MassMutual Global Funding II

USD 17,000,000,000
GLOBAL DEBT ISSUANCE PROGRAM

This base prospectus supplement dated March 3, 2016 (this **"Supplement"**) is in addition to and must be read in conjunction with the base prospectus dated June 5, 2015, as supplemented by the base prospectus supplement dated August 28, 2015 and the base prospectus supplement dated November 25, 2015 (collectively, the **"Base Prospectus"**) prepared by MassMutual Global Funding II (the **"Issuer"**) under the Issuer's Global Debt Issuance Program (the **"Program"**). Capitalized terms used herein and not otherwise defined shall have the meanings of such terms set forth in the Base Prospectus.

This Supplement comprises a supplement in accordance with Article 16 of the Directive 2003/71/EC. This Supplement has been approved by the Central Bank of Ireland, as competent authority under the Directive 2003/71/EC. The Central Bank of Ireland only approves this Supplement as meeting the requirements imposed under Irish and EU law pursuant to the Directive 2003/71/EC.

On March 3, 2016, Massachusetts Mutual Life Insurance Company (**"MassMutual"**) published its Management's Discussion and Analysis of the 2015 Financial Condition and Results of Operations, the consolidated text of which is set out in Annex 1 to this document. On February 19, 2016, MassMutual published its annual 2015 audited statutory statements (including any notes thereto, the **"2015 Statutory Financial Statements"**), the consolidated text of which is set out in Annex 2 to this document.

Except as disclosed in this Supplement, there has been no other significant new factor, material mistake or inaccuracy relating to the information included in the Base Prospectus since the publication of the Base Prospectus.

Where there is any inconsistency between this Supplement and the Base Prospectus, the language used in this Supplement shall prevail.

The Issuer accepts responsibility for the information contained in this Supplement. To the best of the knowledge and belief of the Issuer (which has taken all reasonable care to ensure that such is the case), the information contained in this Supplement is in accordance with the facts and does not omit anything likely to affect the import of such information.

Supplement dated March 3, 2016

Annex 1

Massachusetts Mutual Life Insurance Company
Management's Discussion and Analysis
Of the 2015 Financial Condition and Results of Operations

General

Management's Discussion and Analysis of the 2015 Financial Condition and Results of Operations should be read in conjunction with the Audited Statutory Financial Statements and Statutory Annual Statements of Massachusetts Mutual Life Insurance Company (**"MassMutual," "us," "we" or "our"**). This Management's Discussion and Analysis reviews the financial condition of MassMutual as of December 31, 2015 and 2014, our results of operations for the past three years and, where appropriate, factors that may affect our future financial performance.

Overview

We are a growth-oriented, diversified financial services company that seeks to provide superior value for policyholders and other customers by achieving exceptional results. Our mission is to help our customers secure their future and protect the ones they love. We are committed to be the best company in the industry based on superior financial strength, high dividends and delivering a high quality customer experience.

We hope to accomplish this by developing and distributing a broad and superior portfolio of innovative financial products and services, sophisticated asset/liability management, rigorous expense control, prudent underwriting standards, continued efforts to improve retention levels and continued commitment to the high credit quality and disciplined diversification in our investment portfolio.

We offer a wide range of products and services distributed through our career agency system, broker-dealers, insurance brokers, wire houses, consultants and other third-party distributors. Products include whole life insurance, universal life insurance, variable universal life insurance, term life insurance, group life insurance, individual annuities, group annuities, individual disability income insurance, long-term care insurance, retirement products, investment management, mutual funds and trust services to individuals and institutional customers in all 50 states of the U.S. and the District of Columbia and Puerto Rico.

For the year ended December 31, 2015, statutory net income was $412 million and net gain from operations was $353 million. As of December 31, 2015, we had $150.0 billion in statutory assets excluding separate accounts, $210.4 billion in total statutory assets, 2.3 million individual policies in force and $524 billion of life insurance in force. Our total adjusted capital, as defined by the National Association of Insurance Commissioners (the **"NAIC"**), increased to $17.3 billion as of December 31, 2015 compared to $16.4 billion as of December 31, 2014.

The following table sets forth the calculation of total adjusted capital:

	December 31, 2015	December 31, 2014
	(In Millions)	
Surplus [1]	$ 14,983	$ 14,231
AVR [2]	2,898	2,704
One-half of the apportioned dividend liability [2]	866	784
Foreign insurance subsidiaries deduction	(1,406)	(1,366)
Total adjusted capital [3]	**$ 17,341**	**$ 16,353**

(1) *Surplus includes $250 million of surplus notes maturing in 2023, $100 million of surplus notes maturing in 2024, $250 million of surplus notes maturing in 2033, $750 million of surplus notes maturing in 2039, $400 million of surplus notes maturing in 2041 and $500 million of surplus notes maturing in 2065.*

(2) *Consolidated for MassMutual, C.M. Life Insurance Company and MML Bay State Life Insurance Company.*

(3) *Defined by the NAIC as surplus plus the consolidated Asset Valuation Reserve (AVR), one-half of the consolidated apportioned dividend liability and a deduction for applicable foreign insurance subsidiaries.*

As of December 31, 2015, there were no significant statutory or regulatory issues which would impair our financial position or liquidity, but there can be no assurance that such issues will not arise in the future. To the best of management's knowledge, we are not included on any regulatory or similar "watch list."

Business of MassMutual

The principal product lines of MassMutual are the U.S. Insurance Group, Retirement Services, Worksite Insurance and Funding Agreements. The U.S. Insurance Group includes the Individual Life, Disability Income, Long-Term Care and Annuity lines of business.

Individual Life (**"Life"**) provides a broad range of products designed to meet a variety of needs, including death benefit protection, wealth transfer, income replacement, cash value accumulation, supplemental retirement and estate and business planning. MassMutual's individual life insurance products encompass whole life insurance, universal life insurance, variable life insurance and term life insurance. Participating life products with level premium are available. Our term products are designed to offer consumers competitive prices, convertibility options, and the peace of mind of doing business with a financially strong company. One key feature of some of our term products is the option to convert to a permanent MassMutual life insurance product in future years.

Disability Income offers a wide range of products to provide income protection to match clients' unique and changing needs. Products are sold in the individual and small business markets.

Long-Term Care offers products associated with long-term care services for chronically ill individuals. Products are sold to individual and multi-life customers.

Annuity employs a full product suite to develop flexible, customized and efficient solutions for our customers' retirement needs for asset accumulation, easy access to funds and a guaranteed income stream. The current annuity product suite includes both fixed and variable deferred annuities as well as income annuities.

Our fixed deferred annuity products are used for accumulation and access needs. They are sold both through the career agency system and on a retail basis.

MassMutual also offers a single premium immediate annuity, sold both through our career agency system and on a retail basis, which provides a guaranteed income stream that cannot be outlived.

Finally, MassMutual offers variable annuity products to meet asset accumulation needs. These products are sold with guaranteed minimum death benefits and offer an optional living benefit to protect the principal investment. This living benefit option is a guaranteed minimum accumulation benefit (**"GMAB"**) and provides the annuity contract holder with a guaranteed minimum account value at the end of the guarantee period. MassMutual

hedges its variable annuity guarantees using a variety of derivatives managing both its equity market and interest rate exposures on a dynamic basis.

Retirement Services has been serving retirement plans for more than 65 years. Retirement Services offers a full range of products and services for corporate, union, nonprofit and governmental employers' defined benefit, defined contribution, nonqualified deferred compensation plans, investment only solutions and pension buyout annuity contracts, servicing approximately 2.6 million participants.

Worksite consists of Institutional Insurance, which markets bank-owned life insurance (**"BOLI"**) and corporate-owned life insurance (**"COLI"**) products, and MassMutual@Work Employee Insurance, which markets Disability Income, Executive Group Life and Whole Life Insurance.

Funding Agreements are specialized, institutional investment products for domestic and international institutional investors.

Financial Strength Ratings

Our financial strength ratings are A++ (Superior, top category of 15) from A.M. Best Company, AA+ (Very Strong, second category of 21) from Fitch Ratings, Aa2 (Excellent, third category of 21) from Moody's Investors Service, and AA+ (Very Strong, second category of 21) from Standard & Poor's. Each rating agency independently assigns ratings based on its own separate review and takes into account a variety of factors in making its decision. Ratings are subject to change and there can be no assurance of the ratings that will be afforded to us in the future.

Financial strength ratings are based upon an independent review of MassMutual and its domestic insurance subsidiaries and that of the industry in which we operate. As of December 31, 2015, we had one group life insurance contract, certain municipal contracts, contracts pertaining to the reinsurance agreement with an unaffiliated company and a commercial paper program that contained rating triggers. A rating trigger refers to a clause in our contracts requiring action by us or resulting in financial consequences in the event of a downgrade of our financial strength rating below a specified level.

Financial strength rating triggers pertaining to the group life insurance contract requires MassMutual to pursue the transfer of the risks of this contract to another company if MassMutual's rating were downgraded to "BBB" or its equivalent or below by Standard & Poor's, or "Baa2"or its equivalent or below by Moody's Investors Service.

Financial strength rating triggers on certain municipal contracts allow the trustee to declare the entire balance due and payable. Municipal contracts may also have terms that require MassMutual to post collateral to a third party based on the contract balance in the event of a downgrade in ratings below certain levels under certain circumstances. When the collateral is other than cash, the collateral value is required to be greater than the account balance. MassMutual employs a rigorous asset/liability management process to help mitigate the economic impacts of various liability risks. By performing asset liability management and performing other risk management activities, MassMutual believes that these contract provisions do not create an undue level of operating risk.

Financial strength rating triggers pertaining to the reinsurance agreement with an unaffiliated company may occur if: (a) the MassMutual's Risk Based Capital (**"RBC"**) Ratio falls below 300% as of a quarter-end and MassMutual has not cured such shortfall as of the applicable RBC reporting deadline; provided, that in the event there is a material change in the factors and formulae prescribed by the insurance regulatory authority in MassMutual's state of domicile with respect to the components of and methodologies contained in such calculation; or (b) the financial strength rating of MassMutual falls below "BBB" as rated by Standard & Poor's and "Baa2" as rated by Moody's Investors Service.

Financial strength rating triggers pertaining to our commercial paper program has the top rating from both Standard & Poor's (A1+) and Moody's Investors Service (P1). The program is supported by a $1.0 billion bank credit facility expiring September 26, 2019. If our financial strength ratings fall to AA- (Standard & Poor's) or Aa3 (Moody's Investors Service), we will incur additional bank costs related to our bank credit facility.

Forward-Looking Information

Certain information contained in this discussion is or may be considered forward-looking. Forward-looking statements are those not based on historical information, but rather, relate to future operations, strategies, financial results or other developments, and contain terms such as “may,” “expects,” “should,” “believes,” “anticipates,” “intends,” “estimates,” “projects,” “goals,” “objectives” or similar expressions.

Forward-looking statements are based upon estimates and assumptions. These statements may change due to business uncertainties, economic uncertainties, competitive uncertainties, and other factors, many of which are beyond our control. Additionally, our business decisions are also subject to change. We do not publicly update or revise any forward-looking statements as a result of new information, future developments or otherwise.

Results of Operations

The following table sets forth the components of statutory net income (loss):

	Years Ended December 31,				
	2015	2014	2013	% Change 15 vs. 14	% Change 14 vs. 13
	($ In Millions)				
Revenue:					
Premium income	$ 21,543	$ 18,383	$ 20,437	17 %	(10)%
Net investment income	6,387	6,332	5,471	1	16
Fees and other income	797	875	855	(9)	2
Total revenue	28,727	25,590	26,763	12	(4)
Benefits and expenses:					
Policyholders' benefits	16,300	16,511	18,368	(1)	(10)
Change in policyholders' reserves	8,592	5,803	5,892	48	(2)
Change in group annuity reserves assumed	(942)	(1,564)	(2,050)	40	24
General insurance expenses	1,793	1,793	1,705	NM	5
Ceding commission on group annuity reserves	-	-	355	NM	(100)
Commissions	869	814	783	7	4
State taxes, licenses and fees	187	200	186	(7)	8
Total benefits and expenses	26,799	23,557	25,239	14	(7)
Net gain from operations before dividends and federal income taxes	1,928	2,033	1,524	(5)	33
Dividends to policyholders	1,728	1,553	1,475	11	5
Net gain from operations before federal income taxes	200	480	49	(58)	880
Federal income tax (benefit) expense	(153)	23	(142)	(765)	116
Net gain from operations	353	457	191	(23)	139
Net realized capital gains after tax and transfers to interest maintenance reserve	59	166	(477)	(64)	135
Net income (loss)	**$ 412**	**$ 623**	**$ (286)**	**(34)%**	**318 %**

NM = not meaningful or in excess of 900%

The $211 million decrease in net income in 2015 was due to decreased net realized capital gains of $107 million as well as a decrease in net gain from operations of $104 million. The major components of the decrease in net gain from operations included an increase in the change in policyholders’ reserves of $2.8 billion, an increase in the change in group annuity reserves assumed of $622 million, an increase in dividends to policyholders of $175 million, a decrease in fees and other income of $78 million and an increase in commissions of $55 million, partially offset by an increase in premium income of $3.2 billion, a decrease in policyholders’ benefits of $211 million and an increase in net investment income of $55 million.

The $909 million increase in net income to a gain in 2014 was due to net realized capital gains of $166 million in 2014 compared to net realized capital losses of $477 million in 2013, as well as an increase in net gain from operations of $266 million. The major components of the increase in net gain from operations included decreases in policyholders' benefits of $1.9 billion, increases in net investment income of $861 million, a nonrecurring ceding commission on the reinsurance agreement with an unaffiliated insurance company of $355 million recorded in 2013, decreases in the change in policyholders' reserves of $89 million, partially offset by a decrease in premium income of $2.1 billion, an increase in the change in reserves due to the RPG reinsurance agreement of $486 million and an increase in general insurance expenses of $88 million.

Premium Income

Selected premium income information is presented below:

	Years Ended December 31,				
	2015	2014	2013	% Change 15 vs. 14	% Change 14 vs. 13
	($ In Millions)				
Premium income:					
Whole life	$ 4,765	$ 4,303	$ 3,894	11 %	11 %
Universal, variable and group life	1,740	1,606	1,444	8	11
Annuities and supplemental contracts	2,249	2,527	3,330	(11)	(24)
Disability income	481	472	463	2	2
Defined benefit and contribution	9,257	8,795	10,203	5	(14)
Pension buyout	2,838	484	921	486	(47)
Other	213	196	182	9	8
Total	**$ 21,543**	**$ 18,383**	**$ 20,437**	**17 %**	**(10)%**

Premium income increased $3.2 billion, or 17%, in 2015 primarily due to increases in pension buyout of $2.4 billion, whole life of $462 million, defined benefit and contribution contracts of $462 million, and universal, variable and group life of $134 million, partially offset by a decrease in annuities and supplemental contracts of $278 million. Pension buyout premiums increased due to larger average sales. Whole life premium increased primarily due to higher renewal premium driven by new and recurring sales impact on a growing block primarily in limited pay products and single premium products. The increase in premium for defined benefit and contribution contracts is attributed to sales growth in the core retirement plan business. Universal, variable and group life premium growth was mainly due to higher BOLI sales reflecting improved bank capital levels. The decrease in annuity and supplemental contract premium was primarily due to lower deferred income annuity and single premium income annuity sales.

Premium income decreased $2.1 billion, or 10%, in 2014 primarily due to decreases in defined benefit and contribution contracts of $1.4 billion, annuities and supplemental contracts of $803 million and terminal funding of $437 million, partially offset by increases in whole life of $409 million and universal, variable and group life of $162 million. The decrease in premium for defined benefit and contribution contracts was primarily due to lower sales of stable value option products. The decrease in annuity premium was largely due to competitive position in the market. Whole life premium increased primarily due to higher renewal premium driven by favorable mortality and persistency. Universal, variable and group life premium growth was mainly due to higher BOLI sales reflecting improved bank capital levels.

Net Investment Income

The components of net investment income are set forth below:

	Years Ended December 31,				
	2015	2014	2013	% Change 15 vs. 14	% Change 14 vs. 13
	($ In Millions)				
Net investment income:					
Bonds	$ 3,439	$ 3,287	$ 3,149	5 %	4 %
Preferred stocks	27	21	19	29	11
Common stocks - subsidiaries and affiliates	511	71	180	620	(61)
Common stocks - unaffiliated	48	67	37	(28)	81
Mortgage loans	976	877	779	11	13
Policy loans	709	684	674	4	1
Real estate	169	191	195	(12)	(2)
Partnerships and LLCs	639	1,207	602	(47)	100
Derivatives	292	290	152	1	91
Cash, cash equivalents and short-term investments	14	10	12	40	(17)
Other	13	2	11	550	(82)
Total gross investment income	6,837	6,707	5,810	2	15
Amortization of the IMR	140	192	189	(27)	2
Less investment expenses	(590)	(567)	(528)	4	7
Net investment income	**$ 6,387**	**$ 6,332**	**$ 5,471**	**1 %**	**16 %**

Net investment income increased $55 million in 2015 primarily due to an increase of $440 million in common stocks of subsidiaries and affiliates, reflecting an increase of $450 million in the dividend received from MassMutual Holding LLC **("MMHLLC")**, a wholly owned subsidiary; a $152 million increase in income from bonds and a $99 million increase from mortgage loans. These items were largely offset by the decrease in income distributions from partnerships and limited liability companies **("LLCs")** of $568 million, as well as a $52 million decrease in amortization of the interest maintenance reserve **("IMR")**.

Net investment income increased $861 million in 2014 primarily due to higher income distributions from partnerships and LLCs of $605 million, as well as higher income from bonds of $138 million and derivatives of $138 million.

The net yield was 5.0% in 2015, 5.8% in 2014 and 5.3% in 2013. MassMutual calculates the yield as (a) net investment income less affiliated dividends from MMHLLC divided by (b) the monthly average of cash and invested assets plus investment income due and accrued, net of foreign exchange adjustments, unrealized gains and losses, and investment-related liabilities, less half the net investment income excluding affiliated dividends from MMHLLC.

Bond gross investment income increased $152 million in 2015 and $138 million in 2014 due to increased average asset balances, partially offset by lower yields. Average bond investments were $77.1 billion in 2015, $70.9 billion in 2014 and $62.0 billion in 2013. Yields were 4.5% in 2015, 4.7% in 2014 and 4.8% in 2013.

Income from common stocks of affiliates increased $440 million in 2015 and decreased $109 million in 2014, mainly reflecting changes in the dividends received from MMHLLC. The MMHLLC dividend was $500 million in 2015, $50 million in 2014 and $175 million in 2013.

Income from unaffiliated common stocks decreased $19 million in 2015 and increased $30 million in 2014. The decrease in 2015 and the increase in 2014 mainly reflect changes in the amount of dividends paid from seed money investments.

Mortgage loan gross investment income increased $99 million in 2015 and $98 million in 2014 primarily due to an increase in average assets, partially offset by a reduction in loan yields. Average mortgage loan investments were $20.7 billion in 2015, $17.9 billion in 2014 and $15.2 billion in 2013. Yields were 4.9% in 2015, 5.1% in 2014 and 5.2% in 2013.

Policy loan gross investment income increased $24.8 million in 2015 and $10 million in 2014 as a result of increased average loan balances, partially offset by lower yields. Average policy loans were $11.5 billion in 2015 and $10.3 billion in 2014 as well as 2013.

Partnership and LLC gross investment income decreased $568 million in 2015 and increased $605 million in 2014 primarily due to fluctuations in income distributions related to earnings from various investments.

Derivative gross investment income remained relatively flat in 2015 and increased $138 million in 2014 primarily due to additional notional related to ongoing portfolio duration balancing during the year, as well as the swaps being in a predominantly receive fixed position.

Amortization of IMR decreased $52 million in 2015 primarily due to decreased amortization from bonds of $15 million, mortgage forwards of $14 million, and futures of $13 million. Amortization of IMR increased $3 million in 2014 primarily due to increased amortization from prior year liabilities of $57 million, partially offset by decreased amortization from current year liabilities of $36 million, current year assets of $14 million and prior year assets of $4 million. The decreased amortization of current year net gains was primarily related to decreased amortization from futures of $13 million.

Investment expenses increased $23 million in 2015 and $39 million in 2014. The increase in 2015 mainly reflects higher interest expense due to a $500 million surplus note issuance in 2015 as well as higher interest rates on repurchase agreements. The increase in 2014 is primarily due to an overall increase in asset levels and investment initiatives.

Fees and Other Income

Fees and other income decreased $78 million in 2015 and increased $20 million in 2014. The decrease in 2015 was primarily due to the cost of purchasing COLI to finance benefits. The increase in 2014 was primarily due to an increase in fees earned from annuity sales.

Benefits and Expenses

Policyholders' benefits, which include supplementary contract payments, matured endowments, death, annuity, disability and surrender benefits, as well as interest and adjustments on contract or deposit-type contract funds, decreased $211 million in 2015. The decrease was primarily due to improved retention of defined benefit and contribution contracts, partially offset by higher mortality in whole life due to an increase in the average size of death claims. Policyholders' benefits decreased $1.9 billion in 2014, primarily due to improved retention of defined benefit and contribution contracts.

The life insurance lapse rate, which is based on the amount of life insurance in force, decreased to 4.0% in 2015 from 4.2% in 2014 and 4.7% in 2013.

Change in policyholders' reserves, which includes transfers to and from separate accounts, increased $2.8 billion in 2015. The increase was primarily driven by an increase in pension buyout premium of $2.4 billion and lower account lapse activity on defined benefit and contribution contracts. Change in policyholders' reserves decreased $89 million in 2014, primarily due to a decrease in annuity sales and lower investment only sales, partially offset by lower account lapse activity on defined benefit and contribution contracts, increased sales of life insurance and year-over-year change in variable annuity product guarantee reserves.

The change in reserves related to the reinsurance agreement reflects the RPG modified coinsurance assumption contract. The $622 million reduction in expense in 2015 reflects lower contract redemptions included in

policyholders' benefits, partially offset by contributions into reinsured accounts recorded as premium. The $486 million reduction in expense in 2014 reflects lower contract redemptions included in policyholders' benefits and contributions into reinsured accounts recorded as premium.

Commissions, including commissions and expense allowances on reinsurance assumed, increased $55 million in 2015 due to the growth of whole life sales. Commissions increased $31 million in 2014 due to the growth of whole life sales.

Dividends to policyholders increased $175 million in 2015, driven by normal growth in whole life. Dividends to policyholders increased $78 million in 2014, driven by the inforce block growth.

Federal income taxes decreased $176 million in 2015, from an expense of $23 million in 2014 to a benefit of $153 million in 2015. The decrease in tax expense was primarily due to a decrease in statutory pretax income, partially offset by a reduction in available tax credits. Federal income tax expense increased $165 million in 2014, from a benefit of $142 million in 2013 to an expense of $23 million in 2014. The increase in tax expense was primarily due to an increase in taxable income.

Net Realized Capital Gains (Losses)

Net realized capital gains (losses), including other-than-temporary impairments **("OTTI")**, were comprised of the following:

	Years Ended December 31,				
	2015	**2014**	**2013**	**% Change 15 vs.14**	**% Change 14 vs.13**
	($ In Millions)				
Net realized capital gains (losses):					
Bonds	$ (66)	$ 359	$ 18	(118)%	NM%
Preferred stocks	2	4	14	(50)	(71)
Common stocks - subsidiaries and affiliates	64	11	33	482	(67)
Common stocks - unaffiliated	(8)	(71)	49	89	(245)
Mortgage loans	(8)	(9)	(20)	11	(55)
Real estate	50	211	54	(76)	291
Partnerships and LLCs	(97)	(18)	(46)	(439)	(61)
Derivatives	(64)	368	(735)	(117)	(150)
Other	216	(50)	(39)	532	28
Net realized capital gains (losses) before federal and state taxes and deferral to the IMR	89	805	(672)	(89)	(220)
Net federal and state tax expense	(151)	(282)	(147)	(46)	92
Net realized capital (losses) gains before deferral to the IMR	(62)	523	(819)	(112)	(164)
Net after tax losses (gains) deferred to the IMR	121	(357)	342	134	(204)
Net realized capital gains (losses)	**$ 59**	**$ 166**	**$ (477)**	**(64)%**	**(135)%**

NM = not meaningful or in excess of 900%

Net realized capital gains decreased $107 million in 2015 primarily due to decreases in gains from derivatives of $432 million, bonds of $425 million, real estate of $161 million and partnerships and LLCs of $79 million, partially offset by an increase of $478 million in losses deferred to the IMR, an increase in gains on other investments of $266 million, a decrease in federal and state tax expense on realized capital gains of $131 million and an increase in gains on common stocks of $116 million.

Net realized capital gains increased $643 million in 2014 primarily due to an increase in gains from derivatives of $1.1 billion, primarily from treasury futures, an increase in gains on bonds of $341 million and an increase in gains on real estate of $157 million, partially offset by an increase of $699 million in gains deferred to the IMR, a decrease in gains on common stock of $142 million, to a net loss of $60 million and an increase in federal and state tax expense on realized capital gains of $135 million.

In 2015, $121 million of net after-tax losses were deferred into the IMR including derivative net losses of $201 million, partially offset by bond net gains of $80 million. In 2014, $357 million of net after-tax gains were deferred into the IMR including derivatives of $201 million and bonds of $156 million. Gains and losses deferred to the IMR are amortized into income over the estimated remaining life of the investment sold. See "Management's Discussion and Analysis of Financial Condition and Results of Operations - Net Investment Income."

