (EPS) by dividing unrounded net income available to Athene Holding Ltd. shareholders by the weighted average number of common shares eligible for earnings and outstanding for the period. As a result, it may not be possible to recalculate EPS as presented in our consolidated financial statements. Diluted earnings per share includes the effect of all potentially dilutive instruments, such as common shares, options and restricted stock units (RSUs), outstanding during the period. See *Note 13 – Earnings Per Share* for further information.

Foreign Currency—The accounts of foreign-based subsidiaries and equity method investments are measured using their functional currency. Revenue and expenses of these subsidiaries are translated into United States dollars at the average exchange rate for the period. Assets and liabilities are translated at the exchange rate as of the end of the reporting period. For the equity method investments, our proportionate share of the investee's income is translated into United States dollars at the average exchange rate for the period and our investment is translated using the exchange rate as of the end of the reporting period. The resulting translation adjustments are included in equity as a component of AOCI. Gains or losses arising from transactions denominated in a currency other than the functional currency of the entity that is party to the transaction are included in net income. The impacts of any non-United States dollar denominated AFS securities are included in AOCI along with the change in its fair value unless in a fair value hedging relationship as discussed in *–Derivative Instruments* above.

Recognition of Revenues and Related Expenses—Revenues for universal life-type policies and investment contracts, including surrender and market value adjustments, costs of insurance, policy administration, GMDB, GLWB and no-lapse guarantee charges, are earned when assessed against policyholder account balances during the period. Interest credited to policyholder account balances and the change in fair value of embedded derivatives within fixed indexed annuity contracts is included in interest sensitive contract benefits on the consolidated statements of income.

Premiums for long-duration contracts, including products with fixed and guaranteed premiums and benefits, are recognized as revenue when due from policyholders. When premiums are due over a significantly shorter period than the period over which benefits are provided, such as immediate annuities with life contingencies (which includes PRT annuities), any gross premium in excess of the net premium (i.e., the portion of the gross premium required to provide for all expected future benefits and expenses) is generally deferred and recognized into revenue in a constant relationship to the benefit reserves.

All insurance related revenue is reported net of reinsurance ceded.

Income Taxes—We compute income taxes using the asset and liability method, under which deferred income taxes are provided for the temporary differences between the financial statement carrying amounts and the tax basis of our assets and liabilities using estimated tax rates expected to be in effect for the year in which the differences are expected to reverse. Such temporary differences are primarily due to the tax basis of reserves, DAC, unrealized investment gains/losses, reinsurance related differences, embedded derivatives and net operating loss carryforwards. Changes in deferred income tax assets and liabilities associated with components of OCI are recorded directly to OCI. We evaluate the likelihood of realizing the benefit of our deferred tax assets and may record a valuation allowance if, based on all available evidence, we determine that it is more likely than not that some portion of the tax benefit will not be realized. We adjust the valuation allowance if, based on our evaluation, there is a change in the amount of deferred income tax assets that are deemed more-likely-than-not to be realized. Changes in deferred tax assets and liabilities attributable to changes in enacted income tax rates are recorded through net income in the period of enactment. We recognize the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by the relevant taxing authorities, based on the technical merits of our position. For those tax positions that meet the more-likely-than-not recognition threshold, we recognize the largest amount of tax benefit that is more than 50 percent likely to be realized upon ultimate settlement with the related tax authority. We recognize any income tax interest and penalties in income tax expense.

See *Note 15 – Income Taxes* for discussion on withholding taxes for undistributed earnings of subsidiaries.

Reclassifications—Certain reclassifications have been made to conform with current year presentation.

Adopted Accounting Pronouncements

Revenue Recognition (ASU 2017-13, ASU 2016-20, ASU 2016-12, ASU 2016-11, ASU 2016-10, ASU 2016-08, ASU 2015-14 and ASU 2014-09)
These updates are based on the core principle that an entity should recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. These updates replace all general and most industry-specific revenue recognition guidance, excluding insurance contracts, leases, financial instruments and guarantees, which have been scoped out of these updates. Since the guidance does not apply to revenue on contracts accounted for under the financial instruments or insurance contracts standards, only a portion of our revenues are impacted by this guidance. We adopted these updates on a modified retrospective basis effective January 1, 2018. The adoptions did not have a material effect on our consolidated financial statements.

Derivatives and Hedging – Targeted Improvements (ASU 2017-12)
The amendments in this update contain improvements to the financial reporting of hedging relationships that more closely reflect the economic results of an entity's risk management activities in its financial statements. Additionally, the amendments in this update make certain targeted improvements to simplify the application of hedge accounting. We early adopted this update effective January 1, 2018, and the adoption did not have a material effect on our consolidated financial statements.

Gains and Losses from the Derecognition of Nonfinancial Assets (ASU 2017-05)
The amendments in this update clarify the scope of asset derecognition guidance and accounting for partial sales of nonfinancial assets. We adopted this update on a modified retrospective basis effective January 1, 2018. The adoption did not have a material effect on our consolidated financial statements.

Statement of Cash Flows – Restricted Cash (ASU 2016-18)
This update requires amounts generally described as restricted cash or restricted cash equivalents be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period amounts shown on the consolidated statements of cash flows. We adopted this update effective January 1, 2018, and have changed the presentation on the consolidated statements of cash flows as required by this update.

Income Taxes – Intra-Entity Transfers (ASU 2016-16)
This update requires the immediate recognition of current and deferred income tax effects of intra-entity transfers of assets, other than inventory. Prior to adoption, recognition of the income tax consequence was not recognized until the asset was sold to an outside party. We adopted this update effective January 1, 2018. Upon adoption, we recognized a cumulative-effect decrease to beginning retained earnings of $3 million.

Statement of Cash Flows (ASU 2016-15)
This update provides specific guidance to clarify how entities should classify certain cash receipts and cash payments on the statement of cash flows. The update also clarifies the application of the predominance principle when cash receipts and cash payments have aspects of more than one class of cash flows. We adopted this update effective January 1, 2018, and the adoption did not have a material effect on our consolidated financial statements.

Financial Instruments – Recognition and Measurement (ASU 2016-01)
This update changes the accounting for certain equity investments, the presentation of changes in the fair value of liabilities measured under the fair value option due to instrument-specific credit risk, and certain disclosures. For liabilities measured under the fair value option, changes in fair value attributable to instrument-specific credit risk will no longer affect net income, but will be recognized separately in OCI. Additionally, this update requires equity investments to be measured at fair value with subsequent changes recognized in net income, except for those accounted for under the equity method or requiring consolidation. Prior to the effective date of this update, changes in fair value related to AFS equity securities were recognized in OCI. We adopted this update effective January 1, 2018. Upon adoption, we recognized a cumulative-effect increase to beginning retained earnings of $42 million and a corresponding decrease to AOCI. Additionally, we combined the presentation of AFS and trading equity securities on the consolidated balance sheets for all periods presented.

Recently Issued Accounting Pronouncements

Leases (ASU 2018-20, ASU 2018-11, ASU 2018-10, ASU 2018-01, ASU 2017-13 and ASU 2016-02)
These updates are intended to increase transparency and comparability for lease transactions. ASU 2016-02 requires a lessee to recognize a right-of-use asset and lease liability on the balance sheet for all leases with an original term longer than twelve months and disclose key information about leasing arrangements. Lessor accounting is largely unchanged.

The updates are effective January 1, 2019. ASU 2016-02 required the adoption on a modified retrospective basis. However, with the issuance of ASU 2018-11, we have the option to recognize the cumulative effect as an adjustment to the opening balance of retained earnings in the year of adoption, while continuing to present all prior periods under the previous lease guidance. These updates provide optional practical expedients in transition.

We have reviewed our existing lease contracts and determined that on January 1, 2019, we will record a lease liability and right-of-use asset related to office space, copiers, reserved areas and equipment at data centers, and other agreements. We will continue to present all prior periods under the previous lease guidance. We will elect the "package of practical expedients," which permits us to maintain our prior conclusions about lease identification, classification and initial direct costs. We will also elect the short-term lease exception, which allows us to exclude contracts with a lease term of 12 months or less, including any reasonably certain renewal options, from consideration under the new guidance. This update will not have a material effect on our consolidated financial statements.

Financial Instruments – Credit Losses (ASU 2018-19 and ASU 2016-13)
This update is designed to reduce complexity by limiting the number of credit impairment models used for different assets. The model will result in accelerated credit loss recognition on assets held at amortized cost, which includes our commercial and residential mortgage investments. The identification of credit-deteriorated securities will include all assets that have experienced a more-than-insignificant deterioration in credit since origination. Additionally, any changes in the expected cash flows of credit-deteriorated securities will be recognized immediately in the income statement. AFS fixed maturity securities are not in scope of the new credit loss model, but will undergo targeted improvements to the current reporting model including the establishment of a valuation allowance for credit losses versus the current direct write down approach. We will be required to adopt this update effective January 1, 2020. We are currently evaluating the impact of this guidance on our consolidated financial statements.

Collaborative Arrangements (ASU 2018-18)
The amendments in this update provide guidance on whether certain transactions between collaborative arrangement participants should be accounted for as revenue under Topic 606, providing comparability in the presentation of revenue for certain transactions. The update is effective January 1, 2020. Early adoption is permitted. We are currently evaluating the impact of this guidance on our consolidated financial statements.

Consolidation (ASU 2018-17)
The amendments in this update expand certain discussions in the VIE guidance, including considerations necessary for determining when a decision-making fee is a variable interest. We will be required to adopt this update retrospectively with a cumulative-effect adjustment to retained earnings at the beginning of the earliest period presented. The update is effective January 1, 2020. Early adoption is permitted. We are currently evaluating the impact of this guidance on our consolidated financial statements.

Derivatives and Hedging (ASU 2018-16)
The amendments in this update allow entities to use the Overnight Index Swap rate based on the Secured Overnight Financing Rate as a U.S. benchmark interest rate for hedge accounting purposes, in addition to the previously acceptable rates. We will be required to adopt this update prospectively for qualifying new or redesignated hedging relationships entered into on or after the date of adoption. This update is effective January 1, 2019. We do not expect the adoption of this update will have a material effect on our consolidated financial statements.

Cloud Computing Arrangements (ASU 2018-15)
The amendments in this update align the requirements for capitalizing implementation costs incurred in a cloud computing service arrangement with the requirements for capitalizing implementation costs incurred for internal-use software. We will be required to adopt this update on January 1, 2020, and we can elect to adopt this update either prospectively or retrospectively. Early adoption is permitted. We are currently evaluating the impact of this guidance on our consolidated financial statements.

Fair Value Measurement – Disclosure Requirements (ASU 2018-13)
The amendments in this update modify the disclosure requirements for fair value measurements by removing, modifying or adding certain disclosures. We will be required to adopt this update on January 1, 2020, and depending on the specific amendment will be required to adopt prospectively or retrospectively. We early adopted the removal and modification of certain disclosures as permitted. We are currently evaluating the impact of the remaining guidance on our consolidated financial statements.

Insurance – Targeted Improvements to the Accounting for Long-Duration Contracts (ASU 2018-12)
This update amends four key areas pertaining to the accounting and disclosures for long-duration insurance and investment contracts.

- The update requires cash flow assumptions used to measure the liability for future policy benefits to be updated at least annually and no longer allows a provision for adverse deviation. The remeasurement of the liability associated with the update of assumptions is required to be recognized in net income. Loss recognition testing is eliminated for traditional and limited-payment contracts. The update also requires the discount rate utilized in measuring the liability to be an upper-medium grade fixed-income instrument yield, which is to be updated at each reporting date. The change in liability due to changes in the discount rate is to be recognized in other comprehensive income.
- The update simplifies the amortization of deferred acquisition costs and other balances amortized in proportion to premiums, gross profits, or gross margins, requiring such balances to be amortized on a constant level basis over the expected term of the contracts. Deferred costs are required to be written off for unexpected contract terminations but are not subject to impairment testing.
- The update requires certain contract features meeting the definition of market risk benefits to be measured at fair value. Among the features included in this definition are the guaranteed lifetime withdrawal benefits (GLWB) and guaranteed minimum death benefit (GMDB) riders attached to the Company's annuity products. The change in fair value of the market risk benefits is to be recognized in net income, excluding the portion attributable to changes in instrument-specific credit risk which is recognized in other comprehensive income.

- The update also introduces disclosure requirements around the liability for future policy benefits, policyholder account balances, market risk benefits, separate account liabilities, and deferred acquisition costs. This includes disaggregated rollforwards of these balances and information about significant inputs, judgments, assumptions and methods used in their measurement.

We will be required to adopt this update effective January 1, 2021. Certain provisions of the update are required to be adopted on a fully retrospective basis, while others may be adopted on a modified retrospective basis. Early adoption is permitted effective January 1, 2019. We are currently evaluating the impact of this guidance on our consolidated financial statements.

Stock Compensation – Nonemployee Share-Based Payments (ASU 2018-07)
The amendments in this update simplify the accounting for share-based payments to nonemployees by aligning with the accounting for share-based payments to employees, with certain exceptions. We will be required to adopt this update on a modified retrospective basis effective January 1, 2019. This update will not have a material effect on our consolidated financial statements.

Intangibles – Simplifying the Test for Goodwill Impairment (ASU 2017-04)
The amendments in this update simplify the subsequent measurement of goodwill by eliminating the comparison of the implied fair value of a reporting unit's goodwill with the carrying amount of that goodwill to determine the goodwill impairment loss. With the adoption of this guidance, a goodwill impairment will be the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying amount of the goodwill allocated to that reporting unit. Entities will continue to have the option to perform a qualitative assessment to determine if a quantitative impairment test is necessary. We will be required to adopt this update prospectively effective January 1, 2020. Early adoption is permitted. We do not expect the adoption of this update will have a material effect on our consolidated financial statements.

2. Financial Statement Revisions

Our year end controls identified an understatement of our fixed index annuity liabilities for $140 million, with offsets of $62 million for DAC, rider reserves and taxes, for a net effect of $78 million. Recording this error in the fourth quarter of 2018 would have had a material effect on our results of operations for 2018. We have revised our consolidated financial statements, notes, and schedules for the years ended December 31, 2017 and 2016, as a result of correcting this error 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. See *Note 20 – Quarterly Results of Operations (Unaudited)* for summarized quarterly effects of these revisions.

The following represents the effects of the revisions on the consolidated balance sheet:

	December 31, 2017		
(In millions)	As Previously Reported	Revisions	As Adjusted
Assets			
Investments			
AFS securities	$ 61,012	$ (4)	$ 61,008
Trading securities	2,196	(13)	2,183
Equity securities	790	13	803
Policy loans	530	12	542
Total investments	82,054	8	82,062
Investment in related parties – AFS securities	406	4	410
Reinsurance recoverable	4,972	360	5,332
Deferred acquisition costs, deferred sales inducements and value of business acquired	2,930	42	2,972
Total assets	$ 99,747	$ 414	$ 100,161
Liabilities and Equity			
Liabilities			
Interest sensitive contract liabilities	$ 67,708	$ 391	$ 68,099
Future policy benefits	17,507	50	17,557
Other liabilities	1,222	5	1,227
Total liabilities	90,539	446	90,985
Equity			
Retained earnings	4,321	(66)	4,255
Accumulated other comprehensive income	1,415	34	1,449
Total shareholders' equity	9,208	(32)	9,176
Total liabilities and equity	$ 99,747	$ 414	$ 100,161

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The following represents the effects of the revisions on the consolidated statements of income:

	Years ended December 31,					
	2017			2016		
(In millions, except per share data)	As Previously Reported	Revisions	As Adjusted	As Previously Reported	Revisions	As Adjusted
Benefits and Expenses						
Interest sensitive contract benefits	$ 2,826	$ 40	$ 2,866	$ 1,296	$ 47	$ 1,343
Future policy and other policy benefits	3,163	37	3,200	1,059	(29)	1,030
Amortization of deferred acquisition costs and value of business acquired	350	(6)	344	318	(14)	304
Total benefits and expenses	7,192	71	7,263	3,389	4	3,393
Income before income taxes	1,535	(71)	1,464	716	(4)	712
Income tax expense (benefit)	87	19	106	(52)	(9)	(61)
Net income	$ 1,448	$ (90)	$ 1,358	$ 768	$ 5	$ 773
Earnings per share						
Basic – All classes	$ 7.41	$ (0.46)	$ 6.95	$ 4.11	$ 0.03	$ 4.14
Diluted – Class A	7.37	(0.46)	6.91	4.02	0.02	4.04
Diluted – Class B	7.41	(0.46)	6.95	4.11	0.03	4.14
Diluted – Class M-1	7.41	(0.46)	6.95	0.20	—	0.20
Diluted – Class M-2[1]	5.38	(0.33)	5.05	*N/A*	*N/A*	*N/A*
Diluted – Class M-3[1]	4.12	(0.26)	3.86	*N/A*	*N/A*	*N/A*
Diluted – Class M-4[1]	3.31	(0.21)	3.10	*N/A*	*N/A*	*N/A*

N/A – Not applicable
[1] *Basic and diluted earnings per share for Class M-2, M-3 and M-4 were applicable only for the year ended December 31, 2017. See Note 13 – Earnings Per Share for further discussion.*

The following represents the effects of the revisions on the consolidated statements of comprehensive income:

	Years ended December 31,					
	2017			2016		
(In millions)	As Previously Reported	Revisions	As Adjusted	As Previously Reported	Revisions	As Adjusted
Net income	$ 1,448	$ (90)	$ 1,358	$ 768	$ 5	$ 773
Other comprehensive income, before tax						
Unrealized investment gains (losses) on available-for-sale securities	1,269	43	1,312	878	4	882
Other comprehensive income, before tax	1,187	43	1,230	863	4	867
Income tax expense related to other comprehensive income	326	8	334	259	1	260
Other comprehensive income	861	35	896	604	3	607
Comprehensive income	$ 2,309	$ (55)	$ 2,254	$ 1,372	$ 8	$ 1,380

We revised the consolidated statements of equity for the years ended December 31, 2017 and 2016, for the changes to net income and comprehensive income, as presented above. In addition, the balance of retained earnings was revised from $2,308 million to $2,327 million as of December 31, 2015, and the balance of accumulated other comprehensive loss was revised from $237 million to $241 million, as a result of revisions to periods prior to 2016.

The following represents the effects of the revisions on the consolidated statements of cash flows:

	Years ended December 31,					
	2017			2016		
(In millions)	As Previously Reported	Revisions	As Adjusted	As Previously Reported	Revisions	As Adjusted
Cash flows from operating activities						
Net income	$ 1,448	$ (90)	$ 1,358	$ 768	$ 5	$ 773
Adjustments to reconcile net income to net cash provided by operating activities:						
Amortization of deferred acquisition costs and value of business acquired	350	(6)	344	318	(14)	304
Changes in operating assets and liabilities:						
Interest sensitive contract liabilities	2,513	51	2,564	925	31	956
Future policy benefits, other policy claims and benefits, dividends payable to policyholders and reinsurance recoverable	1,993	26	2,019	344	(13)	331
Other assets and liabilities	219	19	238	(33)	(9)	(42)
Net cash provided by operating activities	3,170	—	3,170	1,199	—	1,199

3. Investments

AFS Securities—The following table represents the amortized cost, gross unrealized gains and losses, fair value and OTTI in AOCI of our AFS investments by asset type:

	December 31, 2018				
(In millions)	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value	OTTI in AOCI
AFS securities					
U.S. government and agencies	$ 57	$ —	$ —	$ 57	$ —
U.S. state, municipal and political subdivisions	1,183	117	(7)	1,293	—
Foreign governments	162	2	(3)	161	—
Corporate	38,018	394	(1,315)	37,097	1
CLO	5,658	2	(299)	5,361	—
ABS	4,915	53	(48)	4,920	—
CMBS	2,390	27	(60)	2,357	7
RMBS	7,642	413	(36)	8,019	11
Total AFS securities	60,025	1,008	(1,768)	59,265	19
AFS securities – related party					
CLO	587	—	(25)	562	—
ABS	875	4	(4)	875	—
Total AFS securities – related party	1,462	4	(29)	1,437	—
Total AFS securities including related party	$ 61,487	$ 1,012	$ (1,797)	$ 60,702	$ 19

	December 31, 2017				
(In millions)	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value	OTTI in AOCI
AFS securities					
U.S. government and agencies	$ 63	$ 1	$ (2)	$ 62	$ —
U.S. state, municipal and political subdivisions	996	171	(2)	1,165	—
Foreign governments	2,575	116	(8)	2,683	—
Corporate	35,173	1,658	(171)	36,660	—
CLO	5,039	53	(8)	5,084	—
ABS	3,941	53	(27)	3,967	1
CMBS	1,994	48	(21)	2,021	1
RMBS	8,721	652	(7)	9,366	11
Total AFS securities	58,502	2,752	(246)	61,008	13
AFS securities – related party					
CLO	353	7	—	360	—
ABS	50	—	—	50	—
Total AFS securities – related party	403	7	—	410	—
Total AFS securities including related party	$ 58,905	$ 2,759	$ (246)	$ 61,418	$ 13

The amortized cost and fair value of AFS securities, including related party, are shown by contractual maturity below:

	December 31, 2018	
(In millions)	Amortized Cost	Fair Value
Due in one year or less	$ 1,097	$ 1,095
Due after one year through five years	8,257	8,234
Due after five years through ten years	10,853	10,548
Due after ten years	19,213	18,731
CLO, ABS, CMBS and RMBS	20,605	20,657
Total AFS securities	60,025	59,265
AFS securities – related party, CLO and ABS	1,462	1,437
Total AFS securities including related party	$ 61,487	$ 60,702

Actual maturities can differ from contractual maturities as borrowers may have the right to call or prepay obligations with or without call or prepayment penalties.

Unrealized Losses on AFS Securities—The following summarizes the fair value and gross unrealized losses for AFS securities, including related party, aggregated by class of security and length of time the fair value has remained below amortized cost:

	December 31, 2018					
	Less than 12 months		12 months or more		Total	
(In millions)	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
AFS securities						
U.S. government and agencies	$ 32	$ —	$ 2	$ —	$ 34	$ —
U.S. state, municipal and political subdivisions	139	(2)	82	(5)	221	(7)
Foreign governments	97	(2)	15	(1)	112	(3)
Corporate	20,213	(942)	4,118	(373)	24,331	(1,315)
CLO	5,054	(297)	90	(2)	5,144	(299)
ABS	1,336	(23)	506	(25)	1,842	(48)
CMBS	932	(27)	497	(33)	1,429	(60)
RMBS	1,417	(31)	140	(5)	1,557	(36)
Total AFS securities	29,220	(1,324)	5,450	(444)	34,670	(1,768)
AFS securities – related party						
CLO	534	(25)	—	—	534	(25)
ABS	306	(2)	116	(2)	422	(4)
Total AFS securities – related party	840	(27)	116	(2)	956	(29)
Total AFS securities including related party	$ 30,060	$ (1,351)	$ 5,566	$ (446)	$ 35,626	$ (1,797)

	December 31, 2017					
	Less than 12 months		12 months or more		Total	
(In millions)	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
AFS securities						
U.S. government and agencies	$ 34	$ (1)	$ 9	$ (1)	$ 43	$ (2)
U.S. state, municipal and political subdivisions	50	(1)	39	(1)	89	(2)
Foreign governments	435	(6)	76	(2)	511	(8)
Corporate	3,992	(49)	2,457	(122)	6,449	(171)
CLO	414	(2)	340	(6)	754	(8)
ABS	515	(5)	549	(22)	1,064	(27)
CMBS	460	(8)	179	(13)	639	(21)
RMBS	506	(3)	210	(4)	716	(7)
Total AFS securities	6,406	(75)	3,859	(171)	10,265	(246)
AFS securities – related party						
CLO	29	—	—	—	29	—
ABS	42	—	—	—	42	—
Total AFS securities – related party	71	—	—	—	71	—
Total AFS securities including related party	$ 6,477	$ (75)	$ 3,859	$ (171)	$ 10,336	$ (246)

As of December 31, 2018, we held 4,320 AFS securities that were in an unrealized loss position. Of this total, 860 were in an unrealized loss position 12 months or more. As of December 31, 2018, we held 40 related party AFS securities that were in an unrealized loss position. Of this total, seven were in an unrealized loss position 12 months or more. The unrealized losses on AFS securities can primarily be attributed to changes in market interest rates since acquisition. We did not recognize the unrealized losses in income as we intend to hold these securities and it is not more likely than not we will be required to sell a security before the recovery of its amortized cost.

Other-Than-Temporary Impairments—For the year ended December 31, 2018, we incurred $18 million of net OTTI, of which $13 million related to intent-to-sell impairments. These securities were impaired to fair value as of the impairment date. The remaining net OTTI of $5 million related to credit impairments where a portion was bifurcated in AOCI. Any credit loss impairments not bifurcated in AOCI are excluded from the rollforward below.

The following table represents a rollforward of the cumulative amounts recognized on the consolidated statements of income for OTTI related to pre-tax credit loss impairments on AFS securities, for which a portion of the securities' total OTTI was recognized in AOCI:

	Years ended December 31,		
(In millions)	2018	2017	2016
Beginning balance	$ 14	$ 16	$ 22
Initial impairments – credit loss OTTI recognized on securities not previously impaired	3	17	8
Additional impairments – credit loss OTTI recognized on securities previously impaired	2	—	3
Reduction in impairments from securities sold, matured or repaid	(9)	(13)	(9)
Reduction for credit loss that no longer has a portion of the OTTI loss recognized in AOCI	—	(6)	(8)
Ending balance	$ 10	$ 14	$ 16

Net Investment Income—Net investment income by asset class consists of the following:

	Years ended December 31,		
(In millions)	2018	2017	2016
AFS securities	$ 2,855	$ 2,579	$ 2,293
Trading securities	200	200	236
Equity securities	12	14	11
Mortgage loans	457	371	355
Investment funds	231	211	178
Funds withheld at interest	492	148	82
Other	112	78	62
Investment revenue	4,359	3,601	3,217
Investment expenses	(355)	(332)	(303)
Net investment income	$ 4,004	$ 3,269	$ 2,914

Investment Related Gains (Losses)—Investment related gains (losses) by asset class consists of the following:

	Years ended December 31,		
(In millions)	2018	2017	2016
AFS securities			
Gross realized gains on investment activity	$ 165	$ 169	$ 138
Gross realized losses on investment activity	(151)	(72)	(54)
Net realized investment gains on AFS securities	14	97	84
Net recognized investment gains (losses) on trading securities	(255)	29	(50)
Net recognized investment gains (losses) on equity securities	(19)	88	18
Derivative gains (losses)	(1,099)	2,377	596
Other gains (losses)	35	(19)	4
Investment related gains (losses)	$ (1,324)	$ 2,572	$ 652

Proceeds from sales of AFS securities were $7,831 million, $6,023 million and $4,662 million for the years ended December 31, 2018, 2017 and 2016, respectively.

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The following table summarizes the change in unrealized gains (losses) on trading and equity securities, including related party and consolidated VIEs, we still held as of the respective period end:

	Years ended December 31,		
(In millions)	2018	2017	2016
Trading securities	(143)	107	19
Trading securities – related party	(25)	(3)	(10)
VIE trading securities – related party	—	4	—
Equity securities	(18)	32	19
VIE equity securities – related party	24	25	(78)

Purchased Credit Impaired (PCI) Investments—The following table summarizes our PCI investments:

	December 31,			
	2018	2017	2018	2017
(In millions)	Fixed maturity securities		Mortgage loans	
Contractually required payments receivable	$ 8,179	$ 9,690	$ 2,675	$ 1,140
Less: Cash flows expected to be collected[1]	(7,195)	(8,188)	(2,628)	(1,090)
Non-accretable difference	$ 984	$ 1,502	$ 47	$ 50
Cash flows expected to be collected[1]	$ 7,195	$ 8,188	$ 2,628	$ 1,090
Less: Amortized cost	(5,518)	(6,168)	(1,931)	(817)
Accretable difference	$ 1,677	$ 2,020	$ 697	$ 273
Fair value	$ 5,828	$ 6,703	$ 1,933	$ 844
Outstanding balance	6,773	8,026	2,210	946

[1] *Represents the undiscounted principal and interest cash flows expected.*

During the respective years ended December 31, we acquired PCI investments with the following amounts at the time of purchase:

	Fixed maturity securities		Mortgage loans	
(In millions)	2018	2017	2018	2017
Contractually required payments receivable	$ 623	$ 2,161	$ 1,625	$ 894
Cash flows expected to be collected	562	1,790	1,601	857
Fair value	454	1,428	1,178	633

The following table summarizes the activity for the accretable yield on PCI investments:

	Fixed maturity securities		Mortgage loans	
(In millions)	2018	2017	2018	2017
Beginning balance at January 1	$ 2,020	$ 2,080	$ 273	$ 70
Purchases of PCI investments, net of sales	65	264	407	216
Accretion	(405)	(400)	(48)	(24)
Net reclassification from (to) non-accretable difference	(3)	76	65	11
Ending balance at December 31	$ 1,677	$ 2,020	$ 697	$ 273

Mortgage Loans, including related party—Mortgage loans, net of allowances, consists of the following:

	December 31,	
(In millions)	2018	2017
Commercial mortgage loans	$ 7,217	$ 5,223
Commercial mortgage loans under development	80	24
Total commercial mortgage loans	7,297	5,247
Residential mortgage loans	3,334	986
Mortgage loans, net of allowances	$ 10,631	$ 6,233

We primarily invest in commercial mortgage loans on income producing properties including office and retail buildings, hotels, industrial properties and apartments. We diversify the commercial mortgage loan portfolio by geographic region and property type to reduce concentration risk. We evaluate mortgage loans based on relevant current information to confirm if properties are performing at a consistent and acceptable level to secure the related debt.

The distribution of commercial mortgage loans, including those under development, net of valuation allowances, by property type and geographic region, is as follows:

	December 31,			
	2018		2017	
(In millions, except for percentages)	Net Carrying Value	Percentage of Total	Net Carrying Value	Percentage of Total
Property type				
Office building	$ 2,221	30.5%	$ 1,187	22.6%
Retail	1,660	22.7%	1,223	23.3%
Hotels	1,040	14.3%	928	17.7%
Industrial	1,196	16.4%	944	18.0%
Apartment	791	10.8%	525	10.0%
Other commercial	389	5.3%	440	8.4%
Total commercial mortgage loans	$ 7,297	100.0%	$ 5,247	100.0%
U.S. Region				
East North Central	$ 855	11.7%	$ 643	12.3%
East South Central	295	4.0%	144	2.7%
Middle Atlantic	1,131	15.5%	909	17.3%
Mountain	616	8.4%	492	9.4%
New England	374	5.1%	162	3.1%
Pacific	1,540	21.1%	991	18.9%
South Atlantic	1,468	20.2%	873	16.6%
West North Central	173	2.4%	233	4.4%
West South Central	845	11.6%	655	12.5%
Total U.S. Region	7,297	100.0%	5,102	97.2%
International Region	—	—%	145	2.8%
Total commercial mortgage loans	$ 7,297	100.0%	$ 5,247	100.0%

Our residential mortgage loan portfolio includes first lien residential mortgage loans collateralized by properties located in the U.S. As of December 31, 2018, California, Florida and New York represented 30.3%, 16.3% and 7.7%, respectively, of the portfolio, and the remaining 45.7% represented all other states, with each individual state comprising less than 5% of the portfolio. As of December 31, 2017, California, Florida and New York represented 34.3%, 15.6% and 6.0%, respectively, of the portfolio, and the remaining 44.1% represented all other states, with each individual state comprising less than 5% of the portfolio.

Mortgage Loan Valuation Allowance—The assessment of mortgage loan impairments and valuation allowances is substantially the same for residential and commercial mortgage loans. The valuation allowance was $2 million as of December 31, 2018 and 2017. We did not record any material activity in the valuation allowance during the years ended December 31, 2018, 2017 or 2016.

Residential mortgage loans – The primary credit quality indicator of residential mortgage loans is loan performance. Nonperforming residential mortgage loans are 90 days or more past due and/or are in non-accrual status. As of December 31, 2018 and 2017, $48 million and $28 million, respectively, of our residential mortgage loans were nonperforming.

Commercial mortgage loans – As of December 31, 2018 and 2017, none of our commercial loans were 30 days or more past due.

Loan-to-value and debt service coverage ratios are measures we use to assess the risk and quality of commercial mortgage loans other than those under development. Loans under development are not evaluated using these ratios as the properties underlying these loans are generally not yet income-producing and the value of the underlying property significantly fluctuates based on the progress of construction. Therefore, the risk and quality of loans under development are evaluated based on the aging and geographical distribution of such loans as shown above.

The loan-to-value ratio is expressed as a percentage of the amount of the loan relative to the value of the underlying property. A loan-to-value ratio in excess of 100% indicates the unpaid loan amount exceeds the underlying collateral. The following represents the loan-to-value ratio of the commercial mortgage loan portfolio, excluding those under development, net of valuation allowances:

	December 31,	
(In millions)	2018	2017
Less than 50%	$ 1,883	$ 1,798
50% to 60%	1,988	1,390
61% to 70%	2,394	1,691
71% to 80%	898	282
81% to 100%	54	62
Commercial mortgage loans	$ 7,217	$ 5,223

The debt service coverage ratio, based upon the most recent financial statements, is expressed as a percentage of a property's net operating income to its debt service payments. A debt service ratio of less than 1.0 indicates a property's operations do not generate enough income to cover debt payments. The following represents the debt service coverage ratio of the commercial mortgage loan portfolio, excluding those under development, net of valuation allowances:

	December 31,	
(In millions)	2018	2017
Greater than 1.20x	$ 6,576	$ 4,742
1.00x – 1.20x	474	297
Less than 1.00x	167	184
Commercial mortgage loans	$ 7,217	$ 5,223

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Investment Funds—Our investment fund portfolio consists of funds that employ various strategies and include investments in real estate and other real assets, credit, equity, natural resources and hedge funds. Investment funds can meet the definition of VIEs, which are discussed further in *Note 5 – Variable Interest Entities*. Our investment funds do not specify timing of distributions on the funds' underlying assets.

The following summarizes our investment funds, including related party and those owned by consolidated VIEs:

	December 31,			
	2018		2017	
(In millions, except for percentages and years)	Carrying value	Percent of total	Carrying value	Percent of total
Investment funds				
Private equity	$ 253	36.0%	$ 271	38.8%
Real estate and other real assets	231	32.8%	161	23.0%
Natural resources	4	0.6%	4	0.6%
Hedge funds	43	6.1%	61	8.7%
Credit funds	172	24.5%	202	28.9%
Total investment funds	703	100.0%	699	100.0%
Investment funds – related parties				
Public equities	63	2.8%	—	—%
Private equity – A-A Mortgage[1]	463	20.7%	403	30.8%
Private equity – other	554	24.8%	180	13.7%
Real estate and other real assets	651	29.2%	297	22.7%
Natural resources	104	4.7%	74	5.6%
Hedge funds	98	4.4%	93	7.1%
Credit funds	299	13.4%	263	20.1%
Total investment funds – related parties	2,232	100.0%	1,310	100.0%
Investment funds owned by consolidated VIEs				
Private equity – MidCap[2]	552	88.4%	528	92.5%
Credit funds	1	0.2%	21	3.7%
Real estate and other real assets	71	11.4%	22	3.8%
Total investment funds owned by consolidated VIEs	624	100.0%	571	100.0%
Total investment funds including related parties and funds owned by consolidated VIEs	$ 3,559		$ 2,580	

[1] *A-A Mortgage Opportunities, L.P. (A-A Mortgage) is a platform to originate residential mortgage loans and mortgage servicing rights. See further discussion on A-A Mortgage in Note 17 – Related Parties.*
[2] *MidCap FinCo Limited (MidCap) is a commercial finance company investment held by our consolidated VIE. See further discussion on MidCap in Note 17 – Related Parties.*

Summarized Ownership of Investment Funds—The following is the aggregated summarized financial information of equity method investees, including those for which we elected the fair value option and would otherwise be accounted for as an equity method investment, and may be presented on a lag due to the availability of financial information from the investee:

	December 31,	
(In millions)	2018	2017
Assets	$ 40,630	$ 22,777
Liabilities	24,241	7,518
Equity	16,389	15,259

	Years ended December 31,		
(In millions)	2018	2017	2016
Net income	$ 1,159	$ 1,587	$ 1,415

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The following table presents the carrying value by ownership percentage of equity method investment funds, including related party investment funds and investment funds owned by consolidated VIEs:

(In millions)	December 31, 2018	December 31, 2017
Ownership Percentage		
100%	$ 17	$ 35
50% – 99%	1,044	520
3% – 49%	1,617	1,301
Equity method investment funds	$ 2,678	$ 1,856

The following table presents the carrying value by ownership percentage of investment funds where we elected the fair value option, including related party investment funds and investment funds owned by consolidated VIEs:

(In millions)	December 31, 2018	December 31, 2017
Ownership Percentage		
3% – 49%	$ 687	$ 590
Less than 3%	194	134
Fair value option investment funds	$ 881	$ 724

Non-Consolidated Securities and Investment Funds

Fixed maturity securities – We invest in securitization entities as a debt holder or an investor in the residual interest of the securitization vehicle. These entities are deemed VIEs due to insufficient equity within the structure and lack of control by the equity investors over the activities that significantly impact the economics of the entity. In general, we are a debt investor within these entities and, as such, hold a variable interest; however, due to the debt holders' lack of ability to control the decisions within the trust that significantly impact the entity, and the fact the debt holders are protected from losses due to the subordination by the equity tranche, the debt holders are not deemed the primary beneficiary. Securitization vehicles in which we hold the residual tranche are not consolidated because we do not unilaterally have substantive rights to remove the general partner, or when assessing related party interests, we are not under common control, as defined by GAAP, with the related party, nor are substantially all of the activities conducted on our behalf; therefore, we are not deemed the primary beneficiary. Debt investments and investments in the residual tranche of securitization entities are considered debt instruments and are held at fair value on the balance sheet and classified as AFS or trading.

Investment funds – Investment funds include non-fixed income, alternative investments in the form of limited partnerships or similar legal structures.

Equity securities – We invest in preferred equity securities issued by entities deemed to be VIEs due to insufficient equity within the structure.

Our risk of loss associated with our non-consolidated investments depends on the investment. Investment funds, equity securities and trading securities are limited to the carrying value plus unfunded commitments. AFS securities are limited to amortized cost plus unfunded commitments.

The following summarizes the carrying value and maximum loss exposure of these non-consolidated investments:

	December 31,			
	2018		2017	
(In millions)	Carrying Value	Maximum Loss Exposure	Carrying Value	Maximum Loss Exposure
Investment funds	$ 703	$ 1,329	$ 699	$ 1,111
Investment in related parties – investment funds	2,232	4,331	1,310	2,785
Assets of consolidated VIEs – investment funds	624	727	571	594
Investment in fixed maturity securities	21,188	21,139	21,018	20,274
Investment in related parties – fixed maturity securities	1,686	1,788	717	796
Investment in related parties – equity securities	120	120	—	—
Total non-consolidated investments	$ 26,553	$ 29,434	$ 24,315	$ 25,560

4. Derivative Instruments

We use a variety of derivative instruments to manage risks, primarily equity, interest rate, credit, foreign currency and market volatility. See *Note 1 – Business, Basis of Presentation and Significant Accounting Policies* for a description of our accounting policies for derivatives and *Note 6 – Fair Value* for information about the fair value hierarchy for derivatives.

The following table presents the notional amount and fair value of derivative instruments:

	December 31,					
	2018			2017		
		Fair Value			Fair Value	
(In millions)	Notional Amount	Assets	Liabilities	Notional Amount	Assets	Liabilities
Derivatives designated as hedges						
Foreign currency swaps	2,041	$ 83	$ 55	928	$ 1	$ 99
Interest rate swaps	—	—	—	302	—	—
Foreign currency forwards	85	—	1	—	—	—
Total derivatives designated as hedges		83	56		1	99
Derivatives not designated as hedges						
Equity options	49,821	942	11	31,460	2,500	19
Futures	4	9	3	1,134	7	—
Total return swaps	62	—	3	114	5	—
Foreign currency swaps	38	3	2	41	21	3
Interest rate swaps	326	—	1	385	—	2
Credit default swaps	10	—	4	10	—	5
Foreign currency forwards	646	6	5	1,139	17	6
Embedded derivatives						
Funds withheld including related party		(53)	(1)		312	22
Interest sensitive contract liabilities		—	7,969		—	7,411
Total derivatives not designated as hedges		907	7,997		2,862	7,468
Total derivatives		$ 990	$ 8,053		$ 2,863	$ 7,567

Derivatives Designated as Hedges

Foreign currency swaps – We use foreign currency swaps to convert foreign currency denominated cash flows of an investment to U.S. dollars to reduce cash flow fluctuations due to changes in currency exchange rates. Certain of these swaps are designated and accounted for as cash flow hedges, which will expire by December 2045. During the years ended December 31, 2018, 2017 and 2016, we had foreign currency swap gains of $146 million and losses of $105 million and $5 million, respectively, recorded in AOCI. There were no amounts reclassified to income and no amounts deemed ineffective for the years ended December 31, 2018, 2017 or 2016. As of December 31, 2018, no amounts are expected to be reclassified to income within the next 12 months.

Foreign currency forwards – We use foreign currency forward contracts to hedge certain exposures to foreign currency risk. The price is agreed upon at the time of the contract and payment is made at a specified future date. Certain of these forwards entered into during 2018 are designated and accounted for as fair value hedges. As of December 31, 2018, the carrying amount of the hedged AFS securities – CLOs was $88 million, and the cumulative amount of fair value hedging adjustments included in the hedged AFS securities – CLOs included gains of $1 million. The gains and losses on derivatives and the related hedged items in fair value hedge relationships are recorded in investment related gains (losses) on the consolidated statements of income. The derivatives had losses of $1 million during the year ended December 31, 2018, and the related hedged items had gains of $1 million during the year ended December 31, 2018.

Derivatives Not Designated as Hedges

Equity options – We use equity indexed options to economically hedge fixed indexed annuity products that guarantee the return of principal to the policyholder and credit interest based on a percentage of the gain in a specified market index, primarily the S&P 500. To hedge against adverse changes in equity indices, we enter into contracts to buy equity indexed options. The contracts are net settled in cash based on differentials in the indices at the time of exercise and the strike price.

Futures – Futures contracts are purchased to hedge the growth in interest credited to the customer as a direct result of increases in the related indices. We enter into exchange-traded futures with regulated futures commission clearing brokers who are members of a trading exchange. Under exchange-traded futures contracts, we agree to purchase a specified number of contracts with other parties and to post variation margin on a daily basis in an amount equal to the difference in the daily fair values of those contracts.

Total return swaps – We purchase total rate of return swaps to gain exposure and benefit from a reference asset or index without ownership. Total rate of return swaps are contracts in which one party makes payments based on a set rate, either fixed or variable, while the other party makes payments based on the return of the underlying asset or index, which includes both the income it generates and any capital gains.

Interest rate swaps – We use interest rate swaps to reduce market risks from interest rate changes and to alter interest rate exposure arising from duration mismatches between assets and liabilities. With an interest rate swap, we agree with another party to exchange the difference between fixed-rate and floating-rate interest amounts tied to an agreed-upon notional principal amount at specified intervals. Certain of these swaps entered into during the fourth quarter of 2016 were designated as fair value hedges. These fair value hedges were dedesignated during the second quarter of 2018 and there was no material impact as a result.

Credit default swaps – Credit default swaps provide a measure of protection against the default of an issuer or allow us to gain credit exposure to an issuer or traded index. We use credit default swaps coupled with a bond to synthetically create the characteristics of a reference bond. These transactions have a lower cost and are generally more liquid relative to the cash market. We receive a periodic premium for these transactions as compensation for accepting credit risk.

Hedging credit risk involves buying protection for existing credit risk. The exposure resulting from the agreements, which is usually the notional amount, is equal to the maximum proceeds that must be paid by a counterparty for a defaulted security. If a credit event occurs on a reference entity, then a counterparty who sold protection is required to pay the buyer the trade notional amount less any recovery value of the security.

Embedded derivatives – We have embedded derivatives which are required to be separated from their host contracts and reported as derivatives. Host contracts include reinsurance agreements structured on modco or funds withheld basis and indexed annuity products.

The following is a summary of the gains (losses) related to derivatives not designated as hedges:

	Years ended December 31,		
(In millions)	2018	2017	2016
Equity options	$ (877)	$ 1,939	$ 325
Futures	2	(24)	(19)
Swaps	(8)	27	18
Foreign currency forwards	16	28	(2)
Embedded derivatives on funds withheld	(232)	407	274
Amounts recognized in investment related gains (losses)	(1,099)	2,377	596
Embedded derivatives in indexed annuity products[1]	923	(1,744)	(308)
Total gains (losses) on derivatives not designated as hedges	$ (176)	$ 633	$ 288

[1] *Included in interest sensitive contract benefits.*

Credit Risk—We may be exposed to credit-related losses in the event of counterparty nonperformance on derivative financial instruments. Generally, the current credit exposure of our derivative contracts is the fair value at the reporting date less any collateral received from the counterparty.

We manage credit risk related to over-the-counter derivatives by entering into transactions with creditworthy counterparties. Where possible, we maintain collateral arrangements and use master netting agreements that provide for a single net payment from one counterparty to another at each due date and upon termination. We have also established counterparty exposure limits, where possible, in order to evaluate if there is sufficient collateral to support the net exposure.

Collateral arrangements typically require the posting of collateral in connection with its derivative instruments. Collateral agreements often contain posting thresholds, some of which may vary depending on the posting party's financial strength ratings. Additionally, a decrease in our financial strength rating to a specified level can result in settlement of the derivative position.

The estimated fair value of our net derivative and other financial assets and liabilities after the application of master netting agreements and collateral were as follows:

		Gross amounts not offset on the consolidated balance sheets				
(In millions)	Gross amount recognized[1]	Financial instruments[2]	Collateral received/pledged	Net amount	Off-balance sheet securities collateral[3]	Net amount after securities collateral
December 31, 2018						
Derivative assets	$ 1,043	$ (52)	$ (969)	$ 22	$ (4)	$ 18
Derivative liabilities	(85)	52	24	(9)	—	(9)
December 31, 2017						
Derivative assets	$ 2,551	$ (59)	$ (2,323)	$ 169	$ (221)	$ (52)
Derivative liabilities	(134)	59	63	(12)	—	(12)

[1] *The gross amounts of recognized derivative assets and derivative liabilities are reported on the consolidated balance sheets. As of December 31, 2018 and 2017, amounts not subject to master netting or similar agreements were immaterial.*

[2] *Represents amounts offsetting derivative assets and derivative liabilities that are subject to an enforceable master netting agreement or similar agreement that are not netted against the gross derivative assets or gross derivative liabilities for presentation on the consolidated balance sheets.*

[3] *For non-cash collateral received, we do not recognize the collateral on our balance sheet unless the obligor (transferor) has defaulted under the terms of the secured contract and is no longer entitled to redeem the pledged asset. Amounts do not include any excess of collateral pledged or received.*

Certain derivative instruments contain provisions for credit-related events, such as downgrades in our credit ratings or for a negative credit event of a credit default swap's reference entity. If a credit event were to occur, we may be required to settle an outstanding liability. The following is a summary of our exposure to credit-related events:

	December 31,	
(In millions)	2018	2017
Fair value of derivative liabilities with credit related provisions	$ 4	$ 5
Maximum exposure for credit default swaps	10	10

As of December 31, 2018 and 2017, no additional collateral would be required if a default or termination event were to occur.

5. Variable Interest Entities

We consolidate the following investment funds as VIEs:

- AAA Investments (Co-Invest VI), L.P. (CoInvest VI);
- AAA Investments (Co-Invest VII), L.P. (CoInvest VII);
- AAA Investments (Other), L.P. (CoInvest Other);
- ALR Aircraft Investment Ireland Limited (ALR); and
- Entities included under our agreement to purchase funds managed by Apollo entities (Strategic Partnership). See *Note 17 – Related Parties* for further discussion on the Strategic Partnership.

We are the only limited partner or holder of profit participating notes in these investment funds and receive all of the economic benefits and losses, other than management fees and carried interest, as applicable, paid to the general partner in each entity, or a related entity, which are related parties. We do not have any voting rights as limited partner and, as the limited partner or holder of profit participating notes, do not solely satisfy the power criteria to direct the activities that significantly impact the economics of the VIE. However, the criteria for the primary beneficiary are satisfied by our related party group and, because substantially all of the activities are conducted on our behalf, we consolidate the investment funds.

No arrangement exists requiring us to provide additional funding in excess of our committed capital investment, liquidity, or the funding of losses or an increase to our loss exposure in excess of our investment in the VIEs. We elected the fair value option for certain fixed maturity and equity securities, and investment funds, which are reported in the consolidated variable interest entity sections on the consolidated balance sheets.

CoInvest VI, CoInvest VII and CoInvest Other were formed to make investments, including co-investments alongside private equity funds sponsored by Apollo. Investments held by CoInvest VI, CoInvest VII and CoInvest Other are related party investments because Apollo affiliates exercise significant influence over the management or operations of the investees. We received our interests in CoInvest VI, CoInvest VII and CoInvest Other as part of a contribution agreement in 2012 with AAA Guarantor – Athene, L.P. (AAA Investor) and its subsidiary, Apollo Life Re Ltd., in order to provide a capital base to support future acquisitions.

During the first quarter of 2018, we invested in profit participating notes of ALR. ALR was formed to invest in a joint venture that provides airplane lease financing to a major commercial airline. We are the only investor in the profit participating notes and, as substantially all of the activities of ALR are conducted on our behalf, we are the primary beneficiary and consolidate ALR.

During the fourth quarter of 2018, we dissolved NCL Athene LLC (NCL LLC) as we sold the investments held by NCL LLC. Previously a consolidated VIE, NCL LLC was formed to hold the investment in Norwegian Cruise Line Holdings Ltd. (NCLH) shares, which were originally held by CoInvest VI. NCL LLC was subject to the same management fees, selling restrictions with respect to shares of NCLH, and carried interest calculation as CoInvest VI. NCL LLC classified its NCLH shares as related party equity securities.

6. Fair Value

Fair value is the price we would receive to sell an asset or pay to transfer a liability (exit price) in an orderly transaction between market participants. We determine fair value based on the following fair value hierarchy:

Level 1 – Unadjusted quoted prices for identical assets or liabilities in an active market.

Level 2 – Quoted prices for inactive markets or valuation techniques that require observable direct or indirect inputs for substantially the full term of the asset or liability. Level 2 inputs include the following:

- Quoted prices for similar assets or liabilities in active markets,
- Observable inputs other than quoted market prices, and
- Observable inputs derived principally from market data through correlation or other means.

Level 3 – Prices or valuation techniques with unobservable inputs significant to the overall fair value estimate. These valuations use critical assumptions not readily available to market participants. Level 3 valuations are based on market standard valuation methodologies, including discounted cash flows, matrix pricing or other similar techniques.

NAV – Investment funds are typically measured using NAV as a practical expedient in determining fair value and are not classified in the fair value hierarchy. The underlying investments of the investment funds may have significant unobservable inputs, which may include but are not limited to, comparable multiples and weighted average cost of capital rates applied in valuation models or a discounted cash flow model.

The fair value hierarchy gives the highest priority to quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). If the inputs used to measure fair value fall within different levels of the hierarchy, the category level is based on the lowest priority level input that is significant to the instrument's fair value measurement.

We use a number of valuation sources to determine fair values. Valuation sources can include quoted market prices; third-party commercial pricing services; third-party brokers; industry-standard, vendor modeling software that uses market observable inputs; and other internal modeling techniques based on projected cash flows. We periodically review the assumptions and inputs of third-party commercial pricing services through internal valuation price variance reviews, comparisons to internal pricing models, back testing to recent trades, or monitoring trading volumes.

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The following represents the hierarchy for our assets and liabilities measured at fair value on a recurring basis:

	December 31, 2018				
(In millions)	Total	NAV	Level 1	Level 2	Level 3
Assets					
AFS securities					
U.S. government and agencies	$ 57	$ —	$ 54	$ 3	$ —
U.S. state, municipal and political subdivisions	1,293	—	—	1,293	—
Foreign governments	161	—	—	161	—
Corporate	37,097	—	—	36,199	898
CLO	5,361	—	—	5,254	107
ABS	4,920	—	—	3,305	1,615
CMBS	2,357	—	—	2,170	187
RMBS	8,019	—	—	7,963	56
Total AFS securities	59,265	—	54	56,348	2,863
Trading securities					
U.S. government and agencies	5	—	3	2	—
U.S. state, municipal and political subdivisions	126	—	—	126	—
Corporate	1,287	—	—	1,287	—
CLO	9	—	—	8	1
ABS	87	—	—	87	—
CMBS	49	—	—	49	—
RMBS	386	—	—	252	134
Total trading securities	1,949	—	3	1,811	135
Equity securities	216	—	40	173	3
Mortgage loans	32	—	—	—	32
Investment funds	182	153	—	—	29
Funds withheld at interest – embedded derivative	57	—	—	—	57
Derivative assets	1,043	—	9	1,034	—
Short-term investments	191	—	66	125	—
Other investments	52	—	—	52	—
Cash and cash equivalents	2,911	—	2,911	—	—
Restricted cash	492	—	492	—	—
Investments in related parties					
AFS securities					
CLO	562	—	—	562	—
ABS	875	—	—	547	328
Total AFS securities – related party	1,437	—	—	1,109	328
Trading securities					
CLO	100	—	—	22	78
ABS	149	—	—	—	149
Total trading securities – related party	249	—	—	22	227
Equity securities	120	—	—	—	120
Investment funds	201	96	—	—	105
Funds withheld at interest – embedded derivative	(110)	—	—	—	(110)
Reinsurance recoverable	1,676	—	—	—	1,676
Assets of consolidated VIEs					
Trading securities	35	—	—	—	35
Equity securities	50	—	37	—	13
Investment funds	567	552	—	—	15
Cash and cash equivalents	2	—	2	—	—
Total assets measured at fair value	$ 70,617	$ 801	$ 3,614	$ 60,674	$ 5,528

(Continued)

	December 31, 2018				
(In millions)	Total	NAV	Level 1	Level 2	Level 3
Liabilities					
Interest sensitive contract liabilities					
Embedded derivative	$ 7,969	$ —	$ —	$ —	$ 7,969
Universal life benefits	932	—	—	—	932
Future policy benefits					
AmerUs Closed Block	1,443	—	—	—	1,443
ILICO Closed Block and life benefits	730	—	—	—	730
Derivative liabilities	85	—	3	78	4
Funds withheld liability – embedded derivative	(1)	—	—	(1)	—
Total liabilities measured at fair value	$ 11,158	$ —	$ 3	$ 77	$ 11,078

(Concluded)

	December 31, 2017				
(In millions)	Total	NAV	Level 1	Level 2	Level 3
Assets					
AFS securities					
U.S. government and agencies	$ 62	$ —	$ 26	$ 36	$ —
U.S. state, municipal and political subdivisions	1,165	—	—	1,165	—
Foreign governments	2,683	—	—	2,683	—
Corporate	36,660	—	—	36,082	578
CLO	5,084	—	—	5,020	64
ABS	3,967	—	—	2,510	1,457
CMBS	2,021	—	—	1,884	137
RMBS	9,366	—	—	9,065	301
Total AFS securities	61,008	—	26	58,445	2,537
Trading securities					
U.S. government and agencies	3	—	3	—	—
U.S. state, municipal and political subdivisions	138	—	—	121	17
Corporate	1,462	—	—	1,462	—
CLO	27	—	—	10	17
ABS	94	—	—	17	77
CMBS	51	—	—	51	—
RMBS	408	—	—	66	342
Total trading securities	2,183	—	3	1,727	453
Equity securities	803	—	18	777	8

(Continued)

	December 31, 2017				
(In millions)	Total	NAV	Level 1	Level 2	Level 3
Mortgage loans	41	—	—	—	41
Investment funds	145	104	—	—	41
Funds withheld at interest – embedded derivative	312	—	—	—	312
Derivative assets	2,551	—	7	2,544	—
Short-term investments	201	—	40	161	—
Cash and cash equivalents	4,888	—	4,888	—	—
Restricted cash	105	—	105	—	—
Investments in related parties					
AFS securities					
CLO	360	—	—	360	—
ABS	50	—	—	46	4
Total AFS securities – related party	410	—	—	406	4
Trading securities					
CLO	132	—	—	27	105
ABS	175	—	—	175	—
Total trading securities – related party	307	—	—	202	105
Investment funds	30	30	—	—	—
Short-term investments	52	—	—	52	—
Reinsurance recoverable	1,824	—	—	—	1,824
Assets of consolidated VIEs					
Trading securities	48	—	—	—	48
Equity securities	240	—	212	—	28
Investment funds	549	528	—	—	21
Cash and cash equivalents	4	—	4	—	—
Total assets measured at fair value	$ 75,701	$ 662	$ 5,303	$ 64,314	$ 5,422
Liabilities					
Interest sensitive contract liabilities					
Embedded derivative	$ 7,411	$ —	$ —	$ —	$ 7,411
Universal life benefits	1,005	—	—	—	1,005
Unit-linked contracts	488	—	—	488	—
Future policy benefits					
AmerUs Closed Block	1,625	—	—	—	1,625
ILICO Closed Block and life benefits	803	—	—	—	803
Derivative liabilities	134	—	—	129	5
Funds withheld liability – embedded derivative	22	—	—	22	—
Total liabilities measured at fair value	$ 11,488	$ —	$ —	$ 639	$ 10,849

(Concluded)

Fair Value Valuation Methods—We used the following valuation methods and assumptions to estimate fair value:

AFS and trading securities – We obtain the fair value for most marketable securities without an active market from several commercial pricing services. These are classified as Level 2 assets. The pricing services incorporate a variety of market observable information in their valuation techniques, including benchmark yields, trading activity, credit quality, issuer spreads, bids, offers and other reference data. This category typically includes U.S. and non-U.S. corporate bonds, U.S. agency and government guaranteed securities, CLO, ABS, CMBS and RMBS.

We also have fixed maturity securities priced based on indicative broker quotes or by employing market accepted valuation models. For certain fixed maturity securities, the valuation model uses significant unobservable inputs and are included in Level 3 in our fair value hierarchy. Significant unobservable inputs used include: issue specific credit adjustments, material non-public financial information, estimation of future earnings and cash flows, default rate assumptions, liquidity assumptions and indicative quotes from market makers. These inputs are usually considered unobservable, as not all market participants have access to this data.

We value privately placed fixed maturity securities based on the credit quality and duration of comparable marketable securities, which may be securities of another issuer with similar characteristics. In some instances, we use a matrix-based pricing model. These models consider the current level of risk-free interest rates, corporate spreads, credit quality of the issuer and cash flow characteristics of the security. We also consider additional factors such as net worth of the borrower, value of collateral, capital structure of the borrower, presence of guarantees and our evaluation of the borrower's ability to compete in its relevant market. Privately placed fixed maturity securities are classified as Level 2 or 3.

Equity securities – Fair values of publicly traded equity securities are based on quoted market prices and classified as Level 1. Other equity securities, typically private equities or equity securities not traded on an exchange, we value based on other sources, such as commercial pricing services or brokers and are classified as Level 2 or 3.

Mortgage loans – Mortgage loans for which we have elected the fair value option or those held for sale are carried at fair value. We estimate fair value on a monthly basis using discounted cash flow analysis and rates being offered for similar loans to borrowers with similar credit ratings. Loans with similar characteristics are aggregated for purposes of the calculations. The discounted cash flow model uses unobservable inputs, including estimates of discount rates and loan prepayments. Mortgage loans are classified as Level 3.

Investment funds – Certain investment funds for which we elected the fair value option are included in Level 3 and are priced based on market accepted valuation models. The valuation models use significant unobservable inputs, which include material non-public financial information, estimation of future distributable earnings and demographic assumptions. These inputs are usually considered unobservable, as not all market participants have access to this data.

Funds withheld (embedded derivative) – We estimate the fair value of the embedded derivative based on the change in the fair value of the assets supporting the funds withheld payable under the combined coinsurance, modco and coinsurance funds withheld reinsurance agreements. As a result, the fair value of the embedded derivative is classified as Level 2 or 3 based on the valuation methods used for the assets held in trust supporting the reinsurance agreements.

Derivatives – Derivative contracts can be exchange traded or over-the-counter. Exchange-traded derivatives typically fall within Level 1 of the fair value hierarchy depending on trading activity. Over-the-counter derivatives are valued using valuation models or an income approach using third-party broker valuations. Valuation models require a variety of inputs, including contractual terms, market prices, yield curves, credit curves, measures of volatility, prepayment rates and correlation of the inputs. We consider and incorporate counterparty credit risk in the valuation process through counterparty credit rating requirements and monitoring of overall exposure. We also evaluate and include our own nonperformance risk in valuing derivatives. The majority of our derivatives trade in liquid markets; therefore, we can verify model inputs and model selection does not involve significant management judgment. These are typically classified within Level 2 of the fair value hierarchy.

Cash and cash equivalents, including restricted cash – The carrying amount for cash equals fair value. We estimate the fair value for cash equivalents based on quoted market prices. These assets are classified as Level 1.

Interest sensitive contract liabilities (embedded derivative) – Embedded derivatives related to interest sensitive contract liabilities with fixed indexed annuity products are classified as Level 3. The valuations include significant unobservable inputs associated with economic assumptions and actuarial assumptions for policyholder behavior.

Unit-linked contracts – Unit-linked contracts are valued based on the fair value of the investments supporting the contract. The underlying investments are trading securities comprised primarily of mutual funds. The valuations of these are based on quoted market prices for similar assets and are classified as Level 2, resulting in a corresponding classification for the unit-linked contracts.

AmerUs Closed Block – We elected the fair value option for the future policy benefits liability in the AmerUs Closed Block. Our valuation technique is to set the fair value of policyholder liabilities equal to the fair value of assets. There is an additional component which captures the fair value of the open block's obligations to the closed block business. This component is the present value of the projected release of required capital and future earnings before income taxes on required capital supporting the AmerUs Closed Block, discounted at a rate which represents a market participant's required rate of return, less the initial required capital. Unobservable inputs include estimates for these items. The AmerUs Closed Block policyholder liabilities and any corresponding reinsurance recoverable are classified as Level 3.

ILICO Closed Block – We elected the fair value option for the ILICO Closed Block. Our valuation technique is to set the fair value of policyholder liabilities equal to the fair value of assets. There is an additional component which captures the fair value of the open block's obligations to the closed block business. This component uses the present value of future cash flows which include commissions, administrative expenses, reinsurance premiums and benefits, and an explicit cost of capital. The discount rate includes a margin to reflect the business and nonperformance risk. Unobservable inputs include estimates for these items. The ILICO Closed Block policyholder liabilities and corresponding reinsurance recoverable are classified as Level 3.

Universal life liabilities and other life benefits – We elected the fair value option for certain blocks of universal and other life business ceded to Global Atlantic. We use a present value of liability cash flows. Unobservable inputs include estimates of mortality, persistency, expenses, premium payments and a risk margin used in the discount rates that reflects the riskiness of the business. These universal life policyholder liabilities and corresponding reinsurance recoverable are classified as Level 3.

Fair Value Option—The following represents the gains (losses) recorded for instruments for which we have elected the fair value option, including related parties and consolidated VIEs:

	Years ended December 31,		
(In millions)	2018	2017	2016
Trading securities	$ (255)	$ 30	$ (51)
Mortgage loans	—	(1)	—
Investment funds	37	35	54
Future policy benefits	182	(19)	(25)
Total gains (losses)	$ (36)	$ 45	$ (22)

Gains and losses on trading securities are recorded in investment related gains (losses) on the consolidated statements of income. For fair value option mortgage loans, we record interest income in net investment income and subsequent changes in fair value in investment related gains (losses) on the consolidated statements of income. Gains and losses related to investment funds, including related party investment funds, are recorded in net investment income on the consolidated statements of income. We record the change in fair value of future policy benefits to future policy and other policy benefits on the consolidated statements of income.

The following summarizes information for fair value option mortgage loans:

	December 31,	
(In millions)	2018	2017
Unpaid principal balance	$ 30	$ 40
Mark to fair value	2	1
Fair value	$ 32	$ 41

There were no fair value option mortgage loans 90 days or more past due as of December 31, 2018 and 2017.