Investments are written down when a decline in value is considered to be other than temporary. In 2015, we recognized $270 million of impairment losses compared to $186 million in 2014. Of the $270 million of OTTI in 2015, $170 million was related to bonds, $70 million to partnerships and LLCs, $25 million was related to common and preferred stock, and $5 million to mortgage loans. MassMutual employs a systematic methodology to evaluate OTTI. The methodology to evaluate declines in value utilizes a quantitative and qualitative process ensuring that available evidence concerning the declines is evaluated in a disciplined manner.

Bond net realized capital gains and losses on sales and OTTI, before IMR deferrals, were comprised of the following:

	Years Ended December 31,				
	2015	2014	2013	% Change 15 vs. 14	% Change 14 vs. 13
	($ In Millions)				
Gross realized capital gains on sales	$ 274	$ 448	$ 245	(39)%	83 %
Gross realized capital losses on sales	(170)	(54)	(195)	(215)	72
OTTI	(170)	(35)	(32)	(386)	(9)
Net realized capital (losses) gains	**$ (66)**	**$ 359**	**$ 18**	**(118)%**	**NM%**

NM = not meaningful or in excess of 900%

Bond net realized capital gains decreased $425 million in 2015 primarily driven by a lower sales volume, an increase in foreign currency losses as the U.S. dollar strengthened against most foreign currencies, primarily the British Pound and Euro, and an increase in OTTI of $135 million. Bond net realized capital gains increased $341 million in 2014 primarily driven by increasing market values due to a decline in interest rates.

Common stock net realized capital gains increased $116 million to a gain of $56 million in 2015, from a loss of $60 million in 2014. The increase in 2015 reflects a higher sales volume relative to the prior year as well as a decrease in OTTI of $71 million. Common stock net realized capital gains decreased $142 million to a loss of $60 million in 2014, from a gain of $82 million in 2013. The decline reflects lower sales volumes relative to the prior year, as well as increased OTTI of $69 million.

Mortgage loan net realized capital losses decreased $1 million in 2015 primarily due to a decrease in OTTI of $5 million, partially offset by decreased gains on foreign exchange of $4 million. Mortgage loan net realized capital losses decreased $11 million in 2014 primarily due to a decrease in OTTI of $12 million.

Real estate net realized capital gains decreased $161 million to $50 million in 2015 from $211 million in 2014. The current year's gains of $50 million were primarily from the sale of one property. Real estate net realized capital gains increased $157 million to $211 million in 2014 from $54 million in 2013. The 2014 gains of $211 million were primarily from the sale of three properties.

Partnership and LLC net realized capital losses increased $79 million in 2015 primarily due to an increase in losses from sales and liquidations of $48 million, an increase in foreign exchange losses on distributions of $17 million and increased OTTI of $14 million. Partnership and LLC net realized capital losses decreased $28 million in 2014 primarily due to an increase in gains from sales and liquidations of $45 million, partially offset by increased OTTI of $11 million and an increase in foreign exchange losses on distributions of $6 million. As of December 31, 2015 and 2014, we did not hold any partnerships or LLCs with significant subprime exposure.

The following sets forth the net realized and change in unrealized capital gains and losses (which are charged directly to surplus) from derivatives:

	Years Ended December 31,				
	2015	**2014**	**2013**	**% Change 15 vs. 14**	**% Change 14 vs. 13**
		(In Millions)			
Net realized capital gains (losses)	$ (64)	$ 368	$ (735)	(117)%	150 %
Net change in unrealized capital gains (losses)	227	1,229	(949)	(82)	230
Net realized and change in unrealized capital gains	**$ 163**	**$ 1,597**	**$ (1,684)**	**(90)%**	**195 %**

Derivative net realized capital gains decreased $432 million to a loss of $64 million in 2015 from a gain of $368 million in 2014, primarily due to decreased gains on financial futures of $348 million, mortgage-backed security forwards of $48 million and credit default swaps of $4 million and increased losses on interest rate swaps of $129 million and options of $13 million, partially offset by increased gains on forward contracts of $87 million and decreased losses on currency swaps of $23 million. These decreased gains primarily resulted from the decrease in interest rates (futures), the termination of zero coupon swaps, strengthening of the U.S. Dollar relative to the British Pound, the Canadian Dollar and the Euro, and repositioning the portfolio as part of ongoing asset/liability management.

Derivative net realized capital gains increased $1.1 billion to a gain of $368 million in 2014 from a loss of $735 million in 2013, primarily due to increased gains on financial futures of $818 million, forward contracts of $149 million, mortgage-backed security forwards of $101 million, interest rate swaps of $79 million and credit default swaps of $31 million, partially offset by increased losses on financial options of $38 million and currency swaps of $37 million. These increased gains primarily resulted from the decrease in interest rates (decreases in swap curve rates of 120 bps in the 30 year rate and 78 bps in the 10 year rate), and repositioning the portfolio as part of ongoing asset/liability management.

Realized capital gains (losses) do not reflect the changes in the AVR and valuation reserves, which are recorded as a change in surplus. Fluctuations in market conditions will impact future investment results.

Statement of Financial Position

The following table sets forth MassMutual's assets, liabilities and surplus:

	December 31, 2015	December 31, 2014	% Change
	($ In Millions)		
Assets:			
Bonds	$ 79,547	$ 74,719	6 %
Preferred stocks	533	525	2
Common stocks - subsidiaries and affiliates	7,960	7,940	-
Common stocks - unaffiliated	1,140	1,188	(4)
Mortgage loans	22,008	19,357	14
Policy loans	11,813	11,155	6
Real estate	928	776	20
Partnerships and limited liability companies	7,473	6,970	7
Derivatives	9,268	8,531	9
Cash, cash equivalents and short-term investments	3,049	1,880	62
Other invested assets	41	3	13
Total invested assets	143,760	133,044	8
Investment income due and accrued	1,834	1,711	7
Federal income taxes	65	-	100
Deferred income taxes	1,299	959	35
Other than invested assets	3,016	1,091	176
Total assets excluding separate accounts	149,973	136,805	10
Separate account assets	60,386	60,384	-
Total assets	**$ 210,359**	**$ 197,189**	**7 %**
Liabilities and Surplus:			
Policyholders' reserves	$ 102,626	$ 93,291	10 %
Liabilities for deposit-type contracts	10,491	9,045	16
Contract claims and other benefits	488	395	24
Policyholders' dividends	1,742	1,579	10
General expenses due or accrued	959	903	6
Federal income taxes	-	177	(100)
Asset valuation reserve	2,817	2,620	8
Repurchase agreements	5,130	4,658	10
Commercial paper and other borrowed money	277	268	-
Collateral	2,126	1,405	51
Derivatives	5,840	5,424	8
Other liabilities	2,504	2,819	(11)
Total liabilities excluding separate accounts	135,000	122,584	10
Separate account liabilities	60,376	60,374	-
Total liabilities	**195,376**	**182,958**	7
Surplus	14,983	14,231	5
Total liabilities and surplus	**$ 210,359**	**$ 197,189**	**7 %**

Assets

Total assets were $210.4 billion as of December 31, 2015, an increase of $13.2 billion, or 7%, from year-end 2014, primarily due to an increase in invested assets of $10.8 billion and other than invested assets of $1.9 billion.

Invested assets increased to $143.8 billion as of December 31, 2015 from $133.0 billion as of December 31, 2014, primarily due to increases in bonds of $4.8 billion, mortgage loans of $2.7 billion, cash equivalents and short-term investments of $1.2 billion, derivative assets of $737 million, policy loans of $658 million, partnerships and LLCs of $503 million and real estate of $152 million.

Bonds increased $4.8 billion, or 6%, in 2015, including $17.5 billion of acquisitions that were partially offset by $12.6 billion of sales, paydowns and maturities, as well as OTTI of $170 million mostly attributed to structured and corporate securities. Bonds in NAIC Categories 1 and 2 (including exempt) were 51% and 52% of total invested assets as of December 31, 2015 and 2014, respectively. The percentage of total invested assets representing bond investments in NAIC Categories 3 through 6 was 4% as of December 31, 2015 and 2014. See "Investments" for more discussion of NAIC investment categories.

For loan-backed and structured securities, if the present value of cash flows expected to be collected is less than the amortized cost basis of the security, an OTTI is recognized in earnings as a realized loss equal to the difference between the investment's amortized cost basis and the present value of cash flows expected to be collected. The expected cash flows are discounted at the security's effective interest rate. Internal inputs used in determining the amount of the OTTI on structured securities include collateral performance, prepayment speeds, default rates, and loss severity based on borrower and loan characteristics, as well as deal structure including subordination, over-collateralization and cash flow priority. In addition, if MassMutual has the intent to sell, or the inability, or lack of intent to retain the investment for a period sufficient to recover the amortized cost basis, an OTTI is recognized in earnings as a realized loss equal to the entire difference between the investment's amortized cost basis and its fair value at the balance sheet date.

Asset-backed securities (**"ABS"**) and mortgage-backed securities (**"MBS"**) are evaluated for OTTI on a quarterly basis using scenarios customized by collateral type. Cash flow estimates are based on various assumptions and inputs obtained from external industry sources along with internal analysis and actual experience. Assumptions are based on the specifics of each security including collateral type, loan type, vintage and subordination level in the structure. Where applicable, assumptions include prepayment speeds, default rates and loss severity, weighted average maturity and changes in the collateral values.

MassMutual has a review process for determining if collateralized debt obligations (**"CDO"**) are at risk for OTTI. For the senior, mezzanine and junior debt tranches, cash flows are modeled using five scenarios based on the current ratings and values of the underlying corporate credit risks and incorporating prepayment and default assumptions that vary according to collateral attributes of each CDO. The prepayment and default assumptions are varied within each model based upon rating (base case), historical expectations (default), rating change improvement (optimistic), rating change downgrade (pessimistic) and fair value (market). The default rates produced by these five scenarios are assigned an expectation weight according to current market and economic conditions and are fed into a sixth scenario. OTTI is recorded if this sixth scenario results in the default of any principal or interest payments due.

For the most subordinated junior CDO tranches, the present value of the projected cash flows in the sixth scenario are measured using an effective yield. If the current book value of the security is greater than the present value measured using an effective yield, an OTTI is taken in an amount sufficient to produce its effective yield. Certain CDOs cannot be modeled using all six scenarios because of limitations on the data needed for all scenarios. The cash flows for these CDOs, including foreign denominated CDOs, are projected using a customized scenario management believes is reasonable for the applicable collateral pool.

Residential mortgage-backed securities (**"RMBS"**) are included in the U.S. government, special revenue, and industrial and miscellaneous bond categories. The Alt-A category includes option adjustable rate mortgages and

the subprime category includes 'scratch and dent' or reperforming pools, high loan-to-value pools, and pools where the borrowers have very impaired credit but the average loan-to-value is low, typically 70% or below. In identifying Alt-A and subprime exposure, management used a combination of qualitative and quantitative factors, including FICO scores and loan-to-value ratios.

As of December 31, 2015, RMBS had a total carrying value of $1.9 billion and a fair value of $2.1 billion, of which approximately 23%, based on carrying value, was classified as Alt-A. Alt-A and subprime RMBS had a total carrying value of $851 million and a fair value of $1.0 billion.

As of December 31, 2014, RMBS had a total carrying value of $2.3 billion and a fair value of $2.6 billion, of which approximately 22%, based on carrying value, was classified as Alt-A. Alt-A and subprime RMBS had a total carrying value of $1.0 billion and a fair value of $1.2 billion.

During the year ended December 31, 2015, there were no significant credit downgrades of securities held by MassMutual that were backed by residential mortgage pools.

Leveraged loans are loans extended to companies that already have considerable amounts of debt. MassMutual reports leveraged loans as bonds. These leveraged loans have interest rates higher than typical loans reflecting the additional risk of default from issuers with high debt-to-equity ratios.

As of December 31, 2015, total leveraged loans and leveraged loan CDOs had a carrying value of $7.7 billion and a fair value of $7.6 billion, of which approximately 94%, based on carrying value, were domestic leveraged loans and CDOs.

As of December 31, 2014, total leveraged loans and leveraged loan CDOs had a carrying value of $10.1 billion and a fair value of $10.1 billion, of which approximately 89%, based on carrying value, were domestic leveraged loans and CDOs.

MassMutual holds bonds backed by pools of commercial mortgages. The mortgages in these pools have varying risk characteristics related to underlying collateral type, borrower's risk profile and ability to refinance, and the return provided to the borrower from the underlying collateral. These investments had a carrying value of $2.3 billion and fair value of $2.3 billion as of December 31, 2015 and a carrying value of $2.8 billion and fair value of $2.9 billion as of December 31, 2014.

Preferred stocks increased $8 million, or 2%, primarily due to net acquisitions of $14 million, partially offset by unrealized foreign currency losses of $7 million.

Common stocks – subsidiaries and affiliates increased $20 million, or less than 1%, primarily due to an increase in the value of MMHLLC of $149 million, mainly from earnings and unrealized gains of subsidiaries, as well as an increase in the value of C.M. Life Insurance Company of $91 million, offset by net dispositions of $226 million.

Common stocks – unaffiliated decreased $48 million, or 4%, primarily due to net unrealized losses of $174 million and OTTI of $14 million, partially offset by net acquisitions of $127 million.

Mortgage loans increased $2.7 billion, or 14%, in 2015 due to $2.7 billion of net acquisitions, partially offset by a $93 million net loss on foreign currency revaluation and $5 million of OTTI.

Policy loans increased $658 million, or 6%, in 2015 primarily due to normal growth in whole life products, as well as increases for leveraged COLI products, partially offset by loan repayments and surrenders, lapses and deaths.

Real estate increased $152 million, or 20%, in 2015 primarily due to $294 million of capital improvements, $66 million from a transfer of property from Partnerships and LLCs and $2 million in purchases, partially offset by $95

million of depreciation, $60 million in net sales which included $50 million in realized gains and a $55 million increase in encumbrances. As of December 31, 2015, commercial office buildings and hotels represented 39% and 35%, respectively, of our real estate portfolio compared to 52% and 25% for the same property types as of December 31, 2014. We believe that investing in hotels and commercial office buildings leverages the expertise of our subsidiary, Cornerstone Real Estate Advisors LLC, in this field.

Partnerships and LLCs increased $503 million, or 7%, in 2015 primarily due to initial and subsequent investments of $2.2 billion and undistributed earnings of $523 million, partially offset by return of capital of $1.2 billion, distributions recorded as net investment income of $566 million, sales and liquidations of $360 million and $44 million of unrealized foreign currency losses. As of December 31, 2015, MassMutual did not hold any partnerships or LLCs with significant subprime or Alt-A exposure. Also, there were initial investments and liquidations due to the assumption of municipal-guaranteed interest contracts from a third party. As part of this transaction, loans that totaled $1.3 billion were purchased by MassMutual and subsequently extinguished.

Cash, cash equivalents and short-term investments increased $1.2 billion, or 62%, in 2015. Cash, cash equivalents and short-term investments increased due to net cash provided by operations of $7.8 billion and net cash provided from financing and other sources of $89 million, partially offset by net cash applied to investing activities of $6.7 billion.

Derivative assets increased $737 million, or 9%, in 2015. The increase is primarily due to a $345 million increase in interest rate swaps due to a decrease in the related swap curve rates and a $303 million increase in currency swaps due to strengthening of the U.S. Dollar relative to the British Pound, the Canadian Dollar and the Euro, as well as a repositioning of the portfolio as part of ongoing asset-liability management activity.

Investment income due and accrued increased $123 million to $1.8 billion as of December 31, 2015. The change is primarily due to increases in accrued derivative income of $89 million and accrued bonds income of $36 million, partially offset by a decrease in accrued policy loans income of $8 million.

Deferred income taxes increased $340 million, or 35%, in 2015 primarily due to an overall increase in the available net deferred tax assets, driven by increases in unrealized capital losses, as well as an increase in future tax deductions for policyholders' reserves, policyholders' dividends and policy acquisition costs.

Other than invested assets increased $1.9 billion to $3.0 billion as of December 31, 2015 from $1.1 billion as of December 31, 2014. The increase was primarily due to MassMutual's purchase of COLI contracts from an unaffiliated third party insurer to cover the lives of certain qualified senior employees. The primary purpose of the program is to offset future employee benefit expenses. MassMutual pays all premiums and is the owner and beneficiary of these policies.

Separate account assets remained relatively flat in 2015, primarily due to net customer cash inflows of $581 million, partially offset by fees paid of $356 million, market value depreciation of $124 million and a decrease in pending security settlements of $101 million. Separate account assets and liabilities represent segregated funds administered and invested by MassMutual for the benefit of individual and group variable annuity, variable life and other insurance contract/policyholders to meet specific investment objectives. Separate account assets can only be used to satisfy separate account liabilities and are not available to satisfy the general obligations of MassMutual, except for seed money (assets transferred from the general investments of MassMutual) placed in our separate accounts.

Liabilities

Total liabilities increased $12.4 billion, or 7%, in 2015 primarily due to increases in policyholders' reserves of $9.3 billion, liabilities for deposit-type contracts of $1.4 billion, collateral of $721 million, repurchase agreements of $472 million, derivative liabilities of $416 million, AVR of $197 million, policyholders' dividends of $163 million, partially offset by a decrease in other liabilities of $315 million.

The increase in policyholders' reserves of $9.3 billion, or 10%, is primarily due to increases in whole life reserves of $2.7 billion, pension buyout reserves of $2.4 billion, reserves for Executive Benefits products of $2.0 billion, annuity reserves of $830 million including a year-over-year increase in variable annuity product guarantee reserves, defined benefit and contribution reserves of $573 million and universal and variable life reserves of $451 million. The increase in policyholders' reserves reflects net growth of the in force blocks, new pension buyout business and interest credited, partially offset by reserves released on death and surrender.

Certain variable annuity contracts include additional death or other insurance benefit features, such as guaranteed minimum death benefits **("GMDBs")**, guaranteed minimum income benefits **("GMIBs")**, GMABs and guaranteed minimum withdrawal benefits **("GMWBs")**. In general, these benefit guarantees require the contract or policyholder to adhere to a company-approved asset allocation strategy. Election of these benefits on certain annuity contracts is generally only available at contract issue.

The following shows the liabilities for GMDBs, GMIBs, GMABs and GMWBs (in millions):

Liability as of January 1, 2014	$ 274
Incurred guarantee benefits	214
Paid guarantee benefits	(2)
Liability as of December 31, 2014	486
Incurred guarantee benefits	89
Paid guarantee benefits	(3)
Liability as of December 31, 2015	$ 572

MassMutual held reserves in accordance with the stochastic scenarios as of December 31, 2015 and 2014. As of December 31, 2015 and 2014, MassMutual held additional reserves above those indicated based on the stochastic scenarios in order to maintain a prudent level of reserve adequacy, which are included in the table above.

The increase in reserves for variable annuity product guarantees in 2015 was due to changes in financial market conditions. The increase in reserves for variable annuity product guarantees in 2014 was driven by unfavorable interest markets.

The following summarizes the account values, net amount at risk and weighted average attained age for variable annuity contracts with GMDBs, GMIBs, GMABs and GMWBs classified as policyholders' reserves and separate account liabilities. The net amount at risk is defined as the minimum guarantee less the account value calculated on a policy-by-policy basis, but not less than zero.

	December 31, 2015			December 31, 2014		
	Account Value	Net Amount at Risk	Weighted Average Attained Age	Account Value	Net Amount at Risk	Weighted Average Attained Age
	($ In Millions)					
GMDB	$ 18,991	$ 90	63	$ 19,391	$ 37	63
GMIB Basic	959	107	66	1,136	64	65
GMIB Plus	3,106	561	65	3,373	300	64
GMAB	3,072	57	58	2,859	3	58
GMWB	209	15	68	232	4	68

Liabilities for deposit-type contracts increased $1.4 billion in 2015 primarily due to agreements to assume liabilities associated with municipal guaranteed interest contracts of $975 million, the issuance of a medium-term note of $650 million, the issuance of a funding agreement with Federal Home Loan Bank of Boston **("FHLB")** note of $400 million, partially offset by the maturity of a medium-term note of $400 million and net outflows from the RPG business of approximately $200 million. Liabilities for deposit-type contracts decreased $364 million in 2014 primarily due to the maturity of medium-term notes and a FHLB note totaling $750 million and net outflows from

the RPG business of $560 million, partially offset by the issuance of medium-term notes and a FHLB note totaling $950 million.

General expenses due or accrued increased $56 million, or 6%, in 2015 primarily due to increases in pension and general agent retirement plans, partially offset by decreases in incentive compensation.

AVR increased $197 million, or 8%, in 2015 due to increases in the bond and derivative component, partially offset by decreases in the common stock, real estate and other invested asset and mortgage loan components. Increases of $240 million in the bonds, preferred stock, derivatives and short-term investments reserve was primarily due to a $138 million increase in reserve contributions, $79 million in unrealized capital gains and $23 million in realized capital gains. The $20 million decrease in the common stock reserve was primarily due to $58 million in net unrealized capital losses, partially offset $36 million in realized capital gains and a $2 million increase in reserve contributions. The $17 million decrease in the real estate and other invested asset reserve was primarily due to $31 million in realized capital losses and $15 million in unrealized capital losses, partially offset by $29 million in increased reserve contributions. The $6 million decrease in the mortgage loan reserve was primarily due to $63 million in unrealized capital losses and $5 million in realized capital losses, partially offset by a $62 million increase in reserve contributions.

The liability for repurchase agreements increased $472 million, or 10%, in 2015. Repurchase agreements are used as a tool for overall portfolio management to help ensure MassMutual maintains adequate assets in order to provide yield, spread and duration to support liabilities and other corporate needs. MassMutual increases and decreases repurchase agreements in response to changing market conditions and changing liability needs.

Collateral increased $721 million, or 51%, to $2.1 billion as of December 31, 2015 from $1.4 billion as of December 31, 2014. The increase in collateral liability is consistent with the increase in derivative valuations. The derivative collateral liability is a function of contractual requirements. When certain threshold exposure levels and transfer amount levels are reached, MassMutual calls in additional collateral or returns excess collateral held. In addition, securities that were held as collateral by trustees, off balance sheet, decreased $537 million, or 30%, to $1.2 billion as of December 31, 2015 from $1.8 billion as of December 31, 2014 as counterparties moved collateral to cash. MassMutual also has the right to rehypothecate securities or repledge securities. As of December 31, 2015, we had the right to rehypothecate $1.2 billion of the net collateral pledged by counterparties, $23 million of which was rehypothecated to other counterparties.

Derivative liabilities increased $416 million, or 8%, in 2015. The increase is primarily due to a $438 million increase in interest rate swaps due to a decrease in the related swap curve rates, as well as a repositioning of the portfolio as part of ongoing asset-liability management activity.

Other liabilities primarily consist of derivative interest expense, the interest maintenance reserve (IMR) and amounts held for agents' accounts. Other liabilities decreased $315 million, or 11%, in 2015 primarily due to decreases in the IMR of $279 million and remittances and items not allocated of $167 million, partially offset by an increase in derivative interest expense liability of $83 million.

Commercial paper and other borrowed money had a carrying value and face amount of $250 million as of December 31, 2015 and 2014. MassMutual issues commercial paper in the form of notes in minimum denominations of $250 thousand up to a total aggregation of $1 billion. These notes have maturities up to a maximum of 270 days from the date of issue and are sold at par less a discount representing an interest factor or, if interest bearing, at par. The notes are not redeemable or subject to voluntary prepayments by MassMutual.

Surplus

Surplus increased $752 million in 2015 to $15.0 billion as of December 31, 2015. The following table shows the change in surplus:

	December 31, 2015 (In Millions)
Beginning surplus	$ 14,231
Net income	412
Change in net unrealized capital gains, net of tax	195
Change in net unrealized foreign exchange capital losses and gains, net of tax	(226)
Change in other net deferred income taxes	231
Change in nonadmitted assets	(16)
Change in asset valuation reserve	(197)
Change in surplus notes	491
Cumulative effect of accounting changes	3
Prior period adjustments	9
Change in minimum pension liability	(150)
Net increase	752
Ending surplus	**$ 14,983**

Liquidity and Capital Resources

Liquidity

MassMutual manages its liquidity position by matching its exposure to cash demands with adequate sources of cash and other liquid assets. MassMutual's principal sources of liquidity are operating cash flows and holdings of cash, cash equivalents and other readily marketable assets.

MassMutual's investment portfolio is structured to ensure a strong liquidity position in order to permit timely payment of policy and contract benefits without requiring an uneconomic sale of assets. In general, liquid assets include cash and cash equivalents, public bonds, unaffiliated preferred stock and unaffiliated public common stock, all of which generally have ready markets with large numbers of buyers. The statement value of these assets as of December 31, 2015 was approximately $40.7 billion. While the investment portfolio does contain assets (primarily mortgage loans, real estate, other invested assets, private bonds, affiliated common stock and affiliated preferred stock) which are generally considered illiquid for liquidity monitoring purposes, there is some ability to raise cash from these assets if needed.

MassMutual utilizes sophisticated asset/liability analysis techniques in the management of the investments supporting its liabilities. Additionally, MassMutual tests the adequacy of the projected cash flows provided by assets to meet all of its future policyholder and other obligations. MassMutual performs these studies using stress tests regarding future credit and other asset losses, market interest rate fluctuations, claim losses and other considerations. The result provides a picture of the adequacy of the underlying assets, reserves and capital. MassMutual analyzes a variety of scenarios modeling potential demands on liquidity, taking into account the provisions of its policies and contracts in force, its cash flow position, and the volume of cash and readily marketable securities in its portfolio. MassMutual proactively manages its liquidity position on an ongoing basis to meet cash needs while minimizing adverse impacts on investment returns.

In most scenarios that MassMutual has tested, operating cash flow is more than sufficient to satisfy MassMutual's obligations. Even in the most extreme scenarios tested, obligations can be met through cash flow and the sale of some of MassMutual's liquid assets. These stress test scenarios assume no new business that would result in immediate positive cash flow. In addition, if MassMutual was in a stress situation, some uses of cash could be suspended, including new investments in illiquid instruments.

Cash, Cash Equivalents and Short-term Investments

Historically, we have consistently generated net positive cash flows from operations. Cash flows provided from operations were $7.8 billion in 2015, $7.0 billion in 2014 and $7.9 billion in 2013. Our primary cash flow sources include defined benefit and contribution premium, life insurance premium, annuity premium, investment income, principal repayments on invested assets, and net transfers from separate accounts and financial product deposits.

Cash, cash equivalents and short-term investments increased $1.2 billion, or 62%, in 2015. Cash, cash equivalents and short-term investments increased due to net cash provided from operations of $7.8 billion and net cash provided from financing and other sources of $89 million, partially offset by cash applied to investing activities of $6.7 billion.

Net cash provided from operations increased $801 million, or 11%, to $7.8 billion in 2015. The increase was the result of an increase in premium and other income collected of $1.8 billion and a decrease in benefit payments of $702 million, partially offset by lower net receipts from the RPG reinsurance agreement of $622 million and lower transfers from separate accounts of $533 million.

Net cash provided from operations decreased $920 million, or 12%, to $7.0 billion in 2014. The decrease was the result of a reduction of premium and other income collected of $2.1 billion and a reduction from the RPG reinsurance agreement of $486 million, partially offset by decreased benefit payments of $951 million and increased net investment income of $788 million.

Net cash used to purchase investments decreased $4.4 billion in 2015 to $6.7 billion. Purchases of investments and the net increase in policy loans were $25.8 billion, while sales and maturities of investments and receipts from repayments of loans were $19.1 billion. Net purchases of investments in 2015 included bonds of $2.5 billion, mortgage loans of $2.7 billion and partnerships and LLCs of $883 million.

Net cash used to purchase investments decreased $3.4 billion to $11.1 billion in 2014. Purchases of investments and the net increase in policy loans were $32.3 billion in 2014, while sales and maturities of investments and receipts from repayments of loans were $21.2 billion. Net purchases of investments in 2014 included bonds of $7.1 billion and mortgage loans of $2.8 billion.

Net cash from financing activities and other sources decreased $1.7 billion in 2015, primarily due to the purchase of COLI of $1.9 billion and a reduction in repurchase agreements of $699 million, partially offset by an increase in net deposits on deposit-type contracts of $749 million and proceeds from a surplus note issuance of $491 million.

Net cash from financing activities and other sources decreased $6.1 billion in 2014, primarily due to decreases in deposits for policyholders' reserves related to the RPG reinsurance agreement of $5.3 billion and liabilities for deposit-type contracts related to the RPG reinsurance agreement of $3.9 billion, partially offset by higher derivative collateral of $1.6 billion and higher repurchase agreements of $1.5 billion.

Institutional Investment Product Contract Terms

Assets received for funding agreements may be invested in the general account of MassMutual. As of December 31, 2015, funding agreement balances in the general account totaled $5,944 million, consisting of $3,756 million in note programs, $1,104 million in FHLB funding agreements, $955 million of municipal contracts and $129 million of various other agreements. As of December 31, 2014, funding agreement balances in the general account totaled $4,218 million, consisting of $3,515 million in note programs, $701 million in FHLB funding agreements and $2 million in various other agreements.

Note programs

Funding agreements are investment contracts sold to domestic and international institutional investors. Funding agreement liabilities are equal to the account value and are established by contract deposits, increased by interest credited and decreased by contract coupon payments and maturities. Contract holders do not have the right to terminate the contract prior to the contractually stated maturity date. The Company may retire funding agreements prior to the contractually-stated maturity date by repurchasing the agreement in the market or, in some cases, by calling the agreement. If this occurs, the difference in value is an adjustment to interest credited to liabilities for deposit-type contracts in the Consolidated Statutory Statements of Operations. Credited interest rates vary by contract and can be fixed or floating. Agreements do not have put provisions or ratings-based triggers. The liability of non-U.S. dollar denominated funding agreements may increase or decrease due to changes in foreign exchange rates. Currency swaps are employed to eliminate foreign exchange risk from all funding agreements issued to back non-U.S. dollar denominated notes.

Under the note programs, the Company creates special purpose entities (SPEs), which are investment vehicles or trusts, for the purpose of issuing medium-term notes to investors. Proceeds from the sale of the medium-term notes issued by these SPEs are used to purchase funding agreements from the Company. The payment terms of any particular series of notes are matched by the payment terms of the funding agreement securing the series. Notes were issued from the Company's $2.0 billion European Medium-Term Note Program with approximately $107 million remaining in run-off. Notes are currently issued from the Company's $17.0 billion Global Medium-Term Note Program.

Federal Home Loan Bank of Boston

The Company has funding agreements with Federal Home Loan Bank of Boston (FHLB Boston) in an investment spread strategy, consistent with its other funding agreements. These funding agreements are collateralized by securities with estimated fair values of $1.1 billion as of December 31, 2015. The Company's borrowing capacity with FHLB Boston is subject to the lower of the limitation on the pledge of collateral for a loan set forth by law or by the Company's internal limit. The Company's unused capacity was $900 million as of December 31, 2015. As a member of FHLB Boston, the Company held common stock of FHLB Boston with a statement value of $75 million as of December 31, 2015 and $57 million as of December 31, 2014.

Municipal contracts

In 2015, the Company entered into a contract and was assigned the liability for a block of municipal guaranteed investment contracts (municipal contracts) and was paid a premium since the contracts have above market credited rates. Liabilities for deposit-type contracts includes the municipal contracts' account values, which are established by contract deposits, increased by interest credited (fixed or floating) and decreased by contract coupon payments, additional withdrawals, maturities and amortization of premium. Certain municipal contracts allow additional deposits, subject to restrictions, which are credited based on the rates in the contracts. Contracts have scheduled payment dates and amounts and interest is paid periodically. In addition, certain contracts allow additional withdrawals above and beyond the scheduled payments. These additional withdrawals have certain restrictions on the number per year, minimum dollar amount and are limited to the maximum contract balance. The majority of the municipal contracts allow early contract termination under certain conditions.

Certain municipal contracts contain make-whole provisions, which document the formula for full contract payout. Certain municipal contracts have ratings-based triggers that allow the trustee to declare the entire balance due and payable. Municipal contracts may also have terms that require the Company to post collateral to a third party based on the contract balance in the event of a downgrade in ratings below certain levels under certain circumstances. When the collateral is other than cash, the collateral value is required to be greater than the account balance. The Company employs a rigorous asset/liability management process to help mitigate the economic impacts of various liability risks. By performing asset liability management and performing other risk management activities, the Company believes that these contract provisions do not create an undue level of operating risk to the Company.

Other deposits

Other deposits primarily consist of investment contracts assumed as part of the indemnity reinsurance agreement discussed in Note 8. "Reinsurance". These contracts are used to fund retirement plans. Contract payments are not contingent upon the life of the retirement plan participant.

As of December 31, 2015, the maturity schedule for funding agreement liabilities was as follows:

	Funding Agreements (In Millions)
2016	$ 711
2017	572
2018	968
2019	675
2020	654
Thereafter	2,364
Total	**$ 5,944**

Dividends from Subsidiaries

MassMutual does not rely on dividends from its subsidiaries to meet its operating cash flow requirements. Dividend payments from insurance subsidiaries are generally subject to certain restrictions imposed by statutory authorities. Additionally, dividend payments from other subsidiaries are limited to their retained earnings.

For C.M. Life Insurance Company and MML Bay State Life Insurance Company, substantially all of the statutory shareholder's equity of approximately $1.4 billion as of December 31, 2015 was subject to dividend restrictions. Dividend restrictions, imposed by various state regulations, limit the payment of dividends to MassMutual without the prior approval from the insurance department of the particular insurance subsidiary's state of domicile.

MassMutual's wholly owned subsidiary, MMHLLC, is the parent of subsidiaries which include retail and institutional asset management, registered broker dealers, and international life and annuity operations. Dividends from MMHLLC are recorded in net investment income and are limited to MassMutual's retained earnings in MMHLLC.

Capital Resources

As of December 31, 2015 and 2014, MassMutual's total adjusted capital, as defined by the NAIC, was $17.3 billion and $16.4 billion, respectively. The NAIC has an RBC model to compare total adjusted capital with a standard design in order to reflect an insurance company's risk profile. Although MassMutual believes that there is no single appropriate means of measuring RBC needs, MassMutual feels that the NAIC approach to RBC measurement is reasonable, and MassMutual manages its capital position with significant attention to maintaining adequate total adjusted capital relative to RBC. Our total adjusted capital was well in excess of all RBC standards as of December 31, 2015 and 2014. MassMutual believes that it enjoys a strong capital position in light of its risks and that it is well positioned to meet policyholder and other obligations.

Debt

On September 26, 2014, MassMutual signed a $1.0 billion, five year credit facility, with a syndicate of lenders that can be used for general corporate purposes and to support commercial paper borrowings. The credit facility replaced an existing $1.0 billion credit facility, which was due to expire in 2017. The facility has an upsize option for an additional $500 million. The terms of the credit facility provide for, among other provisions, covenants pertaining to liens, fundamental changes, transactions with affiliates and adjusted statutory surplus. As of and for the years ended December 31, 2015 and 2014, the Company was in compliance with all covenants under the credit facility. For the years ended December 31, 2015 and 2014, there were no draws on the credit facilities. Credit facility fees were $1 million for the year ended December 31, 2015 and less than $1 million for the year ended December 31, 2014.

Investments

General

As of December 31, 2015, approximately 29% of our assets are separate account assets, which are directed by our policyholders. Separate account assets consist principally of marketable securities reported at fair value and are not available to satisfy liabilities that arise from any of our other businesses. The following discussion focuses on the general investments of MassMutual, which do not include our separate account assets.

As of December 31, 2015, we had $143.8 billion of invested assets, an increase of $10.7 billion from the prior year. We manage the portfolio of invested assets to support the general liabilities of MassMutual in light of liability characteristics and yield, liquidity and diversification considerations.

The following table sets forth our invested assets:

	December 31,			
	2015		2014	
	Carrying Value	% of Total	Carrying Value	% of Total
	($ In Millions)			
Bonds	$ 79,547	55%	$ 74,719	56 %
Preferred stocks	533	-	525	-
Common stocks - subsidiaries and affiliates	7,960	6	7,940	6
Common stocks - unaffiliated	1,140	1	1,188	1
Mortgage loans	22,008	15	19,357	15
Policy loans	11,813	8	11,155	8
Real estate	928	1	776	1
Partnerships and LLCs	7,473	5	6,970	5
Derivatives	9,268	7	8,531	7
Cash, cash equivalents and short-term investments	3,049	2	1,880	1
Other invested assets	41	-	3	-
Total invested assets	**$ 143,760**	**100%**	**$ 133,044**	**100 %**

The following sets forth earnings yields by asset type:

	December 31,		
	2015	2014	2013
Long & short-term bonds	4.5 %	4.7 %	4.8 %
Preferred & common stocks	1.8	2.5	1.6
Mortgage loans	4.9	5.1	5.2
Policy loans	6.2	6.4	6.6
Real estate	0.9	3.4	2.7
Partnerships and LLCs	9.1	18.8	9.2
Derivatives	NM	NM	NM
Total portfolio	**5.0 %**	**5.8 %**	**5.3 %**

NM = not meaningful

Bonds, Cash Equivalents and Short-Term Investments

Bonds consist primarily of government backed securities and high quality marketable corporate debt securities. MassMutual invests a significant portion of its investment funds in high quality publicly traded bonds to maintain and manage liquidity and reduce the risk of default in the portfolio.

The NAIC Securities Valuation Office **("SVO")** rates investment credit risk based upon the issuer's credit profile. NAIC rating designations range from 1 to 6. The NAIC designation of 1 denotes obligations of the highest quality in which credit risk is at its lowest and the issuer's credit profile is stable, whereas the NAIC designation of 6 is assigned to obligations that are in or near default. Classes 1 and 2 are investment grade and Classes 3 through 6 are non-investment grade.

MassMutual used SVO ratings for the bond portfolio along with what it believes were the equivalent rating agency designations except for RMBS and commercial mortgage-backed securities (**"CMBS"**) that were rated by outside modelers. The following sets forth the NAIC class ratings for the bond portfolio including RMBS and CMBS as of December 31, 2015 and 2014. The following table consists of long-term bonds, short-term securities and cash equivalents.

Total Portfolio Credit Quality

		December 31,			
		2015		2014	
NAIC Class	Equivalent Rating Agency Designation	Carrying Value	% of Total	Carrying Value	% of Total
		($ In Millions)			
1	Aaa/Aa/A	$ 45,758	56%	$ 43,833	56 %
2	Baa	29,905	36	26,388	35
3	Ba	3,481	4	2,831	4
4	B	2,150	3	1,931	3
5	Caa and lower	769	1	813	1
6	In or near default	358	-	500	1
	Total	**$ 82,421**	**100 %**	**$ 76,296**	**100 %**

The following summarizes NAIC designations for RMBS and CMBS subject to modeling as of December 31, 2015 and 2014:

	December 31,							
	2015				2014			
	RMBS		CMBS		RMBS		CMBS	
NAIC Class	Carrying Value	% of Total	Carrying Value	% of Total	Carrying Value	% of Total	Carrying Value	% of Total
	($ In Millions)							
1	$ 983	100 %	$ 2,142	100 %	$ 1,169	100 %	$ 2,661	100 %
2	1	-	9	-	4	-	8	-
3	-	-	8	-	-	-	-	-
4	-	-	4	-	-	-	-	-
5	-	-	1	-	-	-	-	-
6	-	-	4	-	-	-	5	-
	$ 984	**100 %**	**$ 2,168**	**100 %**	**$ 1,173**	**100 %**	**$ 2,674**	**100 %**

The following sets forth the SVO ratings for MassMutual's publicly traded portfolio, along with what MassMutual believes are the equivalent rating agency designations for all bonds except RMBS and CMBS, which were rated by outside modelers. The following table consists of long-term bonds, short-term securities and cash equivalents.

Publicly Traded Portfolio Credit Quality

		December 31,			
		2015		2014	
NAIC Class	Equivalent Rating Agency Designation	Carrying Value	% of Total	Carrying Value	% of Total
		($ In Millions)			
1	Aaa/Aa/A	$ 24,930	69 %	$ 25,463	71 %
2	Baa	10,000	28	9,618	26
3	Ba	788	2	727	2
4	B	321	1	371	1
5	Caa and lower	48	-	76	-
6	In or near default	98	-	61	-
	Total	**$ 36,185**	**100 %**	**$ 36,316**	**100 %**

The following sets forth the SVO ratings for MassMutual's privately placed portfolio, along with what MassMutual believes are the equivalent rating agency designations for all bonds except RMBS and CMBS, which were rated by outside modelers. The following table consists of long-term bonds, short-term securities and cash equivalents.

Privately Placed Portfolio Credit Quality

		December 31,			
		2015		2014	
NAIC Class	Equivalent Rating Agency Designation	Carrying Value	% of Total	Carrying Value	% of Total
		($ In Millions)			
1	Aaa/Aa/A	$ 20,828	45%	$ 18,369	46%
2	Baa	19,905	43	16,770	42
3	Ba	2,693	6	2,104	5
4	B	1,829	4	1,566	4
5	Caa and lower	721	2	739	2
6	In or near default	260	-	432	1
	Total	**$ 46,236**	**100 %**	**$ 39,980**	**100 %**

MassMutual uses its investments in the privately placed portfolio to enhance the value of the overall portfolio, increase diversification and obtain higher yields than can be earned by investing in public market securities of comparable quality. To control risk when using privately placed securities, MassMutual relies upon broader access to management information, stronger negotiated protective covenants, call protection features and a higher level of collateralization than can customarily be achieved in the public market.

The strength of the privately placed portfolio is demonstrated by the predominance of NAIC Class 1 and 2 securities.

The following sets forth the total bond portfolio, including short-term securities and cash equivalents, by industry category, as of December 31, 2015:

	Bond Portfolio by Industry					
	December 31, 2015					
	Public		Private		Total	
Industry Category	Carrying Value	% of Total	Carrying Value	% of Total	Carrying Value	% of Total
	($ In Millions)					
Government	$ 14,157	39%	$ 1,365	3%	$ 15,522	19%
Finance	2,338	6	7,379	16	9,717	12
Asset-backed securities	191	1	8,288	18	8,479	10
Capital goods	2,752	8	5,058	11	7,810	9
Consumer services	2,381	7	4,427	10	6,808	8
Utilities	2,024	6	4,471	10	6,495	8
Natural resources	2,239	6	2,374	5	4,613	6
Mortgage-backed securities	3,252	9	964	2	4,216	5
Healthcare	2,536	7	1,321	3	3,857	5
Other	54	-	3,284	7	3,338	4
Transportation	575	2	2,478	5	3,053	4
Real estate investment trusts	967	2	1,912	4	2,879	3
Technology	1,238	3	662	1	1,900	2
Retail	701	2	787	2	1,488	2
Media	277	1	521	1	798	1
Telecommunications	430	1	545	1	975	1
Consumer goods	73	-	400	1	473	1
Total	**$ 36,185**	**100 %**	**$ 46,236**	**100 %**	**$ 82,421**	**100 %**

MBS consist mainly of RMBS and collateralized mortgage obligations (both primarily government-backed or government agency-backed) as well as CMBS of generally high quality, which are supported by well-diversified collateral. MassMutual does not originate any residential mortgages but invests in residential mortgage loan pools that may contain mortgages of subprime credit quality.

With the exception of government securities, only finance and ABS group holdings exceed 10% of the total bond portfolio. MassMutual believes that the finance and ABS holdings are well diversified and include a number of issues that are effectively supported by large pools of assets that are themselves diversified by industry and issuer.

Bond Portfolio Surveillance and Underperforming Investments

Bonds are generally valued at amortized cost using the constant yield interest method with the exception of NAIC Category 6 bonds, which are in or near default, and certain RMBS and CMBS, which are rated by outside modelers, which are carried at the lower of amortized cost or fair value. NAIC ratings are applied to bonds and other securities. Categories 1 and 2 are considered investment grade, while Categories 3 through 6 are considered below investment grade. Bond transactions are recorded on a trade date basis, except for private placement bonds, which are recorded on the funding date.

For fixed income securities that do not have a fixed schedule of payments, such as ABS, MBS, including RMBS and CMBS, and structured securities, including CDOs, amortization or accretion is revalued quarterly based on the current estimated cash flows, using either the prospective or retrospective adjustment methodologies for each type of security.

Certain fixed income securities with the highest ratings from a rating agency follow the retrospective method of accounting. Under the retrospective method, the recalculated effective yield equates the present value of the actual and anticipated cash flows, including new prepayment assumptions, to the original cost of the investment. Prepayment assumptions are based on borrower constraints and economic incentives such as the original term, age and coupon of the loan as affected by the interest rate environment. The current carrying value is then increased or decreased to the amount that would have resulted had the revised yield been applied since inception, and investment income is correspondingly decreased or increased.

All other fixed income securities, such as floating rate bonds and interest only securities, including those that have been impaired, follow the prospective method of accounting. Under the prospective method, the recalculated future effective yield equates the carrying value of the investment to the present value of the anticipated future cash flows.

The fair value of bonds is based on quoted market prices when available. If quoted market prices are not available, values provided by other third-party organizations are used. If values provided by other third-party organizations are unavailable, fair value is estimated using internal models by discounting expected future cash flows using observable current market rates applicable to yield, credit quality and maturity of the investment or using quoted market values for comparable investments. Internal inputs used in the determination of fair value include estimated prepayment speeds, default rates, discount rates and collateral values, among others. Structure characteristics and cash flow priority are also considered. Fair values resulting from internal models are those expected to be received in an orderly transaction between willing market participants at the financial statement date.

To identify underperforming investments, MassMutual employs a systematic methodology to evaluate OTTI by conducting a quarterly analysis of all bonds. MassMutual considers the following factors, where applicable depending on the type of securities, in the evaluation of whether a decline in value is other than temporary: (a) the likelihood that MassMutual will be able to collect all amounts due according to the contractual terms of the debt security; (b) the present value of the expected future cash flows of the security; (c) the characteristics, quality and value of the underlying collateral or issuer securing the position; (d) collateral structure; (e) the length of time and extent to which the fair value has been below amortized cost; (f) the financial condition and near-term prospects of the issuer; (g) adverse conditions related to the security or industry; (h) the rating of the security; and (i) our ability and intent to hold the investment for a period of time sufficient to allow for an anticipated recovery to amortized cost.

MassMutual also considers other qualitative and quantitative factors in determining the existence of OTTI including, but not limited to, unrealized loss trend analysis and significant short-term changes in value.

When a bond is other-than-temporarily impaired, a new cost basis is established. For loan-backed and structured securities, any difference between the new amortized cost basis and any increased present value of future cash flows expected to be collected is accreted into net investment income over the expected remaining life of the bond.

The impairment review process provides a framework for deriving OTTI in a manner consistent with market participant assumptions. In these analyses, collateral type, investment structure and credit quality are critical elements in determining OTTI.

MassMutual actively reviews the bond portfolio to estimate the likelihood and amount of financial defaults or write-downs in the portfolio and to make timely decisions as to the potential sale or renegotiation of terms of specific investments.

The NAIC defines underperforming bonds as those which are not currently receiving interest and/or principal payments which are deemed to be caused by the inability of the obligor to make such payments as called for in the bond contract.

The following sets forth the carrying value of bonds in NAIC Classes 5 and 6 split between performing and underperforming status:

	December 31,	
	2015	2014
	(In Millions)	
Performing:		
Public	$ 145	$ 137
Private	981	1,170
Total performing	1,126	1,307
Underperforming		
Public	1	1
Total underperforming	1	1
Total	**$ 1,127**	**$ 1,308**

The following is a summary of the fair values and gross unrealized losses aggregated by bond category and length of time that the securities were in a continuous unrealized loss position:

	December 31, 2015					
	Less Than 12 Months			12 Months or Longer		
	Fair Value	Unrealized Losses	Number of Issuers	Fair Value	Unrealized Losses	Number of Issuers
	($ In Millions)					
U.S. government and agencies	$ 2,079	$ 122	12	$ 123	$ 3	3
All other governments	355	22	40	56	10	15
States, territories and possessions	131	5	7	-	-	-
Political subdivisions	90	2	9	-	-	-
Special revenue	465	8	110	46	3	132
Industrial and miscellaneous	23,140	1,016	2,040	6,360	543	608
Parent, subsidiaries and affiliates	237	20	17	593	32	16
Total	**$ 26,497**	**$ 1,195**	**2,235**	**$ 7,178**	**$ 591**	**774**

The December 31, 2015 unrealized losses include $37 million of losses embedded in the carrying value of NAIC Category 6 bonds.

The following is a summary of the gross unrealized losses aggregated by bond category, length of time that the securities were in a continuous unrealized loss position and investment grade:

	December 31, 2015					
	Less Than 12 Months			12 Months or Longer		
	Investment Grade	Below Investment Grade	Total	Investment Grade	Below Investment Grade	Total
	($ In Millions)					
U.S. government and agencies	$ 122	$ -	$ 122	$ 3	$ -	$ 3
All other governments	15	7	22	3	7	10
States, territories and possessions	5	-	5	-	-	-
Political subdivisions	2	-	2	-	-	-
Special revenue	8	-	8	2	1	3
Industrial and miscellaneous	823	193	1,016	330	213	543
Parent, subsidiaries and affiliates	4	16	20	7	25	32
Total	**$ 979**	**$ 216**	**$ 1,195**	**$ 345**	**$ 246**	**$ 591**

Unrealized losses for the less than 12 months category for Industrial and Miscellaneous increased to $1.0 billion in 2015 from $281 million in 2014, primarily due to the increase in interest rates and credit spreads in 2015.

As of December 31, 2015, management has not deemed these unrealized losses to be other than temporary because the investment's carrying value is expected to be realized and the Company has the ability and intent not to sell these investments until recovery, which may be at maturity.

Mortgage Loans

Mortgage loans represented 15% of total invested assets as of December 31, 2015. Mortgage loans consist of whole loans on commercial real estate and residential mortgage loan pools. Commercial mortgage loans were 92% of the mortgage loan portfolio as of December 31, 2015.

Commercial Mortgage Loans

Our commercial mortgage loan portfolio, which includes $70 million of mezzanine loans, consisted of fixed and variable rate loans.

As of December 31, 2015, 96% of the commercial mortgage loan portfolio consisted of bullet loans. Bullet loans are loans that do not fully amortize over their term; instead, full payment is due at the end of their term.

We had $1.0 billion of bullet loans mature during 2015, of which 30 loans totaling $661 million, or 63%, were paid in full, 5 loans totaling $245 million, or 24%, extended their maturity and 7 loans totaling $138 million, or 13%, refinanced in the normal course of business. Bullet loans of $1.8 billion are scheduled to mature in 2016.

As of December 31, 2015, we did not have any loans within our commercial mortgage loan portfolio with valuation allowances.

The maturities of our commercial mortgage loans are well diversified, and we carefully monitor and manage them based on our liquidity position.