ATHENE HOLDING LTD.
Notes to Consolidated Financial Statements

Level 3 Financial Instruments—The following is a reconciliation for all Level 3 assets and liabilities measured at fair value on a recurring basis

	Year ended December 31, 2018							
		Total realized and unrealized gains (losses)			Transfers			
(In millions)	Beginning Balance	Included in income	Included in OCI	Net purchases, issuances, sales and settlements	In	(Out)	Ending Balance	Total gains (losses) included in earnings[1]
Assets								
AFS securities								
Corporate	$ 578	$ (16)	$ (6)	$ 249	$ 97	$ (4)	$ 898	$ —
CLO	64	2	(2)	36	7	—	107	—
ABS	1,457	8	(11)	252	—	(91)	1,615	—
CMBS	137	1	—	132	15	(98)	187	—
RMBS	301	4	(11)	21	—	(259)	56	—
Trading securities								
U.S. state, municipal and political subdivisions	17	1	—	—	—	(18)	—	1
CLO	17	(9)	—	—	—	(7)	1	(6)
ABS	77	(6)	—	—	—	(71)	—	(2)
RMBS	342	(65)	—	—	—	(143)	134	5
Equity securities	8	2	—	(7)	—	—	3	2
Mortgage loans	41	—	—	(9)	—	—	32	—
Investment funds	41	(3)	—	(9)	—	—	29	(3)
Funds withheld at interest – embedded derivative	312	(255)	—	—	—	—	57	—
Investments in related parties								
AFS securities, ABS	4	—	(2)	326	—	—	328	—
Trading securities								
CLO	105	(13)	—	(18)	25	(21)	78	(5)
ABS	—	—	—	—	149	—	149	—
Equity securities	—	—	—	120	—	—	120	—
Investment funds	—	(3)	—	108	—	—	105	(3)
Funds withheld at interest – embedded derivative	—	(110)	—	—	—	—	(110)	—
Reinsurance recoverable	1,824	(148)	—	—	—	—	1,676	—
Investments of consolidated VIEs								
Trading securities	48	—	—	(13)	—	—	35	—
Equity securities	28	(12)	—	(3)	—	—	13	—
Investment funds	21	(3)	—	(3)	—	—	15	—
Total Level 3 assets	$ 5,422	$ (625)	$ (32)	$ 1,182	$ 293	$ (712)	$ 5,528	$ (11)
Liabilities								
Interest sensitive contract liabilities								
Embedded derivative	$ (7,411)	$ 923	$ —	$ (1,481)	$ —	$ —	$ (7,969)	$ —
Universal life benefits	(1,005)	73	—	—	—	—	(932)	—
Future policy benefits								
AmerUs Closed Block	(1,625)	182	—	—	—	—	(1,443)	—
ILICO Closed Block and life benefits	(803)	73	—	—	—	—	(730)	—
Derivative liabilities	(5)	1	—	—	—	—	(4)	1
Total Level 3 liabilities	$ (10,849)	$ 1,252	$ —	$ (1,481)	$ —	$ —	$ (11,078)	$ 1

[1] *Related to instruments held at end of period.*

	Year ended December 31, 2017							
		Total realized and unrealized gains (losses)			Transfers			
(In millions)	Beginning balance	Included in income	Included in OCI	Net purchases, issuances, sales and settlements	In	Out	Ending balance	Total gains (losses) included in earnings[1]
Assets								
Fixed maturity								
AFS securities								
U.S. state, municipal and political subdivisions	$ 5	$ 16	$ (1)	$ (20)	$ —	$ —	$ —	$ —
Foreign governments	14	—	—	—	—	(14)	—	—
Corporate	370	13	15	177	29	(26)	578	—
CLO	158	1	10	(31)	28	(102)	64	—
ABS	1,156	26	29	163	93	(10)	1,457	—
CMBS	152	1	(4)	28	51	(91)	137	—
RMBS	17	1	1	2	289	(9)	301	—
Trading securities								
U.S. state, municipal and political subdivisions	17	—	—	—	—	—	17	—
CLO	43	(4)	—	(12)	—	(10)	17	1
ABS	—	—	—	—	77	—	77	—
RMBS	96	(19)	—	70	195	—	342	7
Equity securities	5	—	—	3	—	—	8	—
Mortgage loans	44	(1)	—	(2)	—	—	41	(1)
Investment funds	—	—	—	—	41	—	41	—
Funds withheld at interest – embedded derivative	140	172	—	—	—	—	312	—
Investments in related parties								
AFS securities, ABS	60	—	1	(10)	—	(47)	4	—
Trading securities, CLO	195	(8)	—	(55)	—	(27)	105	(5)
Reinsurance recoverable	1,692	132	—	—	—	—	1,824	—
Investments of consolidated VIEs								
Trading securities	50	1	—	(3)	—	—	48	1
Equity securities	43	(16)	—	1	—	—	28	(16)
Investment funds	38	1	—	(18)	—	—	21	1
Total Level 3 assets	$ 4,295	$ 316	$ 51	$ 293	$ 803	$ (336)	$ 5,422	$ (12)
Liabilities								
Interest sensitive contract liabilities								
Embedded derivative	$ (5,272)	$ (1,744)	$ —	$ (395)	$ —	$ —	$ (7,411)	$ —
Universal life benefits	(883)	(122)	—	—	—	—	(1,005)	—
Future policy benefits								
AmerUs Closed Block	(1,606)	(19)	—	—	—	—	(1,625)	—
ILICO Closed Block and life benefits	(794)	(9)	—	—	—	—	(803)	—
Derivative liabilities	(7)	2	—	—	—	—	(5)	2
Total Level 3 liabilities	$ (8,562)	$ (1,892)	$ —	$ (395)	$ —	$ —	$ (10,849)	$ 2

[1] *Related to instruments held at end of period.*

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The following represents the gross components of purchases, issuances, sales and settlements, net, shown above:

	Year ended December 31, 2018				
(In millions)	Purchases	Issuances	Sales	Settlements	Net purchases, issuances, sales and settlements
Assets					
AFS securities					
Corporate	$ 351	$ —	$ (29)	$ (73)	$ 249
CLO	67	—	—	(31)	36
ABS	599	—	(35)	(312)	252
CMBS	151	—	(3)	(16)	132
RMBS	56	—	—	(35)	21
Trading securities					
CLO	7	—	(7)	—	—
Equity securities	1	—	(8)	—	(7)
Mortgage loans	—	—	—	(9)	(9)
Investment funds	—	—	—	(9)	(9)
Investments in related parties					
AFS securities, ABS	326	—	—	—	326
Trading securities, CLO	30	—	(48)	—	(18)
Equity securities	120	—	—	—	120
Investment funds	108	—	—	—	108
Investments of consolidated VIEs					
Trading securities	—	—	(13)	—	(13)
Equity securities	1	—	(4)	—	(3)
Investment funds	14	—	(17)	—	(3)
Total Level 3 assets	$ 1,831	$ —	$ (164)	$ (485)	$ 1,182
Liabilities					
Interest sensitive contract liabilities – embedded derivative	$ —	$ (1,888)	$ —	$ 407	$ (1,481)
Total Level 3 liabilities	$ —	$ (1,888)	$ —	$ 407	$ (1,481)

	Year ended December 31, 2017				
(In millions)	Purchases	Issuances	Sales	Settlements	Net purchases, issuances, sales and settlements
Assets					
AFS securities					
U.S. state, municipal and political subdivisions	$ —	$ —	$ —	$ (20)	$ (20)
Corporate	228	—	(36)	(15)	177
CLO	15	—	(2)	(44)	(31)
ABS	577	—	—	(414)	163
CMBS	29	—	—	(1)	28
RMBS	4	—	—	(2)	2
Trading securities					
CLO	4	—	(16)	—	(12)
RMBS	70	—	—	—	70
Equity securities	3	—	—	—	3
Mortgage loans	—	—	—	(2)	(2)
Investments in related parties					
AFS securities, ABS	5	—	—	(15)	(10)
Trading securities, CLO	—	—	(55)	—	(55)
Investments of consolidated VIEs					
Trading securities	—	—	(3)	—	(3)
Equity securities	1	—	—	—	1
Investment funds	1	—	(19)	—	(18)
Total Level 3 assets	$ 937	$ —	$ (131)	$ (513)	$ 293
Liabilities					
Interest sensitive contract liabilities – embedded derivative	$ —	$ (600)	$ —	$ 205	$ (395)
Total Level 3 liabilities	$ —	$ (600)	$ —	$ 205	$ (395)

Significant Unobservable Inputs—Significant unobservable inputs occur when we could not obtain or corroborate the quantitative detail of the inputs. This applies to fixed maturity securities, equity securities, mortgage loans and certain derivatives, as well as embedded derivatives in liabilities. Additional significant unobservable inputs are described below.

AFS and trading securities – For certain fixed maturity securities, internal models are used to calculate the fair value. We use a discounted cash flow approach. The discount rate is the significant unobservable input due to the determined credit spread being internally developed, illiquid, or as a result of other adjustments made to the base rate. The base rate represents a market comparable rate for securities with similar characteristics. As of December 31, 2018, discounts ranged from 5% to 9%, and as of December 31, 2017, discounts ranged from 2% to 6%. This excludes assets for which significant unobservable inputs are not developed internally, primarily consisting of broker quotes.

Interest sensitive contract liabilities – embedded derivative – Significant unobservable inputs we use in the fixed indexed annuities embedded derivative of the interest sensitive contract liabilities valuation include:

1. Nonperformance risk – For contracts we issue, we use the credit spread, relative to the U.S. treasury curve based on our public credit rating as of the valuation date. This represents our credit risk for use in the estimate of the fair value of embedded derivatives.
2. Option budget – We assume future hedge costs in the derivative's fair value estimate. The level of option budgets determines the future costs of the options and impacts future policyholder account value growth.
3. Policyholder behavior – We regularly review the lapse and withdrawal assumptions (surrender rate). These are based on our initial pricing assumptions updated for actual experience. Actual experience may be limited for recently issued products.

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The following summarizes the unobservable inputs for the embedded derivatives of fixed indexed annuities:

	December 31, 2018						
(In millions, except for percentages)	Fair value	Valuation technique	Unobservable inputs	Input/range of inputs			Impact of an increase in the input on fair value
Interest sensitive contract liabilities – fixed indexed annuities embedded derivatives	$ 7,969	Option budget method	Nonperformance risk	0.3%	–	1.5%	Decrease
			Option budget	0.7%	–	3.7%	Increase
			Surrender rate	3.6%	–	7.3%	Decrease

	December 31, 2017						
(In millions, except for percentages)	Fair value	Valuation technique	Unobservable inputs	Input/range of inputs			Impact of an increase in the input on fair value
Interest sensitive contract liabilities – fixed indexed annuities embedded derivatives	$ 7,411	Option budget method	Nonperformance risk	0.2%	–	1.2%	Decrease
			Option budget	0.7%	–	3.7%	Increase
			Surrender rate	1.5%	–	19.4%	Decrease

Fair Value of Financial Instruments Not Carried at Fair Value—The following represents our financial instruments not carried at fair value on the consolidated balance sheets:

	December 31, 2018					
(In millions)	Carrying Value	Fair Value	NAV	Level 1	Level 2	Level 3
Financial assets						
Mortgage loans	$ 10,308	$ 10,424	$ —	$ —	$ —	$ 10,424
Investment funds	521	521	521	—	—	—
Policy loans	488	488	—	—	488	—
Funds withheld at interest	14,966	14,966	—	—	—	14,966
Other investments	70	70	—	—	—	70
Investments in related parties						
Mortgage loans	291	290	—	—	—	290
Investment funds	2,031	2,031	2,031	—	—	—
Funds withheld at interest	13,687	13,687	—	—	—	13,687
Other investments	386	361	—	—	—	361
Assets of consolidated VIEs						
Investment funds	57	57	57	—	—	—
Total financial assets not carried at fair value	$ 42,805	$ 42,895	$ 2,609	$ —	$ 488	$ 39,798
Financial liabilities						
Interest sensitive contract liabilities	$ 54,655	$ 51,655	$ —	$ —	$ —	$ 51,655
Long-term debt	991	910	—	—	910	—
Funds withheld liability	722	722	—	—	722	—
Total financial liabilities not carried at fair value	$ 56,368	$ 53,287	$ —	$ —	$ 1,632	$ 51,655

	December 31, 2017					
(In millions)	Carrying Value	Fair Value	NAV	Level 1	Level 2	Level 3
Financial assets						
Mortgage loans	$ 6,192	$ 6,342	$ —	$ —	$ —	$ 6,342
Investment funds	554	554	554	—	—	—
Policy loans	542	542	—	—	542	—
Funds withheld at interest	6,773	6,773	—	—	—	6,773
Other investments	133	133	—	—	58	75
Investments in related parties						
Investment funds	1,280	1,280	1,280	—	—	—
Other investments	238	259	—	—	—	259
Assets of consolidated VIEs						
Investment funds	22	22	22	—	—	—
Total financial assets not carried at fair value	$ 15,734	$ 15,905	$ 1,856	$ —	$ 600	$ 13,449
Financial liabilities						
Interest sensitive contract liabilities	$ 31,878	$ 31,656	$ —	$ —	$ —	$ 31,656
Funds withheld liability	385	385	—	—	385	—
Total financial liabilities not carried at fair value	$ 32,263	$ 32,041	$ —	$ —	$ 385	$ 31,656

We estimate the fair value for financial instruments not carried at fair value using the same methods and assumptions as those we carry at fair value. The financial instruments presented above are reported at carrying value on the consolidated balance sheets; however, in the case of policy loans and funds withheld at interest and liability, the carrying amount approximates fair value.

Investment in related parties – Other investments – The fair value of related party other investments is determined using a discounted cash flow model using discount rates for similar investments.

Interest sensitive contract liabilities – The carrying and fair value of interest sensitive contract liabilities above includes fixed indexed and traditional fixed annuities without mortality or morbidity risks, funding agreements and payout annuities without life contingencies. The embedded derivatives within fixed indexed annuities without mortality or morbidity risks are excluded, as they are carried at fair value. The valuation of these investment contracts is based on discounted cash flow methodologies using significant unobservable inputs. The estimated fair value is determined using current market risk-free interest rates, adding a spread to reflect our nonperformance risk and subtracting a risk margin to reflect uncertainty inherent in the projected cash flows.

Long-term debt – We obtain the fair value of long-term debt from commercial pricing services. These are classified as Level 2. The pricing services incorporate a variety of market observable information in their valuation techniques, including benchmark yields, trading activity, credit quality, issuer spreads, bids, offers and other reference data.

7. Reinsurance

The following summarizes the effect of reinsurance on premiums and future policy and other policy benefits on the consolidated statements of income:

	Years ended December 31,		
(In millions)	2018	2017	2016
Premiums			
Direct	$ 2,772	$ 2,639	$ 448
Reinsurance assumed	1,001	21	20
Reinsurance ceded	(405)	(195)	(228)
Total premiums	$ 3,368	$ 2,465	$ 240
Future policy and other policy benefits			
Direct	$ 3,698	$ 3,476	$ 1,421
Reinsurance assumed	1,028	37	82
Reinsurance ceded	(539)	(313)	(473)
Total future policy and other policy benefits	$ 4,187	$ 3,200	$ 1,030

Reinsurance typically provides for recapture rights on the part of the ceding company for certain events of default. Additionally, some agreements require us to place assets in trust accounts for the benefit of the ceding entity. The required minimum assets are equal to or greater than statutory reserves, as defined by the agreement, and were $5,719 million and $1,123 million as of December 31, 2018 and 2017, respectively. Although we own the assets placed in trust, their use is restricted based on the trust agreement terms. If the statutory book value of the assets, or in certain cases fair value, in a trust declines because of impairments or other reasons, we may be required to contribute additional assets to the trust. In addition, the assets within a trust may be subject to a pledge in favor of the applicable reinsurance company.

Reinsurance transactions

Voya Financial, Inc. (Voya) – On June 1, 2018, we entered into coinsurance and modco agreements with Voya Insurance and Annuity Company (VIAC) to reinsure a block of fixed and fixed indexed annuities. VIAC is a related party pursuant to GAAP due to our minority equity investment in its holding company's parent, VA Capital Company LLC (VA Capital), as discussed further in *Note 17 – Related Parties*. Additionally, we entered into modco agreements with ReliaStar Life Insurance Company (RLI), a subsidiary of Voya, to reinsure a block of fixed and fixed indexed annuities. The following summarizes these reinsurance transactions (collectively, Voya reinsurance transactions):

	VIAC		RLI	
(In millions)	Coinsurance	Modco	Modco	Total
Liabilities assumed	$ 3,667	$ 14,911	$ 457	$ 19,035
Less: Assets received	3,478	14,332	445	18,255
Ceding commission (paid) received	(86)	(320)	12	(394)
Net cost of reinsurance	$ 275	$ 899	$ —	$ 1,174
DAC	$ 293	$ 999	$ 4	$ 1,296
Unearned revenue reserve[1]	(8)	(57)	(4)	(69)
Deferred profit liability[2]	(10)	(43)	—	(53)
Net cost of reinsurance	$ 275	$ 899	$ —	$ 1,174

[1] *Included within interest sensitive contract liabilities on the consolidated balance sheets.*
[2] *Included within future policy benefits on the consolidated balance sheets.*

DAC and unearned revenue reserve balances are amortized over the life of the reinsurance agreements on a basis consistent with our DAC amortization policy. The deferred profit liability balance is amortized over the life of the reinsurance agreement on a constant relationship to the benefit reserves.

The Lincoln National Life Insurance Company (*Lincoln)* – On December 7, 2018, we entered into a modco agreement with Lincoln, effective as of October 1, 2018, to reinsure an 80% quota share block of fixed deferred and fixed indexed annuities. The following summarizes this reinsurance transaction:

(In millions)	Modco
Liabilities assumed	$ 7,878
Less: Assets received	7,663
Ceding commission (paid) received	(266)
Net cost of reinsurance	$ 481
Net cost of reinsurance – DAC	$ 481

Athora – During the fourth quarter of 2018, we entered into a coinsurance agreement with Athora Lebensversicherung AG (ALV) to reinsure endowment contracts and annuities. We then retroceded these endowment contracts and annuities through a modco agreement to Athora Life Re Ltd. (ARE). These transactions will serve as a model for future transactions for Athora within the European market. We will earn a commission of 0.2% of reserves on the retrocession to ARE. See *Note 17 – Related Parties* for further information on other Athora transactions. The following summarizes these reinsurance transactions:

(In millions)	ALV Coinsurance	ARE Modco	Total
Liabilities assumed/funds withheld liability recorded	$ 325	$ 337	$ 662
Less: Assets recorded[1]	337	337	674
Deferred profit liability[2]	$ (12)	$ —	$ (12)

[1] *ALV coinsurance assets recorded as receivable in other assets on the consolidated balance sheets, as the assets were not received prior to December 31, 2018. ARE modco assets recorded as reinsurance recoverable on the consolidated balance sheets.*

[2] *Included within future policy and other policy benefits on the consolidated balance sheets.*

Global Atlantic – We have a 100% coinsurance and assumption agreement with Global Atlantic. The agreement ceded all existing open block life insurance business issued by Athene Annuity and Life Company (AAIA), with the exception of enhanced guarantee universal life insurance products. We also entered into a 100% coinsurance agreement with Global Atlantic to cede all policy liabilities of the ILICO Closed Block. The ILICO Closed Block consists primarily of participating whole life insurance policies. We also have an excess of loss arrangement with Global Atlantic to reimburse us for any payments required from our general assets to meet the contractual obligations of the AmerUs Closed Block not covered by existing reinsurance through Athene Re USA IV. The AmerUs Closed Block consists primarily of participating whole life insurance policies. Since all liabilities were covered by the existing reinsurance at close, no reinsurance premiums were ceded. The assets backing the AmerUs Closed Block are managed, on AAIA's behalf, by Goldman Sachs Asset Management, an affiliate of Global Atlantic.

We have novated certain open blocks of business ceded to Global Atlantic, in accordance with the terms of the coinsurance and assumption agreement. The below table summarizes the decreases in amounts on the consolidated balance sheets as a result of the novations. Novations during the year ended December 31, 2018 did not have a material effect on the consolidated balance sheets.

(In millions)	Year ended December 31, 2017
Interest sensitive contract liabilities	$ 653
Future policy benefits	116
Policy loans	22
Reinsurance recoverable	747

As of December 31, 2018 and 2017, Global Atlantic maintained a series of trust and custody accounts under the terms of these agreements with assets equal to or greater than a required aggregate statutory balance of $3,967 million and $3,350 million, respectively.

Protective Life Insurance Company (Protective) – We reinsured substantially all of the existing life and health business of Athene Annuity & Life Assurance Company (AADE) to Protective under a coinsurance agreement in 2011. As of December 31, 2018 and 2017, Protective maintained a trust for our benefit with assets having a fair value of $1,525 million and $1,688 million, respectively.

Reinsurance Recoverables—The following summarizes our reinsurance recoverable from the following:

	December 31,	
(In millions)	2018	2017
Global Atlantic	$ 3,166	$ 3,482
Protective	1,652	1,699
ARE	337	—
Other[1]	379	151
Reinsurance recoverable	$ 5,534	$ 5,332

[1]*Represents all other reinsurers, with no single reinsurer having a carrying value in excess of 5% of total recoverable.*

8. Deferred Acquisition Costs, Deferred Sales Inducements and Value of Business Acquired

The following represents a rollforward of DAC, DSI and VOBA:

(In millions)	DAC	DSI	VOBA	Total
Balance at December 31, 2015	$ 706	$ 320	$ 1,630	$ 2,656
Additions	601	200	—	801
Unlocking	(12)	(3)	(23)	(38)
Amortization	(113)	(36)	(156)	(305)
Impact of unrealized investment (gains) losses	(37)	(19)	(99)	(155)
Balance at December 31, 2016	1,145	462	1,352	2,959
Additions	493	161	—	654
Unlocking	13	4	(1)	16
Amortization	(194)	(67)	(162)	(423)
Impact of unrealized investment (gains) losses	(82)	(40)	(112)	(234)
Balance at December 31, 2017	1,375	520	1,077	2,972
Additions	2,481	264	—	2,745
Unlocking	21	7	54	82
Amortization	(108)	(61)	(141)	(310)
Impact of unrealized investment (gains) losses	152	69	197	418
Balance at December 31, 2018	$ 3,921	$ 799	$ 1,187	$ 5,907

The expected amortization of VOBA for the next five years is as follows:

(In millions)	Expected Amortization
2019	$ 73
2020	77
2021	72
2022	68
2023	68

9. Closed Block

We pay guaranteed benefits under all policies included in the Closed Blocks. In the event the performance of the Closed Blocks' assets is insufficient to maintain dividend scales and interest credits, we may reduce the policyholder dividend scales. In the event dividends have been reduced to zero and the Closed Blocks' assets remain insufficient to fund the Closed Blocks' guaranteed benefits, we would use assets supporting open block policies or surplus to meet the contractual benefits of the Closed Blocks' policyholders. The ILICO Closed Block has been ceded to Global Atlantic. Therefore, Global Atlantic would be required to provide funding for any asset insufficiency related to the ILICO Closed Block. Additionally, the AmerUs Closed Block has a letter of credit and tail risk reinsurance agreement in place that limits our exposure to potential asset insufficiency.

We elected the fair value option for the AmerUs Closed Block. The fair value of liabilities of the AmerUs Closed Block was derived at election as the sum of the fair value of the AmerUs Closed Block assets plus our cost of capital in the AmerUs Closed Block. The cost of capital was then determined to be the present value of the projected release of required capital and future after tax earnings on required capital supporting the AmerUs Closed Block, discounted at a rate which represents a market participant's required rate of return, less the initial required capital. At each reporting period, we record the fair value of the AmerUs Closed Block by adjusting the change in liabilities, exclusive of the cost of capital, to equal the change in assets. We do not record additional policyholder dividend obligations, as there are no future GAAP earnings available to the policyholders.

The excess of the fair value of the liabilities over the fair value of the assets represents our cost of capital in the AmerUs Closed Block. The maximum amount of future earnings from the assets and liabilities of the AmerUs Closed Block is represented by the reduction in the cost of capital in future years based on the operations of the AmerUs Closed Block and recalculation of the cost of capital each reporting period.

Summarized financial information of the AmerUs Closed Block is presented below.

	December 31,	
(In millions)	2018	2017
Liabilities		
Future policy benefits	$ 1,443	$ 1,625
Other policy claims and benefits	14	19
Dividends payable to policyholders	89	92
Other liabilities	—	15
Total liabilities	1,546	1,751
Assets		
Trading securities	1,228	1,377
Mortgage loans, net of allowances	32	41
Policy loans	154	168
Total investments	1,414	1,586
Cash and cash equivalents	31	48
Accrued investment income	41	36
Reinsurance recoverable	22	25
Other assets	2	—
Total assets	1,510	1,695
Maximum future earnings to be recognized from AmerUs Closed Block	$ 36	$ 56

The following represents the contribution from AmerUs Closed Block.

	Years ended December 31,		
(In millions)	2018	2017	2016
Revenues			
Premiums	$ 48	$ 58	$ 24
Net investment income	77	79	84
Investment related gains (losses)	(118)	61	42
Total revenues	7	198	150
Benefits and Expenses			
Future policy and other policy benefits	(49)	144	107
Dividends to policyholders	36	51	40
Total benefits and expenses	(13)	195	147
Contribution from AmerUs Closed Block before income taxes	20	3	3
Income tax expense (benefit)	—	(5)	3
Contribution from AmerUs Closed Block, net of income taxes	$ 20	$ 8	$ —

10. Debt

Credit Facility—In 2016, we entered into a five-year revolving credit agreement (Credit Facility) with Citibank, N.A., as administrative agent. The borrowing capacity under the Credit Facility is $1 billion. In connection with the Credit Facility, AHL and Athene USA guaranteed all of the obligations of AHL, ALRe, Athene Annuity Re Ltd. (AARe) and Athene USA under this facility, and ALRe and AARe guaranteed certain of the obligations of AHL and Athene USA under this facility. The Credit Facility contains various standard covenants with which we must comply, including the following:

1. Consolidated debt to capitalization ratio of not greater than 35%;
2. Minimum consolidated net worth of no less than the sum of (a) $3.7 billion and (b) an amount equal to 50% of the net cash proceeds received in any equity issuances occurring after January 22, 2016; and
3. Restrictions on our ability to incur debt and liens and to declare or pay dividends, in each case with certain exceptions.

As of December 31, 2018 and 2017, we had no amounts outstanding under the Credit Facility and were in compliance with all covenants under this facility.

Interest accrues on outstanding borrowings at the London Interbank Offered Rate (LIBOR) plus a margin or a base rate plus a margin, with the applicable margin varying based on AHL's issuer credit rating. The Credit Facility has a commitment fee that is determined by reference to AHL's issuer credit rating, and ranges from 0.15% to 0.50% of the unused commitment. As of December 31, 2018 and 2017, the commitment fee was 0.225% of the unused commitment.

Senior Notes—In the first quarter of 2018, AHL issued $1 billion of unsecured senior notes due in January 2028. The senior notes have a 4.125% coupon rate, payable semi-annually. The senior notes are callable at any time prior to October 12, 2027 by AHL, at a price equal to the greater of (1) 100% of the principal and any accrued and unpaid interest and (2) an amount equal to the sum of the present values of remaining scheduled payments, discounted from the scheduled payment date to the redemption date at the Treasury Rate (as defined in the prospectus supplement relating to the senior notes, dated January 9, 2018) plus 25 basis points, and any accrued and unpaid interest. Interest expense on long-term debt was $41 million for the year ended December 31, 2018.

11. Common Stock

We have six classes of common stock: Class A, Class B, Class M-1, Class M-2, Class M-3 and Class M-4. The Class M-1, Class M-2, Class M-3 and Class M-4 shares are collectively referred to as Class M shares.

Class A shares collectively represent 55% of the total voting power of the Company. Class B shares collectively represent the remaining 45% of the total voting power of the Company, and are beneficially owned by shareholders who are members of the Apollo Group, as defined in our bye-laws. Class B shares can be converted to Class A shares on a one-to-one basis at any time upon notice to us. Class M shares are restricted, non-voting shares issued under equity incentive plans. Our bye-laws place certain restrictions on Class A shares such that (1) a holder of Class A shares, including its affiliates, cannot control greater than 9.9% of the total outstanding vote and if a holder of Class A shares were to control greater than 9.9%, then a holder's voting power is automatically reduced to 9.9% and the other holders of Class A shares would vote the remainder on a prorated basis, (2) the total voting power held by members of our management and employees of the Apollo Group is limited to 3% and (3) Class A shares may be deemed non-voting when owned by a shareholder who owns Class B shares, has an equity interest in certain Apollo entities, or is a member of the Apollo Group.

Repurchase Authorization

In the fourth quarter of 2018, our board of directors approved a share repurchase program, which authorizes us to repurchase up to $250 million of Class A shares. We may repurchase shares in open market transactions, in privately negotiated transactions or otherwise. The size and timing of repurchases will depend on legal requirements, market and economic conditions and other factors, and are solely at our discretion. The program has no expiration date, but may be modified, suspended or terminated by the board at any time. We repurchased 2.5 million Class A shares for $100 million under this authorization during the year ended December 31, 2018.

Other Share Activities

2018

- In the first quarter, a total of 21.9 million Class B shares were converted into Class A shares pursuant to a distribution of common shares from AP Alternative Assets, L.P. (AAA) to AAA unitholders.

2017

- In the fourth quarter, a total of 21.4 million Class B shares were converted into Class A shares pursuant to a distribution of common shares from AP Alternative Assets, L.P. (AAA) to AAA unitholders.
- As a result of the lockup releases during the year, 1.3 million Class B shares were converted into Class A shares.
- During the year, we completed two follow-on offerings of our Class A common shares. Shareholders sold 50.3 million existing Class A shares through the offerings. We did not sell any shares in the follow-on offerings. A total of 41.7 million Class B shares were converted into Class A shares on a one-for-one basis in order to participate in the follow-on offerings.

2016

- We issued 3.1 million Class A shares during the fourth quarter of 2016 from conversion of Class M-1, M-2, M-3 and M-4 shares and settlement of Class M-4 RSUs. All conversions were settled in shares net of the conversion price and, as a result, no proceeds were received from the conversions.
- On December 14, 2016, we completed the initial public offering (IPO) of our Class A common shares. Shareholders sold 31.1 million existing Class A shares through the offering. We did not sell any shares in the IPO. A total of 24.2 million Class B shares were converted into Class A shares on a one-for-one basis in order to participate in the IPO.

As of December 31, 2018, we had 150 million shares of capital stock authorized which remain undesignated.

The table below shows the changes in each class of shares issued and outstanding:

	Years ended December 31,		
(In millions)	2018	2017	2016
Class A			
Beginning balance	142.4	77.3	50.1
Issued shares	0.6	0.7	3.3
Forfeited shares	—	—	—
Repurchased shares	(2.6)	—	(0.3)
Converted from Class B shares	22.0	64.4	24.2
Ending balance	162.4	142.4	77.3
Class B			
Beginning balance	47.4	111.8	136.0
Converted to Class A shares	(22.0)	(64.4)	(24.2)
Ending balance	25.4	47.4	111.8
Class M-1			
Beginning balance	3.4	3.5	5.2
Converted to Class A shares	—	(0.1)	(1.1)
Forfeited shares	—	—	(0.3)
Repurchased shares	—	—	(0.3)
Ending balance	3.4	3.4	3.5
Class M-2			
Beginning balance	0.9	1.1	3.1
Converted to Class A shares	(0.1)	(0.2)	(1.7)
Forfeited shares	—	—	(0.2)
Repurchased shares	—	—	(0.1)
Ending balance	0.8	0.9	1.1
Class M-3			
Beginning balance	1.1	1.3	3.1
Converted to Class A shares	(0.1)	(0.2)	(1.5)
Forfeited shares	—	—	(0.2)
Repurchased shares	—	—	(0.1)
Ending balance	1.0	1.1	1.3
Class M-4			
Beginning balance	4.7	5.4	5.0
Issued shares	—	—	1.0
Converted to Class A shares	(0.5)	(0.2)	(0.1)
Forfeited shares	—	(0.1)	(0.4)
Repurchased shares	(0.1)	(0.4)	(0.1)
Ending balance	4.1	4.7	5.4

12. Stock-based Compensation

We adopted share incentive plans in 2009, 2012 and 2014. The 2009 and 2012 share incentive plans were amended and restated in 2014 (2014 Modification), along with the adoption of the 2014 share incentive plan (2014 Plan). In 2016, we modified certain share agreements (2016 Modification) and adopted the 2016 share incentive plan (2016 Plan). With the adoption of the 2016 Plan, the 2009, 2012 and 2014 share incentive plans were frozen and no additional awards may be granted under those plans.

The purpose of our share incentive plans is to provide an incentive to achieve long-term company goals and align the interests of our employees, our directors and AAM employees with those of our shareholders. See *Note 17 – Related Parties* regarding our relationship with AAM. Under the share incentive plans, we may issue nonqualified stock options, incentive stock options, rights to purchase shares, restricted shares, RSUs and other awards which may be settled in, or based upon, our common shares. The aggregate number of shares authorized for issuance under the 2016 Plan is 3.5 million Class A shares. Shares issued upon settlement of an award are newly issued shares.

Through the share incentive plans, we have issued the following categories of stock-based compensation: long-term incentive plan (LTIP) awards and Class M awards.

LTIP awards—We issued awards consisting of time and performance-based RSUs and time-based stock options for Class A shares. RSUs represent a contractual right to receive Class A shares and may be settled in shares or cash at our election. Stock options represent a right to purchase Class A shares at a specified exercise price.

Vesting – Time-based RSUs and stock options vest in one-third increments on the first through third anniversaries of the vesting inception date. The performance-based RSUs have three-year cliff vesting based on meeting company-specific performance thresholds.

Contractual terms – Stock options expire on the tenth anniversary of the date of grant.