The following sets forth the commercial mortgage loan portfolio by geographic distribution:

	December 31,			
	2015		2014	
	Carrying Value	% of Total	Carrying Value	% of Total
	($ In Millions)			
United States:				
West	$ 7,106	35 %	$ 5,647	32 %
Northeast	3,671	18	3,468	20
Midwest	2,662	13	2,442	14
Mid-Atlantic	2,547	13	2,327	13
Southwest	2,081	10	1,860	11
Southeast	1,081	5	793	4
United Kingdom	827	4	675	4
Canada	312	2	373	2
Total	**$ 20,287**	**100 %**	**$ 17,585**	**100 %**

The following sets forth the commercial mortgage loan portfolio loan-to-value ratios by property type:

	December 31, 2015				
	Less than 81%	81% to 95%	Above 95%	Total	% of Total
	($ In Millions)				
Office	$ 6,750	$ 59	$ 102	$ 6,911	34 %
Apartments	4,926	-	2	4,928	24
Industrial and other	3,186	173	-	3,359	17
Hotels	2,697	12	-	2,709	13
Retail	2,338	28	14	2,380	12
Total	**$ 19,897**	**$ 272**	**$ 118**	**$ 20,287**	**100 %**

	December 31, 2014				
	Less than 81%	81% to 95%	Above 95%	Total	% of Total
	($ In Millions)				
Office	$ 6,013	$ 105	$ 28	$ 6,146	36 %
Apartments	4,266	5	14	4,285	24
Industrial and other	3,036	391	-	3,427	19
Retail	1,937	-	15	1,952	11
Hotels	1,760	-	15	1,775	10
Total	**$ 17,012**	**$ 501**	**$ 72**	**$ 17,585**	**100 %**

Residential Mortgage Loans

Residential mortgage loans are primarily seasoned pools of homogeneous residential mortgage loans, most of which are Federal Housing Administration **("FHA")** insured or Veterans Administration **("VA")** guaranteed. As of December 31, 2015 and 2014, we had no direct subprime exposure through the purchases of unsecuritized whole-loan pools. We had mortgages with residential mortgage-backed exposure with a carrying value of $1.7 billion as of December 31, 2015 and $1.8 billion as of December 31, 2014, most of which were FHA insured or VA guaranteed.

Mortgage Loan Portfolio Surveillance and Underperforming Investments

We actively monitor, manage and directly service our commercial mortgage loan portfolio. We perform or review all aspects of loan origination and portfolio management, including lease analysis, property transfer analysis, economic and financial reviews, tenant analysis, and management of default and bankruptcy proceedings.

We revalue underperforming properties each year and re-inspect these properties at least every other year based on internal quality ratings. The criteria used to determine whether a current or potential problem exists includes borrower bankruptcies, major tenant bankruptcies, requests for restructuring, delinquent tax payments, late payments, loan-to-value or debt service coverage deficiencies, and overall vacancy levels.

There were no current or potential problem mortgage loans consisting of restructured mortgage loans where the modified terms are less than current market conditions as of December 31, 2015 and 2014. There were no commercial mortgage loans in the process of foreclosure or in default as of December 31, 2015. The AVR contains a mortgage loans component, which decreased to $139 million as of December 31, 2015 from $145 million as of December 31, 2014. See "Investment Reserves."

Real Estate

Our real estate portfolio includes real estate properties we occupy and real estate we originally acquired as investments or through foreclosure or deed in lieu of foreclosure.

As of December 31, 2015, our real estate portfolio consisted of 36 properties with a statement value of $928 million of which $170 million was occupied by MassMutual. As of December 31, 2014, our real estate portfolio consisted of 33 properties with a statement value of $776 million of which $168 million was occupied by MassMutual. The portfolio uses leverage to maximize return with $613 million and $558 million in third party non-recourse debt outstanding as of December 31, 2015 and 2014, respectively.

The following tables illustrate the diversity of our real estate portfolio by property type and geographic distribution:

Real Estate by Property Type

	December 31,			
	2015		2014	
	Carrying	% of Total	Carrying	% of Total
	($ In Millions)			
Office	$ 364	39 %	$ 403	52 %
Hotel	326	35	194	25
Retail	110	12	105	14
Apartments	73	8	31	4
Industrial & Other	55	6	43	6
Total	**$ 928**	**100 %**	**$ 776**	**100 %**

Real Estate by Geographic Distribution	December 31,			
	2015		2014	
	Carrying	% of Total	Carrying	% of Total
	($ In Millions)			
Southeast	$ 242	26 %	$ 126	16 %
Northeast	237	25	200	26
Mid-Atlantic	205	22	188	24
West	167	18	197	25
Southwest	89	10	75	10
Midwest	(12)	(1)	(10)	(1)
Total	**$ 928**	**100 %**	**$ 776**	**100 %**

We review individual property valuations on a quarterly basis. Asset managers establish our real estate valuations using third party valuation software which projects income on a lease-by-lease basis. Included in the valuation are budgeted expenses, leasing assumptions, and capital expenditures. We review these valuations for technical accuracy, methodology and the appropriateness of the assumed rates of return. Generally, external independent appraisers value a rotating selection of properties on a quarterly basis. If an external appraisal is not obtained, an internal appraisal is performed. For 2015, this sample consisted of 6 properties, or 17% of the properties in the real estate portfolio. As of December 31, 2015, our real estate and other invested asset AVR totaled $948 million.

Partnerships and LLCs

Holdings of partnership and LLC holdings, at carrying value, by annual statement category are:

	December 31,	
	2015	2014
	(In Millions)	
Common stocks	$4,375	$3,887
Real estate	1,545	1,709
Fixed maturities/preferred stocks	755	617
Low income housing tax credits (LIHTCs)	288	278
Mortgage loans	264	248
Surplus notes	184	182
Other	62	49
Total	**$7,473**	**$6,970**

The gain and loss activity of partnerships and LLCs was as follows:

	Years Ended December 31,		
	2015	2014	2013
		(In Millions)	
Gross realized capital (losses) gains on sales	$ (2)	$ 46	$ 1
Gross realized capital losses on foreign currency	(25)	(8)	(2)
OTTI	(70)	(56)	(45)

Partnerships and LLCs, except for investments in partnerships that generate and realize low income housing tax credits (**"LIHTC"**), are accounted for using the equity method with the change in the equity value of the underlying investment recorded in surplus. When it appears probable that we will be unable to recover the outstanding cost of an investment, or there is evidence indicating an inability of the investee to sustain earnings to justify the carrying value of the investment, an OTTI is recognized in realized capital losses reflecting the excess of the cost over the estimated fair value of the investment. The estimated fair value is determined by assessing the value of the partnership or LLC's underlying assets, cash flow, current financial condition and other market factors. Distributions received are recognized as net investment income to the extent the distribution does not exceed previously recorded accumulated undistributed earnings. As of December 31, 2015, we did not hold any partnerships or LLCs with significant subprime or Alt-A exposure.

We invest in partnerships that generate LIHTC which are carried at amortized cost unless considered impaired. Under the amortized cost method, the excess of the carrying value of the investment over its estimated residual value is amortized into income during the period in which tax benefits are recognized. We had $288 million of partnerships and LLCs which generate LIHTC as of December 31, 2015 and $278 million as of December 31, 2014. These investments currently have unexpired tax credits which range from one to ten years and have an initial 15 year holding period requirement. For determining OTTI on partnerships which generate LIHTC, we use the present value of all future benefits, the majority of which are tax credits, discounted at a risk free rate ranging from 0.5% for future benefits of two years to 2.3% for future benefits of ten or more years, and compare the results to its current book value. There were no OTTI for the years ended December 31, 2015 or 2014. There were no write-downs or reclassifications made during the years ended December 31, 2015 or 2014 due to forfeiture or ineligibility of tax credits.

Derivatives

We use derivative financial instruments in the normal course of business to manage risks, primarily to reduce currency, interest rate and duration imbalances determined in asset/liability analyses. We also use a combination of derivatives and fixed income investments to create synthetic investments. These synthetic investments are created when they are economically more attractive than the actual instrument or when similar instruments are unavailable. Synthetic investments are created either to hedge and reduce our credit exposure or to create an investment in a particular asset. We held synthetic investments with a net notional amount of $10.3 billion as of December 31, 2015 and $9.2 billion as of December 31, 2014. These net notional amounts included replicated asset transaction values of $10.0 billion as of December 31, 2015 and $8.4 billion as of December 31, 2014, as defined under statutory accounting practices as the result of pairing of a long derivative contract with cash instruments held.

Our principal derivative market risk exposures are interest rate risk, which includes the impact of inflation, and credit risk. Interest rate risk pertains to the change in fair value of the derivative instruments as market interest rates move. We are exposed to credit-related losses in the event of nonperformance by counterparties to derivative financial instruments. To minimize credit risk for bilateral transactions (individual contracts entered between us and a counterparty), we and our derivative counterparties generally enter into master netting agreements that allow the use of credit support annexes and require collateral to be posted in the amount owed under each transaction, subject to certain minimums. For over the counter cleared derivative transactions between us and a counterparty, the parties enter into a series of master netting and other agreements that govern, among other things, clearing and collateral

requirements. These transactions are cleared through a clearinghouse and each derivative counterparty is only exposed to the default risk of the clearinghouse. Certain interest rate swaps and credit default swaps into which we enter are considered cleared transactions. These cleared transactions require initial and daily variation margin collateral postings. These same agreements allow for contracts in a positive position, in which amounts are due to us, to be offset by contracts in a negative position. This right of offset, combined with collateral obtained from counterparties, reduces our exposure. Net collateral pledged by the counterparties was $3.0 billion as of December 31, 2015 and $2.8 billion as of December 31, 2014. We also have the right to rehypothecate or repledge securities. As of December 31, 2015, we had the right to rehypothecate $1.2 billion of the $3.0 billion of the net collateral pledged by counterparties. As of December 31, 2015, $23 million has been repledged to other counterparties. In the event of default, the full market value exposure at risk in a net gain position, net of offsets and collateral, was $267 million as of December 31, 2015 and $132 million as of December 31, 2014. The statutory net amount at risk, defined as net collateral pledged and statement values excluding accrued interest, was $667 million as of December 31, 2015 and $554 million as of December 31, 2014. We regularly monitor counterparty credit ratings and exposures, derivative positions and valuations and the value of collateral posted to ensure counterparties are credit-worthy and the concentration of exposure is minimized. We monitor this exposure as part of our management of MassMutual's overall credit exposures.

The following summarizes the carrying values and notional amounts of our derivative financial instruments:

	December 31, 2015			
	Assets		Liabilities	
	Carrying Value	Notional Amount	Carrying Value	Notional Amount
	(In Millions)			
Interest rate swaps……	$ 8,033	$ 59,857	$ 5,797	$ 77,293
Options……..	622	6,558	7	109
Currency swaps…….	536	5,218	4	533
Forward contracts…….	55	2,455	13	1,011
Credit default swaps…….	22	1,860	19	1,055
Financial futures ……	-	2,027	-	-
Total……	**$ 9,268**	**$ 77,975**	**$ 5,840**	**$ 80,001**

	December 31, 2014			
	Assets		Liabilities	
	Carrying Value	Notional Amount	Carrying Value	Notional Amount
	(In Millions)			
Interest rate swaps…….	$ 7,688	$ 58,600	$ 5,359	$ 61,120
Options……..	524	9,323	9	596
Currency swaps……..	233	2,677	45	1,010
Forward contracts……..	70	3,362	3	298
Credit default swaps……..	16	1,269	8	777
Financial futures ……	-	1,798	-	-
Total……	**$ 8,531**	**$ 77,029**	**$ 5,424**	**$ 63,801**

In most cases, the notional amounts are not a measure of MassMutual's credit exposure. However, notional amounts are a measure of MassMutual's credit exposure for credit default swaps that are in the form of a replicated

asset and mortgage-backed forwards. For these swaps and forwards, MassMutual is fully exposed to notional amounts of $2.9 billion as of December 31, 2015 and $2.4 billion as of December 31, 2014.

The collateral amounts exchanged are calculated on the basis of the notional amounts and the other terms of the instruments, which relate to interest rates, exchange rates, security prices or financial or other indices.

Investment Reserves

We establish and record appropriate write-downs or investment reserves in accordance with statutory practice.

We determine the fair value of bonds in accordance with principles established by the SVO using criteria that include the net worth and capital structure of the borrower, the value of the collateral, the presence of additional credit support, and our evaluation of the borrower's ability to compete in a relevant market.

In the case of real estate and commercial mortgage loans, we make borrower and property-specific assessments as well.

The AVR is a contingency reserve to offset potential losses of stocks, real estate investments, partnerships and LLCs, as well as credit-related declines in bonds, mortgage loans and derivatives.

As of December 31, 2015, the AVR totaled $2.8 billion, which represents an 8% increase from December 31, 2014. This increase was primarily due to a $231 million increase in reserve contribution and current year net realized capital gains of $23 million, partially offset by current year net unrealized capital losses of $57 million.

The following represents the change in AVR for the years 2015 and 2014:

	Bonds, Preferred Stocks, Derivatives and Short-term Investments	Mortgage Loans	Common Stock	Real Estate and Other Invested Assets	Total
			(In Millions)		
Balance at December 31, 2013	$ 258	$ 148	$ 792	$ 1,011	$ 2,209
Change in reserve contributions [1]	176	48	(90)	(14)	120
Net realized capital (losses) gains [2]	92	(5)	(39)	125	173
Net unrealized capital gains [3]	23	(46)	672	(57)	592
Adjustment down to maximum	-	-	(374)	(100)	(474)
Net change to AVR [4]	291	(3)	169	(46)	411
Balance at December 31, 2014	549	145	961	965	2,620
Change in reserve contributions [1]	138	62	2	29	231
Net realized capital gains (losses) [2]	23	(5)	36	(31)	23
Net unrealized capital gains [3]	79	(63)	(58)	(15)	(57)
Net change to AVR [4]	240	(6)	(20)	(17)	197
Balance at December 31, 2015	**$ 789**	**$ 139**	**$ 941**	**$ 948**	**$ 2,817**

[1] *Amounts represent contributions calculated using a statutory formula plus amounts we deem necessary. The statutory formula provides for maximums that, when exceeded, cause a negative contribution. Additionally, these amounts represent the net impact on surplus for investments gains and losses not related to changes in interest rates.*

[2] *These amounts offset realized capital gains (losses), net of tax, that have been recorded in net income. Amounts include realized capital gains (losses), net of tax, on sales not related to interest rate fluctuations, such as repayments of mortgage loans at a discount, mortgage loan foreclosures, and real estate permanent write-downs.*

[3] *These amounts offset unrealized capital gains (losses), net of deferred tax, recorded as a change in surplus. Amounts include unrealized losses due to market value reductions of common stocks, bonds and NAIC quality rating of 6, and preferred stocks with NAIC ratings of 4 through 6, net of changes in the undistributed earnings of subsidiaries.*

[4] *Amounts represent the reserve contributions (note 1) plus transfers and amounts already recorded (notes 2 and 3). This net change in reserves is recorded as a change in surplus.*

Quantitative and Qualitative Information about Market Risk

All non-guaranteed separate account assets and liabilities have been excluded from the following discussion since all market risks associated with those accounts are assumed by the contract holders.

Assets, such as bonds, stocks, mortgage loans on real estate and derivatives are financial instruments, which are subject to the risk of market volatility and potential market disruptions. These risks may reduce the value of our financial instruments or impact future cash flows and earnings from those instruments. We do not hold or issue any financial instruments for the purpose of trading.

We have market risk exposure to changes in interest rates, which can cause changes in the fair value, cash flows, and earnings of certain financial instruments. To manage our exposure to interest rate changes, we use sophisticated quantitative asset/liability management techniques. Through asset/liability management we match the market sensitivity of assets with the liabilities they support. If these sensitivities are closely matched, the impact of interest rate changes is effectively offset on an economic basis as the change in value of the asset is offset by a corresponding change in the value of the supported liability. In addition, we invest a significant portion of our investment funds in high quality bonds in order to maintain and manage liquidity and reduce the risk of default in the portfolio.

Based upon the information and assumptions we used in our asset/liability analysis as of December 31, 2015, we estimate that a hypothetical immediate 10% increase in the 10-year treasury rate, approximately 23 basis points, would decrease the net fair value of our financial instruments by $1.9 billion. Whereas, a hypothetical immediate 10% decrease in the rate would increase the net fair value of our financial instruments by $2.1 billion. A significant portion of our liabilities, such as insurance policy and claim reserves, are not considered financial instruments and are excluded from the above analysis. Because of our asset/liability management, a corresponding change in fair values of these liabilities, based on the present value of estimated cash flows, should significantly offset the net change in fair value of assets estimated above.

Revenues and profitability from variable products will vary from period to period, driven in part by changes in the capital and equity markets. Specifically, certain fees we charge for variable annuity product separate accounts are based on the separate account asset levels. Separate account asset levels change as the underlying investments' market values change. Based on our experience, management believes that a 10% change in the equity markets would change the annualized fees by approximately $21 million.

Certain variable annuity contracts include additional death or other insurance benefit features, such as GMDBs, GMIBs, GMABs and GMWBs. In general, living benefit guarantees require the contract holder or policyholder to adhere to a company-approved asset allocation strategy. Election of these benefits on annuity contracts is generally only available at contract issue. The liability for GMDBs, GMIBs, GMABs and GMWBs was $572 million as of December 31, 2015.

MassMutual sells certain universal life and variable universal life contracts which include features such as GMDBs, or other guarantees that ensure continued death benefit coverage when the policy would otherwise lapse even if the account value is reduced to zero, as long as the policyholder makes scheduled premium payments. The value of the guarantee is only available to the beneficiary in the form of a death benefit. As of December 31, 2015, the net liability for guarantees on universal life and variable universal life type contracts, including GMDB reserves, was $3.0 billion.

Insurance and underwriting risks

MassMutual prices its products based on estimated benefit payments reflecting assumptions with respect to mortality, morbidity, longevity, persistency, interest rates and other factors. If actual policy experience emerges that is significantly and adversely different from assumptions used in product pricing, the effect could be material to the profitability of MassMutual. For participating whole life products, MassMutual's dividends to policyholders primarily reflect the difference between actual investment, mortality, expense and persistency experience and the experience embedded in the whole life premiums and guaranteed elements. MassMutual also reinsures certain life insurance and other long-term care insurance policies to mitigate the impact of its underwriting risk.

Currency exchange risk

MassMutual has currency risk due to its non-U.S. dollar investments and medium-term notes along with its international operations. MassMutual mitigates currency risk through the use of cross-currency swaps and forward contracts. Cross-currency swaps are used to minimize currency risk for certain non-U.S. dollar assets and liabilities through a pre-specified exchange of interest and principal. Forward contracts are used to hedge movements in exchange rates.

Investment and interest rate risks

The fair value, cash flows and earnings of investments can be influenced by a variety of factors including changes in interest rates, credit spreads, equity markets, portfolio asset allocation and general economic conditions. MassMutual employs a rigorous asset/liability management process to help mitigate the economic impacts of various investment risks, in particular interest rate risk. By effectively matching the market sensitivity of assets with the liabilities they support, the impact of interest rate changes is addressed, on an economic basis, as the change in the value of the asset is offset by a corresponding change in the value of the supported liability.

The levels of U.S. interest rates are influenced by U.S. monetary policies and by the relative attractiveness of U.S. markets to investors versus other global markets. As interest rates increase, certain debt securities may experience amortization or prepayment speeds that are slower than those assumed at purchase, impacting the expected maturity of these securities and the ability to reinvest the proceeds at the higher yields. Rising interest rates may also result in a decrease in the fair value of the investment portfolio. As interest rates decline, certain debt securities may experience accelerated amortization and prepayment speeds than what was assumed at purchase. During such periods, MassMutual is at risk of lower net investment income as it may not be able to reinvest the proceeds at comparable yields. Declining interest rates may also increase the fair value of the investment portfolio.

Interest rates also have an impact on MassMutual's products with guaranteed minimum payouts and on interest credited to account holders. As interest rates decrease, investment spreads may contract as crediting rates approach minimum guarantees, resulting in an increased liability.

In periods of increasing interest rates, policy loans, surrenders and withdrawals may increase as policyholders seek investments with higher perceived returns. This could result in cash outflows requiring MassMutual to sell invested assets at a time when the prices of those assets are adversely affected by the increase in market interest rates, which could cause MassMutual to realize investment losses.

Credit and other market risks

MassMutual manages its investments to limit credit and other market risks by diversifying its portfolio among various security types and industry sectors as well as purchasing credit default swaps to transfer some of the risk.

Stressed conditions, volatility and disruptions in global capital markets or in particular markets or financial asset classes can have an adverse effect on MassMutual, in part because MassMutual has a large investment portfolio and assets supporting MassMutual's insurance liabilities are sensitive to changing market factors. Global market factors, including interest rates, credit spread quality, equity prices, real estate markets, foreign currency exchange rates, consumer spending, business investment, government spending, the volatility and strength of the capital markets, deflation and inflation, all affect the business and economic environment and, ultimately, the profitability of MassMutual's business. Disruptions in one market or asset class can also spread to other markets or asset classes. Upheavals in the financial markets can also affect MassMutual's business through their effects on general levels of economic activity, employment and customer behavior.

Significant volatility in the financial markets, and government actions taken in response, may exacerbate some of the risks MassMutual faces. MassMutual holds investments in energy and certain other commodity sectors, which have experienced similar overall market volatility and declines. With the continued weaker economic outlook in these sectors, there may be an increase in reported default rates or potential downgrades to the ratings of companies exposed to these sectors. In addition, concerns over the solvency of certain countries and sovereignties and the entities that have significant exposure to their debt have created market volatility. This volatility may continue to affect the performance of various asset classes until there is an ultimate resolution of the sovereign debt related concerns.

Real estate markets are monitored continuously with attention on regional differences in price performance, absorption trends and supply and demand fundamentals that can impact the rate of foreclosures and delinquencies. Public sector strengths and weaknesses, job growth and macro-economic issues are factors that are closely monitored to identify any impact on MassMutual's real estate related investments.

The CMBS, RMBS and leveraged loan sectors are sensitive to evolving conditions that can impair the cash flows realized by investors and is subject to uncertainty. Management's judgment regarding OTTI and estimated fair value depends upon the evolving investment sector and economic conditions. It can also be affected by the market liquidity, a lack of which can make it difficult to obtain accurate market prices for RMBS and other investments, including CMBS and leveraged loans. Any deterioration in economic fundamentals, especially related to the housing sector could affect management's judgment regarding OTTI.

Management's judgment regarding OTTI and estimated fair value depends upon the evolving investment sector and economic conditions. It can also be affected by the market liquidity, a lack of which can make it difficult to obtain accurate market prices for RMBS and other investments, including CMBS and leveraged loans. Any deterioration in economic fundamentals, especially related to the housing sector could affect management's judgment regarding OTTI.

MassMutual has investments in structured products exposed primarily to the credit risk of corporate bank loans, corporate bonds or credit default swap contracts referencing corporate credit risk. Most of these structured investments are backed by corporate loans and are commonly known as collateralized loan obligations that are classified as CDOs. The portfolios backing these investments are actively managed and diversified by industry and individual issuer concentrations. Due to the complex nature of CDOs and the reduced level of transparency to the underlying collateral pools for many market participants, the recovery in CDO valuations generally lags the overall recovery in the underlying assets. Management believes its scenario analysis approach, based primarily on actual collateral data and forward looking assumptions, does capture the credit and most other risks in each pool. However, in a rapidly changing economic environment, the credit and other risks in each collateral pool will be more volatile and actual credit performance of CDOs may differ from MassMutual's assumptions.

MassMutual continuously monitors its investments and assesses their liquidity and financial viability; however, the existence of the factors described above, as well as other market factors, could negatively impact the market value of MassMutual's investments. If MassMutual sells its investments prior to maturity or market recovery, these investments may yield a return that is less than MassMutual otherwise would have been able to realize.

Asset-based fees calculated as a percentage of the separate account assets are a source of revenue to MassMutual. Gains and losses in the investment markets may result in corresponding increases and decreases in MassMutual's separate account assets and related revenue.

Market risk arises within MassMutual's employee benefit plans to the extent that the obligations of the plans are not fully matched by assets with determinable cash flows. Pension and postretirement obligations are subject to change due to fluctuations in the discount rates used to measure the liabilities as well as factors such as changes in inflation, salary increases and participants living longer. The risks are that such fluctuations could result in assets that are insufficient over time to cover the level of projected benefit obligations. In addition, increases in inflation and members living longer could increase the pension and postretirement obligations. Management determines the level of this risk using reports prepared by independent actuaries and takes action, where appropriate, in terms of setting investment strategy and determining contribution levels. In the event that the pension obligations arising under MassMutual's employee benefit plans exceed the assets set aside to meet the obligations, MassMutual may be required to make additional contributions or increase its level of contributions to these plans.

Annex 2

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY

STATUTORY FINANCIAL STATEMENTS

As of December 31, 2015 and 2014 and
for the years ended December 31, 2015, 2014 and 2013

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
STATUTORY FINANCIAL STATEMENTS

Table of Contents

KPMG LLP
One Financial Plaza
755 Main Street
Hartford, CT 06103

Independent Auditors' Report

The Board of Directors and Policyholders of
Massachusetts Mutual Life Insurance Company:

We have audited the accompanying financial statements of Massachusetts Mutual Life Insurance Company (the Company), which comprise the statutory statements of financial position as of December 31, 2015 and 2014, and the related statutory statements of operations, changes in surplus, and cash flows for the three-year period ended December 31, 2015, and the related notes to the statutory financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with statutory accounting practices prescribed or permitted by the Commonwealth of Massachusetts Division of Insurance. Management is also responsible for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

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

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

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

Basis for Adverse Opinion on U.S. Generally Accepted Accounting Principles

As described in Note 2 to the financial statements, the financial statements are prepared by the Company using statutory accounting practices prescribed or permitted by the Commonwealth of Massachusetts Division of Insurance, which is a basis of accounting other than U.S. generally accepted accounting principles. Accordingly, the financial statements are not intended to be presented in accordance with U.S. generally accepted accounting principles.