Stock Options – A rollforward of activity for the year ended December 31, 2018 for stock options is as follows:

(In millions, except per share data)	Options	Weighted Average Exercise Price	Aggregate Intrinsic Value
Outstanding at January 1, 2018	0.8	$ 41.19	
Granted	0.3	48.06	
Exercised	0.0	33.95	
Forfeited	(0.1)	47.01	
Outstanding at December 31, 2018	1.0	$ 43.34	
Vested and expected to vest[1] at December 31, 2018	1.0	$ 43.34	$ 2
Exercisable at December 31, 2018	0.4	$ 38.58	$ 2

[1] *Expected to vest are unvested options for which the requisite service period has not been rendered but that are expected to vest based on the achievement of a performance condition.*

The weighted average grant date fair value of stock options granted during the years ended December 31, 2018, 2017 and 2016 was $9.43, $9.44 and $5.83, respectively. The total intrinsic value of stock options exercised during the years ended December 31, 2018 and 2017 was not material. No options were exercised or exercisable during the year ended December 31, 2016.

Valuation Assumptions – We determine the fair value at grant date for stock options using the Black-Scholes option pricing model. The following represents the assumptions used for the fair value at grant date:

	Years ended December 31,		
Assumptions used	2018	2017	2016
Risk-free interest rate	2.4% – 2.6%	1.5%	1.0%
Expected dividend yield	—%	—%	—%
Expected volatility	25.0% – 26.0%	25.0% – 28.4%	25.0%
Expected term (in years)	2.46 – 2.86	2.34 – 2.81	2.63

The risk-free interest rate is derived from U.S. Constant Maturity Treasury yield at the valuation date, with maturity corresponding to weighted-average expected term. The expected dividend yield is based on our historical and expected dividend payments, which have been zero to date. Absent sufficient historical experience of our shares being traded on a public market, we have estimated volatility of our share price based on the published historical volatilities of comparable publicly-traded companies over a period consistent with the expected life of the award being valued. The expected term represents the weighted average period of time that awards granted are expected to be outstanding as determined at the grant date of the award.

RSUs – The following represents the activity of nonvested LTIP RSUs for the year ended December 31, 2018:

(In millions, except per share data)	RSUs	Weighted Average Grant Date Fair Value
Nonvested at January 1, 2018	0.5	$ 42.03
Granted	0.2	47.97
Vested	(0.1)	41.84
Forfeited	0.0	41.41
Nonvested at December 31, 2018	0.6	$ 44.19

The fair value of the award is determined based on the fair value of our Class A shares on the grant date. The weighted average grant date fair value of LTIP RSUs granted during the years ended December 31, 2017 and 2016 was $51.28 and $33.95, respectively. During the years ended December 31, 2018 and 2017, the total intrinsic value of LTIP RSUs converted was $3 million and $2 million, respectively. As of December 31, 2016, no LTIP RSUs were vested.

Class M awards—We have issued Class M shares and RSUs concurrently with the timing of capital raises, in order to align management incentives with shareholder investments.

Class M shares function similar to options in that they are exchangeable into Class A shares upon payment of a conversion price and other conditions being met. The settlement value of the RSUs is based upon the value of the Class A shares at the time of settlement after deducting the conversion price of the RSUs. RSUs may be settled either in cash or Class A shares at our election. A portion of the Class M shares and RSUs are subject to time vesting conditions (Tranche 1), and the remainder are subject to certain performance-based vesting conditions (Tranche 2). Vesting conditions are further described below.

The nature and terms of the Class M shares are generally consistent across each class. In October 2015, we issued Class M-4 shares with a different Tranche 2 performance condition than the original Class M-4 award. These shares are referred to as Class M-4 Prime. This vesting condition and any other significant differences between classes are separately identified in the following discussion.

Class M share vesting – Tranche 1 shares generally vest in 20% increments on the first through fifth anniversaries of the earlier of the date of grant or vesting inception date. Tranche 1 shares also automatically vest upon the sale of the Company or change in control, prior to the participant’s termination or within six months following a qualifying termination. Unvested Tranche 1 shares are forfeited upon a participant’s termination.

Tranche 2 awards vest if certain performance hurdles are met, described as follows:

- *Class M-4 (excluding M-4 Prime)* – The vesting performance hurdles for Class M-4 shares have been met and were based on the rate of return and realized cash received by certain holders of our shares (Relevant Investors), as defined in the incentive plan, upon sale of their shares or based on deemed sales by Relevant Investors.
- *Class M-4 Prime* – The vesting performance hurdle is based on the attainment of specified Class A share prices following an IPO. Vesting will also occur upon a sale of the Company or change in control in which Class A Shares are valued at the respective hurdle share price. Any unvested Tranche 2 shares remaining as of the tenth anniversary of the grant date are forfeited.

Although the Class M shares function similar to options, they are equity shares, and have dividend rights upon satisfaction of certain conditions and no expiration date once vested. Prior to vesting, if Class M shares are eligible for dividends, any dividends paid would accrue on the unvested M shares; however, if the M share is forfeited, the accrued dividend would also be forfeited.

Conversion to Class A shares – Vested Class M shares are eligible for conversion to Class A shares subject to payment of the conversion price for each Class M share converted. A holder of vested Class M shares may elect to exchange vested shares for an equivalent number of Class A shares upon payment, in cash or shares, of the conversion price less the amount of any dividends paid by the Company on Class A shares subsequent to the granting of Class M shares. Following a conversion to Class A shares, shares can be sold subject to contractual transfer or legal restrictions, such as lockups, blackout periods or affiliate sale volume caps.

2016 Modification – On September 30, 2016, we modified Class M-1, M-2 and M-3 share agreements to vest all Tranche 2 performance-based shares. The compensation committee approved the modification given that vesting of the shares in the near future was probable. We also amended the conversion option, which previously allowed conversion of vested shares only subsequent to an IPO. Under the modified conversion terms, individuals with certain limited exceptions were able elect up to three conversion options including conversion at a specified date prior to an IPO, on the date of an IPO, or ratably each month for six months after an IPO. The modifications impacted 27 individuals.

As a result of the modifications, we recorded an $83 million increase to additional paid-in capital, due to the reclassification of the Tranche 2 shares from liability awards to equity awards. We also recorded a $42 million charge to stock-based compensation expense and additional paid-in capital for the vesting of Tranche 2 shares, primarily related to the acceleration of previously unrecognized compensation expense.

Valuation Assumptions for Class M Shares—The fair value of the Class M shares is determined using the Black-Scholes option pricing model, with application of a Monte-Carlo simulation to determine the value of the Tranche 2 Class M shares. No Tranche 2 Class M shares were granted during the years ended December 31, 2018 and 2017. Grant date assumptions used for valuation of Class M share awards for the year ended December 31, 2016 were:

Assumptions used	Year ended December 31, 2016
Athene Class A share value	$32.90
Risk-free interest rate	0.5% – 1.8%
Expected dividend yield	—%
Expected volatility	30.0%
Expected term (in years)	3.00

The fair value of the Class A shares subsequent to our IPO is determined based on the publicly traded closing price on the New York Stock Exchange. During 2016, prior to our IPO, the fair value was determined based on a GAAP book value multiple approach. Under this approach, we used a comparable peer set of public companies and their share price to book value ratio, less applicable discounts for lack of marketability of AHL, in order to determine the AHL Class A share price.

The expected term represents the weighted average period of time that awards granted are expected to be outstanding. The expected term is determined from the modification date, the grant date or the period end date, depending on the accounting treatment for each award.

In addition, the Tranche 2 Class M share assumptions include an estimate of the probability of the vesting conditions being met. This assumption is developed by using a Monte-Carlo simulation to generate the possible future value of the Company's equity at a liquidity event to determine the percentage of Tranche 2 Class M shares that vest for each simulated path. The fair value of the Tranche 2 Class M shares is then estimated by averaging the value for all simulated paths and discounting the results at the risk-free interest rate to the valuation date.

The basis for determining the remaining assumptions is consistent with those discussed for LTIP awards above.

Award activity for Class M Shares—A rollforward of award activity for the year ended December 31, 2018 of the Class M shares is as follows:

	Tranche 1			Tranche 2			Total	
(In millions, except per share data)	Class M Shares	Weighted Average Conversion Price	Aggregate Intrinsic Value	Class M Shares	Weighted Average Conversion Price	Aggregate Intrinsic Value	Class M Shares	Weighted Average Conversion Price
Outstanding at January 1, 2018	3.9	$ 18.30		5.8	$ 19.19		9.7	$ 18.83
Converted	(0.2)	21.42		(0.3)	22.86		(0.5)	22.37
Forfeited	0.0	23.62		—	—		0.0	23.62
Repurchased	0.0	30.79		0.0	26.23		0.0	28.94
Outstanding at December 31, 2018	3.7	$ 17.97		5.5	$ 18.94		9.2	$ 18.55
Vested and expected to vest[1] at December 31, 2018	3.7	$ 17.97	$ 80	5.5	$ 18.94	$ 115		
Convertible at December 31, 2018	3.0	$ 15.36	$ 72	4.3	$ 15.93	$ 102		

[1] *Expected to vest are unvested shares for which the requisite service period has not been rendered but that are expected to vest based on the achievement of a performance condition.*

The following represents the activity of nonvested Class M shares for the year ended December 31, 2018:

	Tranche 1		Tranche 2		Total	
(In millions, except per share data)	Class M Shares	Weighted Average Grant Date Fair Value	Class M Shares	Weighted Average Grant Date Fair Value	Class M Shares	Weighted Average Grant Date Fair Value
Nonvested at January 1, 2018	1.1	$ 7.97	1.4	$ 13.81	2.5	$ 11.29
Vested	(0.4)	5.68	(0.2)	12.60	(0.6)	8.22
Forfeited	0.0	6.14	—	—	0.0	6.14
Nonvested at December 31, 2018	0.7	$ 9.28	1.2	$ 14.03	1.9	$ 12.31

The weighted average grant date fair value of Class M share awards granted during the year ended December 31, 2016 was $10.43.

The total fair value of vested Tranche 1 Class M shares was $5 million, $16 million and $92 million during the years ended December 31, 2018, 2017 and 2016, respectively. The total fair value of vested Tranche 2 Class M shares was $3 million, $40 million and $122 million during the years ended December 31, 2018, 2017 and 2016, respectively.

The total intrinsic value of M shares converted during the years ended December 31, 2018, 2017 and 2016 was $11 million, $29 million and $117 million, respectively.

Employee Stock Purchase Plan—Eligible employees may participate in our 2017 Employee Stock Purchase Plan (ESPP), which provides the opportunity to purchase our Class A shares at a discount from the market price through payroll deductions. Pursuant to the ESPP, employees are permitted to purchase shares at a price equal to 85% of the fair value of such shares as determined by reference to the closing price of our Class A shares on the New York Stock Exchange on the last day of the relevant purchase period. Under the ESPP we may make available for sale up to 3.8 million Class A shares over the term of the ESPP, which may extend for up to 10 years. The number of shares sold under the ESPP during the years ended December 31, 2018 and 2017 were not material.

Compensation expense—Compensation expense is recognized based on the number of awards expected to vest, which represents the awards granted less actual forfeitures when they occur, if any.

Class M shares with Tranche 1 vesting requirements are accounted for as equity awards and related compensation expense is recognized ratably over the vesting period. The expense for Tranche 1 shares issued to employees is calculated based on grant date fair value multiplied by the number of shares awarded. The expense for Tranche 1 shares issued to non-employees (i.e. AAM participants) is recognized initially at the grant date fair value multiplied by the number of shares. However, the fair value of the awards are revalued each reporting period through completion of counterparty performance to coincide with the fair value of the services provided by the non-employees. The result of the revaluation is recognized in the period in which the revaluation occurs.

Employee and non-employee Tranche 2 shares, excluding M-4 Prime, are accounted for as liability awards. Compensation expense for all participants is remeasured each reporting period through settlement at the fair value of the awards, factoring in the probability of achieving the vesting targets described above. Upon vesting of Tranche 2 shares, the liability is reclassified to equity because the vesting condition which resulted in liability classification is no longer present, and is measured at fair value on the date of reclassification.

Tranche 2 M-4 Prime shares are accounted for as equity awards with expense recognition having commenced upon completion of our IPO. Compensation expense is calculated based on the grant date fair value of such awards multiplied by the number of shares awarded.

LTIP awards are accounted for as equity awards. Expense for time-based RSUs and options is recognized ratably over the vesting period based on the number of shares expected to vest. Expense for performance-based RSUs is further adjusted by the performance factor most likely to be achieved, as estimated by management at the end of the performance period.

Components of stock compensation expense recorded on the consolidated statements of income are as follows:

	Years ended December 31,		
(In millions)	2018	2017	2016
Class M – Tranche 1	$ 3	$ 8	$ 11
Class M – Tranche 2	4	21	69
LTIP, ESPP and other equity awards	19	16	4
Stock-based compensation expense	$ 26	$ 45	$ 84

As of December 31, 2018, the Class M shares had unrecognized compensation cost of $5 million for Tranche 1 and $4 million for Tranche 2 and the cost is expected to be recognized over a weighted-average period of 1.0 years and 0.6 years, respectively. Unrecognized compensation cost of $16 million for LTIP awards is expected to be recognized over a weighted-average period of 1.0 years.

13. Earnings Per Share

The following represents our basic and diluted EPS calculations:

	Year ended December 31, 2018					
(In millions, except per share data)	Class A	Class B	Class M-1	Class M-2	Class M-3	Class M-4
Net income – basic and diluted	$ 857	$ 157	$ 18	$ 5	$ 5	$ 11
Basic weighted average shares outstanding	160.5	29.3	3.4	0.8	1.0	2.1
Dilutive effect of stock compensation plans	0.6	—	—	—	—	0.6
Diluted weighted average shares outstanding	161.1	29.3	3.4	0.8	1.0	2.7
Earnings per share						
Basic	$ 5.34	$ 5.34	$ 5.34	$ 5.34	$ 5.34	$ 5.34
Diluted	$ 5.32	$ 5.34	$ 5.34	$ 5.31	$ 5.31	$ 4.11

	Year ended December 31, 2017					
(In millions, except per share data)	Class A	Class B	Class M-1	Class M-2	Class M-3	Class M-4
Net income – basic	$ 749	$ 567	$ 24	$ 4	$ 5	$ 9
Effect of stock compensation plans on allocated net income	18	—	—	—	—	—
Net income – diluted	$ 767	$ 567	$ 24	$ 4	$ 5	$ 9
Basic weighted average shares outstanding	107.7	81.6	3.4	0.6	0.7	1.3
Dilutive effect of stock compensation plans	3.3	—	—	0.3	0.5	1.6
Diluted weighted average shares outstanding	111.0	81.6	3.4	0.9	1.2	2.9
Earnings per share						
Basic	$ 6.95	$ 6.95	$ 6.95	$ 6.95	$ 6.95	$ 6.95
Diluted	$ 6.91	$ 6.95	$ 6.95	$ 5.05	$ 3.86	$ 3.10

	Year ended December 31, 2016		
(In millions, except per share data)	Class A	Class B	Class M-1
Net income – basic	$ 216	$ 556	$ 1
Effect of stock compensation plans on allocated net income	1	—	—
Net income – diluted	$ 217	$ 556	$ 1
Basic weighted average shares outstanding	52.1	134.5	0.2
Dilutive effect of stock compensation plans	1.4	—	4.2
Diluted weighted average shares outstanding	53.5	134.5	4.4
Earnings per share			
Basic	$ 4.14	$ 4.14	$ 4.14
Diluted	$ 4.04	$ 4.14	$ 0.20

We use the two-class method for allocating net income to each class of our common stock. Our Class M shares did not become eligible to participate in dividends until a return of investment (ROI) condition had been met for each class. Once eligible, each class of our common stock has equal dividend rights. In conjunction with our IPO in the fourth quarter of 2016, the ROI condition for Class M-1 was met. The ROI condition was met for Class M-2 on March 28, 2017, and for Class M-3 and Class M-4 on April 20, 2017. For purposes of calculating basic weighted average shares outstanding and the allocation of basic income, shares are deemed to be participating in earnings for only the portion of the period after the condition is met. For purposes of calculating diluted weighted average shares outstanding, shares are deemed dilutive as of the beginning of the period.

Dilutive shares are calculated using the treasury stock method. For Class A shares, this method takes into account shares that can be settled into Class A shares, net of a conversion price. The diluted EPS calculations for Class A shares excluded the following shares, RSUs and options:

	Years ended December 31,		
(In millions)	2018	2017	2016
Antidilutive shares, RSUs and options excluded from diluted EPS calculation	34.7	50.9	113.5
Shares, RSUs and options excluded from diluted EPS calculation as a performance condition had not been met	0.2	1.4	2.5
Total shares, RSUs and options excluded from diluted EPS calculation	34.9	52.3	116.0

Note: Shares, RSUs and options are as of year end.

14. Accumulated Other Comprehensive Income (Loss)

The following is a detail of AOCI and changes in AOCI. Prior period balances include equity securities that were classified as AFS securities prior to the adoption of ASU 2016-01.

	December 31,	
(In millions)	2018	2017
AFS securities	$ (766)	$ 2,577
DAC, DSI, VOBA, future policy benefits and dividends payable to policyholders adjustments on AFS securities	154	(703)
Noncredit component of OTTI losses on AFS securities	(19)	(13)
Hedging instruments	51	(95)
Pension adjustments	(2)	(5)
Foreign currency translation adjustments	(3)	8
Accumulated other comprehensive income (loss), before taxes	(585)	1,769
Deferred income taxes	113	(320)
Accumulated other comprehensive income (loss)	**$ (472)**	**$ 1,449**

Changes in AOCI are presented below:

	Years ended December 31,		
(In millions)	2018	2017	2016
Unrealized investment gains (losses) on AFS securities			
Unrealized investment gains (losses) on AFS securities	$ (3,291)	$ 1,680	$ 1,397
Change in DAC, DSI, VOBA, future policy benefits and dividends payable to policyholders adjustment	853	(293)	(495)
Less: Reclassification adjustment for gains (losses) realized in net income[1]	4	75	20
Less: Income tax expense (benefit)	(461)	355	262
Net unrealized investment gains (losses) on AFS securities	(1,981)	957	620
Noncredit component of OTTI losses on AFS securities			
Noncredit component of OTTI losses on AFS securities	(9)	(5)	(9)
Less: Reclassification adjustment for losses realized in net income[1]	(3)	(9)	(7)
Less: Income tax expense (benefit)	(1)	1	—
Net noncredit component of OTTI losses on AFS securities	(5)	3	(2)
Unrealized gains (losses) on hedging instruments			
Unrealized gains (losses) on hedging instruments	146	(105)	(5)
Less: Income tax expense (benefit)	31	(22)	(2)
Net unrealized gains (losses) on hedging instruments	115	(83)	(3)
Pension adjustments	3	(1)	—
Foreign currency translation adjustments	(11)	20	(8)
Change in AOCI from comprehensive income (loss)	(1,879)	896	607
Adoption of accounting standards	(42)	187	—
Change in AOCI	$ (1,921)	$ 1,083	$ 607

[1] *Recognized in investment related gains (losses) on the consolidated statements of income.*

15. Income Taxes

Income tax expense consists of the following:

	Years ended December 31,		
(In millions)	2018	2017	2016
Current	$ 78	$ 5	$ (33)
Deferred	44	101	(28)
Income tax expense (benefit)	$ 122	$ 106	$ (61)

Income tax expense was calculated based on the following components of income before income taxes:

	Years ended December 31,		
(In millions)	2018	2017	2016
Income before income taxes – Bermuda	$ 641	$ 1,165	$ 566
Income before income taxes – Germany	—	25	12
Income before income taxes – U.S.	534	274	134
Income before income taxes	$ 1,175	$ 1,464	$ 712

The expected tax provision computed on pre-tax income at the weighted average tax rate has been calculated as the sum of the pre-tax income in each jurisdiction multiplied by that jurisdiction's applicable statutory tax rate. Statutory tax rates of 0% and 21% have been used for Bermuda and the United States, respectively, for the year ended December 31, 2018. Statutory tax rates of 0%, 31% and 35% have been used for Bermuda, Germany and the United States, respectively, for the years ended December 31, 2017 and 2016. A reconciliation of the difference between the expected tax provision at the weighted average tax rate and income tax expense (benefit) is as follows:

	Years ended December 31,		
(In millions)	2018	2017	2016
Expected tax provision computed on pre-tax income at weighted average income tax rate	$ 112	$ 104	$ 51
Increase (decrease) in income taxes resulting from:			
Deferred tax valuation allowance	—	(5)	(116)
Prior year true-up	11	8	1
Corporate owned life insurance	(3)	(8)	(7)
Stock compensation expense	1	5	5
Change in statutory tax rates	—	(7)	—
State taxes and other	1	9	5
Income tax expense (benefit)	$ 122	$ 106	$ (61)
Effective tax rate	10%	7%	(9)%

Public Law no. 115-97, an Act to provide for reconciliation pursuant to titles II and V of the concurrent resolution on the budget for fiscal year 2018 (Tax Act) was enacted on December 22, 2017 and made key changes to the U.S. tax law, including the reduction of the U.S. statutory tax rate from 35% to 21%. As such, the December 31, 2017 deferred tax balances were remeasured to reflect the reduction in rate and the resulting decrease to the net deferred tax liability is included in change in statutory tax rates of the reconciliation above.

During the third quarter of 2016, we identified a tax plan that allows us to use a significant portion of the U.S. non-life insurance companies' net operating losses and other deductible temporary differences. As a result, we released the corresponding deferred tax valuation allowance of $102 million, as it is more likely than not that these attributes will be realized.

Total income taxes were as follows:

	Years ended December 31,		
(In millions)	2018	2017	2016
Income tax expense (benefit)	$ 122	$ 106	$ (61)
Income tax expense (benefit) from OCI	(431)	334	260
Total income taxes	$ (309)	$ 440	$ 199

Current income tax recoverable and deferred tax assets are included in other assets on the consolidated balance sheets, and current income tax payable and deferred tax liabilities are included in other liabilities on the consolidated balance sheets. Current and deferred income tax assets and liabilities were as follows:

	December 31,	
(In millions)	2018	2017
Current income tax recoverable	$ 36	$ 29
Current income tax payable	33	9
Net current income tax recoverable	$ 3	$ 20
Deferred tax assets	$ 340	$ 3
Deferred tax liabilities	—	46
Net deferred tax assets (liabilities)	$ 340	$ (43)

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Deferred income tax assets and liabilities consisted of the following:

	December 31,	
(In millions)	2018	2017[1]
Deferred tax assets		
Insurance liabilities	$ 1,186	$ 1,402
Net unrealized losses on AFS	112	—
Net operating and capital loss carryforwards	78	167
Tax credits	—	6
Fixed assets	43	26
Employee benefits	24	37
Other	38	26
Total deferred tax assets	1,481	1,664
Valuation allowance[2]	(52)	(96)
Deferred tax assets, after valuation allowance	1,429	1,568
Deferred tax liabilities		
Investments, including derivatives	296	781
Net unrealized gains on AFS	—	325
DAC, DSI and VOBA	790	497
Other	3	8
Total deferred tax liabilities	1,089	1,611
Net deferred tax assets (liabilities)	$ 340	$ (43)

[1] *Deferred tax balances were remeasured as of December 22, 2017 using the reduced U.S. statutory income tax rate as a result of the Tax Act.*
[2] *A portion of the valuation allowance reduction was recorded in other comprehensive income as of December 31, 2017.*

As of December 31, 2018, we have gross deferred tax assets associated with U.S. federal and state net operating losses of $308 million, which will begin to expire in 2022.

The valuation allowance consists of the following:

	December 31,	
(In millions)	2018	2017
U.S. federal and state net operating losses and other deferred tax assets	$ 52	$ 46
Germany other deferred tax assets	—	50
Total valuation allowance	$ 52	$ 96

AHL and its Bermuda subsidiaries file protective U.S. income tax returns and its U.S. subsidiaries file income tax returns with the U.S. federal government and various U.S. state governments. AADE is not subject to U.S. federal and state examinations by tax authorities for years prior to 2011, while Athene Annuity & Life Assurance Company of New York (AANY) is not subject to examinations for years prior to 2015. The Internal Revenue Service is currently auditing the 2013 consolidated tax return filed by Athene USA Corporation, and is conducting a limited scope audit of the 2015 consolidated tax return filed by AADE. No material adverse proposed adjustments have been issued with respect to either exam. See discussion of tax examinations relating to Aviva USA and subsidiaries in *Note 18 – Commitments and Contingencies*.

Under current Bermuda law, we are not required to pay any taxes in Bermuda on either income or capital gains. We have received an undertaking from the Bermuda Minister of Finance that, in the event of any such taxes being imposed, the Company will be exempted from taxation until the year 2035.

Withholding taxes have not been provided on undistributed earnings of AHL's U.S. subsidiaries as of December 31, 2018. Although withholding taxes may apply in the event a dividend is paid by AHL's U.S. subsidiaries, we have not accrued withholding taxes as we do not intend to remit these earnings. The cumulative amount potentially subject to withholding tax, if distributed, as well as the determination of the potential associated tax liability, is not practicable to compute. Any dividends remitted to AHL from ALRe are not subject to withholding tax.

16. Statutory Requirements

Our insurance and reinsurance subsidiaries are subject to insurance laws and regulations in the jurisdictions in which they operate including Bermuda, all U.S. states and the District of Columbia. Certain regulations include restrictions that limit the dividends or other distributions, such as loans or cash advances, available to shareholders without prior approval of the insurance regulatory authorities. The differences between financial statements prepared for insurance regulatory authorities and GAAP financial statements vary by jurisdiction.

Bermuda statutory requirements—ALRe, AARe, and Acra Re II Ltd. (ACRA) are each licensed by the Bermuda Monetary Authority (BMA) as long-term insurers and are subject to the Insurance Act 1978, as amended (Bermuda Insurance Act) and regulations promulgated thereunder. The BMA implemented the Economic Balance Sheet (EBS) framework into the Bermuda Solvency Capital Requirement (BSCR), which was granted equivalence to the European Union's Directive (2009/138/EC) (Solvency II).

Under the Bermuda Insurance Act, long-term insurers are required to maintain minimum statutory capital and surplus to meet the minimum margin of solvency (MMS) and the Enhanced Capital Requirement (ECR). For our Class C reinsurer, ACRA, MMS is equal to the greater of $500,000 or 1.5% of the total statutory assets. For our Class E reinsurers, ALRe and AARe, MMS is equal to the greater of $8 million or 2% of the first $500 million of statutory assets plus 1.5% of statutory assets above $500 million. For each class, the ECR is calculated based on a risk-based capital model where risk factor charges are applied to the EBS. As of December 31, 2018, our Bermuda subsidiaries were in excess of the minimum levels required. As of December 31, 2018 and 2017, ALRe's EBS capital and surplus was $12.0 billion and $7.7 billion, respectively, resulting in a BSCR ratio of 340% and 354%, respectively.

Under the EBS framework, statutory financial statements are generally equivalent to GAAP financial statements, with the exception of permitted practices granted by the BMA. Our Bermuda subsidiaries have permission in the statutory financial statements to use amortized cost instead of fair value as the basis for certain investments. Additionally, our Bermuda subsidiaries use U.S. statutory reserving principles for the calculation of insurance reserves instead of GAAP, subject to the reserves being proved adequate based on cash flow testing. The following represents the effect of the permitted practices to the statutory financial statements:

	December 31, 2018		
(In millions)	ALRe	AARe[1]	ACRA
Increase (decrease) to capital and surplus due to permitted practices	$ 554	$ 202	$ (252)
Increase (decrease) to statutory net income due to permitted practices	(705)	179	(267)

[1] *AARe has permission to use amortized cost instead of fair value as the basis for certain investments but does not produce GAAP financial statements. The effect of the permitted practices to the AARe statutory financial statements reflects the impact of the difference between amortized cost and fair value for certain investments.*

Under the Bermuda Insurance Act, our Bermuda subsidiaries are prohibited from paying a dividend in an amount exceeding 25% of the prior year's statutory capital and surplus, unless at least two members of the companies' respective board of directors and its principal representative in Bermuda sign and submit to the BMA an affidavit attesting that a dividend in excess of this amount would not cause the subsidiary to fail to meet its relevant margins. In certain instances, the Bermuda subsidiary would also be required to provide prior notice to the BMA in advance of the payment of dividends. In the event that such an affidavit is submitted to the BMA, and further subject to meeting the MMS and ECR requirements, a Bermuda subsidiary is permitted to distribute up to the sum of 100% of statutory surplus and an amount less than 15% of statutory capital. Distributions in excess of this amount require the approval of the BMA. The following represents the maximum distribution our Bermuda subsidiaries would be permitted to remit to its parent without the need for prior approval:

	December 31,	
(In millions)	2018	2017
ALRe	$ 5,942	$ 5,022
AARe	997	—
ACRA	—	—

U.S. statutory requirements—AHL's regulated U.S. subsidiaries and the corresponding insurance regulatory authorities are as follows:

Subsidiary	Regulatory Authority
AADE	Delaware Department of Insurance
AANY	New York Department of Financial Services
ALICNY	New York Department of Financial Services
AAIA	Iowa Insurance Division
Structured Annuity Reinsurance Company (STAR)	Iowa Insurance Division
Athene Re USA IV	State of Vermont Department of Financial Regulation

Each entity's statutory statements are presented on the basis of accounting practices determined by the respective regulatory authority. The regulatory authority recognizes only statutory accounting practices prescribed or permitted by the corresponding state for determining and reporting the financial condition and results of operations of an insurance company and for determining its solvency under insurance law.

The maximum dividend these subsidiaries can pay to shareholders, without prior approval of the respective state insurance department, is subject to restrictions relating to statutory surplus or net gain from operations. The maximum dividend payment over a twelve-month period may not, without prior approval, be paid from a source other than earned surplus and may not exceed the greater of (1) the prior year's net gain from operations or (2) 10% of policyholders' surplus. Based on these restrictions, the maximum dividend AADE could pay to Athene USA absent regulatory approval was $154 million and $135 million as of December 31, 2018 and 2017, respectively. Other requirements limit the amount that could be withdrawn from AADE and the maximum AADE could dividend while staying in compliance with these state regulations, which was $310 million and $103 million as of December 31, 2018 and 2017, respectively. Any dividends from AHL's other U.S. statutory entities in excess of the amounts allowed for AADE would not be able to be remitted to Athene USA without regulatory approval from the Delaware Department of Insurance.

As of December 31, 2018, our U.S. subsidiaries' solvency, liquidity and risk-based capital amounts were significantly in excess of the minimum levels required.

In some instances, the states of domicile of our U.S. subsidiaries have adopted prescribed accounting practices that differ from the required accounting outlined in National Association of Insurance Commissioners (NAIC) Statutory Accounting Principles (SAP). These subsidiaries also have certain accounting practices permitted by the states of domicile that differ from those found in NAIC SAP. These prescribed and permitted practices are described as follows:

AAIA – Among the products issued by AAIA are indexed universal life insurance and fixed indexed annuities. These products allow a portion of the premium to earn interest based on certain indices, primarily the S&P 500. We purchase call options, futures and variance swaps to hedge the growth in interest credited to the customer as a direct result of increases in the related index. The Iowa Insurance Division allows an insurer to elect (1) to use an amortized cost method to account for certain derivative instruments, such as call options, purchased to hedge the growth in interest credited to the customer on indexed insurance products and (2) to use an indexed annuity reserve calculation methodology under which call options associated with the current index interest crediting term are valued at zero. AAIA has elected to apply this option to its over-the-counter call options and reserve liabilities. As a result, AAIA's statutory surplus increased by $39 million and decreased by $66 million as of December 31, 2018 and 2017, respectively.

Athene Re USA IV – AAIA has ceded the AmerUs Closed Block to Athene Re USA IV on a 100% funds withheld basis. A permitted practice in the State of Vermont allows Athene Re USA IV to include as admitted assets the face amount of all issued and outstanding letters of credit used to fund its reinsurance obligations to AAIA in its statutory financial statements. If Athene Re USA IV had not followed this permitted practice, then it would not have exceeded authorized control level risk based capital requirements. As of December 31, 2018 and 2017, the face amount of the letters of credit was $153 million.

Statutory capital and surplus and net income (loss)—The following table presents, for each of our insurance subsidiaries, the statutory capital and surplus and the statutory net income (loss), based on the most recently filed statutory financial statements filed with insurance regulators:

	Statutory capital & surplus		Statutory net income (loss)		
	December 31,		Years ended December 31,		
(In millions)	2018	2017	2018	2017	2016
ALRe	$ 9,659	$ 6,972	$ 418	$ 828	$ 460
AARe	2,095	—	997	—	—
ACRA	393	—	(287)	—	—
AADE	1,544	1,348	18	24	71
AANY	282	268	6	29	1
ALICNY	70	76	(22)	6	10
AAIA	1,234	1,164	81	239	100
STAR	92	90	9	3	17
Athene Re USA IV	29	25	5	(3)	(5)

17. Related Parties

Athene Asset Management

Investment related expenses – Substantially all of our investments are managed by AAM, a subsidiary of AGM. AAM provides direct investment management, asset allocation, mergers and acquisition asset diligence and certain operational support services for our investment portfolio, including investment compliance, tax, legal and risk management support. As of December 31, 2018, AAM directly managed $88,356 million of our investment portfolio assets, of which 84% are designated one or two (the two highest designations) by the NAIC.

For the services it renders, AAM earns a fee on all assets managed in accounts owned by or related to us, including sub-advised assets, subject to certain limited exceptions. Additionally, AAM recharges the sub-advisory fees it incurs with respect to our sub-advised assets to us. Historically, AAM generally earned an annual fee of 0.40% of assets under management. In the second quarter of 2017, following shareholder approval of an amendment to our bye-laws, we entered into the Fifth Amended and Restated Fee Agreement (Revised Fee Agreement), retroactive to January 1, 2017. The Revised Fee Agreement amended certain fee arrangements we previously had in place with AAM to provide for, among other things, an annual fee of 0.30% (reduced from 0.40%) on all assets that Apollo manages in accounts owned by us in the U.S. and Bermuda or in accounts supporting reinsurance ceded to our U.S. and Bermuda subsidiaries by third-party insurers (North American Accounts) in excess of $65,846 million (the level of assets in the North American Accounts as of December 31, 2016). The fee to be paid by us to AAM on the first $65,846 million of assets in the North American Accounts remains 0.40% per year, subject to certain discounts and exceptions.

For certain assets which require specialized sourcing and underwriting capabilities, AAM has chosen to mandate sub-advisors rather than building out in-house capabilities. AAM has entered into Master Sub-Advisory Agreements (MSAAs) with certain Apollo affiliates to sub-advise AAM with respect to a portion of our assets, with the fees recharged to us, in addition to the gross fee paid to AAM as described above. The MSAAs cover services rendered by Apollo-affiliated sub-advisors relating to the following investments:

	December 31,	
(In millions, except for percentages)	2018	2017
AFS securities		
Foreign governments	$ 153	$ 152
Corporate	3,398	2,934
CLO	5,703	5,166
ABS	663	681
CMBS	880	872
Trading securities	87	121
Equity securities	2	—
Mortgage loans	3,507	2,232
Investment funds	157	26
Funds withheld at interest	4,126	1,737
Other investments	70	75
Total assets sub-advised by Apollo affiliates	$ 18,746	$ 13,996
Percent of assets sub-advised by Apollo affiliates to total AAM-managed assets	18%	18%

AAM and certain other Apollo affiliates entered into addendums to the MSAAs in 2017, retroactive to January 1, 2017, pursuant to which, with limited exceptions, Apollo will earn 0.40% per year on all assets in the North American Accounts explicitly sub-advised by Apollo up to $10,000 million, 0.35% per year on all assets in such accounts explicitly sub-advised by Apollo in excess of $10,000 million up to $12,441 million (the level of fee-paying sub-advised assets in the North American Accounts at December 31, 2016), 0.40% per year on all assets in such accounts explicitly sub-advised by Apollo in excess of $12,441 million up to $16,000 million, and 0.35% per year on all assets in such accounts explicitly sub-advised by Apollo in excess of $16,000 million.

Apollo Asset Management Europe

We had an investment advisory agreement with Apollo Asset Management Europe (together with certain of its affiliates, AAME), also a subsidiary of AGM, for advisory services for all of Athora's investment portfolio, with certain exceptions. Primarily excluded were assets held in German special investment funds managed or advised by Apollo or its affiliates, to the extent the entity received a management or advisory fee in connection with the fund. As compensation for the investment advisory services rendered, AAME received a fee of 0.10% per year on the assets it sub-advised. As of December 31, 2017, the total assets sub-advised by AAME were $4,153 million. Affiliates of AAME received an advisory fee of 0.35% per year on certain German special investment funds and our investment in a sub-fund of Apollo Capital Efficient Fund I (ACE fund), as well as a pro rata share of operating expenses up to 0.30% on the ACE fund. As of December 31, 2017, the German special investment funds totaled $1,190 million, and the ACE fund totaled $97 million. The fees incurred for management of these funds are included in sub-advisory fees in the table below.

Asset management and sub-advisory fees—The following summarizes the asset management fees and sub-advisory fees we have incurred related to AAM, AAME and other Apollo affiliates:

	Years ended December 31,		
(In millions)	2018	2017	2016
Asset management fees	$ 290	$ 261	$ 229
Sub-advisory fees	59	57	66

The management and sub-advisory fees are included within net investment income on the consolidated statements of income. As of December 31, 2018 and 2017, the management fees payable was $34 million and $28 million, respectively, and the sub-advisory fees payable was $20 million and $13 million, respectively. Both the management and sub-advisory fees payables are included in other liabilities on the consolidated balance sheets.

Our bye-laws currently provide that we may not, and will cause our subsidiaries not to, terminate any IMA among us or any of our subsidiaries, on the one hand, and AAM, on the other hand, before any annual anniversary of October 31 (each such date, an IMA Termination Election Date) and any termination on an IMA Termination Election Date requires (i) the approval of two-thirds of our Independent Directors (as defined in the bye-laws) and (ii) prior written notice to AAM of such termination at least 30 days' prior to an IMA Termination Election Date. If our Independent Directors make such election to terminate and notice of such termination is delivered, the termination will be effective on the second anniversary of the applicable IMA Termination Election Date (IMA Termination Effective Date). Notwithstanding the foregoing, (A) except as set forth in (B) below, our Independent Directors may only elect to terminate an IMA on an IMA Termination Election Date if two-thirds of our Independent Directors determine, in their sole discretion and acting in good faith, that either (i) there has been unsatisfactory long-term performance materially detrimental to us by AAM or (ii) the fees being charged by AAM are unfair and excessive compared to a comparable asset manager (provided, that in either case such Independent Directors must deliver notice of any such determination to AAM and AAM will have until the applicable IMA Termination Effective Date to address such concerns, and provided, further, that in the case of such a determination that the fees being charged by Apollo are unfair and excessive, Apollo has the right to lower its fees to match the fees of such comparable asset manager) and (B) upon the determination by two-thirds of our Independent Directors, we or our subsidiaries may also terminate an IMA with AAM as a result of either (i) a material violation of law relating to AAM's advisory business, or (ii) AAM's gross negligence, willful misconduct or reckless disregard of its obligations under the relevant agreement, and in either case, the delivery of written notice at least 30 days' prior to such termination and such termination will be effective at the end of such 30-day period (the events described in the foregoing clauses (A) and (B) are referred to in more detail in our bye-laws as "AHL Cause").

We have a management investment committee, which includes members of our senior management and reports to the risk committee of our board of directors. The committee focuses on strategic decisions involving our investment portfolio, such as approving investment limits, new asset classes and our allocation strategy, reviewing large asset transactions, as well as monitoring our credit risk, and the management of our assets and liabilities.

A significant voting interest in the Company is held by shareholders who are members of the Apollo Group, as defined in our bye-laws. Also, James Belardi, our Chief Executive Officer, is also an employee of AAM, receives substantial remuneration from acting as Chief Executive Officer of AAM, and owns a 5% profits interest in AAM. Additionally, six of the fifteen members of our board of directors are employees of or consultants to Apollo (including Mr. Belardi). In order to protect against potential conflicts of interest resulting from transactions into which we have entered and will continue to enter into with the Apollo Group, our bye-laws require us to maintain a conflicts committee comprised solely of three of our directors who are not officers or employees of any member of the Apollo Group. The conflicts committee reviews and approves material transactions between us and the Apollo Group, subject to certain exceptions.

Other related party transactions

A-A Mortgage – We have an equity method investment of $463 million and $403 million as of December 31, 2018 and 2017, respectively, in A-A Mortgage, which has an investment in AmeriHome Mortgage Company, LLC (AmeriHome). We have a loan purchase agreement with AmeriHome. The agreement allows us to purchase residential mortgage loans which AmeriHome has purchased from correspondent sellers and pooled for sale in the secondary market. AmeriHome retains the servicing rights to the sold loans. We purchased $722 million, $57 million and $22 million of residential mortgage loans under this agreement during the years ended December 31, 2018, 2017 and 2016, respectively. Additionally, we purchased ABS securities issued by AmeriHome affiliates in the amount of $122 million during the year ended December 31, 2018, which are included in related party AFS securities on the consolidated balances sheets. Previously, we had loans due from A-A Mortgage affiliates in the principal amount of $52 million as of December 31, 2017, and these were included in related party short-term investments on the consolidated balance sheets. The loans were repaid in 2018. We also have commitments to make additional equity investments in A-A Mortgage of $125 million as of December 31, 2018.

MidCap – CoInvest VII holds a significant investment in MidCap, which is included in investment funds of consolidated VIEs on the consolidated balance sheets. We have also advanced amounts under a subordinated debt facility to Midcap and, as of December 31, 2018 and 2017, the principal balance was $245 million, which is included in other related party investments on the consolidated balance sheets. Our total investment in MidCap, including amounts advanced under credit facilities, totaled $791 million and $766 million as of December 31, 2018 and 2017, respectively. Additionally, we purchased ABS and CLO securities issued by MidCap affiliates during the years ended December 31, 2018, 2017, and 2016 of $142 million, $88 million, and $4 million, respectively, which are included in related party AFS securities on the consolidated balance sheets.

Athora – On January 1, 2018, in order to align our interests with those of Athora, in connection with the closing of the Athora Offering, we entered into a cooperation agreement with Athora, pursuant to which, among other things, (1) we have the right to reinsure approximately 20% of the spread business written or reinsured by any insurance or reinsurance company owned or acquired by Athora, (2) Athora's insurance subsidiaries are required to purchase certain funding agreements and/or other spread instruments issued by our insurance subsidiaries, (3) we provide Athora with a right of first refusal to pursue acquisition and reinsurance transactions in Europe (other than the United Kingdom (UK)) and (4) Athora provides us and our subsidiaries with a right of first refusal to pursue acquisition and reinsurance transactions in North America and the UK. Our investment in Athora, which is included in related party investment funds on the consolidated balance sheets, was $105 million as of December 31, 2018. During the fourth quarter of 2018, Athora called capital and we remitted $20 million to Athora as a result. However, as the capital call was not yet fully funded by other parties, Athora has not issued shares to us and other shareholders; therefore, we have recorded a receivable in other assets on the consolidated balance sheets for the capital funding. Additionally, as of December 31, 2018, we had $166 million of funding agreements outstanding to Athora, which were issued to Athora prior to Closing. We also have commitments to make additional equity investments in Athora of $307 million as of December 31, 2018.

VA Capital and Venerable Holdings, Inc. (Venerable) – In connection with the Voya reinsurance transactions, we made a $75 million minority equity investment in VA Capital, which is included in investments in related parties – investment funds on the consolidated balance sheets and accounted for as an equity method investment. VA Capital is owned by a consortium of investors, led by affiliates of AGM, Crestview Partners and Reverence Capital Partners, and is the holding company of Venerable. Additionally, we provided Venerable with a $150 million, 15-year term loan, which is held at amortized cost and included in investment in related parties – other investments on the consolidated balance sheets. While management views the overall transactions with Voya and Venerable as favorable to us, the stated interest rate of 6.257% on the term loan to Venerable represents a below-market interest rate, and management considered such rate as part of its evaluation and pricing of the Voya reinsurance transactions. Venerable is the holding company of VIAC.

Strategic Partnership – On October 24, 2018, we entered into an agreement pursuant to which we may invest up to $2.5 billion over three years in funds managed by Apollo entities. This arrangement is intended to permit us to invest across the Apollo alternatives platform into credit-oriented, strategic and other alternative investments in a manner and size that is consistent with our existing investment strategy. Fees for such investments payable by us to Apollo would be more favorable to us than market rates, and consistent with our existing alternative investments, investments made under the Strategic Partnership require approval of AAM and remain subject to our existing governance processes, including approval by our conflicts committee where applicable. During the fourth quarter of 2018, we invested $16 million under the Strategic Partnership and these investments are classified as investment funds of consolidated VIEs.

18. Commitments and Contingencies

Contingent Commitments—We had commitments to make investments, primarily capital contributions to investment funds, inclusive of related party commitments discussed previously, of $3,036 million and $2,358 million as of December 31, 2018 and 2017, respectively. We expect most of our current commitments will be invested over the next five years; however, these commitments could become due any time upon counterparty request.

Funding Agreements—We are a member of the Federal Home Loan Bank (FHLB) and, through membership, we have issued funding agreements to the FHLB in exchange for cash advances. As of December 31, 2018 and 2017, we had $926 million and $573 million, respectively, of funding agreements outstanding with the FHLB. We are required to provide collateral in excess of the funding agreement amounts outstanding, considering any discounts to the securities posted and prepayment penalties.

We have a funding agreement backed notes (FABN) program, which allows Athene Global Funding, a special-purpose, unaffiliated statutory trust, to offer up to $10 billion of its senior secured medium-term notes. Athene Global Funding uses the net proceeds from each sale to purchase one or more funding agreements from us. As of December 31, 2018 and 2017, we had $2,700 million and $2,996 million, respectively, of FABN funding agreements outstanding.

Pledged Assets and Funds in Trust (Restricted Assets)—The total restricted assets included on the consolidated balance sheets are as follows:

	December 31,	
(In millions)	2018	2017
AFS securities	$ 5,439	$ 1,572
Trading securities	68	—
Equity securities	2	36
Mortgage loans	1,830	914
Investment funds	53	20
Derivative assets	24	—
Short-term investments	77	10
Other investments	47	—
Restricted cash	492	105
Total restricted assets	$ 8,032	$ 2,657

The restricted assets are primarily related to reinsurance trusts established in accordance with coinsurance agreements and the FHLB funding agreements described above.

Letter of Credit—We have an unused letter of credit for $230 million as of December 31, 2018. This letter of credit was issued for our reinsurance program and expires in two years.

Litigation, Claims and Assessments

Griffiths Matter – On July 27, 2015, John Griffiths, on behalf of himself and others similarly situated, filed a putative class action complaint against us in the United States District Court for the District of Massachusetts. An amended complaint was filed on December 18, 2015. The complaint asserted claims against AHL, AAIA and Athene London Assignment Corporation (Athene London), in addition to an Aviva defendant. AHL is a named defendant due to its purchase of Aviva USA, and AAIA and Athene London are named as successors to Aviva Life Insurance Company and Aviva London Assignment Corporation, respectively. The complaint alleged a putative class of all persons who are the beneficial owners of assets which were used to purchase structured settlement annuities that Aviva Life Insurance Company, Aviva London Assignment Corporation, and Aviva International Insurance Limited (collectively, the Aviva Entities) or their predecessors, as applicable, delivered to purchasers on or after April 1, 2003 that were backed by a capital maintenance agreement issued by Aviva International Insurance Limited or its predecessor (the CMA). The complaint alleged that the Aviva Entities sold structured settlement annuities to the public on the basis that such products were backed by the CMA, which was alleged to be a source of great financial strength. The complaint further alleged that the Aviva Entities used the CMA to enhance the sales volume and raise the price of the annuities. The complaint claimed that, as a result of Aviva USA's sale to AHL, the CMA terminated. According to the complaint, no notice of this termination was provided to the owners of the structured settlement annuities. The complaint alleged that the termination of the CMA gave rise to claims for breach of contract, breach of fiduciary duty, promissory estoppel, and unjust enrichment. AHL and plaintiff agreed to a term sheet settlement on a class-wide basis. On November 8, 2018, the court dismissed the action pursuant to the settlement approval which required AHL to: (1) enter into a capital maintenance agreement with Athene London requiring AHL to provide capital to Athene London upon a missed structured settlement payment that is not timely cured and (2) pay a monetary amount that is immaterial to us. We have complied with the settlement.

Internal Revenue Service (IRS) Matters – The IRS completed its examinations of the 2006 through 2010 and 2011 through 2012 Aviva USA tax years with Aviva USA agreeing to all proposed adjustments with two exceptions: (1) AAIA's treatment of call options used to hedge fixed indexed annuity (FIA) liabilities and (2) the disallowance of offsetting tax deductions taken by AAIA and taxable income reported by the non-life subgroup with respect to unpaid independent marketing organization commissions. Athene USA filed suit in federal court contesting the IRS's position after negotiations proved unsuccessful. We resolved this matter with the IRS through a Closing Agreement on Final Determination Covering Specific Matters (Form 906). The resolution did not have a material impact on our financial position or results of operations. The court dismissed the matter on December 17, 2018.

Corporate-owned Life Insurance (COLI) Matter – In 2000 and 2001, two insurance companies which were subsequently merged into AAIA purchased from American General Life Insurance Company (American General) broad based variable COLI policies that, as of December 31, 2018, had an asset value of $362 million, and is included in other assets on the consolidated balance sheets. In January 2012, the COLI policy administrator delivered to AAIA a supplement to the existing COLI policies and advised that American General and ZC Resource Investment Trust (ZC Trust) had unilaterally implemented changes set forth in the supplement that if effective, would: (1) potentially negatively impact the crediting rate for the policies and (2) change the exit and surrender protocols set forth in the policies. In March 2013, AAIA filed suit against American General, ZC Trust, and ZC Resource LLC in Chancery Court in Delaware, seeking, among other relief, a declaration that the changes set forth in the supplement were ineffectual and in breach of the parties' agreement. The parties filed cross motions for judgment as a matter of law, and the court granted defendants' motion and dismissed without prejudice on ripeness grounds. The issue that negatively impacts the crediting rate for one of the COLI policies has subsequently been triggered and on April 3, 2018, we filed suit against the same defendants in Chancery Court in Delaware seeking substantially similar relief, which the defendants have moved to dismiss. The Court heard oral arguments on February 13, 2019 and has taken the matter under advisement. If the supplement is ultimately deemed to be effective, the purported changes to the policies could impair AAIA's ability to access the value of guarantees associated with the policies. The value of the guarantees included within the asset value reflected above is $187 million as of December 31, 2018.

Holzer Matter – On September 12, 2016, Jack Holzer and Mary Bruesh-Holzer filed suit in Jackson County, Missouri against several defendants, including AADE, as successor-in-interest to Business Men's Assurance Company of America. Mr. Holzer allegedly sustained injuries due to asbestos exposure from 1966–1973 while working in an office building in Kansas City, Missouri, then owned by Business Men's Assurance Company of America. Plaintiffs asserted strict liability and negligence claims against AADE. On February 26, 2018, an agreement was reached that resulted in the settlement of this matter. The settlement had no impact on our financial condition, results of operations or cash flows.

Regulatory Matters – Our U.S. insurance subsidiaries have experienced increased service and administration complaints related to the conversion and administration of the block of life insurance business acquired in connection with our acquisition of Aviva USA and reinsured to affiliates of Global Atlantic. The life insurance policies included in this block have been and are currently being administered by AllianceOne Inc. (AllianceOne), a subsidiary of DXC Technology Company, which was retained by such Global Atlantic affiliates to provide services on such policies. AllianceOne also administers certain annuity policies that were on Aviva USA's legacy policy administration systems that were also converted in connection with the acquisition of Aviva USA and have experienced similar service and administration issues.

As a result of the difficulties experienced with respect to the administration of such policies, we have received notifications from several state regulators, including but not limited to the New York State Department of Financial Services (NYSDFS), the California Department of Insurance (CDI) and the Texas Department of Insurance, indicating, in each case, that the respective regulator planned to undertake a market conduct examination or enforcement proceeding of the applicable U.S. insurance subsidiary relating to the treatment of policyholders subject to our reinsurance agreements with affiliates of Global Atlantic and the conversion of such annuity policies, including the administration of such blocks by AllianceOne. On June 28, 2018 we entered into a consent order with the NYSDFS resolving that matter in a manner that, when considering the indemnification received from affiliates of Global Atlantic, did not have a material impact on our financial condition, results of operations or cash flows.

In addition to the foregoing, we have received inquiries, and expect to continue to receive inquiries, from other regulatory authorities regarding the conversion matter. In addition to the examinations and proceedings initiated to date, it is possible that other regulators may pursue similar formal examinations, inquiries or enforcement proceedings and that any examinations, inquiries and/or enforcement proceedings may result in fines, administrative penalties and payments to policyholders. While we do not expect the amount of any such fines, penalties or payments arising from these matters to be material to our financial condition, results of operations or cash flows, it is possible that such amounts could be material.

Pursuant to the terms of the reinsurance agreements between us and the relevant affiliates of Global Atlantic, the applicable affiliates of Global Atlantic have financial responsibility for the ceded life block and are subject to significant administrative service requirements, including compliance with applicable law. The agreements also provide for indemnification to us, including for administration issues.

On January 23, 2019, we received a letter from the NYSDFS, with respect to a recent PRT transaction, which expressed concerns with our interpretation and reliance upon certain exemptions from licensing in New York in connection with certain activities performed by employees in our PRT channel, including specific activities performed within New York. We are currently in discussions with the NYSDFS to identify approaches to resolve its concerns. Reasonably possible losses, if any, cannot be estimated at this time.

Caldera Matters – On May 3, 2018, AHL filed a writ commencing litigation in the Supreme Court of Bermuda against a former officer of AHL, a former director of AHL (who is also considered a former officer pursuant to Bermuda law), and Caldera Holdings, Ltd. (Caldera). AHL alleges in the writ, among other things, that the defendants breached various duties owed to AHL under Bermuda law by using AHL's confidential information in their attempted acquisition of a company referred to in the litigation as Company A. AHL is seeking injunctive relief and damages.

On May 3, 2018, following AHL's filing of the writ in Bermuda described above, Caldera, Caldera Life Reinsurance Company, and Caldera Shareholder, L.P., commenced an action in the Supreme Court of the State of New York, County of New York, by filing a Summons with Notice against AHL, Apollo, certain affiliates of Apollo and Leon Black, a founder of Apollo. On July 12, 2018, plaintiffs filed a complaint alleging claims for tortious interference with prospective business relations, defamation, and unfair competition related to plaintiffs' attempt to purchase Company A and seeking alleged damages of "no less than $1.5 billion." AHL has moved to dismiss the complaint. On January 21, 2019, plaintiffs filed an amended complaint, which revised certain allegations about jurisdiction, venue and the merits of the plaintiffs' claims. We intend to renew our motion to dismiss. We believe we have meritorious defenses to the claims and intend to vigorously defend the litigation. In light of the inherent uncertainties involved in this matter, reasonably possible losses, if any, cannot be estimated at this time.

19. Segment Information

We operate our core business strategies out of one reportable segment, Retirement Services. In addition to Retirement Services, we report certain other operations in Corporate and Other.

Retirement Services—Retirement Services is comprised of our United States and Bermuda operations, which issue and reinsure retirement savings products and institutional products. Retirement Services has retail operations, which provide annuity retirement solutions to our policyholders. Retirement Services also has reinsurance operations, which reinsure multi-year guaranteed annuities, fixed indexed annuities, traditional one-year guarantee fixed deferred annuities, immediate annuities and institutional products from our reinsurance partners. In addition, our institutional operations, including funding agreements and pension risk transfer obligations, are included in our Retirement Services segment.

Corporate and Other—Corporate and Other includes certain other operations related to our corporate activities and prior to January 1, 2018, included our former German operations, which were primarily comprised of participating long-duration savings products. Included in Corporate and Other are corporate allocated expenses, merger and acquisition costs, debt costs, certain integration and restructuring costs, certain stock-based compensation and intersegment eliminations. In Corporate and Other, we also hold capital in excess of the level of capital we hold in Retirement Services to support our operating strategy. See *Note 1 – Business, Basis of Presentation and Significant Accounting Policies* for discussion on the deconsolidation of our German operations in 2018.

Financial Measures—Segment adjusted operating income and net investment earnings are internal measures used by the chief operating decision maker to evaluate and assess the results of our segments.

Adjusted operating revenue is a component of adjusted operating income and excludes market volatility and adjustments for other non-operating activity. Our adjusted operating revenue equals our total revenue, adjusted to eliminate the impact of the following non-operating adjustments:

- Change in fair values of derivatives and embedded derivatives – index annuities, net of offsets;
- Investment gains (losses), net of offsets;
- VIE expenses and noncontrolling interest; and
- Other adjustments to revenues.

The table below reconciles segment adjusted operating revenues to total revenues presented on the consolidated statements of income:

	Years ended December 31,		
(In millions)	2018	2017	2016
Retirement Services	$ 8,118	$ 5,960	$ 3,330
Corporate and Other	44	368	268
Non-operating adjustments			
Change in fair values of derivatives and embedded derivatives – index annuities, net of offsets	(1,020)	1,990	324
Investment gains (losses), net of offsets	(515)	461	164
VIE expenses and noncontrolling interest	1	—	13
Other adjustments to revenues	(85)	(52)	6
Total revenues	$ 6,543	$ 8,727	$ 4,105

Adjusted operating income is an internal measure used to evaluate our financial performance excluding market volatility and expenses related to integration, restructuring, stock compensation and certain other expenses. Our adjusted operating income equals net income adjusted to eliminate the impact of the following non-operating adjustments:

- Investment gains (losses), net of offsets;
- Change in fair values of derivatives and embedded derivatives – index annuities, net of offsets;
- Integration, restructuring and other non-operating expenses;
- Stock-based compensation, excluding LTIP; and
- Income tax (expense) benefit – non-operating.

The table below reconciles segment adjusted operating income to net income presented on the consolidated statements of income:

	Years ended December 31,		
(In millions)	2018	2017	2016
Retirement Services	$ 1,201	$ 1,038	$ 808
Corporate and other	(61)	17	(49)
Non-operating adjustments			
Investment gains (losses), net of offsets	(274)	199	47
Change in fair values of derivatives and embedded derivatives – index annuities, net of offsets	242	230	67
Integration, restructuring and other non-operating expenses	(22)	(68)	(22)
Stock-based compensation, excluding LTIP	(11)	(33)	(82)
Income tax (expense) benefit – non-operating	(22)	(25)	4
Net income	$ 1,053	$ 1,358	$ 773

Net investment earnings used to evaluate the performance of our segments is an internal measure that does not correspond to GAAP net investment income. Adjustments are made to GAAP net investment income to arrive at a net investment earnings measure that reflects the profitability of our core deferred annuities business. Accordingly, we adjust net investment income to include earnings from our consolidated VIEs and earnings on certain alternative investments (primarily CLOs) classified in investment related gains (losses) on the consolidated statements of income. Additionally, we adjust for impacts of reinsurance embedded derivatives on net investment income. The table below reconciles segment net investment earnings to net investment income presented on the consolidated statements of income:

	Years ended December 31,		
(In millions)	2018	2017	2016
Retirement Services	$ 4,188	$ 3,241	$ 2,953
Corporate and Other	44	182	77
Adjustments to net investment income			
Reinsurance embedded derivative impacts	(301)	(191)	(189)
Net VIE earnings	(37)	(77)	(1)
Alternative income (gains) losses	34	20	39
Held for trading amortization	76	94	35
Net investment income	$ 4,004	$ 3,269	$ 2,914

Adjusted operating income excludes the income tax impact of the taxable non-operating adjustments presented above. The income tax expense of non-operating income adjustments is comprised of the appropriate jurisdiction's tax rate applied to the non-operating adjustments subject to income tax, as well as the amount recorded for the change in the U.S. statutory rate resulting from the recently enacted Tax Act. The table below reconciles segment provision for income taxes – operating to income tax expense presented on the consolidated statements of income:

	Years ended December 31,		
(In millions)	2018	2017	2016
Retirement Services	$ 100	$ 83	$ (53)
Corporate and Other	—	(2)	(4)
Income tax (expense) benefit – non-operating	22	25	(4)
Income tax expense (benefit)	$ 122	$ 106	$ (61)

The following represents total assets by segment:

	December 31,	
(In millions)	2018	2017
Retirement Services	$ 123,498	$ 91,749
Corporate and Other	2,007	8,412
Total assets	$ 125,505	$ 100,161

We market annuity products, primarily fixed rate and fixed indexed annuities. Deposits, which are generally not included in revenues on the consolidated statements of income, and premiums collected are as follows:

	Years ended December 31,		
(In millions)	2018	2017	2016
Fixed indexed annuities	$ 29,973	$ 5,480	$ 5,322
Fixed rate annuities	5,501	873	3,565
Payouts without life contingencies	535	106	107
Funding agreements	650	3,054	—
Life and other deposits	4	33	24
Total deposits	36,663	9,546	9,018
Payouts with life contingencies	3,314	2,211	21
Life and other premiums	54	254	219
Total premiums	3,368	2,465	240
Total premiums and deposits, net of ceded	$ 40,031	$ 12,011	$ 9,258

Deposits and premiums collected by the geographical location are as follows:

	Years ended December 31,		
(In millions)	2018	2017	2016
United States	$ 16,369	$ 11,156	$ 5,617
Bermuda	23,662	652	3,429
Germany	—	203	212
Total premiums and deposits, net of ceded	$ 40,031	$ 12,011	$ 9,258

20. Quarterly Results of Operations (Unaudited)

The unaudited quarterly results of operations for the years ended December 31, 2018 and 2017 are summarized in the table below, as adjusted for revisions discussed further in *Note 2 – Financial Statement Revisions*:

	Three months ended											
	March 31			June 30			September 30			December 31		
(In millions, except per share data)	Prior Reported	Revision	As Adjusted	Prior Reported	Revision	As Adjusted	Prior Reported	Revision	As Adjusted	Prior Reported	Revision	As Adjusted
2018												
Total revenues	$ 1,011	$ —	$ 1,011	$ 1,797	$ 5	$ 1,802	$ 2,588	$ (12)	$ 2,576	*N/A*	*N/A*	$ 1,154
Total benefits and expenses	684	5	689	1,467	14	1,481	1,882	15	1,897	*N/A*	*N/A*	1,301
Net income (loss)	268	9	277	264	(7)	257	640	(17)	623	*N/A*	*N/A*	(104)
Earnings (loss) per share												
Basic – All classes	$ 1.36	$ 0.04	$ 1.40	$ 1.34	$ (0.04)	$ 1.30	$ 3.24	$ (0.08)	$ 3.16	*N/A*	*N/A*	$ (0.53)
Diluted – Class A	1.36	0.04	1.40	1.33	(0.03)	1.30	3.23	(0.08)	3.15	*N/A*	*N/A*	(0.53)
Diluted – Class B	1.36	0.04	1.40	1.34	(0.04)	1.30	3.24	(0.08)	3.16	*N/A*	*N/A*	(0.53)
Diluted – Class M-1	1.36	0.04	1.40	1.34	(0.04)	1.30	3.24	(0.08)	3.16	*N/A*	*N/A*	(0.53)
Diluted – Class M-2	1.34	0.05	1.39	1.33	(0.04)	1.29	3.24	(0.08)	3.16	*N/A*	*N/A*	(0.53)
Diluted – Class M-3	1.33	0.05	1.38	1.34	(0.04)	1.30	3.24	(0.08)	3.16	*N/A*	*N/A*	(0.53)
Diluted – Class M-4	0.94	0.03	0.97	1.04	(0.02)	1.02	2.49	(0.07)	2.42	*N/A*	*N/A*	(0.53)
2017												
Total revenues	$ 1,619	$ —	$ 1,619	$ 1,763	$ —	$ 1,763	$ 1,473	$ —	$ 1,473	$ 3,872	$ —	$ 3,872
Total benefits and expenses	1,213	9	1,222	1,426	24	1,450	1,179	27	1,206	3,374	11	3,385
Net income	384	(7)	377	326	(28)	298	274	(30)	244	464	(25)	439
Earnings per share												
Basic – All classes[1]	$ 2.00	$ (0.04)	$ 1.96	$ 1.66	$ (0.14)	$ 1.52	$ 1.40	$ (0.15)	$ 1.25	$ 2.36	$ (0.13)	$ 2.23
Diluted – Class A	1.92	(0.03)	1.89	1.65	(0.14)	1.51	1.39	(0.15)	1.24	2.35	(0.13)	2.22
Diluted – Class B	2.00	(0.04)	1.96	1.66	(0.14)	1.52	1.40	(0.15)	1.25	2.36	(0.13)	2.23
Diluted – Class M-1	2.00	(0.04)	1.96	1.66	(0.14)	1.52	1.40	(0.15)	1.25	2.36	(0.13)	2.23
Diluted – Class M-2	0.08	—	0.08	1.64	(0.15)	1.49	1.39	(0.15)	1.24	2.34	(0.13)	2.21
Diluted – Class M-3[1]	*N/A*	*N/A*	*N/A*	1.00	(0.09)	0.91	1.07	(0.12)	0.95	2.10	(0.11)	1.99
Diluted – Class M-4[1]	*N/A*	*N/A*	*N/A*	0.76	(0.07)	0.69	0.79	(0.09)	0.70	1.49	(0.08)	1.41

N/A – Not applicable.

[1] *Class M-3 and Class M-4 were eligible to participate in dividends beginning in the three months ended June 30, 2017. Prior to being eligible to participate in dividends, no earnings were attributable to those classes. See Note 13 – Earnings Per Share for further discussion.*

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The tables below represent the effects of the revisions discussed in *Note 2 – Financial Statement Revisions* to the previously filed condensed consolidated statements of income, comprehensive income (loss), and cash flows in Quarterly Reports on Form 10-Q. The condensed consolidated statements of equity were adjusted only for the effects of net income and comprehensive income (loss) as shown below.