The effects on the financial statements of the variances between the statutory accounting practices described in Note 2 and U.S. generally accepted accounting principles, although not reasonably determinable, are presumed to be material.

Adverse Opinion on U.S. Generally Accepted Accounting Principles

In our opinion, because of the significance of the variances between statutory accounting practices and U.S. generally accepted accounting principles discussed in the Basis for Adverse Opinion on U.S. Generally Accepted Accounting Principles paragraph, the financial statements referred to above do not present fairly, in accordance with U.S. generally accepted accounting principles, the financial position of the Company as of December 31, 2015 and 2014, or the results of its operations or its cash flows for the three-year period ended December 31, 2015.

Opinion on Statutory Basis of Accounting

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2015 and 2014, and the results of its operations and its cash flows for the three-year period ended December 31, 2015, in accordance with statutory accounting practices prescribed or permitted by the Commonwealth of Massachusetts Division of Insurance described in Note 2.

KPMG LLP

February 19, 2016

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
STATUTORY STATEMENTS OF FINANCIAL POSITION

	December 31, 2015	December 31, 2014
	(In Millions)	
Assets:		
Bonds	$ 79,547	$ 74,719
Preferred stocks	533	525
Common stocks – subsidiaries and affiliates	7,960	7,940
Common stocks – unaffiliated	1,140	1,188
Mortgage loans	22,008	19,357
Policy loans	11,813	11,155
Real estate	928	776
Partnerships and limited liability companies	7,473	6,970
Derivatives	9,268	8,531
Cash, cash equivalents and short-term investments	3,049	1,880
Other invested assets	41	3
Total invested assets	143,760	133,044
Investment income due and accrued	1,834	1,711
Federal income taxes	65	-
Deferred income taxes	1,299	959
Other than invested assets	3,015	1,091
Total assets excluding separate accounts	149,973	136,805
Separate account assets	60,386	60,384
Total assets	$ 210,359	$ 197,189
Liabilities and Surplus:		
Policyholders' reserves	$ 102,626	$ 93,291
Liabilities for deposit-type contracts	10,491	9,045
Contract claims and other benefits	488	395
Policyholders' dividends	1,742	1,579
General expenses due or accrued	959	903
Federal income taxes	-	177
Asset valuation reserve	2,817	2,620
Repurchase agreements	5,130	4,658
Commercial paper and other borrowed money	277	268
Collateral	2,126	1,405
Derivatives	5,840	5,424
Other liabilities	2,504	2,819
Total liabilities excluding separate accounts	135,000	122,584
Separate account liabilities	60,376	60,374
Total liabilities	195,376	182,958
Surplus	14,983	14,231
Total liabilities and surplus	$ 210,359	$ 197,189

See notes to statutory financial statements

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
STATUTORY STATEMENTS OF OPERATIONS

	Years Ended December 31,		
	2015	2014	2013
	(In Millions)		
Revenue:			
Premium income	$ 21,543	$ 18,383	$ 20,437
Net investment income	6,387	6,332	5,471
Fees and other income	797	875	855
Total revenue	28,727	25,590	26,763
Benefits and expenses:			
Policyholders' benefits	16,300	16,511	18,368
Change in policyholders' reserves	8,592	5,803	5,892
Change in group annuity reserves assumed	(942)	(1,564)	(2,050)
General insurance expenses	1,793	1,793	1,705
Ceding commission on group annuity reserves	-	-	355
Commissions	869	814	783
State taxes, licenses and fees	187	200	186
Total benefits and expenses	26,799	23,557	25,239
Net gain from operations before dividends and federal income taxes	1,928	2,033	1,524
Dividends to policyholders	1,728	1,553	1,475
Net gain from operations before federal income taxes	200	480	49
Federal income tax (benefit) expense	(153)	23	(142)
Net gain from operations	353	457	191
Net realized capital gains	59	166	(477)
Net income (loss)	$ 412	$ 623	$ (286)

See notes to statutory financial statements

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
STATUTORY STATEMENTS OF CHANGES IN SURPLUS

	Years Ended December 31,		
	2015	2014	2013
	(In Millions)		
Surplus, beginning of year	$ 14,231	$ 12,524	$ 12,687
Increase (decrease) due to:			
Net income (loss)	412	623	(286)
Change in net unrealized capital gains (losses), net of tax	195	2,022	(211)
Change in net unrealized foreign exchange capital gains (losses), net of tax	(226)	(240)	40
Change in other net deferred income taxes	231	104	264
Change in nonadmitted assets	(16)	(97)	112
Change in reserve valuation basis	-	-	(56)
Change in asset valuation reserve	(197)	(425)	(266)
Change in surplus notes	491	-	-
Cumulative effect of accounting changes	3	-	-
Prior period adjustments	9	(123)	(84)
Change in minimum pension liability	(150)	(157)	305
Other	-	-	19
Net increase (decrease)	752	1,707	(163)
Surplus, end of year	$ 14,983	$ 14,231	$ 12,524

See notes to statutory financial statements

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
STATUTORY STATEMENTS OF CASH FLOWS

	Years Ended December 31,		
	2015	2014	2013
	(In Millions)		
Cash from operations:			
Premium and other income collected	$ 20,842	$ 19,081	$ 21,237
Net investment income	6,213	6,133	5,345
Benefit payments	(16,261)	(16,963)	(17,914)
Net transfers from separate accounts	770	1,303	1,078
Net receipts from group annuity reserves assumed	942	1,564	2,050
Commissions and other expenses	(2,907)	(2,638)	(2,612)
Dividends paid to policyholders	(1,565)	(1,471)	(1,377)
Federal and foreign income taxes (paid) recovered	(234)	(10)	112
Net cash from operations	7,800	6,999	7,919
Cash from investments:			
Proceeds from investments sold, matured or repaid:			
Bonds	12,496	16,588	19,724
Preferred and common stocks – unaffiliated	444	316	674
Common stocks – affiliated	767	351	137
Mortgage loans	2,575	1,736	2,200
Real estate	110	338	130
Partnerships and limited liability companies	2,560	1,593	1,408
Derivatives	278	566	(550)
Other	(114)	(284)	(214)
Total investment proceeds	19,116	21,204	23,509
Cost of investments acquired:			
Bonds	(15,012)	(23,721)	(29,723)
Preferred and common stocks – unaffiliated	(576)	(623)	(559)
Common stocks – affiliated	(539)	(628)	(732)
Mortgage loans	(5,296)	(4,700)	(4,749)
Real estate	(283)	(144)	112
Partnerships and limited liability companies	(3,443)	(1,512)	(2,048)
Derivatives	(438)	(377)	(176)
Other	409	(41)	454
Total investments acquired	(25,178)	(31,746)	(37,421)
Net increase in policy loans	(658)	(570)	(563)
Net cash from investing activities	(6,720)	(11,112)	(14,475)
Cash from financing and miscellaneous sources:			
Net deposits (withdrawals) on deposit-type contracts	831	82	(138)
Cash provided by surplus note issuance	491	-	-
Change in repurchase agreements	472	1,171	(335)
Change in collateral	726	836	(739)
Corporate-owned life insurance purchased	(1,937)	-	-
Deposits for policyholders' reserves related to reinsurance agreement	-	-	5,298
Liabilities for deposit-type contracts related to reinsurance agreement	-	-	3,885
Other cash used	(494)	(294)	(33)
Net cash from financing and miscellaneous sources	89	1,795	7,938
Net change in cash, cash equivalents and short-term investments	1,169	(2,318)	1,382
Cash, cash equivalents and short-term investments:			
Beginning of period	1,880	4,198	2,816
End of period	$ 3,049	$ 1,880	$ 4,198

See notes to statutory financial statements

1. Nature of operations

Massachusetts Mutual Life Insurance Company (the Company), a mutual life insurance company domiciled in the Commonwealth of Massachusetts, and its domestic subsidiaries provide life insurance, disability income insurance, long-term care insurance, annuities, retirement products, investment management, mutual funds and trust services to individual and institutional customers in all 50 states of the U.S. and the District of Columbia and Puerto Rico. Products and services are offered primarily through its career agency system, broker-dealers, insurance brokers, wire houses, consultants and other third-party distributors.

2. Summary of significant accounting policies

a. Basis of presentation

The statutory financial statements have been prepared in conformity with the statutory accounting practices of the National Association of Insurance Commissioners (NAIC) and the accounting practices prescribed or permitted by the Commonwealth of Massachusetts Division of Insurance (the Division).

Statutory accounting practices are different in some respects from financial statements prepared in accordance with United States (U.S.) generally accepted accounting principles (U.S. GAAP). The more significant differences between statutory accounting principles and U.S. GAAP are as follows: (a) bonds are generally carried at amortized cost, whereas U.S. GAAP generally reports bonds at fair value; (b) changes in the fair value of derivative financial instruments are recorded as changes in surplus, whereas U.S. GAAP generally reports these changes as revenue unless deemed an effective hedge; (c) interest rate and credit default swaps associated with replicated asset transactions are carried at amortized cost, whereas U.S. GAAP would carry them at fair value; (d) embedded derivatives are recorded as part of the underlying contract, whereas U.S. GAAP would identify and bifurcate certain embedded derivatives from the underlying contract or security and account for them separately at fair value; (e) income recognition on partnerships and limited liability companies (LLCs), which are accounted for under the equity method, is limited to the amount of cash distribution, whereas U.S. GAAP does not have this limitation; (f) certain majority-owned subsidiaries, variable interest entities where the Company is the primary beneficiary, and certain other controlled entities are accounted for using the equity method, whereas U.S. GAAP would consolidate these entities; (g) changes in the balances of deferred income taxes, which provide for book versus tax temporary differences, are subject to limitation and are recorded in surplus, whereas U.S. GAAP would generally include the change in deferred taxes in net income; (h) assets and liabilities associated with certain group annuity and variable universal life contracts, which do not pass-through all investment gains to contract holders, are maintained in separate accounts and are presented on a single line in the statutory financial statements, whereas U.S. GAAP reports these contracts as general investments and liabilities of the Company; (i) assets are reported at admitted asset value and assets designated as nonadmitted are excluded through a charge against surplus, whereas U.S. GAAP recognizes all assets, net of any valuation allowances; (j) statutory policy reserves are based upon prescribed methods, such as the Commissioners' Reserve Valuation Method, Commissioners' Annuity Reserve Valuation Method or net level premium method, and prescribed statutory mortality, morbidity and interest assumptions at the time of issuance, whereas U.S. GAAP policy reserves would generally be based upon the net level premium method or the estimated gross margin method with estimates, at time of issuance, of future mortality, morbidity, persistency and interest; (k) policyholder reserves are presented net of reinsurance ceded, unearned ceded premium and unpaid ceded claims, whereas U.S. GAAP would report these reinsurance balances as an asset; (l) an asset valuation reserve (AVR) is reported as a contingency reserve to stabilize surplus against fluctuations in the statement value of real estate, partnerships and LLCs and certain common stocks as well as credit-related changes in the value of bonds, mortgage loans and certain derivatives, whereas U.S. GAAP does not record this reserve; (m) after-tax realized capital gains (losses) that result from changes in the overall level of interest rates for all types of fixed-income investments and interest-related hedging activities are deferred into the interest maintenance reserve (IMR) and amortized into revenue, whereas U.S. GAAP reports these gains and losses as revenue; (n) changes to the mortgage loan valuation allowance are recognized in net unrealized capital gains (losses), net of tax, in the Statutory Statements of Changes in Surplus, whereas U.S. GAAP reports these changes in net realized capital gains (losses); (o) the overfunded status of pension and other postretirement plans, which is the excess of the fair value of the plan assets over the projected benefit obligation, is a nonadmitted asset for statutory accounting whereas U.S. GAAP recognizes the overfunded status as an asset; (p) surplus notes are reported in surplus, whereas U.S. GAAP would

report these notes as liabilities; (q) payments received for universal and variable life insurance products, certain variable and fixed deferred annuities and group annuity contracts are reported as premium income and corresponding change in reserves, whereas U.S. GAAP would treat these payments as deposits to policyholders' account balances; (r) certain acquisition costs, such as commissions and other variable costs, directly related to acquiring new business are charged to current operations as incurred, whereas U.S. GAAP would generally capitalize these expenses and amortize them based on profit emergence over the expected life of the policies or over the premium payment period; and (s) comprehensive income is not presented, whereas U.S. GAAP presents changes in unrealized capital gains (losses) and foreign currency translations as other comprehensive income.

The preparation of financial statements requires management to make estimates and assumptions that impact the reported amounts of assets and liabilities, the disclosure of assets and liabilities as of the date of the statutory financial statements and the reported amounts of revenues and expenses during the reporting periods. The most significant estimates include those used in determining the carrying values of investments including the amount of mortgage loan investment valuation reserves, other-than-temporary impairment(s) (OTTI), the value of the investment in MassMutual Holding LLC (MMHLLC), the liabilities for policyholders' reserves, the determination of admissible deferred tax assets (DTAs), the liability for taxes and the liability for litigation or other contingencies. Future events including, but not limited to, changes in the level of mortality, morbidity, interest rates, persistency, asset valuations and defaults could cause results to differ from the estimates used in the statutory financial statements. Although some variability is inherent in these estimates, management believes the amounts presented are appropriate.

b. Corrections of errors and reclassifications

The following summarizes the corrections of prior year errors that have been recorded in surplus, net of tax:

	Year Ended December 31, 2015		
	Increase (Decrease) to:		Correction
	Prior Year Net Income	Current Year Surplus	of Asset or Liability Balances
	(In Millions)		
Policyholders' reserves	$ 6	$ 6	$ (6)
Policyholders' benefits	4	4	(4)
Net investment income	(1)	(1)	(1)
Total	$ 9	$ 9	$ (11)

	Year Ended December 31, 2014		
	Decrease to:		Correction
	Prior Year Net Income	Current Year Surplus	of Asset or Liability Balances
	(In Millions)		
Income tax payable	$ (76)	$ (76)	$ 76
Policyholders' reserves	(36)	(36)	36
Other liabilities	(11)	(11)	11
Asset valuation reserves	-	(14)	14
Total	$ (123)	$ (137)	$ 137

For the year ended December 31, 2013, corrections of prior year errors were recorded in surplus on pre-tax basis with any associated tax corrections reported through net income:

	(Decrease) Increase to:		Correction
	Prior Year Net Income	Current Year Surplus	of Asset or Liability Balances
	(In Millions)		
Policyholders' reserves	$ (74)	$ (74)	$ 74
Premium income	(12)	(12)	12
Other invested assets	2	2	(2)
Total	$ (84)	$ (84)	$ 84

Certain prior year amounts within these financial statements have been reclassified to conform to the current year presentation.

c. Bonds

Bonds are generally valued at amortized cost using the constant yield interest method with the exception of NAIC Category 6 bonds, which are in or near default, and certain residential mortgage-backed securities (RMBS) and commercial mortgage-backed securities (CMBS), which are rated by outside modelers, which are carried at the lower of amortized cost or fair value. NAIC ratings are applied to bonds and other securities. Categories 1 and 2 are considered investment grade, while Categories 3 through 6 are considered below investment grade. Bond transactions are recorded on a trade date basis, except for private placement bonds, which are recorded on the funding date.

For fixed income securities that do not have a fixed schedule of payments, such as asset-backed securities (ABS), mortgage-backed securities (MBS), including RMBS and CMBS, and structured securities, including collateralized debt obligations (CDOs), amortization or accretion is revalued quarterly based on the current estimated cash flows, using either the prospective or retrospective adjustment methodologies for each type of security.

Certain fixed income securities with the highest ratings from a rating agency follow the retrospective method of accounting. Under the retrospective method, the recalculated effective yield equates the present value of the actual and anticipated cash flows, including new prepayment assumptions, to the original cost of the investment. Prepayment assumptions are based on borrower constraints and economic incentives such as the original term, age and coupon of the loan as affected by the interest rate environment. The current carrying value is then increased or decreased to the amount that would have resulted had the revised yield been applied since inception, and investment income is correspondingly decreased or increased.

All other fixed income securities, such as floating rate bonds and interest only securities, including those that have been impaired, follow the prospective method of accounting. Under the prospective method, the recalculated future effective yield equates the carrying value of the investment to the present value of the anticipated future cash flows.

The fair value of bonds is based on quoted market prices when available. If quoted market prices are not available, values provided by other third-party organizations are used. If values provided by other third-party organizations are unavailable, fair value is estimated using internal models by discounting expected future cash flows using observable current market rates applicable to yield, credit quality and maturity of the investment or using quoted market values for comparable investments. Internal inputs used in the determination of fair value include estimated prepayment speeds, default rates, discount rates and collateral values, among others. Structure characteristics and cash flow priority are also considered. Fair values resulting from internal models are those expected to be received in an orderly transaction between willing market participants at the financial statement date.

Refer to *Note 2dd. "Realized capital gains (losses) including other-than-temporary impairments and unrealized capital gains (losses)"* for information on the Company's policy for determining OTTI.

d. Preferred stocks

Preferred stocks in good standing are generally valued at amortized cost. Preferred stocks not in good standing, those that are rated Categories 4 through 6 by the Securities Valuation Office (SVO) of the NAIC, are valued at the lower of amortized cost or fair value. Fair values are based on quoted market prices, when available. If quoted market prices are not available, values provided by other third-party organizations are used. If values provided by other third-party organizations are unavailable, fair value is estimated using internal models. These models use inputs not directly observable or correlated with observable market data. Typical inputs integrated into the Company's internal discounted expected earnings models include, but are not limited to, earnings before interest, taxes, depreciation and amortization estimates. Fair values resulting from internal models are those expected to be received in an orderly transaction between willing market participants at the financial statement date.

Refer to *Note 2dd. "Realized capital gains (losses) including other-than-temporary impairments and unrealized capital gains (losses)"* for information on the Company's policy for determining OTTI.

e. Common stocks – subsidiaries and affiliates

Common stocks of unconsolidated subsidiaries, primarily C.M. Life Insurance Company (C.M. Life), MML Bay State Life Insurance Company (MML Bay State) and MMHLLC, are accounted for using the statutory equity method. The Company accounts for the value of MMHLLC, at its underlying U.S. GAAP equity value adjusted to remove certain nonadmitted and intangible assets, as well as a portion of its noncontrolling interests (NCI) and appropriated retained earnings (ARE), after consideration of MMHLLC's fair value and the Company's capital levels. The Division has affirmed the statutory recognition of the Company's application of the NCI guidelines in MMHLLC's statutory carrying value. However, the Company has limited this recognition to $2,600 million as of December 31, 2015 and $2,409 million as of December 31, 2014. Operating results, less dividend distributions, for MMHLLC are reflected as net unrealized capital gains (losses) in the Statutory Statements of Changes in Surplus. Dividend distributions received from MMHLLC are recorded in net investment income and are limited to MMHLLC's U.S. GAAP retained earnings. The cost basis of common stocks – subsidiaries and affiliates is adjusted for impairments deemed to be other than temporary.

Refer to *Note 4c. "Common stocks – subsidiaries and affiliates"* for further information on the valuation of MMHLLC.

f. Common stocks – unaffiliated

Unaffiliated common stocks are carried at fair value, which is based on quoted market prices when available. If quoted market prices are not available, values provided by other third-party organizations are used. If values from other third parties are unavailable, fair values are determined by management using estimates based upon internal models. The Company's internal models include estimates based upon comparable company analysis, review of financial statements, broker quotes and last traded price. Fair values resulting from internal models are those expected to be received in an orderly transaction between willing market participants at the financial statement date.

Refer to *Note 2dd. "Realized capital gains (losses) including other-than-temporary impairments and unrealized capital gains (losses)"* for information on the Company's policy for determining OTTI.

g. Mortgage loans

Mortgage loans are valued at the unpaid principal balance of the loan, net of unamortized premium, discount, mortgage origination fees and valuation allowances. Interest income earned on impaired loans is accrued on the outstanding principal balance of the loan based on the loan's contractual coupon rate. Interest is not accrued for (i) impaired loans more than 60 days past due, (ii) delinquent loans more than 90 days past due, or (iii) loans that have interest that is not expected to be collected. The Company continually monitors mortgage loans where the accrual of interest has been discontinued, and will resume the accrual of interest on a mortgage loan when the facts and circumstances of the borrower and property indicate that the payments will continue to be received according to the terms of the original or modified mortgage loan agreement.

Refer to *Note 2dd. "Realized capital gains (losses) including other-than-temporary impairments and unrealized capital gains (losses)"* for information on the Company's policy for determining OTTI.

h. Policy loans

Policy loans are carried at the outstanding loan balance less amounts unsecured by the cash surrender value of the policy. At issuance, policy loans are fully secured by the cash surrender value of the policy. Unsecured amounts can occur when subsequent charges are incurred on the underlying policy without the receipt of additional premium. If the premium is not paid during the contractual grace period, the policy will lapse. Unsecured nonadmitted amounts were less than $1 million as of December 31, 2015 and 2014. Policy loans earn interest calculated based upon either a fixed or a variable interest rate. Accrued investment income on policy loans more than 90 days past due is included in the unpaid balance of the policy loan to the extent it does not exceed the cash surrender value of the underlying contract.

i. Real estate

Investment real estate, which the Company has the intent to hold for the production of income, and real estate occupied by the Company, are carried at depreciated cost, less encumbrances. Depreciation is calculated using the straight-line method over the estimated useful life of the real estate holding, not to exceed 40 years. Depreciation expense is included in net investment income.

Real estate held for sale is initially carried at the lower of depreciated cost or fair value less estimated selling costs and is no longer depreciated. Adjustments to carrying value, including for further declines in fair value, are recorded in a valuation reserve, which is included in realized capital losses.

Fair value is generally estimated using the present value of expected future cash flows discounted at a rate commensurate with the underlying risks. The Company also obtains external appraisals for a rotating selection of properties annually. If an external appraisal is not obtained, an internal appraisal is performed.

Refer to *Note 2dd. "Realized capital gains (losses) including other-than-temporary impairments and unrealized capital gains (losses)"* for information on the Company's policy for determining OTTI.

j. Partnerships and limited liability companies

Partnerships and LLCs, except for partnerships that generate and realize low income housing tax credits (LIHTCs), are accounted for using the equity method with the change in the equity value of the underlying investment recorded in surplus. Distributions received are recognized as net investment income to the extent the distribution does not exceed previously recorded accumulated undistributed earnings.

Investments in partnerships that generate LIHTCs are carried at amortized cost unless considered impaired. Under the amortized cost method, the excess of the carrying value of the investment over its estimated residual value is amortized into net investment income during the period in which tax benefits are recognized.

The equity method is suspended if the carrying value of the investment is reduced to zero due to losses from the investment. Once the equity method is suspended, losses are not recorded until the investment returns to profitability and the equity method is resumed. However, if the Company has guaranteed obligations of the

investment or is otherwise committed to provide further financial support for the investment, losses will continue to be reported up to the amount of those guaranteed obligations or commitments.

Refer to *Note 2dd. "Realized capital gains (losses) including other-than-temporary impairments and unrealized capital gains (losses)"* for information on the Company's policy for determining OTTI.

k. Derivatives

Interest rate swaps and credit default index swaps associated with replicated assets are valued at amortized cost and all other derivative types are carried at fair value, which is based primarily upon quotations obtained from counterparties and independent sources. These quotations are compared to internally derived prices and a price challenge is lodged with the counterparties and independent sources when a significant difference cannot be explained by appropriate adjustments to the internal model. When quoted market values are not reliable or available, the value is based on an internal valuation process using market observable inputs that other market participants would use. Changes in the fair value of these instruments other than interest rate swaps associated with replicated assets are recorded as unrealized capital gains (losses) in surplus. Gains and losses realized on settlement, termination, closing or assignment of contracts are recorded as realized capital gains (losses). Amounts receivable and payable are accrued as net investment income.

l. Cash, cash equivalents and short-term investments

The Company considers all highly liquid investments purchased with original maturities of three months or less to be cash and cash equivalents and carries them at amortized cost.

Short-term investments, which are carried at amortized cost, consist of all highly liquid investments purchased with maturities of greater than three months and less than or equal to 12 months. Investments in short-term bonds and money market mutual funds are classified as short-term investments.

The carrying value reported in the Statutory Statements of Financial Position for cash, cash equivalents and short-term investment instruments approximates the fair value.

m. Investment income due and accrued

Accrued investment income consists primarily of interest and dividends. Interest is recognized on an accrual basis and dividends are recorded as earned on the ex-dividend date.

n. Federal income taxes

Total federal income taxes are based upon the Company's best estimate of its current and deferred tax assets or liabilities. Current tax expense (benefit) is reported in the Statutory Statements of Operations as federal income tax expense (benefit) if resulting from operations and within net realized capital gains (losses) if resulting from invested asset transactions. Changes in the balances of deferred taxes, which provide for book-to-tax temporary differences, are subject to limitations and are reported within various lines within surplus. Accordingly, the reporting of book-to-tax temporary differences, such as reserves and policy acquisition costs, and of book-to-tax permanent differences, such as tax-exempt interest and tax credits, results in effective tax rates in the Statutory Statements of Operations that differ from the federal statutory tax rate.

o. Other than invested assets

Other than invested assets primarily includes corporate-owned life insurance (COLI), deferred and uncollected life insurance premium, reinsurance recoverable, fixed assets and other receivables.

p. Separate accounts

Separate accounts are segregated funds administered and invested by the Company. Selection from the separate accounts or its sub-accounts is directed by group and individual variable annuity, variable life and other insurance contract holders/policyholders. The returns produced by separate account assets increase or decrease separate account reserves. Separate account assets consist principally of marketable securities reported at fair value. Except for the Company's seed money and supplemental accounts, as noted below, and certain guaranteed separate accounts issued in Minnesota, separate account assets can only be used to satisfy separate account liabilities and are not available to satisfy the general obligations of the Company. Separate account administrative and investment advisory fees are included in fees and other income.