The following represents the effects of the revisions on the condensed consolidated statements of income:

	Three months ended March 31, 2018		
(In millions, except per share data)	Previously Reported	Revisions	Adjusted
Benefits and Expenses			
Interest sensitive contract benefits	$ 19	$ 12	$ 31
Amortization of deferred acquisition costs and value of business acquired	89	(7)	82
Total benefits and expenses	684	5	689
Income before income taxes	327	(5)	322
Income tax expense (benefit)	59	(14)	45
Net income	$ 268	$ 9	$ 277
Earnings per share			
Basic – All classes	$ 1.36	$ 0.04	$ 1.40
Diluted – Class A	1.36	0.04	1.40
Diluted – Class B	1.36	0.04	1.40
Diluted – Class M-1	1.36	0.04	1.40
Diluted – Class M-2	1.34	0.05	1.39
Diluted – Class M-3	1.33	0.05	1.38
Diluted – Class M-4	0.94	0.03	0.97

	June 30, 2018					
	Three months ended			Six months ended		
(In millions, except per share data)	As Previously Reported	Revisions	As Adjusted	As Previously Reported	Revisions	As Adjusted
Revenues						
Premiums	$ 726	$ 5	$ 731	$ 1,004	$ 5	$ 1,009
Total revenues	1,797	5	1,802	2,808	5	2,813
Benefits and Expenses						
Interest sensitive contract benefits	332	10	342	351	22	373
Future policy and other policy benefits	857	7	864	1,258	7	1,265
Amortization of deferred acquisition costs and value of business acquired	92	(3)	89	181	(10)	171
Total benefits and expenses	1,467	14	1,481	2,151	19	2,170
Income before income taxes	330	(9)	321	657	(14)	643
Income tax expense (benefit)	66	(2)	64	125	(16)	109
Net income	$ 264	$ (7)	$ 257	$ 532	$ 2	$ 534
Earnings per share						
Basic – All classes	$ 1.34	$ (0.04)	$ 1.30	$ 2.70	$ 0.01	$ 2.71
Diluted – Class A	1.33	(0.03)	1.30	2.69	0.01	2.70
Diluted – Class B	1.34	(0.04)	1.30	2.70	0.01	2.71
Diluted – Class M-1	1.34	(0.04)	1.30	2.70	0.01	2.71
Diluted – Class M-2	1.33	(0.04)	1.29	2.67	0.01	2.68
Diluted – Class M-3	1.34	(0.04)	1.30	2.67	0.01	2.68
Diluted – Class M-4	1.04	(0.02)	1.02	1.98	—	1.98

	September 30, 2018					
	Three months ended			Nine months ended		
(In millions, except per share data)	As Previously Reported	Revisions	As Adjusted	As Previously Reported	Revisions	As Adjusted
Revenues						
Premiums	$ 531	$ (5)	$ 526	$ 1,535	$ —	$ 1,535
Investment related gains (losses)	823	(7)	816	585	(7)	578
Total revenues	2,588	(12)	2,576	5,396	(7)	5,389
Benefits and Expenses						
Interest sensitive contract benefits	741	1	742	1,092	23	1,115
Future policy and other policy benefits	920	8	928	2,178	15	2,193
Amortization of deferred acquisition costs and value of business acquired	30	6	36	211	(4)	207
Total benefits and expenses	1,882	15	1,897	4,033	34	4,067
Income before income taxes	706	(27)	679	1,363	(41)	1,322
Income tax expense (benefit)	66	(10)	56	191	(26)	165
Net income	$ 640	$ (17)	$ 623	$ 1,172	$ (15)	$ 1,157
Earnings per share						
Basic – Classes A, B, M-1, M-2, M-3 and M-4	$ 3.24	$ (0.08)	$ 3.16	$ 5.94	$ (0.08)	$ 5.86
Diluted – Class A	3.23	(0.08)	3.15	5.92	(0.07)	5.85
Diluted – Class B	3.24	(0.08)	3.16	5.94	(0.08)	5.86
Diluted – Class M-1	3.24	(0.08)	3.16	5.94	(0.08)	5.86
Diluted – Class M-2	3.24	(0.08)	3.16	5.90	(0.07)	5.83
Diluted – Class M-3	3.24	(0.08)	3.16	5.90	(0.07)	5.83
Diluted – Class M-4	2.49	(0.07)	2.42	4.42	(0.06)	4.36

The following represents the effects of the revisions on the condensed consolidated statements of comprehensive income (loss):

	Three months ended March 31, 2018		
(In millions)	As Previously Reported	Revisions	As Adjusted
Net income	$ 268	$ 9	$ 277
Other comprehensive income (loss), before tax			
Unrealized investment gains (losses) on available-for-sale securities	(910)	19	(891)
Other comprehensive income (loss), before tax	(971)	19	(952)
Income tax expense (benefit) related to other comprehensive income	(183)	4	(179)
Other comprehensive income (loss)	(788)	15	(773)
Comprehensive income (loss)	$ (520)	$ 24	$ (496)

	June 30, 2018					
	Three months ended			Six months ended		
(In millions)	As Previously Reported	Revisions	As Adjusted	As Previously Reported	Revisions	As Adjusted
Net income	$ 264	$ (7)	$ 257	$ 532	$ 2	$ 534
Other comprehensive loss, before tax						
Unrealized investment gains (losses) on available-for-sale securities	(667)	(35)	(702)	(1,577)	(16)	(1,593)
Other comprehensive loss, before tax	(568)	(35)	(603)	(1,539)	(16)	(1,555)
Income tax benefit related to other comprehensive loss	(109)	(7)	(116)	(292)	(3)	(295)
Other comprehensive loss	(459)	(28)	(487)	(1,247)	(13)	(1,260)
Comprehensive loss	$ (195)	$ (35)	$ (230)	$ (715)	$ (11)	$ (726)

	September 30, 2018					
	Three months ended			Nine months ended		
(In millions)	As Previously Reported	Revisions	As Adjusted	As Previously Reported	Revisions	As Adjusted
Net income	$ 640	$ (17)	$ 623	$ 1,172	$ (15)	$ 1,157
Other comprehensive loss, before tax						
Unrealized investment gains (losses) on available-for-sale securities	(103)	(37)	(140)	(1,680)	(53)	(1,733)
Other comprehensive loss, before tax	(100)	(37)	(137)	(1,639)	(53)	(1,692)
Income tax benefit related to other comprehensive loss	(17)	(6)	(23)	(309)	(9)	(318)
Other comprehensive loss	(83)	(31)	(114)	(1,330)	(44)	(1,374)
Comprehensive income (loss)	$ 557	$ (48)	$ 509	$ (158)	$ (59)	$ (217)

The following represents the effects of the revisions on the condensed consolidated statements of cash flows:

	Three months ended March 31, 2018		
(In millions)	As Previously Reported	Revisions	As Adjusted
Cash flows from operating activities			
Net income	$ 268	$ 9	$ 277
Adjustments to reconcile net income to net cash provided by operating activities:			
Amortization of deferred acquisition costs and value of business acquired	89	(7)	82
Changes in operating assets and liabilities:			
Interest sensitive contract liabilities	(201)	12	(189)
Other assets and liabilities	84	(14)	70
Net cash provided by operating activities	573	—	573
Cash flows from investing activities			
Sales, maturities and repayments of:			
Trading securities	31	(7)	24
Purchases of:			
Available-for-sale securities	(5,914)	7	(5,907)
Net cash used in investing activities	(2,884)	—	(2,884)

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	Six months ended June 30, 2018		
(In millions)	As Previously Reported	Revisions	As Adjusted
Cash flows from operating activities			
Net income	$ 532	$ 2	$ 534
Adjustments to reconcile net income to net cash provided by operating activities:			
Amortization of deferred acquisition costs and value of business acquired	181	(10)	171
Policy acquisition costs deferred	(311)	7	(304)
Changes in operating assets and liabilities:			
Interest sensitive contract liabilities	7	27	34
Future policy benefits, other policy claims and benefits, dividends payable to policyholders and reinsurance recoverable	352	(90)	262
Other assets and liabilities	139	(28)	111
Net cash provided by operating activities	519	(92)	427
Cash flows from investing activities			
Sales, maturities and repayments of:			
Trading securities	288	(7)	281
Short-term investments	220	(59)	161
Purchases of:			
Available-for-sale securities	(8,953)	99	(8,854)
Trading securities	(81)	64	(17)
Investment funds	(654)	(64)	(718)
Short-term investments	(429)	59	(370)
Net cash used in investing activities	(3,904)	92	(3,812)
Supplementary information			
Non-cash transactions			
Investments received from pension risk transfer premiums	$ —	$ 92	$ 92

	Nine months ended September 30, 2018		
(In millions)	As Previously Reported	Revisions	As Adjusted
Cash flows from operating activities			
Net income	$ 1,172	$ (15)	$ 1,157
Adjustments to reconcile net income to net cash provided by operating activities:			
Amortization of deferred acquisition costs and value of business acquired	211	(4)	207
Changes in operating assets and liabilities:			
Interest sensitive contract liabilities	562	29	591
Future policy benefits, other policy claims and benefits, dividends payable to policyholders and reinsurance recoverable	1,080	(83)	997
Funds withheld assets and liabilities	(239)	7	(232)
Other assets and liabilities	103	(26)	77
Net cash provided by operating activities	1,235	(92)	1,143
Cash flows from investing activities			
Sales, maturities and repayments of:			
Trading securities	327	(7)	320
Purchases of:			
Available-for-sale securities	(12,128)	99	(12,029)
Net cash used in investing activities	(6,146)	92	(6,054)
Supplementary information			
Non-cash transactions			
Investments received from pension risk transfer premiums	$ —	$ 92	$ 92

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures as such term is defined under Exchange Act Rule 13a-15(e), that are designed to provide reasonable assurance that information required to be disclosed in our Exchange Act reports is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosures. In designing and evaluating the disclosure controls and procedures, our management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives and our management necessarily is required to apply its judgment in evaluating the cost-benefit relationship of possible controls and procedures. We have carried out an evaluation, as of the end of the period covered by this report, under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of our disclosure controls and procedures. Based on this evaluation, the Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures were not effective as of December 31, 2018 as a result of the material weakness described below.

Management's Annual Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act). A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Under the supervision and with the participation of management, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on criteria established in the *Internal Control – Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 Framework). Based on our evaluation, management has concluded that our internal control over financial reporting was not effective as of December 31, 2018, due to the material weakness in our internal control over financial reporting discussed below.

We did not maintain effective controls over the process to value the host contracts within our fixed indexed annuity liabilities. Specifically, a control was not adequately designed to ensure the completeness and accuracy of key input data used in the determination of the value of the host contracts within our fixed indexed annuity liabilities. The resulting error, while not material to prior period financial statements, would have been material to the quarter ended December 31, 2018 and thus resulted in the revision of certain quarterly results of operations for the years ended December 31, 2018 and 2017 and certain financial statement line items for the years ended December 31, 2017 and 2016. We have concluded that the deficiency constituted a material weakness in our internal control over financial reporting. As of December 31, 2018, this material weakness could have resulted in misstatements of the aforementioned account balances or disclosures that would have resulted in a material misstatement to the annual or interim consolidated financial statements that would not have been prevented or detected.

Our independent registered public accounting firm, PricewaterhouseCoopers LLP, has audited the effectiveness of our internal control over financial reporting as of December 31, 2018. Their report is included in *Item 8. Financial Statements and Supplementary Data*.

Changes in Internal Control Over Financial Reporting

As part of its close process for the year ended December 31, 2018, management implemented a new control to address the material weakness described above. This new control operated during January 2019 utilizing financial data as of December 31, 2018. Based upon management's evaluation of the newly implemented control, the material weakness was assessed by management to have been remediated subsequent to December 31, 2018.

There were no other changes to our internal control over financial reporting during the three months ended December 31, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information

None.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information called for by this Item is incorporated herein by reference to the sections entitled "Management," "Proposal 1: Election of Directors of the Company," "Corporate Governance – Classified Board of Directors" and "Corporate Governance – Committees of the Board of Directors" in our definitive proxy statement for our 2019 Annual General Meeting of Shareholders to be filed by us with the SEC pursuant to Regulation 14A within 120 days after the year ended December 31, 2018 (2019 Proxy Statement).

Corporate Governance Guidelines and Code of Business Conduct and Ethics

We have adopted corporate governance guidelines and a code of business conduct and ethics that applies to all of our directors, officers and employees. These documents are available at www.athene.com. Information contained on our website or connected thereto does not constitute a part of, and is not incorporated by reference into, this report. We intend to satisfy our disclosure obligations under Item 5.05 of Form 8-K by posting information about amendments to, or waivers from a provision of, our code of business conduct and ethics that apply to our Chief Executive Officer, Chief Financial Officer and Chief Accounting Officer on our website at the address given above.

Item 11. Executive Compensation

The information called for by this Item is incorporated herein by reference to the sections entitled "Compensation of Executive Officers and Directors," "Corporate Governance – Compensation Committee Interlocks and Insider Participation," and "Corporate Governance – Committees of the Board of Directors" in our 2019 Proxy Statement.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information called for by this Item pertaining to security ownership of certain beneficial owners and management is incorporated herein by reference to the section entitled "Security Ownership of Certain Beneficial Owners" in our 2019 Proxy Statement.

Share Incentive Plan Information

The table below shows information regarding awards outstanding and shares of common stock available for issuance as of December 31, 2018 under the Share Incentive Plans:

Plan Category	Number of Securities to Be Issued Upon Exercise of Outstanding Options, Warrants and Rights[1]	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights[2]	Number of Securities Remaining Available for Future Issuance Under Share Incentive Plans[3]
Share Incentive Plans Approved by Security Holders	1,027,931	$ 49.62	5,989,876
Share Incentive Plans Not Approved by Security Holders[4]	9,979,254	$ 19.37	—
Total	11,007,185	$ 21.20	5,989,876

[1] *Consists of Class A shares underlying options, time-based RSUs, performance-based RSUs and Class M common shares. Class M common shares, once vested, are convertible into Class A shares subject to payment of the conversion price. Performance-based RSUs are included at their target value. Class M common shares are included based on the assumption that 100% of such shares vest and are converted into Class A shares on a one-for-one basis.*

[2] *Includes options, Class M common shares and the RSUs issued in conjunction with the Class M-4 common shares. Does not include other time-based RSUs or performance-based RSUs, as they do not have exercise prices.*

[3] *Includes shares remaining available for issuance under the 2017 Employee Stock Purchase Plan and the 2016 Share Incentive Plan.*

[4] *Includes securities pursuant to our 2009, 2012, and 2014 share incentive plans. See Note 12 – Stock-based Compensation to the consolidated financial statements for a discussion regarding the material features of these plans.*

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information called for by this Item is incorporated herein by reference to the sections entitled "Certain Relationships and Related Transactions" and "Corporate Governance – Director Independence" in our 2019 Proxy Statement.

Item 14. Principal Accountant Fees and Services

The information called for by this Item is incorporated herein by reference to the sections entitled "Additional Information and Matters – Principal Accountant Fees and Services" and "Corporate Governance – Committees of the Board of Directors" in our 2019 Proxy Statement.

PART IV

Item 15. Exhibits, Financial Statement Schedules

The following documents are filed as part of this report:

1. Financial Statements—Item 8. Financial Statements and Supplementary Data 117

2. Financial Statement Schedules

Schedule I—Summary of Investments Other Than Investments in Related Parties as of December 31, 2018 200
Schedule II—Condensed Financial Information of Registrant (Parent Company Only) 201
Schedule II—Balance Sheets as of December 31, 2018 and 2017 201
Schedule II—Statements of Income and Comprehensive Income (Loss) for the years ended December 31, 2018, 2017 and 2016 202
Schedule II—Statements of Cash Flows for the years ended December 31, 2018, 2017 and 2016 203
Schedule II—Notes to Condensed Financial Information of Registrant for the years ended December 31, 2018, 2017 and 2016 204
Schedule III—Supplementary Insurance Information for the years ended December 31, 2018, 2017 and 2016 206
Schedule IV—Reinsurance for the years ended December 31, 2018, 2017 and 2016 207
Schedule V—Valuation and Qualifying Accounts for the years ended December 31, 2018, 2017 and 2016 208

Any remaining schedules are omitted because they are inapplicable.

3. Exhibits

See the accompanying Exhibit Index. 209

ATHENE HOLDING LTD.
Schedule I — Summary of Investments — Other Than Investments in Related Parties

	December 31, 2018		
(In millions)	Cost or Amortized Cost	Fair Value	Amount Shown on Consolidated Balance Sheet
AFS securities			
U.S government and agencies	$ 57	$ 57	$ 57
U.S. state, municipal and political subdivisions	1,183	1,293	1,293
Foreign governments	162	161	161
Public utilities	5,219	5,140	5,140
Redeemable preferred stock	100	96	96
Other corporate	32,699	31,861	31,861
CLO	5,658	5,361	5,361
ABS	4,915	4,920	4,920
CMBS	2,390	2,357	2,357
RMBS	7,642	8,019	8,019
Trading securities	1,949	1,949	1,949
Total fixed maturity securities	61,974	61,214	61,214
Equity securities			
Public utilities	—	1	1
Industrial, miscellaneous and all other common stock	55	51	51
Nonredeemable preferred stocks	169	164	164
Total equity securities	224	216	216
Mortgage loans, net of allowances	10,338		10,340
Investment funds	596		703
Policy loans	488		488
Funds withheld at interest	15,023		15,023
Derivative assets	2,331		1,043
Short-term investments	191		191
Other investments	122		122
Total investments	$ 91,287		$ 89,340

ATHENE HOLDING LTD.
Schedule II — Condensed Financial Information of Registrant (Parent Company Only) — Balance Sheets

	December 31,	
(In millions, except per share data)	2018	2017
Assets		
Investments		
Available-for-sale securities, at fair value (amortized cost: 2018 – $46 and 2017 – $35)	$ 45	$ 38
Cash and cash equivalents	112	142
Investments in related parties		
Investment funds	105	—
Other assets	24	3
Notes receivable from subsidiaries	—	44
Intercompany receivable	21	2
Investments in subsidiaries	9,108	9,086
Total assets	$ 9,415	$ 9,315
Liabilities and Equity		
Liabilities		
Long-term debt	$ 991	$ —
Note payable to subsidiary	105	—
Payables for collateral on derivatives	1	—
Other liabilities	34	132
Intercompany payable	8	7
Total liabilities	1,139	139
Equity		
Common stock		
Class A – par value $0.001 per share; authorized: 2018 and 2017 – 425.0 shares; issued and outstanding: 2018 – 162.4 and 2017 – 142.4 shares	—	—
Class B – par value $0.001 per share; convertible to Class A; authorized: 2018 and 2017 – 325.0 shares; issued and outstanding: 2018 – 25.4 and 2017 – 47.4 shares	—	—
Class M-1 – par value $0.001 per share; contingently convertible to Class A; authorized: 2018 and 2017 – 7.1 shares; issued and outstanding: 2018 – 3.4 and 2017 – 3.4 shares	—	—
Class M-2 – par value $0.001 per share; contingently convertible to Class A; authorized: 2018 and 2017 – 5.0 shares; issued and outstanding: 2018 – 0.8 and 2017 – 0.9 shares	—	—
Class M-3 – par value $0.001 per share; contingently convertible to Class A; authorized: 2018 and 2017 – 7.5 shares; issued and outstanding: 2018 – 1.0 and 2017 – 1.1 shares	—	—
Class M-4 – par value $0.001 per share; contingently convertible to Class A; authorized: 2018 and 2017 – 7.5 shares; issued and outstanding: 2018 – 4.1 and 2017 – 4.7 shares	—	—
Additional paid-in capital	3,462	3,472
Retained earnings	5,286	4,255
Accumulated other comprehensive income (loss)	(472)	1,449
Total Athene Holding Ltd. shareholders' equity	8,276	9,176
Total liabilities and equity	$ 9,415	$ 9,315

See accompanying notes to condensed financial information of registrant (parent company only)

ATHENE HOLDING LTD.
Schedule II — Condensed Financial Information of Registrant (Parent Company Only)
Statements of Income and Comprehensive Income (Loss)

(In millions)	Years ended December 31, 2018	2017	2016
Revenue			
Net investment income (related party: 2018 – $(3), 2017 – $3 and 2016 – $8)	$ 17	$ 5	$ 10
Investment related gains (losses) (related party: 2018 – $24, 2017 – $0 and 2016 – $0)	14	(7)	4
Other revenues	20	—	—
Total revenues	51	(2)	14
Benefits and Expenses			
Operating expenses (related party: 2018 – $7, 2017 – $8 and 2016 – $16)	124	142	145
Total benefits and expenses	124	142	145
Loss before income taxes and equity earnings in subsidiaries	(73)	(144)	(131)
Provision for income taxes	—	—	—
Equity earnings in subsidiaries	1,126	1,502	904
Net income	1,053	1,358	773
Other comprehensive income (loss)	(1,879)	896	607
Comprehensive income (loss)	$ (826)	$ 2,254	$ 1,380

See accompanying notes to condensed financial information of registrant (parent company only)

ATHENE HOLDING LTD.
Schedule II — Condensed Financial Information of Registrant (Parent Company Only) — Statements of Cash Flows

	Years ended December 31,		
(In millions)	2018	2017	2016
Net cash used in operating activities	$ (66)	$ (54)	$ (45)
Cash flows from investing activities			
Capital contributions to subsidiary	(95)	—	(34)
Receipts on loans to subsidiaries	64	—	20
Issuances of loans to subsidiaries	(20)	(44)	—
Sales, maturities, and repayments of:			
Available-for-sale securities	178	9	5
Short-term investments	64	—	—
Purchases of:			
Available-for-sale securities	(994)	(17)	(3)
Short-term investments	(64)	—	—
Cash settlement of derivatives	6	(8)	5
Other investing activities, net	(96)	82	(5)
Net cash (used in) provided by investing activities	(957)	22	(12)
Cash flows from financing activities			
Capital contributions	2	1	1
Proceeds from long-term debt	998	—	—
Proceeds from note payable with subsidiary	105	—	—
Net change in cash collateral posted for derivative transactions	1	(6)	6
Repurchase of common stock	(105)	(10)	(21)
Other financing activities, net	(8)	—	—
Net cash provided by (used in) financing activities	993	(15)	(14)
Net decrease in cash and cash equivalents	(30)	(47)	(71)
Cash and cash equivalents at beginning of year	142	189	260
Cash and cash equivalents at end of year	$ 112	$ 142	$ 189
Supplementary information			
Cash paid for interest	$ 23	$ —	$ —
Non-cash transactions			
Non-cash capital contributions to subsidiaries	803	—	—
Investment in Athora Holding Ltd. received upon deconsolidation	108	—	—

See accompanying notes to condensed financial information of registrant (parent company only)

ATHENE HOLDING LTD.
Schedule II — Condensed Financial Information of Registrant (Parent Company Only)
Notes to Condensed Financial Information of Registrant

1. Basis of Presentation

The accompanying condensed financial statements of Athene Holding Ltd. (AHL) should be read in conjunction with the consolidated financial statements and notes of AHL and its subsidiaries (consolidated financial statements).

For purposes of these condensed financial statements, AHL's wholly owned and majority owned subsidiaries are presented under the equity method of accounting. Under this method, the assets and liabilities of subsidiaries are not consolidated. The investments in subsidiaries are recorded on the condensed balance sheets. The income from subsidiaries is reported on a net basis as equity earnings of subsidiaries on the condensed statements of income.

2. Revisions

As discussed in *Note 2 – Financial Statement Revisions* to the consolidated financial statements, we made revisions as a result of correcting immaterial misstatements. The revisions related to AHL's subsidiaries; therefore, these condensed statements are adjusted in a manner consistent with those disclosed in *Note 2 – Financial Statement Revisions* for comprehensive income and equity, with the offset equity recorded to investments in subsidiaries. The net income impact of these revisions was adjusted to equity earnings of subsidiaries on the condensed statements of income.

3. Intercompany Transactions

Unsecured Revolving Notes Receivable—AHL has unsecured revolving notes receivable from subsidiaries Athene USA Corporation (Athene USA) and Athene Life Re Ltd. (ALRe).

The unsecured revolving notes receivable from Athene USA has a borrowing capacity of $250 million and an outstanding balance of $0 million and $16 million as of December 31, 2018 and 2017, respectively. Interest accrues at the U.S. short-term applicable federal rate per year, and the balance is due on June 1, 2020, or earlier at AHL's request.

The unsecured revolving notes receivable from ALRe has a borrowing capacity of $250 million and had no outstanding balance as of December 31, 2018 and 2017. Interest accrues at a fixed rate of 1.25% and has a maturity date of June 1, 2020, or earlier at AHL's request. In February 2019, the revolving notes receivable agreement was amended to increase the borrowing capacity to $1 billion and to extend the maturity date to March 31, 2024.

See *Note 1 – Business, Basis of Presentation and Significant Accounting Policies* to the consolidated financial statements for further information regarding the deconsolidation of Athora Holding Ltd. (Athora). AHL deconsolidated Athora effective January 1, 2018. The unsecured revolving notes receivable from Athora had a borrowing capacity of €25 million and an outstanding balance of $29 million as of December 31, 2017. Interest accrued at the U.S. short-term applicable federal rate per year, and the balance was due upon deconsolidation. In conjunction with the Athora deconsolidation, the outstanding balance was repaid to AHL in the first quarter of 2018.

Unsecured Revolving Note Payable—In addition to the unsecured revolving notes receivable described above, AHL has an unsecured revolving note payable with ALRe, which permits AHL to borrow up to $250 million with a fixed interest rate of 1.25% and a maturity date of June 1, 2020. As of December 31, 2018 and 2017, the revolving note payable had an outstanding balance of $105 million and $0 million, respectively. In February 2019, the revolving note payable agreement was amended to increase the borrowing capacity to $1 billion and to extend the maturity date to March 31, 2024.

Funds in Trust (Restricted Assets)—AHL has agreed to maintain the authorized control level risk-based capital (RBC) of its subsidiary, Athene Life Insurance Company of New York (ALICNY), at an amount not less than 450%. As a result, AHL has established a separate backstop trust account with a fair value of $37 million and $39 million as of December 31, 2018 and 2017, respectively, consisting of available-for-sale investments and cash. If ALICNY's authorized control level RBC falls below 450%, the funds in the backstop trust account would be used to replenish ALICNY's authorized control level RBC to at least 450%.

4. Debt and Guarantees

AHL has guaranteed certain of the obligations of Athene USA, ALRe, and Athene Annuity Re Ltd. in connection with its revolving credit facility. Additionally, AHL issued senior notes in the first quarter of 2018. See *Note 10 – Debt* to the consolidated financial statements for further discussion on the credit facility and senior notes.

AHL has entered into capital maintenance agreements with each of its material U.S. insurance subsidiaries, pursuant to which AHL agrees to provide capital to the subsidiary to the extent that the capital of the subsidiary falls below a specified threshold as set with the applicable subsidiary's domestic regulator. In addition, on December 17, 2018, AHL entered into a capital maintenance agreement with its indirect subsidiary Athene London Assignment Corporation (Athene London) pursuant to which AHL agreed to contribute cash, cash equivalents, marketable securities, or other liquid assets so as to maintain capital in Athene London to ensure that it has the necessary funds to timely satisfy any obligations it has under any assumed settlement agreement. AHL does not anticipate making any capital infusions in Athene London pursuant to the capital maintenance agreement.

ATHENE HOLDING LTD.
Schedule II — Condensed Financial Information of Registrant (Parent Company Only)
Notes to Condensed Financial Information of Registrant

5. Dividends, Return of Capital and Capital Contributions

ALRe paid a dividend of $50 million to AHL during the year ended December 31, 2018. In addition, AHL contributed $898 million to subsidiaries during the year ended December 31, 2018. There were no dividends or return of capital received from subsidiaries during the years ended December 31, 2017 or 2016. See *Note 16 – Statutory Requirements* to the consolidated financial statements for additional information on subsidiary dividend restrictions.

In February 2019, ALRe's board of directors approved dividend payments to AHL of up to $750 million.

ATHENE HOLDING LTD.
Schedule III
Supplementary Insurance Information

(In millions)	DAC, DSI, and VOBA	Future policy benefits, losses, claims and loss expenses[1]	Other policy claims and benefits	Premiums	Net investment income	Benefits, claims, losses, and settlement expenses[2]	Amortization of DAC and VOBA	Policy and other operating expenses
2018								
Retirement Services	$ 5,907	$ 113,314	$ 142	$ 3,368	$ 3,960	$ 4,568	$ 174	$ 496
Corporate and other	—	—	—	—	44	—	—	129
Total	$ 5,907	$ 113,314	$ 142	$ 3,368	$ 4,004	$ 4,568	$ 174	$ 625
2017								
Retirement Services	$ 2,972	$ 80,818	$ 137	$ 2,286	$ 3,087	$ 5,908	$ 344	$ 444
Corporate and other	—	4,838	74	179	182	339	—	228
Total	$ 2,972	$ 85,656	$ 211	$ 2,465	$ 3,269	$ 6,247	$ 344	$ 672
2016								
Retirement Services	$ 2,959	$ 71,828	$ 148	$ 53	$ 2,837	$ 2,183	$ 304	$ 430
Corporate and other	—	4,314	69	187	77	266	—	197
Total	$ 2,959	$ 76,142	$ 217	$ 240	$ 2,914	$ 2,449	$ 304	$ 627

[1] *Represents interest sensitive contract liabilities and future policy benefits on the consolidated balance sheets.*

[2] *Represents interest sensitive contract benefits, amortization of deferred sales inducements, future policy and other policy benefits, and dividends to policyholders on the consolidated statements of income.*

ATHENE HOLDING LTD.
Schedule IV
Reinsurance

(In millions)	Gross amount	Ceded to other companies	Assumed from other companies	Net amount	Percentage of amount assumed to net
Year ended December 31, 2018					
Life insurance in force at end of year	$ 39,941	$ 45,957	$ 7,857	$ 1,841	426.8%
Premiums	2,772	405	1,001	3,368	29.7%
Year ended December 31, 2017					
Life insurance in force at end of year	43,267	49,860	8,551	1,958	436.7%
Premiums	2,639	195	21	2,465	0.9%
Year ended December 31, 2016					
Life insurance in force at end of year	56,356	63,894	9,591	2,053	467.2%
Premiums	448	228	20	240	8.3%

ATHENE HOLDING LTD.
Schedule V
Valuation and Qualifying Accounts

(In millions)		Additions			
Description	**Balance at beginning of year**	**Charged to costs and expenses**	**Assumed through acquisitions**	**Deductions**	**Balance at end of year**
Reserves deducted from assets to which they apply					
Year ended December 31, 2018					
Valuation allowance on deferred tax assets	$ 96	$ 9	$ —	$ (53)	$ 52
Valuation allowance on mortgage loans	2	1	—	(1)	2
Year ended December 31, 2017					
Valuation allowance on deferred tax assets	94	19	—	(17)	96
Valuation allowance on mortgage loans	2	—	—	—	2
Year ended December 31, 2016					
Valuation allowance on deferred tax assets	215	—	—	(121)	94
Valuation allowance on mortgage loans	2	—	—	—	2

EXHIBIT INDEX

Exhibit No.	Description
3.1	Certificate of Incorporation of Athene Holding Ltd. (incorporated by reference to Exhibit 3.1 to the Form S-1 filed on May 9, 2016).
3.2	Memorandum of Association of Athene Holding Ltd. (incorporated by reference to Exhibit 3.2 to the Form S-1 filed on May 9, 2016).
3.2.1	Form of Certificate of Deposit of Memorandum of Increase of Share Capital (incorporated by reference to Exhibit 3.2.1 to the Form S-1 filed on November 10, 2016).
3.3	Eleventh Amended and Restated Bye-laws of Athene Holding Ltd., effective June 6, 2018 (incorporated by reference to Exhibit 3.1 to the Form 10-Q filed on August 3, 2018).
4.1	Form of Athene Holding Ltd. Class A common share certificate (incorporated by reference to Exhibit 4.1 to the Form S-1 filed on November 10, 2016).
4.2.1	Third Amended and Restated Registration Rights Agreement, dated as of April 4, 2014, among Athene Holding Ltd. and the shareholders party thereto (incorporated by reference to Exhibit 4.2 to the Form S-1 filed on October 25, 2016).
4.2.2	First Amendment to Third Amended and Restated Registration Rights Agreement, dated as of October 6, 2015, among Athene Holding Ltd. and the shareholders party thereto (incorporated by reference to Exhibit 4.3 to the Form S-1 filed on October 25, 2016).
4.2.3	Second Amendment to Third Amended and Restated Registration Rights Agreement, dated as of November 22, 2016, among Athene Holding Ltd. and the shareholders party thereto (incorporated by reference to Exhibit 4.4 to the Form 10-K filed on March 16, 2017).
4.3.1	Indenture for Debt Securities, dated as of January 12, 2018, by and between Athene Holding Ltd. and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.1 to the Form 8-K filed on January 12, 2018).
4.3.2	First Supplemental Indenture, dated January 12, 2018, by and between Athene Holding Ltd. and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.2 to the Form 8-K filed on January 12, 2018).
10.1.1	Credit Agreement, dated as of January 22, 2016, among Athene Holding Ltd., Athene Life Re Ltd. and Athene USA Corporation, as Borrowers, the lenders from time to time party thereto, and Citibank, N.A., as Administrative Agent (incorporated by reference to Exhibit 10.5 to the Form S-1 filed on October 25, 2016).
10.1.2	First Amendment to Credit Agreement, dated as of June 29, 2016, among Athene Holding Ltd., Athene Life Re Ltd. and Athene USA Corporation, as Borrowers, the lenders from time to time party thereto, and Citibank, N.A., as Administrative Agent.
10.1.3	Second Amendment to Credit Agreement, dated as of March 14, 2018, among Athene Holding Ltd., Athene Life Re Ltd., Athene USA Corporation and Athene Annuity Re Ltd., as Borrowers, the lenders from time to time party thereto, and Citibank, N.A., as Administrative Agent (incorporated by reference to Exhibit 10.1 to the Form 10-Q filed on May 4, 2018).
10.2	Amended and Restated Guaranty, dated as of March 14, 2018, among Athene Holding Ltd., Athene Life Re Ltd., Athene USA Corporation and Athene Annuity Re Ltd., as Guarantors, and Citibank, N.A., as Administrative Agent (incorporated by reference to Exhibit 10.2 to the Form 10-Q filed on May 4, 2018).
10.3.1	Sixth Amended and Restated Fee Agreement, dated as of June 7, 2018, between Athene Asset Management, LLC and Athene Holding Ltd. (incorporated by reference to Exhibit 10.4 to the Form 10-Q filed on August 3, 2018).
10.3.2	Applicable 2016 Liability Fee Discount, effective as of September 30, 2016, between Athene Asset Management, L.P. and Athene Holding Ltd. (incorporated by reference to Exhibit 10.7.2 to the Form S-1 filed on October 25, 2016).
10.4	Amended and Restated Coinsurance Agreement, dated as of July 31, 2015, between Athene Life Insurance Company of New York and First Allmerica Financial Life Insurance Company (regarding certain term and universal life policies) (incorporated by reference to Exhibit 10.9 to the Form S-1 filed on October 25, 2016).
10.5	Coinsurance and Assumption Agreement, dated as of October 1, 2013, between Aviva Life and Annuity Company (now known as Athene Annuity and Life Company) and Presidential Life Insurance Company - USA (now known as Accordia Life and Annuity Insurance Company) (incorporated by reference to Exhibit 10.10 to the Form S-1 filed on October 25, 2016).
10.6	Amended and Restated Coinsurance and Assumption Agreement, dated as of July 31, 2015, between Athene Life Insurance Company of New York and First Allmerica Financial Life Insurance Company (regarding certain policies described therein) (incorporated by reference to Exhibit 10.11 to the Form S-1 filed on October 25, 2016).
10.7	Amended and Restated Coinsurance Agreement, dated as of December 28, 2015, between Athene Annuity and Life Company and Accordia Life and Annuity Company (formerly known as Presidential Life Insurance Company-USA) (regarding the ILICO closed block) (incorporated by reference to Exhibit 10.12 to the Form S-1 filed on October 25, 2016).
10.8	Funds Withheld Coinsurance Agreement, dated as of October 1, 2013, between Aviva Life and Annuity Company of New York (now known as Athene Life Insurance Company of New York) and First Allmerica Financial Life Insurance Company (regarding certain term and universal life policies) (incorporated by reference to Exhibit 10.13 to the Form S-1 filed on October 25, 2016).
10.9	Coinsurance Agreement, dated as of April 29, 2011, between Liberty Life Insurance Company (now known as Athene Annuity & Life Assurance Company) and Protective Life Insurance Company (incorporated by reference to Exhibit 10.14 to the Form S-1 filed on October 25, 2016).
10.10.1	Employment Agreement, dated as of February 27, 2013, between Athene Holding Ltd. and James R. Belardi (incorporated by reference to Exhibit 10.15.1 to the Form S-1 filed on October 25, 2016).

Exhibit No.	Description
10.10.2	Employment Agreement, dated as of September 7, 2015, between Athene Holding Ltd. and William J. Wheeler (incorporated by reference to Exhibit 10.15.2 to the Form S-1 filed on October 25, 2016).
10.10.3	Employment Agreement, dated as of October 12, 2015, between Athene Holding Ltd. and Martin P. Klein (incorporated by reference to Exhibit 10.15.3 to the Form S-1 filed on October 25, 2016).
10.11.1	Amended and Restated Athene Holding Ltd. 2009 Share Incentive Plan (incorporated by reference to Exhibit 10.16.1 to the Form S-1 filed on October 25, 2016).
10.11.2	Amended and Restated Athene Holding Ltd. 2012 Share Incentive Plan (incorporated by reference to Exhibit 10.16.2 to the Form S-1 filed on October 25, 2016).
10.11.3	Athene Holding Ltd. 2014 Share Incentive Plan (incorporated by reference to Exhibit 10.16.3 to the Form S-1 filed on October 25, 2016).
10.11.4	Amendment No. 1 to 2014 Share Incentive Plan (incorporated by reference to Exhibit 10.16.4 to the Form S-1 filed on October 25, 2016).
10.11.5	Athene Holding Ltd. 2016 Share Incentive Plan (incorporated by reference to Exhibit 10.16.5 to the Form S-1 filed on October 25, 2016).
10.12	Form of Amended and Restated Restricted Share Award Agreement (Class M-1 common shares) (incorporated by reference to Exhibit 10.17 to the Form S-1 filed on October 25, 2016).
10.13	Form of Amended and Restated Restricted Share Award Agreement (Class M-2 common shares) (incorporated by reference to Exhibit 10.18 to the Form S-1 filed on October 25, 2016).
10.14	Form of Amended and Restated Restricted Share Award Agreement (Class M-3 common shares) (incorporated by reference to Exhibit 10.19 to the Form S-1 filed on October 25, 2016).
10.15	Form of Amended and Restated Restricted Share Award Agreement (Class M-4 common shares) (incorporated by reference to Exhibit 10.20 to the Form S-1 filed on November 10, 2016).
10.16	Form of Amended and Restated Restricted Share Unit Award Agreement (similar to Class M-4 common shares) (incorporated by reference to Exhibit 10.21 to the Form S-1 filed on November 10, 2016).
10.17	Form of Amended and Restated Restricted Share Award Agreement (Class M-4 Prime common shares) (incorporated by reference to Exhibit 10.22 to the Form S-1 filed on November 10, 2016).
10.18	Form of Amended and Restated Restricted Share Unit Award Agreement (similar to Class M-4 Prime common shares) (incorporated by reference to Exhibit 10.23 to the Form S-1 filed on November 10, 2016).
10.19.1	Form of Amended and Restated Class A Share Award Agreement (Class A common shares issued at $13.46 per share) (incorporated by reference to Exhibit 10.24.1 to the Form S-1 filed on November 10, 2016).
10.19.2	Form of Amendment Letter to the Amended and Restated Class A Share Award Agreement (Class A common shares issued at $13.46 per share) (incorporated by reference to Exhibit 10.24.2 to the Form S-1 filed on November 10, 2016).
10.20.1	Form of Restricted Share Award Agreement (Class A common shares) (incorporated by reference to Exhibit 10.25.1 to the Form S-1 filed on November 10, 2016).
10.20.2	Form of Amendment Letter to the Restricted Share Award Agreement (Class A common shares) (incorporated by reference to Exhibit 10.25.2 to the Form S-1 filed on November 10, 2016).
10.21.1	Form of Class A Share Award Agreement (Class A common shares issued at fair market value) (incorporated by reference to Exhibit 10.26.1 to the Form S-1 filed on November 10, 2016).
10.21.2	Form of Amendment Letter to Class A Share Award Agreement (Class A common shares issued at fair market value) (incorporated by reference to Exhibit 10.26.2 to the Form S-1 filed on November 10, 2016).
10.22.1	Form of 2014 Share Incentive Plan Nonqualified Stock Option Award Notice and Nonqualified Stock Option Agreement (incorporated by reference to Exhibit 10.27 to the Form S-1 filed on October 25, 2016).
10.22.2	Form of 2016 Share Incentive Plan Nonqualified Stock Option Award Notice and Nonqualified Stock Option Agreement (incorporated by reference to Exhibit 10.26.2 to the Form 10-K filed on February 26, 2018).
10.23.1	Form of 2014 Share Incentive Plan Restricted Share Unit Award Notice (Performance-Based Vesting) and Restricted Share Unit Award Agreement (incorporated by reference to Exhibit 10.28 to the Form S-1 filed on October 25, 2016).
10.23.2	Form of 2016 Share Incentive Plan Restricted Share Unit Award Notice (Performance-Based Vesting) and Restricted Share Unit Award Agreement (incorporated by reference to Exhibit 10.27.2 to the Form 10-K filed on February 26, 2018).
10.24.1	Form of 2014 Share Incentive Plan Restricted Share Unit Award Notice (Time-Based Vesting) and Restricted Share Unit Award Agreement (incorporated by reference to Exhibit 10.29 to the Form S-1 filed on October 25, 2016).
10.24.2	Form of 2016 Share Incentive Plan Restricted Share Unit Award Notice (Time-Based Vesting) and Restricted Share Unit Award Agreement (incorporated by reference to Exhibit 10.28.2 to the Form 10-K filed on February 26, 2018).
10.25	Form of Amended and Restated Restricted Share Award Agreement (2014 awards to certain non-employee directors) (incorporated by reference to Exhibit 10.30 to the Form S-1 filed on November 10, 2016).
10.26	Form of Restricted Share Award Agreement (2015 awards to certain non-employee directors) (incorporated by reference to Exhibit 10.31 to the Form S-1 filed on November 10, 2016).
10.27	Form of 2016 Share Incentive Plan Restricted Share Award Notice and Restricted Share Award Agreement (incorporated by reference to Exhibit 10.31 to the Form 10-K filed on February 26, 2018).

Exhibit No.	Description
10.28	Form of 2016 Share Incentive Plan Restricted Share Award Notice (Performance-Based Vesting) and Restricted Share Award Agreement (incorporated by reference to Exhibit 10.32 to the Form 10-K filed on February 26, 2018).
10.29	Form of Director Retention Letter for 2018 (incorporated by reference to Exhibit 10.33 to the Form 10-K filed on February 26, 2018).
10.30	Supplemental Executive Retirement Plan (incorporated by reference to Exhibit 10.33 to the Form S-1 filed on October 25, 2016).
10.31	Separation Agreement and General Release, dated as of June 21, 2016, between Athene Holding Ltd. and Stephen E. Cernich (incorporated by reference to Exhibit 10.35 to the Form S-1 filed on October 25, 2016).
10.32.1	Amended and Restated Master Sub-Advisory Agreement, dated as of April 1, 2014, among Athene Asset Management L.P., Apollo Capital Management, L.P., Apollo Global Real Estate Management, L.P., ARM Manager LLC, Apollo Longevity, LLC and Apollo Emerging Markets, LLC (incorporated by reference to Exhibit 10.39.1 to the Form S-1 filed on October 25, 2016).
10.32.2	Master Sub-Advisory Agreement Addendum One, dated as of November 24, 2015, between Athene Asset Management L.P. and Apollo Emerging Markets, LLC (incorporated by reference to Exhibit 10.39.2 to the Form S-1 filed on October 25, 2016).
10.32.3	Master Sub-Advisory Agreement Addendum Two, dated June 8, 2017, by and among Athene Asset Management L.P., Apollo Capital Management, L.P., Apollo Global Real Estate Management, L.P., ARM Manager LLC, Apollo Longevity, LLC and Apollo Emerging Markets, LLC (incorporated by reference to Exhibit 10.3 to the Current Report on Form 8-K filed on June 9, 2017).
10.32.4	Master Sub-Advisory Agreement Addendum Three, dated June 29, 2018, by and among Athene Asset Management LLC, Apollo Capital Management, L.P., Apollo Global Real Estate Management, L.P., ARM Manager LLC, Apollo Longevity, LLC and Apollo Emerging Markets, LLC.
10.32.5	Second Amended and Restated Master Sub-Advisory Agreement, dated as of April 1, 2014, among Athene Asset Management L.P., Apollo Capital Management, L.P., Apollo Global Real Estate Management, L.P., ARM Manager LLC, Apollo Longevity, LLC, Apollo Royalties Management, LLC and Apollo Emerging Markets, LLC (incorporated by reference to Exhibit 10.39.3 to the Form S-1 filed on October 25, 2016).
10.32.6	Master Sub-Advisory Agreement Addendum One, dated as of November 24, 2015, between Athene Asset Management L.P. and Apollo Emerging Markets, LLC (incorporated by reference to Exhibit 10.39.4 to the Form S-1 filed on October 25, 2016).
10.32.7	Master Sub-Advisory Agreement Addendum Two, dated June 8, 2017, by and among Athene Asset Management L.P., Apollo Capital Management, L.P., Apollo Global Real Estate Management, L.P., ARM Manager LLC, Apollo Longevity, LLC, Apollo Royalties Management, LLC and Apollo Emerging Markets, LLC (incorporated by reference to Exhibit 10.2 to the Current Report on Form 8-K filed on June 9, 2017).
10.32.8	Master Sub-Advisory Agreement Addendum Three, dated May 7, 2018, by and among Athene Asset Management LLC, Apollo Capital Management, L.P., Apollo Global Real Estate Management, L.P., ARM Manager LLC, Apollo Longevity, LLC and Apollo Emerging Markets, LLC.
10.32.9	Second Amended and Restated Master Sub-Advisory Agreement, dated as of January 1, 2015, among Athene Asset Management L.P., Apollo Capital Management, L.P., Apollo Global Real Estate Management, L.P., ARM Manager LLC and Apollo Longevity, LLC (incorporated by reference to Exhibit 10.39.5 to the Form S-1 filed on October 25, 2016).
10.32.10	Master Sub-Advisory Agreement Addendum One, dated June 8, 2017, by and among AAM, Apollo Capital Management, L.P., Apollo Global Real Estate Management, L.P., ARM Manager LLC and Apollo Longevity, LLC (incorporated by reference to Exhibit 10.4 to the Current Report on Form 8-K filed on June 9, 2017).
10.33	Separation Agreement and General Release, dated as of December 19, 2016, between Athene Holding Ltd. and Guy Smith III (incorporated by reference to Exhibit 10.40 to the Form 10-K filed on March 16, 2017).
10.34	Cooperation Agreement, dated as of January 1, 2018, between AGER Bermuda Holding Ltd. and Athene Holding Ltd. (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed on January 2, 2018).
10.35	Reinsurance agreement (FA Business), effective as of June 1, 2018, between Athene Annuity & Life Assurance Company and Voya Insurance and Annuity Company (incorporated by reference to Exhibit 10.1 to the Form 10-Q filed on August 3, 2018).
10.36	Modified coinsurance agreement (Separate Account FA Business), effective as of June 1, 2018, between Athene Annuity & Life Assurance Company and Voya Insurance and Annuity Company (incorporated by reference to Exhibit 10.2 to the Form 10-Q filed on August 3, 2018).
10.37	Modified coinsurance agreement (FA Business), effective as of June 1, 2018, between Athene Life Re Ltd. and Voya Insurance and Annuity Company (incorporated by reference to Exhibit 10.3 to the Form 10-Q filed on August 3, 2018).
21.1	Subsidiaries of the Registrant.
23.1	Consent of PricewaterhouseCoopers LLP regarding Athene Holding Ltd. financial statements.
24.1	Power of Attorney (included on the signature page hereto)
31.1	Principal Executive Officer Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Principal Financial Officer Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Principal Executive Officer Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Principal Financial Officer Certification Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101.INS	XBRL Instance Document.
101.SCH	XBRL Taxonomy Extension Schema.

Exhibit No.	Description
101.CAL	XBRL Taxonomy Extension Calculation Linkbase.
101.LAB	XBRL Taxonomy Extension Label Linkbase.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase.
101.DEF	XBRL Taxonomy Extension Definition Linkbase.

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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.

ATHENE HOLDING LTD.

Date: February 27, 2019

/s/ Martin P. Klein
Martin P. Klein
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints James R. Belardi, Martin P. Klein and John A. Sondej as his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign this Annual Report on Form 10-K, and all amendments thereto, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorneys-in-fact and agents, or any of them, or their or his or her substitutes or substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant in the capacities indicated below:

Signatures	Title	Date
/s/ James R. Belardi James R. Belardi	Chairman and Chief Executive Officer (Principal Executive Officer)	February 27, 2019
/s/ Martin P. Klein Martin P. Klein	Executive Vice President and Chief Financial Officer (Principal Financial Officer)	February 27, 2019
/s/ John A. Sondej John A. Sondej	Senior Vice President and Controller (Principal Accounting Officer)	February 27, 2019
/s/ Marc Beilinson Marc Beilinson	Director	February 27, 2019
/s/ Robert Borden Robert Borden	Director	February 27, 2019
/s/ Mitra Hormozi Mitra Hormozi	Director	February 27, 2019
/s/ Scott Kleinman Scott Kleinman	Director	February 27, 2019
/s/ Brian Leach Brian Leach	Director	February 27, 2019
/s/ Gernot Lohr Gernot Lohr	Director	February 27, 2019
/s/ H. Carl McCall H. Carl McCall	Director	February 27, 2019

Signatures	Title	Date
/s/ Matthew R. Michelini Matthew R. Michelini	Director	February 27, 2019
/s/ Dr. Manfred Puffer Dr. Manfred Puffer	Director	February 27, 2019
/s/ Marc Rowan Marc Rowan	Director	February 27, 2019
/s/ Lawrence J. Ruisi Lawrence J. Ruisi	Director	February 27, 2019
/s/ Hope Schefler Taitz Hope Schefler Taitz	Director	February 27, 2019
/s/ Arthur Wrubel Arthur Wrubel	Director	February 27, 2019
/s/ Fehmi Zeko Fehmi Zeko	Director	February 27, 2019

FIRST AMENDMENT TO CREDIT AGREEMENT

This First Amendment to Credit Agreement, dated as of June 29, 2016 (this "Amendment"), is made by and among ATHENE HOLDING LTD., an exempted company incorporated under the laws of Bermuda ("AHL"), ATHENE LIFE RE LTD., an exempted company incorporated under the laws of Bermuda ("Athene Life Re"), ATHENE USA CORPORATION, an Iowa corporation ("AUSA", together with AHL and Athene Life Re, collectively, the "Borrowers" and individually, each a "Borrower"), the Lenders party hereto, and CITIBANK, N.A., as administrative agent for the Lenders under the Credit Agreement defined below (in such capacity, the "Administrative Agent").

RECITALS

WHEREAS, reference is made to that certain Credit Agreement, dated as of January 22, 2016 (as amended, restated, amended and restated, supplemented or otherwise modified from time to time, the "Credit Agreement"; capitalized terms used herein but not otherwise defined shall have the meanings assigned to such terms in the Credit Agreement), by and among the Borrowers, the Lenders from time to time party thereto and the Administrative Agent; and

WHEREAS, the Borrowers have requested that the Lenders amend certain Provisions of the Credit Agreement, and the Lenders have agreed to make such amendments, in each case, upon the terms and subject to the conditions set forth herein.

NOW THEREFORE, in consideration of the premises and the mutual covenants herein contained, the parties hereto hereby agree as follows:

Section 1. Amendments.

(a) Schedule 5.09 of the Credit Agreement is hereby replaced with Schedule 5.09 attached hereto;

(b) Section 6.01(ii) of the Credit Agreement is hereby amended to insert the following proviso immediately before the semicolon at the end thereof: "; provided, that such financial statements for the fiscal quarter ended March 31, 2016 may be delivered by the Borrowers to the Administrative Agent and each Lender no later than June 30, 2016";

(c) Section 6.01(iii) of the Credit Agreement is hereby amended to insert the following proviso immediately before the semicolon at the end thereof: "; provided that the annual Statutory Statement of Athene Life Re for the fiscal year ended December 31, 2015 may be delivered by the Borrowers to the Administrative Agent no later than June 30, 2016";

(d) Section 6.01(iv) of the Credit Agreement is hereby amended by replacing the phrase "five days" with "five Business Days" in the first line thereof;

(e) Section 6.01(iv) of the Credit Agreement is hereby amended to insert the following proviso immediately before the semicolon at the end thereof: "; provided that the quarterly Statutory Statement of each Material Insurance Subsidiary for the fiscal quarter ended March 31, 2016 may be delivered by the Borrowers to the Administrative Agent no later than June 30, 2016"; and

(f) Section 6.02(i)(C) of the Credit Agreement is hereby amended and restated to read as follows:

(C) if the aggregate total assets of the Borrowers and the Material Subsidiaries represent less than 75% of the Consolidated Total Assets of AHL and its Subsidiaries (based upon and as of the date of delivery of the most recent consolidated financial statements of AHL furnished pursuant to Section 4.01(a)(viii), Section 6.01(i) or 6.01(ii), as applicable), identifying one or more Subsidiaries that shall thereafter be designated (and the Borrowers shall thereupon so designate such Subsidiaries as) Material Subsidiaries hereunder so that the total assets of all of the Subsidiaries that are not Material Subsidiaries shall not exceed 25% of the Consolidated Total Assets of AHL and its Subsidiaries (based upon and as of the date of delivery of the most recent consolidated financial statements of AHL furnished pursuant to Section 4.01(a)(viii), Section 6.01(i) or 6.01(ii), as applicable) as of the last day of the period for which such financial statements are delivered.

Section 2. Conditions to Effectiveness. This Amendment shall become effective as of the date first set forth above, subject to satisfaction of the following conditions precedent: (i) the Administrative Agent shall have received counterparts of this Amendment that, when taken together, bear the signatures of the Borrowers and the Required Lenders; (ii) except to the extent waived hereby, the representations and warranties of the Borrowers contained in the Credit Agreement and each other Loan Document shall be true and correct in all material respects (except that those representations and warranties which are qualified by materiality or Material Adverse Effect shall be true and correct in all respects) as of the date first set forth above with the same effect as if such representations and warranties had been made on and as of such date, except that any such representation or warranty which is expressly made only as of a specified date need only be true and correct in all material respects (except that those representations and warranties which are qualified by materiality or Material Adverse Effect shall be true and correct in all respects) as of such date; and (iii) after giving effect to this Amendment, no Default or Event of Default shall have occurred or be continuing.

Section 3. Waiver. The Administrative Agent and the Required Lenders hereby waive any Default or Event of Default related to the extensions of time and amendments set forth in Section 1 above.

Section 4. Force and Effect. Except as expressly set forth herein, this Amendment shall not by implication or otherwise limit, impair, constitute a waiver of, or otherwise affect the rights and remedies of the Lenders or the Administrative Agent under the Credit Agreement or any of the other Loan Documents, and shall not alter, modify, amend or in any way affect any of the terms, conditions, obligations, covenants or agreements contained in the Credit Agreement or any other Loan Document, all of which are ratified and affirmed in all respects and shall continue in full force and effect. This Amendment shall apply and be effective (i) only with respect to the provisions of the Credit Agreement specifically referred to herein and (ii) only for this single instance and is not intended to waive compliance with any provision of the Credit Agreement or any other Loan Document for future periods. After the date hereof, any reference to the Credit Agreement shall mean the Credit Agreement as modified hereby. This Amendment shall constitute a "Loan Document" for all purposes of the Credit Agreement and the other Loan Documents.

Section 5. Counterparts. This Amendment may be executed in counterparts (and by different parties hereto in separate counterparts), each of which shall constitute an original, but all of which when taken together shall constitute a single contract. Delivery of an executed counterpart of a signature page of this Amendment by telecopy or other electronic imaging means (e.g. "pdf" or "tif") shall be effective as delivery of a manually executed counterpart of this Amendment.

Section 6. Severability. If any provision of this Amendment is held to be illegal, invalid or unenforceable, (i) the legality, validity and enforceability of the remaining provisions of this Amendment shall not be affected or impaired thereby and (ii) the parties shall endeavor in good faith negotiations to replace the illegal, invalid or unenforceable provisions with valid provisions the economic effect of which comes as close as possible to that of the illegal, invalid or unenforceable provisions. The invalidity of a provision in a particular jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction.

Section 7. Governing Law. This Amendment and any claims, controversy, dispute or cause of action (whether in contract or tort or otherwise) based upon, arising out of or relating to this Amendment and the transactions contemplated hereby shall be governed by, and construed in accordance with, the law of the State of New York.

Section 8. Headings. The headings of this Amendment are for purposes of reference only and shall not limit or otherwise affect the meaning hereof.

[Remainder of Page Intentionally Left Blank]

IN WITNESS WHEREOF, each of the undersigned has executed this Amendment as of the date set forth above.

ATHENE HOLDING LTD.

By: /s/ Zachary Jones

Name: Zachary E. Jones

Title: Senior Vice President, Chief Financial Officer, International

ATHENE LIFE RE LTD.

By: /s/ Frank L. Gillis

Name: Frank L. Gillis

Title: Chief Executive Officer

ATHENE USA CORPORATION

By: /s/ Guy H. Smith, III

Name: Guy Hudson Smith, III

Title: President

Exhibit 10.1.2

CITIBANK, N.A., as Administrative Agent and a Lender

By: /s/ Peter C. Bickford

Name: Peter C. Bickford

Title: Vice President and Managing Director

ROYAL BANK OF CANADA, as a Syndication Agent and a Lender

By: /s/ Brij Grewal

Name: Brij Grewal

Title: Authorized Signatory

BARCLAYS BANK PLC, as a Syndication Agent and a Lender

By: /s/ Mathew Cybul

Name: Mathew Cybul

Title: Assistant Vice President

DEUTSCHE BANK SECURITIES INC., as a Documentation Agent

By: /s/ John S. McGill

Name: John S. McGill

Title: Director

By: /s/ Scott Flieger

Name: Scott Flieger

Title: Managing Director

DEUTSCHE BANK AG NEW YORK BRANCH, as a Lender

By: /s/ Virginia Cosenza

Name: Virginia Cosenza

Title: Vice President

By: /s/ Ming K. Chu

Name: Ming K. Chu

Title: Director

BMO HARRIS BANK, N.A., as a Documentation Agent and a Lender

By: /s/ Debra Basler

Name: Debra Basler

Title: Managing Director

WELLS FARGO BANK, NATIONAL ASSOCIATION, as a Documentation Agent and a Lender

By: /s/ Kimberly Shaffer

Name: Kimberly Shaffer

Title: Managing Director

BNP PARIBAS, as a Lender

By: /s/ Marguerite L. Lebon

Name: Marguerite L. Lebon

Title: Vice President

By: /s/ Michael Albenese

Name: Michael Albenese

Title: Managing Director

U.S. BANK NATIONAL ASSOCIATION, as a Lender

By: /s/ Bonnie S. Wiskowski

Name: Bonnie S. Wiskowski

Title: Vice President

JPMORGAN CHASE BANK, N.A., as a Lender

By: /s/ Kristen M. Murphy

Name: Kristen M. Murphy

Title: Vice President

BANK OF AMERICA, N.A., as a Lender

By: /s/ Derek Miller

Name: Derek Miller

Title: Vice President

GOLDMAN SACHS BANK USA, as a Lender

By: /s/ Jerry Li

Name: Jerry Li

Title: Authorized Signatory

MORGAN STANLEY BANK, N.A., as a Lender

By: /s/ Harry Comninellis

Name: Harry Comninellis

Title: Authorized Signatory

CREDIT SUISSE AG, Cayman Islands Branch, as a Lender

By: /s/ Doreen Barr

Name: Doreen Barr

Title: Authorized Signatory

By: /s/ Nicholas Goss

Name: Nicholas Goss

Title: Authorized Signatory

THE ROYAL BANK OF SCOTLAND PLC, as a Lender

By: /s/ Joseph A. Conte

Name: Joseph A. Conte, CFA

Title: Vice President

SUNTRUST BANK, as a Lender

By: /s/ Paula Mueller

Name: Paula Mueller

Title: Director

SOCIETE GENERALE, as a Lender

By: /s/ Shelley Yu

Name: Shelley Yu

Title: Director

Schedule 5.09

Subsidiaries

Subsidiary	**Jurisdiction of incorporation**	**Percentage of Equity Interests Owned**
Athene Life Re Ltd.	Bermuda	100% of common stock owned by AHL
Athene USA Corporation (“AUSA”)	Iowa	100% of common stock owned by AHL
AGER Bermuda Holding Ltd. (“AGER”)	Bermuda	100% of common stock owned by AHL
Athene Deutschland Verwaltungs GmbH (“ADV”)	Germany	100% of common stock owned by AGER
Athene Deutschland Holding GmbH & Co. KG (“ADKG”)	Germany	100% of the limited partner interests owned by AGER; 100% of general partner interests owned by ADV
Athene Deutschland GmbH (“AD”)	Germany	100% of the common stock owned by ADKG
Athene Lebensversicherung AG	Germany	100% of common stock is owned by AD
Athene Pensionskasse AG	Germany	100% of common stock owned by AD
Athene Deutschland Anlagemanagement GmbH	Germany	100% of common stock owned by AD
Athene Real Estate Management Company S.a.r.l (“AREM”)	Luxembourg	93.6% of membership interest owned by AD 0.8% of membership interest owned by ADKG
Athene Employee Services, LLC	Iowa	AUSA is the sole member
Athene London Assignment Corporation	Delaware	100% of common stock owned by AUSA
Athene Assignment Corporation	Delaware	100% of common stock owned by AUSA
Athene Annuity & Life Assurance Company (“AADE”)	Delaware	100% of common stock owned by AUSA
ACM Trademarks, L.L.C	Iowa	AUSA is the sole member
ARPH (Headquarters Building), LLC	Iowa	AUSA is the sole member
Athene Life Insurance Company	Delaware	100% of common stock is owned by AADE
Athene Annuity and Life Company (“AAIA”)	Iowa	100% of common stock is owned by AADE
P.L. Assigned Services, Inc.	New York	100% of common stock is owned by AADE
Athene Annuity & Life Assurance Company of New York (“AANY”)	New York	100% of common stock is owned by AAIA
Structured Annuity Reinsurance Company	Iowa	100% of common stock is owned by AAIA
Athene Securities, LLC	Indiana	AAIA is the sole member
Centralife Annuities Service, Inc.	Arizona	100% of common stock is owned by AAIA
Athene Re USA IV, Inc.	Vermont	100% of common stock is owned by AAIA
AREI (Renaissance), LLC	Iowa	AAIA is the sole member
AREI (Marketplace), LLC	Iowa	AAIA is the sole member
AREI (Boyette), LLC	Iowa	AAIA is the sole member
AREI (Cedar Valley), LLC	Iowa	AAIA is the sole member
AREI (Watson), LLC	Iowa	AAIA is the sole member
AREI (Brookfield) LLC	Iowa	AAIA is the sole member
AREI (CPB) LLC	Iowa	AAIA is the sole member
Athene Life Insurance Company of New York	New York	100% of common stock is owned by AANY
Elemantae S.A.	Luxembourg	100% common stock owned by AREM

EXHIBIT 10.32.4

Final Execution Version

MASTER SUB-ADVISORY AGREEMENT

ADDENDUM THREE

This Master Sub-Advisory Agreement Addendum Three is made this 29th day of June, 2018 (this "Addendum"), by and among Athene Asset Management LLC (f/k/a Athene Asset Management, L.P.), a Delaware limited liability company (the "Investment Manager"), Apollo Capital Management, L.P., a Delaware limited partnership ("ACM"), Apollo Global Real Estate Management, L.P., a Delaware limited partnership ("AGREM"), ARM Manager LLC, a Delaware limited liability company ("ARM"), Apollo Longevity, LLC, a Delaware limited liability company ("ALL") and Apollo Emerging Markets, LLC, a Delaware limited liability company ("AEM" and together with ACM, AGREM, ARM and ALL, the "Sub-Advisors), pursuant to that certain Amended and Restated Master Sub-Advisory Agreement, effective as of April 1, 2014 (as further amended, supplemented or modified from time to time, the "Master Sub-Advisory Agreement") by and among the Investment Manager and the Sub-Advisors. Capitalized terms used but not defined herein shall have the meanings ascribed to them in the Master Sub-Advisory Agreement.