Assets may be transferred from the general investments of the Company to seed the separate accounts. When assets are transferred to separate accounts, they are transferred at fair market value on the date the transaction occurs. Gains related to the transfer are deferred to the extent that the Company maintains a proportionate interest in the separate account. The deferred gain is recognized as the Company's ownership decreases or when the separate account sells the underlying asset during the normal course of business. Losses associated with these transfers are recognized immediately.

Separate accounts reflect two categories of risk assumption: nonguaranteed separate accounts for which the contract holder/policyholder assumes the investment risk and guaranteed separate accounts for which the Company contractually guarantees either a minimum return or minimum account value to the contract holder/policyholder. For certain guaranteed separate account products such as interest rate guaranteed products and indexed separate account products, reserve adequacy is performed on a contract-by-contract basis using, as applicable, prescribed interest rates, mortality rates and asset risk deductions. If the outcome from this adequacy analysis produces a deficiency relative to the current account value, a liability is recorded in policyholders' reserves or liabilities for deposit-type contracts in the Statutory Statements of Financial Position with the corresponding change in the liability recorded as change in policyholders' reserves or policyholders' benefits in the Statutory Statements of Operations.

Premium income, benefits and expenses of the separate accounts are included in the Statutory Statements of Operations with the offset recorded in the change in policyholders' reserves. Investment income and realized capital gains (losses) on the assets of separate accounts, other than seed money, accrue to contract holders/policyholders and are not recorded in the Statutory Statements of Operations. Unrealized capital gains (losses) on assets of separate accounts accrue to contract holders/policyholders and, accordingly, are reflected in the separate account liability to the contract holder/policyholder.

q. Nonadmitted assets

Assets designated as nonadmitted by the NAIC primarily include pension plan assets, certain electronic data processing (EDP) equipment, advances and prepayments, certain investments in partnerships and LLCs for which qualifying audits are not performed, furniture and equipment, certain other receivables, uncollected premium greater than 90 days past due and certain intangible assets. Due and accrued income is nonadmitted on: (a) bonds delinquent more than 90 days or where collection of interest is improbable; (b) impaired bonds more than 60 days past due; (c) bonds in default; (d) mortgage loans in default where interest is 180 days past due; (e) rent in arrears for more than 90 days; and (f) policy loan interest due and accrued more than 90 days past due and included in the unpaid balance of the policy loan in excess of the cash surrender value of the underlying contract. Assets that are designated as nonadmitted are excluded from the Statutory Statements of Financial Position through a charge against surplus.

r. Reinsurance

The Company enters into reinsurance agreements with affiliated and unaffiliated insurers in the normal course of business to limit its insurance risk.

Premium income, benefits to policyholders and policyholders' reserves are reported net of reinsurance. Premium, benefits and reserves related to reinsured business are accounted for on bases consistent with those used in accounting for the original policies issued and the terms of the reinsurance contracts. The Company records a receivable for reinsured benefits paid, but not yet reimbursed by the reinsurer and reduces policyholders' reserves for the portion of insurance liabilities that are reinsured. Commissions and expense allowances on reinsurance ceded and modified coinsurance (Modco) reserve adjustments on reinsurance ceded are recorded as revenue.

s. Policyholders' reserves

Policyholders' reserves provide for the present value of estimated future obligations in excess of estimated future premium on policies in force.

Reserves for individual life insurance contracts are developed using accepted actuarial methods computed principally on the net level premium or Commissioners' Reserve Valuation Method bases using the American Experience or the 1941, 1958, 1980 or the 2001 Commissioners' Standard Ordinary mortality tables with assumed interest rates. Reserves for disability riders associated with life contracts are calculated using morbidity rates from the 1952 Period 2 Intercompany Disability Table, modified to reflect the Company's morbidity experience.

The Company waives deduction of deferred fractional premium at death and returns any portion of the final premium beyond the date of death. Reserves are computed using continuous functions to reflect these practices.

The Company charges a higher premium on certain contracts that cover substandard mortality risk. For these policies, the reserve calculations are based on a substandard mortality rate, which is a multiple of the standard mortality tables.

Certain variable universal life and universal life contracts include features such as guaranteed minimum death benefits (GMDB) or other guarantees that ensure continued death benefit coverage when the policy would otherwise lapse. The value of the guarantee is only available to the beneficiary in the form of a death benefit. The liability for variable and universal life GMDBs and other guarantees is included in policyholders' reserves and the related change in this liability is included in change in policyholders' reserves.

Reserves for individual and group payout annuities are developed using accepted actuarial methods computed principally under Commissioners' Annuity Reserve Valuation Method (CARVM) using applicable interest rates and mortality tables. Individual payout annuities primarily use the 1971 and 1983 Individual Annuity Mortality and Annuity 2000 tables. Group payout annuities primarily use the 1983 Group Annuity Mortality and 1994 Group Annuity Reserving tables.

Certain individual variable annuity products issued by the Company have a variety of additional guarantees such as GMDBs and variable annuity guaranteed living benefits (VAGLB). The primary types of VAGLBs include guaranteed minimum accumulation benefits (GMAB), guaranteed minimum income benefits (GMIB) including GMIB Basic and GMIB Plus and guaranteed minimum withdrawal benefits (GMWB). In general, these benefit guarantees require the contract owner or policyholder to adhere to a company-approved asset allocation strategy. The liabilities for individual variable annuity GMDBs and VAGLBs are included in policyholders' reserves and the related changes in these liabilities are included in change in policyholders' reserves.

Variable annuity GMDBs provide a death benefit in excess of the contract value if the contract value is less than the guaranteed minimum amount. Some contracts provide that guarantee upon the contract owner's death and others provide it upon the annuitant's death. This amount may be based on a return of premium (the premium paid generally adjusted for withdrawals), a roll-up (an accumulation of premium at a specified interest rate adjusted for withdrawals), a reset (the contract value on a specified anniversary date adjusted for subsequent withdrawals, which is allowed to decrease when reset) or a ratchet (the contract value on a specified anniversary date adjusted for subsequent withdrawals, which is never allowed to decrease when reset). For a variable annuity contract, a decline in the stock market causing the contract value to fall below the guaranteed specified amount will increase the net amount at risk, which is the amount of the GMDBs in excess of the contract value.

GMABs provide the annuity contract holder with a guaranteed minimum contract value at the end of the product's guarantee period. If the contract value is below that guarantee at the end of the period, the contract value is increased to the guaranteed minimum account benefit value and the contract continues from that point. Options for the guarantee period are 10, 12, 20 and 26 years.

GMWBs provide the annuity contract holder with a guarantee that a minimum amount will be available for withdrawal annually for life regardless of the contract value.

GMIBs provide the annuity contract holder with a guaranteed minimum amount when the contract is annuitized. The GMIBs would be beneficial to the contract holder if the contract holder's contract value would otherwise not provide a higher annuitization value using currently offered rates at the time of annuitization. GMIBs generally anticipate payout between ages 60 and 90. The Company first issued GMIB Basic in 2002 and suspended issuing these contracts in August 2007. These GMIB Basic contracts cannot be annuitized within seven years of issuance and do not have access to the guarantee value other than through annuitization.

GMIB Plus replaced GMIB Basic and was available from September 2007 through March 2009. GMIB Plus includes a product version, which provides a minimum floor amount that can be applied to an annuity option. The GMIB Plus value is equal to the initial purchase amount increased by a compound annual interest rate. If a contract owner takes a withdrawal, the GMIB Plus value is recalculated by making an adjustment for withdrawals. There are two types of adjustments for withdrawals: (1) Dollar for dollar adjustment – during each contract year, the GMIB Plus value will be lower for each dollar that is withdrawn up to and equal to the current contract year interest credited on the GMIB Plus value; (2) Pro-rata adjustment – during each contract year, for any amount withdrawn that exceeds the current contract year interest credited on the GMIB Plus value, the GMIB Plus value will be further reduced by a pro-rata adjustment. Such a withdrawal will negatively impact the GMIB Plus value. GMIB Plus cannot be annuitized within ten years of contract issuance as the rider can only be exercised after a ten year waiting period has elapsed. This guarantee was only available upon contract issuance.

Reserves for individual and group fixed deferred annuities are developed using accepted actuarial methods computed principally under CARVM using applicable interest rates and mortality tables. Individual deferred annuities primarily use the 1971 and 1983 Individual Annuity Mortality and Annuity 2000 tables. Group deferred annuities primarily use the 1983 Group Annuity Mortality and 1994 Group Annuity Reserving tables.

Reserves for individual and group variable deferred annuities are developed using accepted actuarial methods computed principally under CARVM for variable annuities using applicable interest rates and mortality tables. Individual variable deferred annuities primarily use the 1994 Minimum Guaranteed Death Benefit or Annuity 2000 tables. The liability is evaluated under both a standard scenario and stochastic scenarios net of currently held applicable hedge asset cash flows. The Company holds the reserve liability valuation at the higher of the standard or stochastic scenario values. Based on the Company's currently held hedges, if market interest rates increase, the fair value of the Company hedges would decrease in value and reserves would decrease. Should market interest rates decrease, the fair value of the Company hedges would increase in value and reserves would increase. In addition, the Company elected to hold additional reserves above those indicated based on the stochastic or standard scenario in order to maintain a prudent level of reserve adequacy.

The standard scenario is a prescriptive reserve with minimal company discretion. The primary driver of the standard scenario result is the composition of the in force policies, with the key factor being the extent to which the product guarantees are "in the money." The value of the reserve guarantees under the standard scenario is driven primarily by equity markets.

For the stochastic scenarios, the Company uses the American Academy of Actuaries' scenarios. Prudent estimate assumptions are used for mortality, expenses and commissions, investment management fees, taxes and policyholder behavior including lapses, partial withdrawals, annuitization and additional premium. These assumptions are consistent with those used for asset adequacy testing and are based on Company experience. Stochastic reserves are driven by the degree that the variable annuity benefits are "in the money" at projected interest rates and equity market levels, expenses, discount rates, net derivative values, and policyholder behavior.

Separate accounts include certain group annuity contracts used to fund retirement plans that offer a guarantee of a contract holder's principal, which can be withdrawn over a stated period of time. These contracts offer a stated rate of return backed by the Company. Contract payments are not contingent upon the life of the retirement plan participants.

Disability income policy reserves are generally calculated using the two-year preliminary term method and actuarially accepted morbidity tables using the 1964 Commissioners' Disability Table and the 1985 Commissioners' Individual Disability Table A with assumed interest and mortality rates in accordance with applicable statutes and regulations.

Disabled life claim reserves are generally calculated using actuarially accepted methodologies and actuarially accepted morbidity tables using the 1964 Commissioners' Disability Table and 1985 Commissioners' Individual Disability Tables A and C with assumed interest rates in accordance with applicable statutes and regulations.

Long-term care policy reserves are generally calculated using the one-year preliminary term method and actuarially accepted morbidity, mortality and lapse tables with assumed interest rates in accordance with applicable statutes and regulations.

Long-term care claim reserves are generally calculated using actuarially accepted methodologies and actuarially accepted morbidity tables with assumed interest rates in accordance with applicable statutes and regulations.

Unpaid claims and claim expense reserves are related to disability and long-term care claims. Unpaid disability claim liabilities are projected based on the average of the last three disability payments. Claim expense reserves are based on an analysis of the unit expenses related to the processing and examination of new and ongoing claims. Interest accrued on reserves is calculated by applying NAIC prescribed interest rates to the average reserves by year incurred.

Tabular interest, tabular reserves less actual reserves released, and tabular cost for all life and annuity contracts and supplementary contracts involving life contingencies are determined in accordance with NAIC Annual Statement instructions. For tabular interest, whole life and term products use a formula that applies a weighted average interest rate determined from a seriatim valuation file to the mean average reserves. Universal life, variable life, group life, annuity and supplemental contracts use a formula that applies a weighted average credited rate to the mean account value. For contracts without an account value (e.g., a Single Premium Immediate Annuity) a weighted average statutory valuation rate is applied to the mean statutory reserve or accepted actuarial methods using applicable interest rates are applied.

All policyholders' reserves and accruals are presented net of reinsurance. Management believes that these liabilities and accruals represent management's best estimate and will be sufficient, in conjunction with future revenues, to meet future anticipated obligations of policies and contracts in force.

t. Liabilities for deposit-type contracts

Liabilities for funding agreements, dividend accumulations, premium deposit funds, investment-type contracts such as supplementary contracts not involving life contingencies and certain structured settlement annuities are based on account value or accepted actuarial methods using applicable interest rates.

u. Participating contracts

Participating contracts are those that may be eligible to share in any dividends declared by the Company. Participating contracts issued by the Company represented 56% of the Company's policyholders' reserves and liabilities for deposit-type contracts as of December 31, 2015 and 58% as of December 31, 2014.

v. Policyholders' dividends

Dividends expected to be paid to policyholders in the following year are approved annually by MassMutual's Board of Directors and are recorded as an expense in the current year. The allocation of these dividends to policyholders reflects the relative contribution of each group of participating policies to surplus and considers, among other factors, investment returns, mortality and morbidity experience, expenses and taxes. The liability for policyholders' dividends includes the estimated amount of annual dividends and settlement dividends. A settlement dividend is an extra dividend payable at termination of a policy upon maturity, death or surrender.

w. Asset valuation reserve

The Company maintains an AVR that is a contingency reserve to stabilize surplus against fluctuations in the carrying value of common stocks, real estate, partnerships and LLCs as well as credit-related changes in the value of bonds, preferred stocks, mortgage loans, and certain derivatives. The AVR is reported as a liability and the change in AVR, net of tax, is reported in surplus.

x. Repurchase agreements

The Company has entered into repurchase agreements whereby the Company sells securities and simultaneously agrees to repurchase the same or substantially the same securities. These repurchase agreements are carried at cost and accounted for as collateralized borrowings with the proceeds from the sale of the securities recorded as a liability while the underlying securities continue to be recorded as an investment by the Company. Earnings on these investments are recorded as investment income and the difference between the proceeds and the amount at which the securities will be subsequently reacquired is amortized as interest expense. Repurchase agreements are used as a tool for overall portfolio management to help ensure the Company maintains adequate assets in order to provide yield, spread and duration to support liabilities and other corporate needs.

The Company provides collateral, as dictated by the repurchase agreements, to the counterparty in exchange for a loan. If the fair value of the securities sold becomes less than the loan, the counterparty may require additional collateral.

The carrying value reported in the Statutory Statements of Financial Position for repurchase agreements approximates the fair value.

y. Commercial paper

The Company issues commercial paper in the form of unsecured notes (Notes). Interest on the Notes is calculated using a 360-day year based on the actual number of days elapsed. Due to the short-term nature of the Notes, the carrying value approximates fair value.

z. Interest maintenance reserve

The Company maintains an IMR that is used to stabilize net income against fluctuations in interest rates. After-tax realized capital gains (losses), which result from changes in interest rates for all types of fixed-income investments and interest-related derivatives, are deferred into the IMR and amortized into revenue using the grouped amortization method. In the grouped amortization method, assets are grouped based on years of maturity. The IMR is included in other liabilities, or if negative, is recorded as a nonadmitted asset.

aa. Employee compensation plans

The Company has a long-term incentive compensation plan, under which certain employees of the Company and its subsidiaries may be issued phantom share-based compensation awards. These awards include Phantom Stock Appreciation Rights (PSARs) and Phantom Restricted Stock (PRS). These awards do not grant an equity or ownership interest in the Company.

PSARs provide the participant with the opportunity to share in the value created in the total enterprise. The PSAR value is the appreciation in the phantom stock price between the grant price and the share price at the time of exercise. Awards can only be settled in cash. PSARs cliff vest at the end of three years and expire five years after the date of grant. Vested PSARs may be exercised during quarterly two-week exercise periods prior to expiration. The compensation expense for an individual award is recognized over the service period.

PRS provide the participant with the opportunity to share in the value created in the total enterprise. Participants receive the full phantom share value (grant price plus/minus any change in share price) over the award period. Awards can only be settled in cash. PRS vests on a graded basis over five years, one third per year after years three, four and five. On each vesting date, a lump sum cash settlement is paid to the participant based on the number of shares vested multiplied by the most recent phantom stock price. Compensation expense is recognized on the accelerated attribution method. The accelerated attribution method recognizes compensation expense over the vesting period by which each separate payout year is treated as if it were, in substance, a separate award.

All awards granted under the Company's plans are compensatory classified awards. Compensation costs are based on the most recent quarterly calculated intrinsic value of the PSARs (current share price less grant price per share not less than zero) and PRS (current share price per share), considering vesting provisions, net of forfeiture assumptions and are included in the Statutory Statements of Financial Position as a liability in general expenses due or accrued. The compensation expense for an individual award is recognized over the service period. The cumulative compensation expense for all outstanding awards in any period is equal to the change in calculated liability period over period. The requisite service period for the awards is the vesting period. At the time of retirement, death or disability awards contain vesting conditions, whereby employees' unvested awards immediately vest. This occurs on a pro-rata basis with immediate settlement for PRS and on an accelerated basis with a one-year exercise period for PSARs. A formula serves as the basis for the phantom share price, based on the management basis core operating earnings of the Company and its subsidiaries. This phantom share price is calculated and communicated to all participants quarterly and is used in calculating the liability of the Company based on intrinsic value.

bb. Other liabilities

Other liabilities primarily consist of the IMR, remittances and items not allocated and interest due on derivatives.

cc. Premium and related expense recognition

Life insurance premium revenue is generally recognized annually on the anniversary date of the policy. However, premium for flexible products, primarily universal life and variable universal life contracts, is recognized as revenue when received. Annuity premium is recognized as revenue when received. Disability income and long-term care premium is recognized as revenue when due.

Premium revenue is adjusted by the related deferred premium adjustment. Deferred premium adjusts for the overstatement created in the calculation of reserves as the reserve computation assumes the entire year's net premium is collected annually at the beginning of the policy year and does not take into account installment or modal payments.

Commissions and other costs related to issuance of new policies and policy maintenance and settlement costs are charged to current operations when incurred. Surrender fee charges on certain life and annuity products are recorded as a reduction of benefits and expenses.

dd. Realized capital gains (losses) including other-than-temporary impairments and unrealized capital gains (losses)

Realized capital gains (losses), net of taxes, exclude gains (losses) deferred into the IMR and gains (losses) of the separate accounts. Realized capital gains (losses), including OTTI, are recognized in net income and are determined using the specific identification method.

Bonds - general

The Company employs a systematic methodology to evaluate OTTI by conducting a quarterly analysis of bonds. The impairment review process provides a framework for deriving OTTI in a manner consistent with market participant assumptions. The Company considers the following factors, where applicable depending on the type of securities, in the evaluation of whether a decline in value is other than temporary: (a) the likelihood that the Company will be able to collect all amounts due according to the contractual terms of the debt security; (b) the present value of the expected future cash flows of the security; (c) the characteristics, quality and value of the underlying collateral or issuer securing the position; (d) collateral structure; (e) the length of time and extent to which the fair value has been below amortized cost; (f) the financial condition and near-term prospects of the issuer; (g) adverse conditions related to the security or industry; (h) the rating of the security; (i) the Company's ability and intent to hold the investment for a period of time sufficient to allow for an anticipated recovery to amortized cost; and (j) other qualitative and quantitative factors in determining the existence of OTTI including, but not limited to, unrealized loss trend analysis and significant short-term changes in value.

For corporate securities, if it is determined that a decline in the fair value of a bond is other than temporary, OTTI is recognized in earnings as a realized loss equal to the difference between the investment's amortized cost basis and, generally, its fair value at the balance sheet date. For loan-backed and structured securities, if the present value of cash flows expected to be collected is less than the amortized cost basis of the security, an OTTI is recognized in earnings as a realized loss equal to the difference between the investment's amortized cost basis and the present value of cash flows expected to be collected. The expected cash flows are discounted at the security's effective interest rate. Internal inputs used in determining the amount of the OTTI on structured securities include collateral performance, prepayment speeds, default rates, and loss severity based on borrower and loan characteristics, as well as deal structure including subordination, over-collateralization and cash flow priority. In addition, if the Company has the intent to sell, or the inability, or lack of intent to retain the investment for a period sufficient to recover the amortized cost basis, an OTTI is recognized in earnings as a realized loss equal to the entire difference between the investment's amortized cost basis and its fair value at the balance sheet date.

When a bond is other-than-temporarily impaired, a new cost basis is established. For loan-backed and structured securities, any difference between the new amortized cost basis and any increased present value of future cash flows expected to be collected is accreted into net investment income over the expected remaining life of the bond.

Bonds - structured and loan-backed securities

ABS and MBS are evaluated for OTTI on a quarterly basis using scenarios customized by collateral type. Cash flow estimates are based on various assumptions and inputs obtained from external industry sources along with internal analysis and actual experience. Assumptions are based on the specifics of each security including collateral type, loan type, vintage and subordination level in the structure. Where applicable, assumptions include prepayment speeds, default rates and loss severity, weighted average maturity and changes in the collateral values.

The Company has a review process for determining if CDOs are at risk for OTTI. For the senior, mezzanine and junior debt tranches, cash flows are modeled using five scenarios based on the current ratings and values of the underlying corporate credit risks and incorporating prepayment and default assumptions that vary according to collateral attributes of each CDO. The prepayment and default assumptions are varied within each model based upon rating (base case), historical expectations (default), rating change improvement (optimistic), rating change downgrade (pessimistic) and fair value (market). The default rates produced by these five scenarios are assigned an expectation weight according to current market and economic conditions and fed into a sixth scenario. OTTI is recorded if this sixth scenario results in the loss of any principal or interest payments due.

For the most subordinated junior CDO tranches, the present value of the projected cash flows in the sixth scenario is measured using an effective yield. If the current book value of the security is greater than the present value measured using an effective yield, an OTTI is taken in an amount sufficient to produce its effective yield. Certain CDOs cannot be modeled using all six scenarios because of limitations on the data needed for all scenarios. The cash flows for these CDOs, including foreign currency denominated CDOs, are projected using a customized scenario management believes is reasonable for the applicable collateral pool.

Common and preferred stock

The cost basis of common and preferred stocks is adjusted for impairments deemed to be other than temporary. The Company considers the following factors in the evaluation of whether a decline in value is other than temporary: (a) the financial condition and near-term prospects of the issuer; (b) the Company's ability and intent to retain the investment for a period sufficient to allow for a near-term recovery in value; and (c) the period and degree to which the value has been below cost. The Company conducts a quarterly analysis of issuers whose common or preferred stock is not-in-good standing or valued below 80% of cost. The Company also considers other qualitative and quantitative factors in determining the existence of OTTI including, but not limited to, unrealized loss trend analysis and significant short-term changes.

Mortgage loans

The Company performs internal reviews at least annually to determine if individual mortgage loans are performing or nonperforming. The fair values of performing mortgage loans are estimated by discounting expected future cash flows using current interest rates for similar loans with similar credit risk. For nonperforming loans, the fair value is the estimated collateral value of the underlying real estate. If foreclosure is probable, the Company will obtain an external appraisal.

Mortgage loans are considered to be impaired when, based upon current available information and events, it is probable that the Company will be unable to collect all amounts of principal and interest due according to the contractual terms of the mortgage loan agreement. A valuation allowance recorded on a loan-by-loan basis in net unrealized capital losses for the excess of the carrying value of the mortgage loan over the fair value of its underlying collateral. Such information or events could include property performance, capital budgets, future lease roll, a property inspection as well as payment trends. Collectability and estimated decreases in collateral values are also assessed on a loan-by-loan basis considering all events and conditions relevant to the loan. This evaluation is inherently subjective as it requires estimates that are susceptible to significant revisions as more information becomes available, as changes occur in the market or as negotiations with the borrowing entity evolve. If there is a change in the fair value of the underlying collateral or the estimated loss on the loan, the valuation allowance is adjusted accordingly. An OTTI occurs upon the realization of a credit loss, typically through foreclosure or after a decision is made to accept a discounted payoff, and is recognized in realized capital losses. The previously recorded

valuation allowance is reversed from unrealized capital losses. When an OTTI is recorded, a new cost basis is established reflecting management's estimate of the fair value of the collateral.

Real estate

For real estate held for the production of income, depreciated cost is adjusted for impairments whenever events or changes in circumstances indicate the carrying amount of the asset may not be recoverable, with the impairment being included in realized capital losses. An impairment is recorded when the property's estimated future net operating cash flows over ten years, undiscounted and without interest charges, is less than book value.

Adjustments to the carrying value of real estate held for sale are recorded in a valuation reserve as realized capital losses when the fair value less estimated selling costs is less than the carrying value.

Partnerships and LLCs

When it is probable that the Company will be unable to recover the outstanding carrying value of an investment based on undiscounted cash flows, or there is evidence indicating an inability of the investee to sustain earnings to justify the carrying value of the investment, OTTI is recognized in realized capital losses reflecting the excess of the carrying value over the estimated fair value of the investment. The estimated fair values of limited partnership interests are generally based on the Company's share of the net asset value (NAV) as provided in the financial statements of the investees. In certain circumstances, management may adjust the NAV by a premium or discount when it has sufficient evidence to support applying such adjustments.