WHEREAS, the Investment Manager and the Sub-Advisors entered into the Master Sub-Advisory Agreement pursuant to which the Investment Manager retained the Sub-Advisors to manage an investment portfolio of one or more Accounts;

WHEREAS, Section 2(k) of the Master Sub-Advisory Agreement provides that the parties may enter into an arrangement, either pursuant to an Addendum or other written arrangement, whereby the Sub-Advisor would have discretion with respect to certain transactions other than as set forth in Section 2(a) of the Master Sub-Advisory Agreement, such as to execute transactions for the Accounts without seeking prior consent from the Investment Manager so long as they fit within, among other things, certain prescribed guidelines;

WHEREAS, one or more Accounts desire to invest in Apollo Hybrid Value Fund,
(the "HV Fund"), and in connection with such investment, one or more Accounts also desire to invest on an incremental direct investment basis, following the same strategy as the HV Fund, alongside (but not through or part of) the HV Fund (the "Hybrid Value Managed Account") via an investment in AA Direct, L.P., a Delaware limited partnership formed to facilitate the Hybrid Value Managed Account ("AA Direct");

WHEREAS, the Investment Manager and Sub-Advisors desire to permit ACM to provide advice and execute certain transactions for the Accounts with respect to the Hybrid Value Managed Account and have agreed to the payment of certain fees for services provided by the Sub-Advisors to the Investment Manager in respect of the Hybrid Value Managed Account as set forth in Schedule 2-5 attached hereto; and

WHEREAS, this Addendum shall be attached to, amend and become a part of the Master Sub-Advisory Agreement.

NOW, THEREFORE, in consideration of the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree as follows:

1. Amendments to Schedule 2-1 of the Master Sub-Advisory Agreement. Schedule 2-1 of the Master Sub-Advisory Agreement is hereby amended and replaced in its entirety with Exhibit A attached hereto.

2. Amendments to Schedule 2 of the Master Sub-Advisory Agreement. Schedule 2 of the Master Sub-Advisory Agreement is hereby amended to include as Schedule 2-5, the form of Exhibit B attached hereto.

3. Amendments to Schedule 3 of the Master Sub-Advisory Agreement. Schedule 3 of the Master Sub-Advisory Agreement is hereby amended to include as Schedule 3-1, the form of Exhibit C hereto.

4. Addendum to Master Sub-Advisory Agreement. This Addendum constitutes an Addendum to the Master Sub-Advisory Agreement (as such term is defined in Section 1 of the Master Sub-Advisory Agreement). This Addendum shall be deemed to be attached to, amend and become a part of the Master Sub-Advisory Agreement and the terms of the Master Sub-Advisory Agreement shall be amended, supplemented or modified by the terms of this Addendum as applicable. Any reference to "this Agreement" in the Master Sub-Advisory Agreement shall be deemed to include the terms set forth in this Addendum.

5. Ratification. Except with respect to matters expressly provided for herein, all terms, provisions and conditions of the Master Sub-Advisory Agreement are hereby ratified and shall remain unchanged and continue in full force and effect.

6. Conflicts. In the event of any conflict or inconsistency between the terms of this Addendum and those of the Master Sub-Advisory Agreement, this Addendum will control.

IN WITNESS WHEREOF, the parties hereto have caused this Addendum to be executed by their respective duly authorized officers as of the date and year first above written.

ATHENE ASSET MANAGEMENT LLC

/s/ James R. Belardi
Name: James R. Belardi
Title: Chief Executive Officer

APOLLO CAPITAL MANAGEMENT, L.P.

By: Apollo Capital Management, GP, LLC,
its General Partner

/s/ Joseph D. Glatt
Name: Joseph D. Glatt
Title: Vice President

APOLLO GLOBAL REAL ESTATE MANAGEMENT, L.P.

By: Apollo Global Real Estate Management, GP, LLC,
its General Partner

/s/ Joseph D. Glatt
Name: Joseph D. Glatt
Title: Vice President

ARM MANAGER LLC

/s/ Joseph D. Glatt
Name: Joseph D. Glatt
Title: Vice President

APOLLO LONGEVITY, LLC

By: Apollo Capital Management L.P., its sole member
By: Apollo Capital Management GP, LLC, its General Partner

/s/ Joseph D. Glatt
Name: Joseph D. Glatt
Title: Vice President

APOLLO EMERGING MARKETS, LLC

By: Apollo Capital Management L.P., its sole member
By: Apollo Capital Management GP, LLC, its General Partner

/s/ Joseph D. Glatt
Name: Joseph D. Glatt
Title: Vice President

EXHIBIT 10.32.4

Exhibit A

Schedule 2-1

Management Fee Schedule (all Sub-Advisors other than Apollo Royalties Management LLC)

1. **Management Fee.** In consideration of the services performed under the Agreement, the Investment Manager shall pay to the Sub-Advisors (allocated among such Sub-Advisors as such Sub-Advisors shall determine) a management fee (the "Management Fee"), calculated and paid quarterly in arrears as a percentage of Average Month-End Net Asset Value of assets in all the Accounts managed by the Sub-Advisors (unless otherwise agreed to by the parties[1]), (other than Third Party CLO Equity Managed Account (as described on Schedule 2-3)[2] and the Hybrid Value Managed Account (as described on Schedule 2-5[3])) pursuant to the following schedule, which shall take effect with respect to new and existing assets as of January 1, 2017:

[1] For the avoidance of doubt but subject to Section 2(a), to the extent that a Sub-Adviser invests on behalf of the Account in an affiliate-managed CLO (a) to the extent that such investment is on a secondary basis in one of the debt and/or equity tranches of such CLO, the Account will be charged fees pursuant to this Schedule 2-1; and (b) to the extent that such investment is on a primary basis, the agreement governing the Account's investment into the affiliate-managed CLO will govern the treatment of fees in such instance (and not, for the avoidance of doubt, this Schedule 2-1). In addition, the Investment Manager shall be responsible for any servicing fees associated with the sub-advised mortgage and mezzanine real estate loan portfolio.

[2] For the avoidance of doubt, this fee schedule does not apply to future or existing investments in Apollo funds (which as of the date hereof includes but is not limited to TRF, COF 3, SCRF IV, AA Direct, EPFs, FCIs, all the ALM and ALME CLO sand related warehouses, the levered CMBS funds and APC), or to any investments made by Apollo Royalties Management LLC. Additionally, this fee schedule does not apply to investments in MCF CLO II (f/k/a Kirkwood), which is covered by Schedule 2-3 hereof). Fees with respect to the Third Party CLO Equity Managed Account are charged pursuant to Schedule 2-3, and the Project Orange Trade will be included in the Third Party CLO Equity Managed Account and charged accordingly.

[3] Fees with respect to the Hybrid Value Managed Account are charged pursuant to Schedule 2-5. In addition, fees with respect to the Hybrid Value Managed Account are in addition to, and not set-off against, the fees charged by the HV Fund.

Assets Under Management[4]	Management Fee Rate[5]
< $10,000,000,000	40 bps (0.40%) per annum
≥ $10,000,000,000 and < $12,440,936,389	35 bps (0.35%) per annum
> $12,440,936,389 and < $16,000,000,000	40 bps (0.40%) per annum
> $16,000,000,000	35 bps (0.35%) per annum

The "Average Month-End Net Asset Value" shall be the average of the month-end aggregate net asset value of the Accounts during the calendar quarter. If the period in respect of which a Management Fee is payable is less than a calendar quarter, then the Management Fee shall be *pro rated* accordingly. For the avoidance of doubt, for a given month, Average Month-End Net Asset Value shall be calculated based on trade date holdings plus accrued interest.

2. **Valuation.** Each Sub-Advisor, through its designee, shall (i) be responsible for determining the value of the assets that are purchased for the Accounts that it manages in accordance with such Sub-Advisor's existing policies and procedures, and (ii) shall use commercially reasonable efforts to submit a proposed valuation of such Accounts within 5 business days (but in no event later than 6 business days) following each month-end to the Investment Manager. The parties hereto agree to negotiate in good faith as to any objections raised by the Investment Manager about the valuation of assets in the Accounts for purposes of determining the Management Fees.

3. **Payment of Fees.** The Management Fee will be calculated, billed, and paid quarterly in arrears, based on the Average Month-End Net Asset Value as of the last business day of each and all of the three calendar months during the relevant quarter, or in the case of any partial quarterly period, the last day of each calendar month during the relevant period and the last business day of such period. The Investment Manager will pay any Management Fees payable hereunder within 30 calendar days following receipt by the Investment Manager of an invoice for such fee, detailing the calculation of such fee. The Investment Manager and the Sub-Advisors shall agree on the form and substance of such invoice before the first Management Fee billing cycle. Upon termination of the Agreement, any outstanding Management Fee shall become immediately payable by the Investment Manager.

[4] "Assets Under Management" shall be calculated in the aggregate to include the investment assets of or relating to Athene Holding Ltd. ("Athene") and its subsidiaries, managed by ACM, AGREM, ARM, ALL, AEM or an affiliate thereof, whether under this Agreement or separate sub-advisory agreement with the Investment Manager, including cash and all assets in surplus accounts and funds withheld accounts, modified coinsurance accounts and reinsurance trusts supporting reinsurance agreements entered into by Athene (collectively, "Athene Accounts") and managed by ACM, AGREM, ARM, ALL and AEM. For the avoidance of doubt, Assets Under Management shall not include future or existing investments in Apollo managed funds (which as of the date hereof includes but is not limited to TRF, COF 3, EPFs, FCIs, all the ALM, ALME or other affiliated CLOs or CLO-sponsored vehicles and related warehouses, APC, the levered CMBS funds) or any investments made by Apollo Royalties Management LLC; provided, that, notwithstanding the foregoing, (a) Assets Under Management shall include investment by any Athene Accounts in the Hybrid Value Managed Account (including, without limitation investment through AA Direct) and (b) to the extent that the Account invests in any affiliated CLO or CLO-sponsored vehicle pursuant to which the Account is charged fees pursuant to this Schedule 2-1, such investment in such affiliated CLO or CLO-sponsored vehicle shall be included in Assets Under Management.

[5] For the avoidance of doubt, this Schedule 2-1 shall not apply to any Apollo controlled investment entities, the fee schedule of which shall be governed by a separate schedule or other governing document.

4. **Incentive Fees.** For the avoidance of doubt, the provisions governing incentive fees on existing assets remain intact and shall not be deemed amended by this Agreement. The Investment Manager and each Sub-Advisor may agree in writing from time to time on an incentive fee with respect to particular investments or asset classes managed by such Sub-Advisor.

Exhibit B

Schedule 2-5

Hybrid Value Managed Account

1) **Management Fee**. In consideration of the services performed under the Agreement and pursuant to this Schedule 2-5, the Investment Manager shall pay a management fee (the "Management Fee"), calculated and paid quarterly in arrears equal to 50 bps (0.50%) *per annum* on the quarter end cost basis of invested securities in the Hybrid Value Managed Account.

2) **Payment of Fees**. The Management Fee will be calculated, billed, and paid quarterly in arrears, as of the last business day of each and all of the four calendar quarters during the relevant calendar year, or in the case of any partial annual period, the last day of each calendar quarter during the relevant period and the last business day of such period. The Investment Manager will pay any Management Fees payable hereunder within 30 calendar days following receipt by the Investment Manager of an invoice for such fee, detailing the calculation of such fee. The Investment Manager and the Sub-Advisors shall agree on the form and substance of such invoice before the first Management Fee billing cycle. Upon termination of the Agreement, any outstanding Management Fee shall become immediately payable by the Investment Manager.

3) **Incentive Fee**. In addition to the Management Fee set forth above, the Investment Manager shall pay to ACM an incentive fee equal to three percent (3%) of the realized proceeds (including principal repayments and coupon payments, "Proceeds") in excess of the cost of each investment recommended by ACM pursuant to this Schedule 2-5 and return of the Preferred Return with respect to each investment, each as fully described below (the "Incentive Fee" and together with the Management Fee, the "Fees"). Specifically, Proceeds from each investment will be allocated as follows:

   (i) First, to the Investment Manager's applicable clients (the "Clients") until such Clients have received an amount equal to the aggregate amount of capital contributions made by such Clients to the Hybrid Value Managed Account (including any Management Fees paid pursuant to this Schedule 2-5 and related to the Hybrid Value Managed Account);

   (ii) Second, to the applicable Clients until such Clients have received an amount equal to interest at the rate of eight percent (8%) *per annum*, compounded annually, on the aggregate amount of capital contributions made by such Clients to the Hybrid Value Managed Account (including on any Management Fees paid pursuant to this Schedule 2-5 and related to the Hybrid Value Managed Account) until the relevant dates on which amounts representing such capital contributions and the priority return thereon are distributed;

   (iii) Third, 100% to ACM until ACM has received an amount equal to 3% of the sum of the allocations made pursuant to item (ii) above and amounts then and previously allocated pursuant to this item (iii); and

   (iv) Finally, 97% to the applicable Clients and 3% to ACM.

   Upon the termination of the Agreement, a clawback calculation will be completed based on the aggregate Proceeds received from all realized investments recommended by ACM pursuant hereto, and ACM shall be required to repay any Incentive Fee previously paid to ACM to the extent that any realized losses from investments recommended by ACM pursuant to this Schedule 2-5 remain unreturned to the applicable Clients upon such termination.

4) **Incentive Fee Payment.** Incentive Fee will be paid quarterly in arrears. As referenced in Schedule 2.1, provisions governing incentive fees on existing assets remain intact and shall not be deemed amended by this Agreement. The Investment Manager and each Sub-Advisor may in addition agree in writing from time to time on an incentive fee with respect to particular investments or asset classes managed by such Sub-Advisor.

Exhibit C

Schedule 3-1

Hybrid Value Managed Account - Investment Guidelines

The Investment Guidelines related to the Hybrid Value Managed Account shall be consistent with those contained in the governing documents of AA Direct. Furthermore, each investment made by the Accounts in respect of the HV Fund, shall also be made by the Accounts with respect to the Hybrid Value Managed Account on *pro rata* based on the amount of capital in the HV Fund and the Hybrid Value Managed Account by clients of the Investment Manager. Notwithstanding the foregoing, the Investment Manager may revoke such investment discretion at any time upon notice to ACM. This Schedule 3-1 and the Schedule 4 attached to the Agreement may otherwise be amended, supplemented or modified from time to time as agreed to in writing solely by the Investment Manager and ACM without a formal amendment to the Agreement.

EXHIBIT 10.32.8

Final Execution Version

MASTER SUB-ADVISORY AGREEMENT

ADDENDUM THREE

This Master Sub-Advisory Agreement Addendum Three is made this 7th day of May, 2018 (this "Addendum"), by and among Athene Asset Management LLC (f/k/a Athene Asset Management, L.P.), a Delaware limited liability company (the "Investment Manager"), Apollo Capital Management, L.P., a Delaware limited partnership ("ACM"), Apollo Global Real Estate Management, L.P., a Delaware limited partnership ("AGREM"), ARM Manager LLC, a Delaware limited liability company ("ARM"), Apollo Longevity, LLC, a Delaware limited liability company ("ALL") and Apollo Emerging Markets, LLC, a Delaware limited liability company ("AEM" and together with ACM, AGREM, ARM and ALL, the "Sub-Advisors), pursuant to that certain Second Amended and Restated Master Sub-Advisory Agreement, effective as of April 1, 2014 (as further amended, supplemented or modified from time to time, the "Master Sub-Advisory Agreement") by and among the Investment Manager and the Sub-Advisors. Capitalized terms used but not defined herein shall have the meanings ascribed to them in the Master Sub-Advisory Agreement.

WHEREAS, the Investment Manager and the Sub-Advisors entered into the Master Sub-Advisory Agreement pursuant to which the Investment Manager retained the Sub-Advisors to manage an investment portfolio of one or more Accounts;

WHEREAS, Section 2(k) of the Master Sub-Advisory Agreement provides that the parties may enter into an arrangement, either pursuant to an Addendum or other written arrangement, whereby the Sub-Advisor would have discretion with respect to certain transactions other than as set forth in Section 2(a) of the Master Sub-Advisory Agreement, such as to execute transactions for the Accounts without seeking prior consent from the Investment Manager so long as they fit within, among other things, certain prescribed guidelines;

WHEREAS, one or more Accounts desire to invest in Apollo Hybrid Value Fund, (the "HV Fund"), and in connection with such investment, one or more Accounts also desire to invest on an incremental direct investment basis, following the same strategy as the HV Fund, alongside (but not through or part of) the HV Fund (the "Hybrid Value Managed Account") via an investment in AA Direct, L.P., a Delaware limited partnership formed to facilitate the Hybrid Value Managed Account ("AA Direct");

WHEREAS, the Investment Manager and Sub-Advisors desire to permit ACM to provide advice and execute certain transactions for the Accounts with respect to the Hybrid Value Managed Account and have agreed to the payment of certain fees for services provided by the Sub-Advisors to the Investment Manager in respect of the Hybrid Value Managed Account as set forth in Schedule 2-5 attached hereto; and

WHEREAS, this Addendum shall be attached to, amend and become a part of the Master Sub-Advisory Agreement.

NOW, THEREFORE, in consideration of the mutual covenants contained herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree as follows:

1. Amendments to Schedule 2-1 of the Master Sub-Advisory Agreement. Schedule 2-1 of the Master Sub-Advisory Agreement is hereby amended and replaced in its entirety with Exhibit A attached hereto.

2. Amendments to Schedule 2 of the Master Sub-Advisory Agreement. Schedule 2 of the Master Sub-Advisory Agreement is hereby amended to include as Schedule 2-5, the form of Exhibit B attached hereto.

3. Amendments to Schedule 3 of the Master Sub-Advisory Agreement. Schedule 3 of the Master Sub-Advisory Agreement is hereby amended to include as Schedule 3-1, the form of Exhibit C hereto.

4. Addendum to Master Sub-Advisory Agreement. This Addendum constitutes an Addendum to the Master Sub-Advisory Agreement (as such term is defined in Section 1 of the Master Sub-Advisory Agreement). This Addendum shall be deemed to be attached to, amend and become a part of the Master Sub-Advisory Agreement and the terms of the Master Sub-Advisory Agreement shall be amended, supplemented or modified by the terms of this Addendum as applicable. Any reference to "this Agreement" in the Master Sub-Advisory Agreement shall be deemed to include the terms set forth in this Addendum.

5. Ratification. Except with respect to matters expressly provided for herein, all terms, provisions and conditions of the Master Sub-Advisory Agreement are hereby ratified and shall remain unchanged and continue in full force and effect.

6. Conflicts. In the event of any conflict or inconsistency between the terms of this Addendum and those of the Master Sub-Advisory Agreement, this Addendum will control.

IN WITNESS WHEREOF, the parties hereto have caused this Addendum to be executed by their respective duly authorized officers as of the date and year first above written.

ATHENE ASSET MANAGEMENT LLC

/s/ James R. Belardi
Name: James R. Belardi
Title: Chief Executive Officer

APOLLO CAPITAL MANAGEMENT, L.P.

By: Apollo Capital Management, GP, LLC,
its General Partner

/s/ Joseph D. Glatt
Name: Joseph D. Glatt
Title: Vice President

APOLLO GLOBAL REAL ESTATE MANAGEMENT, L.P.

By: Apollo Global Real Estate Management, GP, LLC,
its General Partner

/s/ Joseph D. Glatt
Name: Joseph D. Glatt
Title: Vice President

ARM MANAGER LLC

/s/ Joseph D. Glatt
Name: Joseph D. Glatt
Title: Vice President

APOLLO LONGEVITY, LLC

By: Apollo Capital Management L.P., its sole member
By: Apollo Capital Management GP, LLC, its General Partner

/s/ Joseph D. Glatt
Name: Joseph D. Glatt
Title: Vice President

APOLLO EMERGING MARKETS, LLC

By: Apollo Capital Management L.P., its sole member
By: Apollo Capital Management GP, LLC, its General Partner

/s/ Joseph D. Glatt
Name: Joseph D. Glatt
Title: Vice President

Exhibit A

Schedule 2-1

Management Fee Schedule (all Sub-Advisors other than Apollo Royalties Management LLC)

1. **Management Fee.** In consideration of the services performed under the Agreement, the Investment Manager shall pay to the Sub-Advisors (allocated among such Sub-Advisors as such Sub-Advisors shall determine) a management fee (the "Management Fee"), calculated and paid quarterly in arrears as a percentage of Average Month-End Net Asset Value of assets in all the Accounts managed by the Sub-Advisors (unless otherwise agreed to by the parties[1]), (other than Third Party CLO Equity Managed Account (as described on Schedule 2-3)[2] and the Hybrid Value Managed Account (as described on Schedule 2-5[3])) pursuant to the following schedule, which shall take effect with respect to new and existing assets as of January 1, 2017:

[1] For the avoidance of doubt but subject to Section 2(a), to the extent that a Sub-Adviser invests on behalf of the Account in an affiliate-managed CLO (a) to the extent that such investment is on a secondary basis in one of the debt and/or equity tranches of such CLO, the Account will be charged fees pursuant to this Schedule 2-1; and (b) to the extent that such investment is on a primary basis, the agreement governing the Account's investment into the affiliate- managed CLO will govern the treatment of fees in such instance (and not, for the avoidance of doubt, this Schedule 2-1). In addition, the Investment Manager shall be responsible for any servicing fees associated with the sub-advised mortgage and mezzanine real estate loan portfolio.

[2] For the avoidance of doubt, this fee schedule does not apply to future or existing investments in Apollo funds (which as of the date hereof includes but is not limited to TRF, COF 3, SCRF IV, AA Direct, EPFs, FCIs, all the ALM and ALME CLO sand related warehouses, the levered CMBS funds and APC), or to any investments made by Apollo Royalties Management LLC. Additionally, this fee schedule does not apply to investments in MCF CLO II (f/k/a Kirkwood), which is covered by Schedule 2-3 hereof). Fees with respect to the Third Party CLO Equity Managed Account are charged pursuant to Schedule 2-3, and the Project Orange Trade will be included in the Third Party CLO Equity Managed Account and charged accordingly.

[3] Fees with respect to the Hybrid Value Managed Account are charged pursuant to Schedule 2-5. In addition, fees with respect to the Hybrid Value Managed Account are in addition to, and not set-off against, the fees charged by the HV Fund.

Assets Under Management[4]	Management Fee Rate[5]
< $10,000,000,000	40 bps (0.40%) per annum
≥ $10,000,000,000 and < $12,440,936,389	35 bps (0.35%) per annum
≥ $12,440,936,389 and < $16,000,000,000	40 bps (0.40%) per annum
≥ $16,000,000,000	35 bps (0.35%) per annum

The "Average Month-End Net Asset Value" shall be the average of the month-end aggregate net asset value of the Accounts during the calendar quarter. If the period in respect of which a Management Fee is payable is less than a calendar quarter, then the Management Fee shall be *pro rated* accordingly. For the avoidance of doubt, for a given month, Average Month-End Net Asset Value shall be calculated based on trade date holdings plus accrued interest.

2. **Valuation.** Each Sub-Advisor, through its designee, shall (i) be responsible for determining the value of the assets that are purchased for the Accounts that it manages in accordance with such Sub-Advisor's existing policies and procedures, and (ii) shall use commercially reasonable efforts to submit a proposed valuation of such Accounts within 5 business days (but in no event later than 6 business days) following each month-end to the Investment Manager. The parties hereto agree to negotiate in good faith as to any objections raised by the Investment Manager about the valuation of assets in the Accounts for purposes of determining the Management Fees.

3. **Payment of Fees.** The Management Fee will be calculated, billed, and paid quarterly in arrears, based on the Average Month-End Net Asset Value as of the last business day of each and all of the three calendar months during the relevant quarter, or in the case of any partial quarterly period, the last day of each calendar month during the relevant period and the last business day of such period. The Investment Manager will pay any Management Fees payable hereunder within 30 calendar days following receipt by the Investment Manager of an invoice for such fee, detailing the calculation of such fee. The Investment Manager and the Sub- Advisors shall agree on the form and substance of such invoice before the first Management Fee billing cycle. Upon termination of the Agreement, any outstanding Management Fee shall become immediately payable by the Investment Manager.

[4] "Assets Under Management" shall be calculated in the aggregate to include the investment assets of or relating to Athene Holding Ltd. ("Athene") and its subsidiaries, managed by ACM, AGREM, ARM, ALL, AEM or an affiliate thereof, whether under this Agreement or separate sub-advisory agreement with the Investment Manager, including cash and all assets in surplus accounts and funds withheld accounts, modified coinsurance accounts and reinsurance trusts supporting reinsurance agreements entered into by Athene (collectively, "Athene Accounts") and managed by ACM, AGREM, ARM, ALL and AEM. For the avoidance of doubt, Assets Under Management shall not include future or existing investments in Apollo managed funds (which as of the date hereof includes but is not limited to TRF, COF 3, EPFs, FCIs, all the ALM, ALME or other affiliated CLOs or CLO-sponsored vehicles and related warehouses, APC, the levered CMBS funds) or any investments made by Apollo Royalties Management LLC; provided, that, notwithstanding the foregoing, (a) Assets Under Management shall include investment by any Athene Accounts in the Hybrid Value Managed Account (including, without limitation investment through AA Direct) and (b) to the extent that the Account invests in any affiliated CLO or CLO-sponsored vehicle pursuant to which the Account is charged fees pursuant to this Schedule 2-1, such investment in such affiliated CLO or CLO-sponsored vehicle shall be included in Assets Under Management.

[5] For the avoidance of doubt, this Schedule 2-1 shall not apply to any Apollo controlled investment entities, the fee schedule of which shall be governed by a separate schedule or other governing document.

4. **Incentive Fees.** For the avoidance of doubt, the provisions governing incentive fees on existing assets remain intact and shall not be deemed amended by this Agreement. The Investment Manager and each Sub-Advisor may agree in writing from time to time on an incentive fee with respect to particular investments or asset classes managed by such Sub- Advisor.

Exhibit B

Schedule 2-5

Hybrid Value Managed Account

1) **Management Fee**. In consideration of the services performed under the Agreement and pursuant to this Schedule 2-5, the Investment Manager shall pay a management fee (the "Management Fee"), calculated and paid quarterly in arrears equal to 50 bps (0.50%) *per annum* on the quarter end cost basis of invested securities in the Hybrid Value Managed Account.

2) **Payment of Fees**. The Management Fee will be calculated, billed, and paid quarterly in arrears, as of the last business day of each and all of the four calendar quarters during the relevant calendar year, or in the case of any partial annual period, the last day of each calendar quarter during the relevant period and the last business day of such period. The Investment Manager will pay any Management Fees payable hereunder within 30 calendar days following receipt by the Investment Manager of an invoice for such fee, detailing the calculation of such fee. The Investment Manager and the Sub-Advisors shall agree on the form and substance of such invoice before the first Management Fee billing cycle. Upon termination of the Agreement, any outstanding Management Fee shall become immediately payable by the Investment Manager.

3) **Incentive Fee**. In addition to the Management Fee set forth above, the Investment Manager shall pay to ACM an incentive fee equal to three percent (3%) of the realized proceeds (including principal repayments and coupon payments, "Proceeds") in excess of the cost of each investment recommended by ACM pursuant to this Schedule 2-5 and return of the Preferred Return with respect to each investment, each as fully described below (the "Incentive Fee" and together with the Management Fee, the "Fees"). Specifically, Proceeds from each investment will be allocated as follows:

(i) First, to the Investment Manager's applicable clients (the "Clients") until such Clients have received an amount equal to the aggregate amount of capital contributions made by such Clients to the Hybrid Value Managed Account (including any Management Fees paid pursuant to this Schedule 2-5 and related to the Hybrid Value Managed Account);

(ii) Second, to the applicable Clients until such Clients have received an amount equal to interest at the rate of eight percent (8%) *per annum*, compounded annually, on the aggregate amount of capital contributions made by such Clients to the Hybrid Value Managed Account (including on any Management Fees paid pursuant to this Schedule 2-5 and related to the Hybrid Value Managed Account) until the relevant dates on which amounts representing such capital contributions and the priority return thereon are distributed;

(iii) Third, 100% to ACM until ACM has received an amount equal to 3% of the sum of the allocations made pursuant to item (ii) above and amounts then and previously allocated pursuant to this item (iii); and

(iv) Finally, 97% to the applicable Clients and 3% to ACM.

Upon the termination of the Agreement, a clawback calculation will be completed based on the aggregate Proceeds received from all realized investments recommended by ACM pursuant hereto, and ACM shall be required to repay any Incentive Fee previously paid to ACM to the extent that any realized losses from investments recommended by ACM pursuant to this Schedule 2-5 remain unreturned to the applicable Clients upon such termination.

4) **Incentive Fee Payment.** Incentive Fee will be paid quarterly in arrears. As referenced in Schedule 2.1, provisions governing incentive fees on existing assets remain intact and shall not be deemed amended by this Agreement. The Investment Manager and each Sub- Advisor may in addition agree in writing from time to time on an incentive fee with respect to particular investments or asset classes managed by such Sub-Advisor.

Exhibit C

Schedule 3-1

Hybrid Value Managed Account - Investment Guidelines

The Investment Guidelines related to the Hybrid Value Managed Account shall be consistent with those contained in the governing documents of AA Direct. Furthermore, each investment made by the Accounts in respect of the HV Fund, shall also be made by the Accounts with respect to the Hybrid Value Managed Account on *pro rata* based on the amount of capital in the HV Fund and the Hybrid Value Managed Account by clients of the Investment Manager. Notwithstanding the foregoing, the Investment Manager may revoke such investment discretion at any time upon notice to ACM. This Schedule 3-1 and the Schedule 4 attached to the Agreement may otherwise be amended, supplemented or modified from time to time as agreed to in writing solely by the Investment Manager and ACM without a formal amendment to the Agreement.

Exhibit 21.1

Subsidiaries of the Registrant

Subsidiary	Jurisdiction of incorporation
Athene Life Re Ltd.	Bermuda
Athene USA Corporation	Iowa
Athene Annuity Re Ltd.	Bermuda
Athene HD Investor, L.P.	Cayman Islands
Acra Re II Ltd.	Bermuda
Athene Employee Services, LLC	Iowa
Athene London Assignment Corporation	Delaware
Athene Assignment Corporation	Delaware
A-A Onshore Fund, LLC	Delaware
Apollo Asia Real Estate Fund, L.P.	Cayman Islands
Athene Noctua, LLC	Delaware
Athene Annuity & Life Assurance Company	Delaware
ACM Trademarks, L.L.C	Iowa
ARPH (Headquarters Building), LLC	Iowa
Athene Annuity and Life Company	Iowa
P.L. Assigned Services, Inc.	New York
Athene Annuity & Life Assurance Company of New York	New York
Structured Annuity Reinsurance Company	Iowa
Athene Securities, LLC	Indiana
Centralife Annuities Service, Inc.	Arizona
Athene Re USA IV, Inc.	Vermont
AREI (Cedar Valley), LLC	Iowa
AREI (CBP), LLC	Iowa
AREI (Norwood-TX), LLC	Iowa
AREI (US Forest-WY), LLC	Iowa
AREI (BLM-NV), LLC	Iowa
AREI (Interpark), LLC	Iowa
Athene Life Insurance Company of New York	New York
AADE RML, LLC	Iowa
AAIA RML, LLC	Iowa
AAIA RML 3526 Massey Ford, LLC	Iowa
Athene Bermuda Employment Company Ltd.	Bermuda
Athene IP Holding Ltd.	Bermuda
Athene IP Development Ltd.	United Kingdom

EXHIBIT 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We hereby consent to the incorporation by reference in the Registration Statements on Form S-8 (Nos. 333-215031 and 333-219352) and Form S-3 (No. 333-222392) of Athene Holding Ltd. of our report dated February 27, 2019 relating to the financial statements and financial statement schedules and the effectiveness of internal control over financial reporting, which appears in this Form 10-K.

/s/ PricewaterhouseCoopers LLP
Des Moines, Iowa
February 27, 2019

Exhibit 31.1

CERTIFICATION PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY OF 2002

I, James R. Belardi, certify that:

1. I have reviewed this Annual Report on Form 10-K of Athene Holding Ltd.;

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

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

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

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

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

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

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

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

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

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

Date: February 27, 2019

/s/ James R. Belardi

James R. Belardi
Chairman, Chief Executive Officer and Chief Investment Officer
(principal executive officer)

Exhibit 31.2

CERTIFICATION PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY OF 2002

I, Martin P. Klein, certify that:

1. I have reviewed this Annual Report on Form 10-K of Athene Holding Ltd.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
    a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
    b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
    c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
    d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
    a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
    b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 27, 2019

/s/ Martin P. Klein

Martin P. Klein

Executive Vice President and Chief Financial Officer

(principal financial officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY OF 2002

I, James R. Belardi, certify that Athene Holding Ltd.'s Annual Report on Form 10-K for the year ended December 31, 2018 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of Athene Holding Ltd.

Date: February 27, 2019

/s/ James R. Belardi

James R. Belardi

Chairman, Chief Executive Officer and Chief Investment Officer

(principal executive officer)

The foregoing certification is being furnished solely pursuant to 18 U.S.C. § 1350 and is not being filed as part of the Report or as a separate disclosure document.

Exhibit 32.2

CERTIFICATION PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY OF 2002

I, Martin P. Klein, certify that Athene Holding Ltd.'s Annual Report on Form 10-K for the year ended December 31, 2018 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of Athene Holding Ltd.

Date: February 27, 2019	/s/ Martin P. Klein
	Martin P. Klein
	Executive Vice President and Chief Financial Officer
	(principal financial officer)

The foregoing certification is being furnished solely pursuant to 18 U.S.C. § 1350 and is not being filed as part of the Report or as a separate disclosure document.