For determining impairments in partnerships that generate LIHTCs, the Company uses the present value of all future benefits, the majority of which are tax credits, discounted at a risk-free rate ranging from 0.5% for future benefits of two years to 2.3% for future benefits of ten or more years and compares the results to its current book value. Impairments are recognized in realized capital losses reflecting the excess of the carrying value over the estimated fair value of the investment.

Unrealized capital gains (losses)

Unrealized capital gains (losses) include changes in the fair value of derivatives, excluding interest rate swaps and credit default index swaps associated with replicated assets; currency translation adjustments on foreign-denominated bonds; changes in the fair value of unaffiliated common stocks; changes in the fair value of bonds and preferred stocks that are carried at fair value; and changes in the inflation adjustments on U.S. Treasury inflation-indexed securities. Changes in the Company's equity investments in partnerships and LLCs, including the earnings as reported on the financial statements earnings recorded as accumulated undistributed earnings, foreign exchange asset valuation and mark-to market on operating assets, and certain subsidiaries and affiliates are also reported as changes in unrealized capital gains (losses). Unrealized capital gains (losses) are recorded as a change in surplus net of tax.

3. New accounting standards

Adoption of new accounting standards

In December 2014, the NAIC issued Statement of Statutory Accounting Principles (SSAP) No. 40 Revised, "Real Estate Investments" (SSAP No. 40R), which was effective January 1, 2015, and requires that single real estate property investments that are directly and wholly-owned through a limited liability company (LLC) be accounted for, and reported as, directly owned real estate provided that certain criteria are met. For investments meeting the criteria that were previously reported within SSAP No. 48, "Joint Ventures, Partnerships and Limited Liability Companies" (SSAP No. 48), and owned as of the effective date, this guidance required that the Company recognize a cumulative effect of a change in accounting principle as if the entity had followed the revisions of SSAP No. 40R since acquisition of the property. As a result of the adoption of this guidance, the Company transferred $24 million of a real estate asset held in a wholly-owned LLC from partnerships and LLCs to real estate and recorded a $3 million increase to surplus as a cumulative effect of an accounting change.

4. *Investments*

The Company maintains a diversified investment portfolio. Investment policies limit concentration in any asset class, geographic region, industry group, economic characteristic, investment quality or individual investment.

a. Bonds

The carrying value and fair value of bonds were as follows:

	December 31, 2015			
	Carrying Value	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
	(In Millions)			
U.S. government and agencies	$ 8,015	$ 635	$ 124	$ 8,526
All other governments	762	34	34	762
States, territories and possessions	727	54	5	776
Political subdivisions	468	37	2	503
Special revenue	5,414	657	10	6,061
Industrial and miscellaneous	57,984	1,823	1,547	58,260
Parent, subsidiaries and affiliates	6,177	190	27	6,340
Total	$ 79,547	$ 3,430	$ 1,749	$ 81,228

The December 31, 2015 gross unrealized losses exclude $37 million of losses embedded in the carrying value of NAIC Class 6 bonds.

	December 31, 2014			
	Carrying Value	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
	(In Millions)			
U.S. government and agencies	$ 7,395	$ 814	$ 3	$ 8,206
All other governments	526	43	9	560
States, territories and possessions	1,735	152	3	1,884
Political subdivisions	493	48	1	540
Special revenue	4,562	826	4	5,384
Industrial and miscellaneous	54,482	3,296	455	57,323
Parent, subsidiaries and affiliates	5,526	268	15	5,779
Total	$ 74,719	$ 5,447	$ 490	$ 79,676

The December 31, 2014 gross unrealized losses exclude $22 million of losses embedded in the carrying value. These losses include $21 million from NAIC Class 6 bonds and $1 million from RMBS and CMBS whose ratings were obtained from outside modelers.

The quality of the bond portfolio is determined by the use of SVO ratings and the equivalent rating agency designations, except for RMBS and CMBS that use outside modelers. The following sets forth the NAIC class ratings for the bond portfolio including RMBS and CMBS:

		December 31,			
		2015		2014	
NAIC Class	Equivalent Rating Agency Designation	Carrying Value	% of Total	Carrying Value	% of Total
		($ In Millions)			
1	Aaa/ Aa/ A	$ 45,654	57 %	$ 43,644	58 %
2	Baa	27,614	35	25,275	34
3	Ba	3,002	4	2,556	3
4	B	2,150	3	1,931	3
5	Caa and lower	769	1	813	1
6	In or near default	358	-	500	1
	Total	$ 79,547	100 %	$ 74,719	100 %

The following summarizes NAIC ratings for RMBS and CMBS subject to NAIC modeling:

	December 31,							
	2015				2014			
	RMBS		CMBS		RMBS		CMBS	
NAIC Class	Carrying Value	% of Total	Carrying Value	% of Total	Carrying Value	% of Total	Carrying Value	% of Total
	($ In Millions)							
1	$ 983	100 %	$ 2,142	100 %	$ 1,169	100 %	$ 2,661	100 %
2	1	-	9	-	4	-	8	-
3	-	-	8	-	-	-	-	-
4	-	-	4	-	-	-	-	-
5	-	-	1	-	-	-	-	-
6	-	-	4	-	-	-	5	-
	$ 984	100 %	$ 2,168	100 %	$ 1,173	100 %	$ 2,674	100 %

The following is a summary of the carrying value and fair value of bonds as of December 31, 2015 by contractual maturity. Expected maturities may differ from contractual maturities because issuers may have the right to call or prepay obligations with or without prepayment penalties. Securities with more than one maturity date are included in the table using the final maturity date.

	Carrying Value	Fair Value
	(In Millions)	
Due in one year or less	$ 2,099	$ 2,124
Due after one year through five years	18,286	18,668
Due after five years through ten years	23,984	24,153
Due after ten years	35,178	36,283
Total	$ 79,547	$ 81,228

Sales proceeds and related gross realized capital gains (losses) from bonds were as follows:

	Years Ended December 31,		
	2015	2014	2013
	(In Millions)		
Proceeds from sales	$ 4,278	$ 5,429	$ 7,837
Gross realized capital gains from sales	274	448	245
Gross realized capital losses from sales	(170)	(54)	(195)

The following is a summary of the fair values and gross unrealized losses aggregated by bond category and length of time that the securities were in a continuous unrealized loss position:

	December 31, 2015					
	Less Than 12 Months			12 Months or Longer		
	Fair Value	Unrealized Losses	Number of Issuers	Fair Value	Unrealized Losses	Number of Issuers
	($ In Millions)					
U.S. government and agencies	$ 2,079	$ 122	12	$ 123	$ 3	3
All other governments	355	22	40	56	10	15
States, territories and possessions	131	5	7	-	-	-
Political subdivisions	90	2	9	-	-	-
Special revenue	465	8	110	46	3	132
Industrial and miscellaneous	23,140	1,016	2,040	6,360	543	608
Parent, subsidiaries and affiliates	237	20	17	593	32	16
Total	$ 26,497	$ 1,195	2,235	$ 7,178	$ 591	774

The December 31, 2015 unrealized losses include $37 million of losses embedded in the carrying value of NAIC Category 6 bonds.

	December 31, 2014					
	Less Than 12 Months			12 Months or Longer		
	Fair Value	Unrealized Losses	Number of Issuers	Fair Value	Unrealized Losses	Number of Issuers
	($ In Millions)					
U.S. government and agencies	$ -	$ -	-	$ 153	$ 3	4
All other governments	114	7	21	33	2	18
States, territories and possessions	40	1	2	90	2	6
Political subdivisions	-	-	-	3	1	1
Special revenue	-	-	-	112	4	164
Industrial and miscellaneous	10,434	281	1,121	5,131	180	610
Parent, subsidiaries and affiliates	558	17	12	146	13	6
Total	$ 11,146	$ 306	1,156	$ 5,668	$ 205	809

The December 31, 2014 unrealized losses include $22 million of losses embedded in the carrying value. These losses include $21 million from NAIC Category 6 bonds and $1 million from RMBS and CMBS whose ratings were obtained from outside modelers.

As of December 31, 2015 and 2014, management has not deemed these unrealized losses to be other than temporary because the investment's carrying value is expected to be realized and the Company has the ability and intent not to sell these investments until recovery, which may be at maturity.

As of December 31, 2015, investments in structured and loan-backed securities that had unrealized losses, which were not recognized in earnings, had a fair value of $9,116 million. Securities in an unrealized loss position for less than 12 months had a fair value of $4,782 million and unrealized losses of $110 million. Securities in an unrealized loss position for greater than 12 months had a fair value of $4,334 million and unrealized losses of $168 million. These securities were primarily categorized as industrial and miscellaneous or parent, subsidiaries and affiliates.

As of December 31, 2014, investments in structured and loan-backed securities that had unrealized losses, which were not recognized in earnings, had a fair value of $7,163 million. Securities in an unrealized loss position for less than 12 months had a fair value of $5,055 million and unrealized losses of $81 million. Securities in an unrealized loss position for greater than 12 months had a fair value of $2,108 million and unrealized losses of $72 million. These securities were primarily categorized as industrial and miscellaneous or parent, subsidiaries and affiliates.

In the course of the Company's investment management activities, securities may be sold and reacquired within 30 days to enhance the Company's yield on its investment portfolio. In 2015 or 2014, the Company did not sell any securities with the NAIC Designation 3 or below that were reacquired within 30 days of the sale date.

The Company had assets on deposit with government authorities or trustees, as required by law, in the amount of $8 million as of December 31, 2015 and $9 million as of December 31, 2014.

Residential mortgage-backed exposure

RMBS are included in the U.S. government and agencies, special revenue, and industrial and miscellaneous bond categories. The Alt-A category includes option adjustable-rate mortgages and the subprime category includes 'scratch and dent' or reperforming pools, high loan-to-value pools, and pools where the borrowers have very impaired credit but the average loan-to-value is low, typically 70% or below. In identifying Alt-A and subprime exposure, management used a combination of qualitative and quantitative factors, including FICO scores and loan-to-value ratios.

As of December 31, 2015, RMBS had a total carrying value of $1,887 million and a fair value of $2,139 million, of which approximately 23%, based on carrying value, was classified as Alt-A. Alt-A and subprime RMBS had a total carrying value of $851 million and a fair value of $1,005 million.

As of December 31, 2014, RMBS had a total carrying value of $2,289 million and a fair value of $2,607 million, of which approximately 22%, based on carrying value, was classified as Alt-A. Alt-A and subprime RMBS had a total carrying value of $1,016 million and a fair value of $1,210 million.

During the year ended December 31, 2015, there were no significant credit downgrades for the securities held by the Company that were backed by residential mortgage pools.

Leveraged loan exposure

Leveraged loans are loans extended to companies that already have considerable amounts of debt. The Company reports leveraged loans as bonds. These leveraged loans have interest rates higher than typical loans, reflecting the additional risk of default from issuers with high debt-to-equity ratios.

As of December 31, 2015, total leveraged loans and leveraged loan CDOs had a carrying value of $7,709 million and a fair value of $7,641 million, of which approximately 94%, based on carrying value, were domestic leveraged loans and CDOs.

As of December 31, 2014, total leveraged loans and leveraged loan CDOs had a carrying value of $10,056 million and a fair value of $10,149 million, of which approximately 89%, based on carrying value, were domestic leveraged loans and CDOs.

Commercial mortgage-backed exposure

The Company holds bonds backed by pools of commercial mortgages. The mortgages in these pools have varying risk characteristics related to underlying collateral type, borrower's risk profile and ability to refinance and the return provided to the borrower from the underlying collateral. These investments had a carrying value of $2,252 million and fair value of $2,291 million as of December 31, 2015 and a carrying value of $2,758 million and fair value of $2,880 million as of December 31, 2014.

b. Preferred stocks

The carrying value and fair value of preferred stocks were as follows:

	December 31,	
	2015	2014
	(In Millions)	
Carrying value	$ 533	$ 525
Gross unrealized gains	30	21
Gross unrealized losses	(43)	(15)
Fair value	$ 520	$ 531

As of December 31, 2015, investments in preferred stocks in an unrealized loss position included holdings with a fair value of $188 million in seven issuers, $84 million of which were in an unrealized loss position for more than 12 months. As of December 31, 2014, investments in preferred stocks in an unrealized loss position included holdings with a fair value of $112 million in three issuers, none of which were in an unrealized loss position for more than 12 months. Based upon the Company's impairment review process discussed in *Note 2dd. "Realized capital gains (losses) including other-than-temporary impairments and unrealized capital gains (losses)"* the decline in value of these securities was not considered to be other than temporary as of December 31, 2015 or 2014.

The Company held preferred stocks for which the transfer of ownership was restricted by contractual requirements with carrying values of $347 million as of December 31, 2015 and $260 million as of December 31, 2014.

c. Common stocks – subsidiaries and affiliates

The Company has two primary domestic life insurance subsidiaries, C.M. Life, which primarily provides fixed and variable annuities and universal life insurance business, and MML Bay State, a subsidiary of C.M. Life, which primarily issues variable life and bank-owned life insurance policies.

Summarized below is certain combined statutory financial information for the unconsolidated domestic life insurance subsidiaries:

	As of and for Years Ended December 31,		
	2015	2014	2013
	(In Billions)		
Total revenue	$ 0.8	$ 0.8	$ 0.9
Net income	0.1	0.2	0.2
Assets	13.3	13.2	13.4
Liabilities	11.9	11.9	12.3
Shareholder's equity	1.4	1.3	1.1

MMHLLC is the parent of subsidiaries that include OppenheimerFunds, Inc. (OFI), Babson Capital Management LLC (Babson Capital), Baring Asset Management Limited (Baring) and investments in international life insurance operations in Japan and Hong Kong. These subsidiaries deal in markets that include retail and institutional asset management entities, registered broker dealers, and international life and annuity operations.

Summarized below is certain U.S. GAAP financial information for MMHLLC:

	As of and for Years Ended December 31,		
	2015	2014	2013
	(In Billions)		
Total revenue	$ 8.7	$ 7.3	$ 6.5
Net income	0.8	0.5	0.3
Assets	50.1	49.4	50.0
Liabilities	40.4	40.4	40.2
Member's equity	9.7	9.0	9.8

The equity values in the preceding table consist of MMHLLC statutory carrying values of $5,717 million as of December 31, 2015 and $5,549 million as of December 31, 2014 plus the value of MMHLLC that is nonadmitted

under statutory accounting principles. The current fair value of MMHLLC remains significantly greater than its statutory carrying value.

The Company received cash dividends, recorded in net investment income, from MMHLLC of $500 million in 2015, $50 million in 2014 and $175 million in 2013.

MassMutual contributed capital of $20 million to MMHLLC in 2015 and $85 million in 2014. No capital contribution was made to MMHLLC in 2013.

Subsidiaries of MMHLLC are involved in litigation and investigations arising in the ordinary course of their business, which seek compensatory damages, punitive damages and equitable remedies. Although the Company is not aware of any actions or allegations that reasonably should give rise to a material adverse impact to the Company's financial position or liquidity, the outcome of litigation cannot be foreseen with certainty. It is the opinion of management that the ultimate resolution of these matters will not materially impact the Company's financial position or liquidity. However, the outcome of a particular proceeding may be material to the Company's Statutory Statements of Changes in Surplus for a particular period depending upon, among other factors, the size of the loss and the level of the Company's changes in surplus for the period.

The Company held common stocks of subsidiaries and affiliates, for which the transfer of ownership was restricted by contractual requirements with a carrying value of $37 million as of December 31, 2015. The Company did not hold common stocks of subsidiaries and affiliates for which the transfer of ownership was restricted by contractual requirements as of December 31, 2014.

The Company does not rely on dividends from its subsidiaries to meet its operating cash flow requirements. For the domestic life insurance subsidiaries, substantially all of their statutory shareholder's equity of approximately $1.4 billion as of December 31, 2015 was subject to dividend restrictions imposed by the State of Connecticut.

d. Common stocks - unaffiliated

The adjusted cost basis and carrying value of unaffiliated common stocks were as follows:

	December 31,	
	2015	2014
	(In Millions)	
Adjusted cost basis	$ 1,215	$ 1,090
Gross unrealized gains	106	172
Gross unrealized losses	(181)	(74)
Carrying value	$ 1,140	$ 1,188

As of December 31, 2015, investments in unaffiliated common stocks in an unrealized loss position included holdings with a fair value of $562 million in 301 issuers, $293 million of which were in an unrealized loss position for more than 12 months. As of December 31, 2014, investments in unaffiliated common stocks in an unrealized loss position included holdings with a fair value of $426 million in 159 issuers, $55 million of which were in an unrealized loss position for more than 12 months. Based upon the Company's impairment review process discussed in *Note 2dd. "Realized capital gains (losses) including other-than-temporary impairments and unrealized capital gains (losses)"* the decline in value of these securities was not considered to be other than temporary as of December 31, 2015 or 2014.

The Company held common stocks, for which the transfer of ownership was restricted by contractual requirements, with carrying values of $249 million as of December 31, 2015 and $193 million as of December 31, 2014.

e. Mortgage loans

Mortgage loans comprised commercial mortgage loans and residential mortgage loans. The Company's commercial mortgage loans primarily finance various types of real estate properties throughout the U.S., the United Kingdom and Canada. The Company holds commercial mortgage loans for which it is the primary lender and mezzanine loans that are subordinate to senior secured first liens. The Company's loan agreements with the senior lender contain negotiated provisions that are designed to maximize the Company's influence with the objective of mitigating the Company's risks as the secondary lender for mezzanine loans. Commercial mortgage loans have varying risk characteristics including, among others, the borrower's liquidity, the underlying percentage of completion of a project, the returns generated by the collateral, the refinance risk associated with maturity of the loan and deteriorating collateral value.

Residential mortgage loans are primarily seasoned pools of homogeneous residential mortgage loans substantially backed by Federal Housing Administration (FHA) and Veterans Administration (VA) guarantees. As of December 31, 2015 and 2014, the Company did not have any direct subprime exposure through the purchases of unsecuritized whole-loan pools.

Geographical concentration is considered prior to the purchase of mortgage loans and residential mortgage loan pools. The mortgage loan portfolio is diverse with no significant concentrations in any particular geographic region as of December 31, 2015 or 2014.

The carrying value and fair value of the Company's mortgage loans were as follows:

	December 31,			
	2015		2014	
	Carrying Value	Fair Value	Carrying Value	Fair Value
	(In Millions)			
Commercial mortgage loans:				
Primary lender	$ 20,217	$ 20,742	$ 17,540	$ 18,157
Mezzanine loans	70	73	45	47
Total commercial mortgage loans	20,287	20,815	17,585	18,204
Residential mortgage loans:				
FHA insured and VA guaranteed	1,714	1,677	1,763	1,729
Other residential loans	7	7	9	9
Total residential mortgage loans	1,721	1,684	1,772	1,738
Total mortgage loans	$ 22,008	$ 22,499	$ 19,357	$ 19,942

As of December 31, 2015, scheduled commercial mortgage loan maturities were as follows (in millions):

2016	$ 1,826
2017	1,542
2018	1,127
2019	1,559
2020	1,367
Thereafter	12,866
Commercial mortgage loans	20,287
Residential mortgage loans	1,721
Total	$ 22,008

The Company uses an internal rating system as its primary method of monitoring credit quality. The following illustrates the Company's mortgage loan portfolio categorized by what it believes is the equivalent rating agency designation:

	December 31, 2015					
	AAA/AA/A	BBB	BB	B	CCC and Lower	Total
	(In Millions)					
Commercial mortgage loans:						
Primary lender	$ 9,499	$ 8,700	$ 1,503	$ 413	$ 102	$ 20,217
Mezzanine loans	-	34	36	-	-	70
Total commercial mortgage loans	9,499	8,734	1,539	413	102	20,287
Residential mortgage loans:						
FHA insured and VA guaranteed	1,714	-	-	-	-	1,714
Other residential loans	7	-	-	-	-	7
Total residential mortgage loans	1,721	-	-	-	-	1,721
Total mortgage loans	$ 11,220	$ 8,734	$ 1,539	$ 413	$ 102	$ 22,008

	December 31, 2014					
	AAA/AA/A	BBB	BB	B	CCC and Lower	Total
	(In Millions)					
Commercial mortgage loans:						
Primary lender	$ 8,428	$ 7,296	$ 1,636	$ 156	$ 24	$ 17,540
Mezzanine loans	-	35	10	-	-	45
Total commercial mortgage loans	8,428	7,331	1,646	156	24	17,585
Residential mortgage loans:						
FHA insured and VA guaranteed	1,763	-	-	-	-	1,763
Other residential loans	9	-	-	-	-	9
Total residential mortgage loans	1,772	-	-	-	-	1,772
Total mortgage loans	$ 10,200	$ 7,331	$ 1,646	$ 156	$ 24	$ 19,357

The loan-to-value ratios by property type of the Company's commercial mortgage loans were as follows:

	December 31, 2015				
	Less Than 81%	81% to 95%	Above 95%	Total	% of Total
	($ In Millions)				
Office	$ 6,750	$ 59	$ 102	$ 6,911	34 %
Apartments	4,926	-	2	4,928	24
Industrial and other	3,186	173	-	3,359	17
Hotels	2,697	12	-	2,709	13
Retail	2,338	28	14	2,380	12
Total	$ 19,897	$ 272	$ 118	$ 20,287	100 %

	December 31, 2014				
	Less Than 81%	81% to 95%	Above 95%	Total	% of Total
	($ In Millions)				
Office	$ 6,013	$ 105	$ 28	$ 6,146	36 %
Apartments	4,266	5	14	4,285	24
Industrial and other	3,036	391	-	3,427	19
Retail	1,937	-	15	1,952	11
Hotels	1,760	-	15	1,775	10
Total	$ 17,012	$ 501	$ 72	$ 17,585	100 %

The maximum percentage of any one commercial mortgage loan to the estimated value of secured collateral at the time the loan was originated, exclusive of mezzanine, insured, guaranteed or purchase money mortgages, was 93.0% as of December 31, 2015 and 2014. The maximum percentage of any one mezzanine loan to the estimated value of secured collateral at the time the loan was originated was 76.5% as of December 31, 2015 and 2014.

The geographic distribution of commercial mortgage loans was as follows:

	December 31, 2015	
	Carrying Value	Average Loan-to-Value Ratio
	($ In Millions)	
California	$ 5,522	51 %
New York	2,311	47 %
Illinois	1,943	53 %
Texas	1,558	53 %
Massachusetts	1,276	55 %
Washington	1,123	48 %
All other	5,415	53 %
United Kingdom	827	53 %
Canada	312	66 %
Total commercial mortgage loans	$ 20,287	53 %

All other consists of 33 jurisdictions, with no individual exposure exceeding $949 million.

	December 31, 2014	
	Carrying Value	Average Loan-to-Value Ratio
	($ In Millions)	
California	$ 4,466	53 %
New York	2,005	51 %
Illinois	1,800	54 %
Texas	1,342	52 %
Massachusetts	1,263	54 %
District of Columbia	773	50 %
All other	4,888	56 %
United Kingdom	675	50 %
Canada	373	55 %
Total commercial mortgage loans	$ 17,585	53 %

All other consists of 35 jurisdictions, with no individual exposure exceeding $666 million.

Interest rates, including fixed and variable, on the Company's portfolio of mortgage loans were:

	December 31,					
	2015			2014		
	Low	High	Weighted Average	Low	High	Weighted Average
Commercial mortgage loans	2.6 %	12.3 %	5.1 %	1.1 %	12.3 %	4.7 %
Residential mortgage loans	2.4 %	11.8 %	5.1 %	2.5 %	11.9 %	5.4 %
Mezzanine mortgage loans	5.9 %	12.0 %	9.0 %	5.9 %	7.2 %	6.2 %

Interest rates, including fixed and variable, on new mortgage loans were:

	Years Ended December 31,					
	2015			2014		
	Low	High	Weighted Average	Low	High	Weighted Average
Commercial mortgage loans	2.6 %	8.3 %	4.0 %	3.1 %	10.0 %	4.3 %
Residential mortgage loans	3.9 %	4.9 %	4.0 %	4.5 %	4.7 %	4.6 %
Mezzanine mortgage loans	10.8 %	12.0 %	11.4 %	- %	- %	- %

The following presents a summary of the Company's impaired mortgage loans as of December 31, 2015:

	Carrying Value	Average Carrying Value	Unpaid Principal Balance	Valuation Allowance	Interest Income
	(In Millions)				
With no allowance recorded:					
Commercial mortgage loans:					
Primary lender	$ 28	$ 31	$ 33	$ -	$ 2

As of December 31, 2014, the Company had no impaired mortgage loans with or without a valuation allowance.

The following presents a summary of the Company's impaired mortgage loans as of December 31, 2013:

	Carrying Value	Average Carrying Value	Unpaid Principal Balance	Valuation Allowance	Interest Income
	(In Millions)				
With allowance recorded:					
Commercial mortgage loans:					
Primary lender	$ 49	$ 51	$ 68	$ (9)	$ 4

The following presents changes in the valuation allowance recorded for the Company's commercial mortgage loans:

	Years Ended December 31,								
	2015			2014			2013		
	Primary Lender	Mezzanine	Total	Primary Lender	Mezzanine	Total	Primary Lender	Mezzanine	Total
	(In Millions)								
Beginning balance	$ -	$ -	$ -	$ (9)	$ -	$ (9)	$ (5)	$ (9)	$ (14)
Additions	(5)	-	(5)	(2)	-	(2)	(19)	(7)	(26)
Decreases	-	-	-	1	-	1	-	9	9
Write-downs	5	-	5	10	-	10	15	7	22
Ending balance	$ -	$ -	$ -	$ -	$ -	$ -	$ (9)	$ -	$ (9)

The Company did not hold any restructured mortgage loans or mortgage loans with principal or interest past due as of December 31, 2015 or 2014. The Company had no mortgage loans with suspended interest accruals as of December 31, 2015 or 2014.

f. Real estate

The carrying value of real estate was as follows:

	December 31, 2015	December 31, 2014
	(In Millions)	
Held for the production of income	$ 2,441	$ 2,173
Accumulated depreciation	(1,071)	(1,008)
Encumbrances	(613)	(558)
Held for the production of income, net	757	607
Held for sale	1	1
Occupied by the Company	338	322
Accumulated depreciation	(168)	(154)
Occupied by the Company, net	170	168
Total real estate	$ 928	$ 776

Non-income producing properties that are held for investment consist of properties under construction. The carrying value of non-income producing real estate was $45 million as of December 31, 2015 and $28 million as of December 31, 2014.

Depreciation expense on real estate was $95 million for the year ended December 31, 2015, $90 million for the year ended December 31, 2014 and $96 million for the year ended December 31, 2013.

g. Partnerships and limited liability companies

Partnership and LLC holdings, at carrying value, by annual statement category were:

	December 31, 2015	December 31, 2014
	(In Millions)	
Joint venture interests:		
Common stocks	$ 4,375	$ 3,887
Real estate	1,545	1,709
Fixed maturities/preferred stock	755	617
Other	62	49
LIHTCs	288	278
Mortgage loans	264	248
Surplus notes	184	182
Total	$ 7,473	$ 6,970

There were no write-downs or reclassifications of LIHTC partnerships made during the years ended December 31, 2015 or December 31, 2014, due to forfeiture or ineligibility of tax credits or similar issues. In addition, there are no LIHTC properties currently subject to regulatory review.

h. Derivatives

The Company uses derivative financial instruments in the normal course of business to manage risks, primarily to reduce currency, interest rate and duration imbalances determined in asset/liability analyses. The Company also uses a combination of derivatives and fixed income investments to create synthetic investments. These synthetic investments are created when they are economically more attractive than the actual instrument or when similar instruments are unavailable. Synthetic investments are created either to hedge and reduce the Company's credit exposure or to create an investment in a particular asset. The Company held synthetic investments with a net notional amount of $10,330 million as of December 31, 2015 and $9,239 million as of December 31, 2014. These net notional amounts included replicated asset transaction values of $9,986 million as of December 31, 2015 and $8,354 million as of December 31, 2014, as defined under statutory accounting practices as the result of pairing of a long derivative contract with cash instruments.

The Company's derivative strategy employs a variety of derivative financial instruments, including interest rate swaps, currency swaps, equity and credit default swaps, options, interest rate caps and floors, forward contracts and financial futures. Investment risk is assessed on a portfolio basis and individual derivative financial instruments are not generally designated in hedging relationships; therefore, as allowed by statutory accounting practices, the Company intentionally has not applied hedge accounting.

Under interest rate swaps, the Company agrees, at specified intervals, to an exchange of variable rate and fixed rate interest payments calculated by reference to an agreed upon notional principal amount. Typically, no cash is exchanged at the outset of the contract and no principal payments are made by either party. Cash is paid or received based on the terms of the swap agreement. Interest rate swaps are primarily used to more closely match the cash flows of assets and liabilities. Interest rate swaps are also used to mitigate changes in the value of assets anticipated to be purchased and other anticipated transactions and commitments.

Under currency swaps, the Company agrees to an exchange of principal denominated in two different currencies at current rates, under an agreement to repay the principal at a specified future date and rate. The Company uses currency swaps for the purpose of managing currency exchange risks in its assets and liabilities.

Credit default swaps involve a transfer of the credit risk of fixed income instruments from one party to another in exchange for periodic premium payments. The buyer of the credit default swap receives credit protection, whereas the seller of the swap provides protection for the credit worthiness of the underlying security. A credit default swap transfers the risk of default from the buyer of the swap to the seller. If a specified credit event occurs, as defined by the agreement, the seller is obligated to pay the counterparty the contractually agreed upon amount and receives in return the underlying security in an amount equal to the notional value of the credit default swap. A credit event is generally defined as default on contractually obligated interest or principal payments or bankruptcy.

The Company does not sell credit default swaps as a participant in the credit insurance market. The Company does, however, use credit default swaps as part of its investment management process. The Company buys credit default swaps as an efficient means to reduce credit exposure to particular issuers or sectors in the Company's investment portfolio. The Company sells credit default swaps in order to create synthetic investment positions that enhance the return on its investment portfolio by providing comparable exposure to fixed income securities that might not be available in the primary market.

Options grant the purchaser the right to buy or sell a security or enter a derivative transaction at a stated price within a stated period. The Company's option contracts have terms of up to 15 years. A swaption is an option to enter an interest rate swap to either receive or pay a fixed rate at a future date. The Company purchases these options for the purpose of managing interest rate risks in its assets and liabilities.

The Company adopted a clearly defined hedging strategy (CDHS) to enable the Company to incorporate currently held hedges in risk-based capital (RBC) calculations. The CDHS is used to significantly mitigate the impact that movements in capital markets have on the liabilities associated with annuity guarantees. The hedge portfolio consists mainly of interest rate swaps, equity swaps, interest rate swaptions and equity futures, and provides protection in the stress scenarios under which RBC is calculated. The hedge portfolio has offsetting impacts relative to the total asset requirement for RBC and surplus for GMDB and VAGLB.

The Company utilizes certain other agreements including forward contracts and financial futures. Currency forwards are contracts in which the Company agrees with other parties to exchange specified amounts of identified currencies at a specified future date. Typically, the exchange rate is agreed upon at the time of the contract. In addition, the Company also uses "to be announced" forward contracts (TBAs) to hedge interest rate risk and participate in the mortgage-backed securities market in an efficient and cost effective way. Typically, the price is agreed upon at contract inception and payment is made at a specified future date. The Company usually does not purchase TBAs with settlement by the first possible delivery date and thus, accounts for these TBAs as derivatives. TBAs that settle on the first possible delivery date are accounted for as bonds. The Company's futures contracts are exchange traded and have credit risk. Margin requirements are met with the deposit of securities. Futures contracts are generally settled with offsetting transactions. Forward contracts and financial futures are used by the Company to reduce exposures to various risks including interest rates and currency rates.

The Company's principal derivative market risk exposures are interest rate risk, which includes the impact of inflation, and credit risk. Interest rate risk pertains to the change in fair value of the derivative instruments as market interest rates move. The Company is exposed to credit-related losses in the event of nonperformance by counterparties to derivative financial instruments. To minimize credit risk for bilateral transactions (individual contracts entered between the Company and a counterparty), the Company and its derivative counterparties generally enter into master netting agreements that allow the use of credit support annexes and require collateral to be posted in the amount owed under each transaction, subject to certain minimums. For over the counter cleared derivative transactions between the Company and a counterparty, the parties enter into a series of master netting and other agreements that govern, among other things, clearing and collateral requirements. These transactions are cleared through a clearinghouse and each derivative counterparty is only exposed to the default risk of the clearinghouse. Certain interest rate swaps and credit default swaps into which the Company enters are considered cleared transactions. These cleared transactions require initial and daily variation margin collateral postings. These same agreements allow for contracts in a positive position, in which amounts are due to the Company, to be offset by contracts in a negative position. This right of offset, combined with collateral obtained from counterparties, reduces the Company's exposure. Net collateral pledged by the counterparties was $2,964 million as of December 31, 2015 and $2,766 million as of December 31, 2014. The Company also has the right to rehypothecate or repledge securities. As of December 31, 2015, the Company had the right to rehypothecate $1,249 million of the $2,964 million of the net collateral pledged by counterparties. As of December 31, 2015, $23 million of securities collateral was rehypothecated to other counterparties. In the event of default, the full market value exposure at risk in a net gain position, net of offsets and collateral, was $267 million as of December 31, 2015 and $132 million as of December 31, 2014. The statutory net amount at risk, defined as net collateral pledged and statement values excluding accrued interest, was $667 million as of December 31, 2015 and $554 million as of December 31, 2014. The Company regularly monitors counterparty credit ratings and exposures, derivative positions and valuations and the value of collateral posted to ensure counterparties are credit-worthy and the concentration of exposure is minimized. The Company monitors this exposure as part of its management of the Company's overall credit exposures.

The following summarizes the carrying values and notional amounts of the Company's derivative financial instruments:

	December 31, 2015			
	Assets		Liabilities	
	Carrying Value	Notional Amount	Carrying Value	Notional Amount
	(In Millions)			
Interest rate swaps	$ 8,033	$ 59,857	$ 5,797	$ 77,293
Options	622	6,558	7	109
Currency swaps	536	5,218	4	533
Forward contracts	55	2,455	13	1,011
Credit default swaps	22	1,860	19	1,055
Financial futures	-	2,027	-	-
Total	$ 9,268	$ 77,975	$ 5,840	$ 80,001

	December 31, 2014			
	Assets		Liabilities	
	Carrying Value	Notional Amount	Carrying Value	Notional Amount
	(In Millions)			
Interest rate swaps	$ 7,688	$ 58,600	$ 5,359	$ 61,120
Options	524	9,323	9	596
Currency swaps	233	2,677	45	1,010
Forward contracts	70	3,362	3	298
Credit default swaps	16	1,269	8	777
Financial futures	-	1,798	-	-
Total	$ 8,531	$ 77,029	$ 5,424	$ 63,801

In most cases, the notional amounts are not a measure of the Company's credit exposure. However, notional amounts are a measure of the Company's credit exposure for credit default swaps that are in the form of a replicated asset and mortgage-backed forwards. For these swaps and forwards, the Company is fully exposed to notional amounts of $2,944 million as of December 31, 2015 and $2,385 million as of December 31, 2014.

The collateral amounts exchanged are calculated on the basis of the notional amounts and the other terms of the instruments, which relate to interest rates, exchange rates, security prices or financial or other indices.

The average fair value of outstanding derivative assets was $9,291 million for the year ended December 31, 2015 and $6,785 million for the year ended December 31, 2014. The average fair value of outstanding derivative liabilities was $6,044 million for the year ended December 31, 2015 and $4,536 million for the year ended December 31, 2014.

The following summarizes the notional amounts of the Company's credit default swaps by contractual maturity:

	December 31, 2015	December 31, 2014
	(In Millions)	
Due in one year or less	$ 57	$ 338
Due after one year through five years	2,058	1,408
Due after five years through ten years	800	300
Total	$ 2,915	$ 2,046

The following presents the Company's gross notional interest rate swap positions:

	December 31, 2015	December 31, 2014
	(In Millions)	
Open interest rate swaps in a fixed pay position	$ 65,031	$ 55,474
Open interest rate swaps in a fixed receive position	71,672	63,804
Other interest related swaps	447	442
Total interest rate swaps	$ 137,150	$ 119,720

The following summarizes the Company's net realized gains (losses) on closed contracts and change in net unrealized gains (losses) related to market fluctuations on open contracts by derivative type:

	Year ended December 31, 2015	
	Net Realized Gains (Losses) on Closed Contracts	Change In Net Unrealized Gains (Losses) on Open Contracts
	(In Millions)	
Interest rate swaps	$ (187)	$ (93)
Currency swaps	21	343
Options	(99)	2
Credit default swaps	9	(1)
Forward contracts	249	(24)
Financial futures	(57)	-
Total	$ (64)	$ 227

	Year Ended December 31, 2014	
	Net Realized Gains (Losses) on Closed Contracts	Change In Net Unrealized Gains (Losses) on Open Contracts
	(In Millions)	
Interest rate swaps	$ (58)	$ 760
Currency swaps	(2)	231
Options	(87)	141
Credit default swaps	14	2
Forward contracts	211	95
Financial futures	290	-
Total	$ 368	$ 1,229

	Year Ended December 31, 2013	
	Net Realized Gains (Losses) on Closed Contracts	Change In Net Unrealized Gains on Open Contracts
	(In Millions)	
Interest rate swaps	$ (137)	$ (679)
Currency swaps	35	(113)
Options	(49)	(120)
Credit default swaps	(18)	7
Forward contracts	(38)	(44)
Financial futures	(528)	-
Total	$ (735)	$ (949)

The following summarizes gross and net information of derivative assets and liabilities, along with collateral posted in connection with master netting agreements:

	December 31, 2015			December 31, 2014		
	Derivative Assets	Derivative Liabilities	Net	Derivative Assets	Derivative Liabilities	Net
	(In Millions)					
Gross	$ 9,268	$ 5,840	$ 3,428	$ 8,531	$ 5,424	$ 3,107
Due and accrued	803	1,475	(672)	714	1,391	(677)
Gross amounts offset	(4,653)	(4,653)	-	(4,159)	(4,159)	-
Net asset	5,418	2,662	2,756	5,086	2,656	2,430
Collateral posted	(3,350)	(386)	(2,964)	(3,146)	(380)	(2,766)
Net	$ 2,068	$ 2,276	$ (208)	$ 1,940	$ 2,276	$ (336)

i. Repurchase agreements

The Company had repurchase agreements with carrying values of $5,130 million as of December 31, 2015 and $4,658 million as of December 31, 2014. As of December 31, 2015, the maturities of these agreements ranged from January 5, 2016 through February 2, 2016 and the interest rates ranged from 0.3% to 0.5%. The outstanding amounts were collateralized by cash and bonds with a carrying value of $5,135 million as of December 31, 2015 and bonds with a carrying value of $4,659 million as of December 31, 2014.

j. Net investment income

Net investment income, including IMR amortization, comprised the following:

	Years Ended December 31,		
	2015	2014	2013
	(In Millions)		
Bonds	$ 3,439	$ 3,287	$ 3,149
Preferred stocks	27	21	19
Common stocks - subsidiaries and affiliates	511	71	180
Common stocks - unaffiliated	48	67	37
Mortgage loans	976	877	779
Policy loans	709	684	674
Real estate	169	191	195
Partnerships and LLCs	639	1,207	602
Derivatives	292	290	152
Cash, cash equivalents and short-term investments	14	10	12
Other	13	2	11
Subtotal investment income	6,837	6,707	5,810
Amortization of the IMR	140	192	189
Investment expenses	(590)	(567)	(528)
Net investment income	$ 6,387	$ 6,332	$ 5,471

During 2014, the Company received additional distributions from certain affiliated partnerships that generated net investment income. These distributions were related to the partnerships' leasing and sale of properties.

k. Net realized capital gains (losses)

Net realized capital gains, which include OTTI and are net of deferral to the IMR, comprised the following:

	Years Ended December 31,		
	2015	2014	2013
	(In Millions)		
Bonds	$ (66)	$ 359	$ 18
Preferred stocks	2	4	14
Common stocks - subsidiaries and affiliates	64	11	33
Common stocks - unaffiliated	(8)	(71)	49
Mortgage loans	(8)	(9)	(20)
Real estate	50	211	54
Partnerships and LLCs	(97)	(18)	(46)
Derivatives	(64)	368	(735)
Other	216	(50)	(39)
Net realized capital (losses) gains before federal and state taxes and deferral to the IMR	89	805	(672)
Net federal and state tax expense	(151)	(282)	(147)
Net realized capital (losses) gains before deferral to the IMR	(62)	523	(819)
Net after tax losses (gains) deferred to the IMR	121	(357)	342
Net realized capital gains (losses)	$ 59	$ 166	$ (477)

The IMR liability balance was $349 million as of December 31, 2015 and $628 million as of December 31, 2014 and was included in other liabilities on the Statutory Statements of Financial Position.

OTTI, included in the realized capital losses, consisted of the following:

	Years Ended December 31,		
	2015	2014	2013
	(In Millions)		
Bonds	$ (170)	$ (35)	$ (32)
Preferred stock	(11)	-	-
Common stocks	(14)	(85)	(16)
Mortgage loans	(5)	(10)	(22)
Partnerships and LLCs	(70)	(56)	(45)
Total OTTI	$ (270)	$ (186)	$ (115)

The Company recognized OTTI of $7 million for the year ended December 31, 2015, $14 million for the year ended December 31, 2014 and $18 million for the year ended December 31, 2013, on structured and loan-backed securities, which are included in bonds, primarily due to the present value of expected cash flows being less than the amortized cost.

For the year ended December 31, 2015, 1% of the $170 million of bond OTTI, for the year ended December 31, 2014, 6% of the $35 million of bond OTTI and for the year ended December 31, 2013, 25% of the $32 million of bond OTTI were determined using internally developed models. The remaining OTTI amounts were determined using external inputs such as publicly observable fair values and credit ratings. Refer *to Note 2dd. "Realized capital*

gains (losses) including other-than-temporary impairments and unrealized capital gains (losses)" for more information on assumptions and inputs used in the Company's OTTI models.

Refer to *Note 20. "Impairment listing for loan-backed and structured securities"* for a CUSIP level list of impaired structured securities where the present value of cash flows expected to be collected is less than the amortized cost basis.

5. Federal income taxes

The Company provides for DTAs in accordance with statutory accounting practices and has met the required threshold to utilize the three-year reversal period and 15% of surplus limitation.

The net DTA or deferred tax liability (DTL) recognized in the Company's assets, liabilities and surplus is as follows:

	December 31, 2015		
	Ordinary	Capital	Total
	(In Millions)		
Gross DTAs	$ 3,023	$ 382	$ 3,405
Statutory valuation allowance adjustment	-	-	-
Adjusted gross DTAs	3,023	382	3,405
DTAs nonadmitted	-	-	-
Subtotal net admitted DTA	3,023	382	3,405
Total gross DTLs	(1,658)	(448)	(2,106)
Net admitted DTA(L)	$ 1,365	$ (66)	$ 1,299

	December 31, 2014		
	Ordinary	Capital	Total
	(In Millions)		
Gross DTAs	$ 2,819	$ 236	$ 3,055
Statutory valuation allowance adjustment	-	-	-
Adjusted gross DTAs	2,819	236	3,055
DTAs nonadmitted	-	-	-
Subtotal net admitted DTA	2,819	236	3,055
Total gross DTLs	(1,713)	(383)	(2,096)
Net admitted DTA(L)	$ 1,106	$ (147)	$ 959

	Change		
	Ordinary	Capital	Total
	(In Millions)		
Gross DTAs	$ 204	$ 146	$ 350
Statutory valuation allowance adjustment	-	-	-
Adjusted gross DTAs	204	146	350
DTAs nonadmitted	-	-	-
Subtotal net admitted DTA	204	146	350
Total gross DTLs	55	(65)	(10)
Net admitted DTA(L)	$ 259	$ 81	$ 340

The amount of adjusted gross DTA admitted under each component of the guidance and the resulting change by tax character are as follows:

	December 31, 2015		
	Ordinary	Capital	Total
	(In Millions)		
Admitted DTA 3 years:			
Federal income taxes that can be recovered	$ 48	$ 188	$ 236
Remaining adjusted gross DTAs expected to be realized within 3 years (lesser of 1 or 2):			
1. Adjusted gross DTA to be realized	1,063	-	1,063
2. Adjusted gross DTA allowed per limitation threshold	2,024	-	2,024
Lesser of lines 1 or 2	1,063	-	1,063
Adjusted gross DTAs offset by existing DTLs	1,912	194	2,106
Total admitted DTA realized within 3 years	$ 3,023	$ 382	$ 3,405

	December 31, 2014		
	Ordinary	Capital	Total
	(In Millions)		
Admitted DTA 3 years:			
Federal income taxes that can be recovered	$ 6	$ 144	$ 150
Remaining adjusted gross DTAs expected to be realized within 3 years			
1. Adjusted gross DTA to be realized	1,076	-	1,076
2. Adjusted gross DTA allowed per limitation threshold	1,940	-	1,940
Lesser of lines 1 or 2	1,076	-	1,076
Adjusted gross DTAs offset by existing DTLs	1,737	92	1,829
Total admitted DTA realized within 3 years	$ 2,819	$ 236	$ 3,055

	Change		
	Ordinary	Capital	Total
	(In Millions)		
Admitted DTA 3 years:			
Federal income taxes that can be recovered	$ 42	$ 44	$ 86
Remaining adjusted gross DTAs expected to be realized within 3 years			
1. Adjusted gross DTA to be realized	(13)	-	(13)
2. Adjusted gross DTA allowed per limitation threshold	84	-	84
Lesser of lines 1 or 2	(13)	-	(13)
Adjusted gross DTAs offset by existing DTLs	175	102	277
Total admitted DTA realized within 3 years	$ 204	$ 146	$ 350

The Company's total realization threshold limitations are as follows:

	December 31, 2015	December 31, 2014
	($ In Millions)	
Ratio percentage used to determine recovery period and threshold limitation	926%	932%
Amount of adjusted capital and surplus used to determine recovery period and threshold limitation above	$ 13,645	$ 12,932

The ultimate realization of DTAs depends on the generation of future taxable income during the periods in which the temporary differences are deductible. Management considers the scheduled reversal of DTLs, including the impact of available carryback and carryforward periods, projected taxable income and tax-planning strategies in making this assessment. The impact of tax-planning strategies is as follows:

	December 31, 2015		
	Ordinary	Capital	Total
	(Percent)		
Impact of tax-planning strategies:			
Adjusted gross DTAs (% of total adjusted gross DTAs)	- %	- %	- %
Net admitted adjusted gross DTAs (% of total net admitted adjusted gross DTAs)	67 %	- %	67 %

	December 31, 2014		
	Ordinary	Capital	Total
	(Percent)		
Impact of tax-planning strategies:			
Adjusted gross DTAs (% of total adjusted gross DTAs)	- %	- %	- %
Net admitted adjusted gross DTAs (% of total net admitted adjusted gross DTAs)	68 %	- %	68 %

	Change		
	Ordinary	Capital	Total
	(Percent)		
Impact of tax-planning strategies:			
Adjusted gross DTAs (% of total adjusted gross DTAs)	- %	- %	- %
Net admitted adjusted gross DTAs (% of total net admitted adjusted gross DTAs)	(1)%	- %	(1)%

There are no reinsurance strategies included in the Company's tax-planning strategies.

The provision for current tax expense on earnings is as follows:

	Years Ended December 31,		
	2015	2014	2013
	(In Millions)		
Federal income tax expense (benefit) on operating earnings	$ (159)	$ 20	$ (157)
Foreign income tax expense on operating earnings	6	3	15
Total federal and foreign income tax expense (benefit) on operating earnings	(153)	23	(142)
Federal income tax expense on net realized capital gains (losses)	151	282	147
Total federal and foreign income tax expense (benefit)	$ (2)	$ 305	$ 5

The tax effects of temporary differences that give rise to significant portions of the DTAs and DTLs are as follows:

	December 31,		
	2015	2014	Change
	(In Millions)		
DTAs:			
Ordinary			
Reserve items	$ 965	$ 873	$ 92
Policy acquisition costs	644	591	53
Nonadmitted assets	457	451	6
Policyholders' dividends	374	334	40
Pension and compensation related items	267	252	15
Investment items	185	132	53
Expense items	26	74	(48)
Unrealized investment losses	3	7	(4)
Other	102	105	(3)
Total ordinary DTAs	3,023	2,819	204
Admitted ordinary DTAs	3,023	2,819	204
Capital			
Unrealized investment losses	233	96	137
Investment items	149	140	9
Total capital DTAs	382	236	146
Admitted capital DTAs	382	236	146
Admitted DTAs	3,405	3,055	350
DTLs:			
Ordinary			
Unrealized investment gains	782	815	(33)
Deferred and uncollected premium	300	281	19
Pension items	253	301	(48)
Investment Items	76	100	(24)
Reserve for audits and settlements	74	74	-
Other	173	142	31
Total ordinary DTLs	1,658	1,713	(55)
Capital			
Unrealized investment gains	363	306	57
Investment items	85	77	8
Total capital DTLs	448	383	65
Total DTLs	2,106	2,096	10
Net admitted DTA	$ 1,299	$ 959	$ 340

The change in net deferred income taxes comprised the following:

	Years Ended December 31,		
	2015	2014	2013
	(In Millions)		
Net DTA(L)	$ 340	$ (207)	$ 559
Less: Items not recorded in the change in net deferred income taxes:			
Tax-effect of unrealized gains/(losses)	(109)	311	(291)
Tax-effect of change in accounting method for	-	-	(4)
Change in net deferred income taxes	$ 231	$ 104	$ 264

As of December 31, 2015, the Company had no net operating or capital loss carryforwards to include in deferred income taxes. The Company has no tax credit carryforwards included in deferred taxes.

The components of federal and foreign income tax are recorded in the Statutory Statements of Operations and the Statutory Statements of Changes in Surplus and are different from those which would be obtained by applying the prevailing federal income tax rate to net gain from operations before federal income taxes. The significant items causing this difference are as follows:

	Years Ended December 31,		
	2015	2014	2013
	(In Millions)		
Provision computed at statutory rate	$ 101	$ 450	$ (218)
Expense items	25	5	136
Change in reserve valuation basis	23	(20)	(20)
Foreign governmental income taxes	4	1	11
Investment items	(325)	(117)	(154)
Tax credits	(52)	(47)	(46)
Nonadmitted assets	(6)	(34)	30
Other	(3)	(37)	3
Total statutory income tax (benefit) expense	$ (233)	$ 201	$ (258)
Federal and foreign income tax expense (benefit)	$ (2)	$ 305	$ 6
Change in net deferred income taxes	(231)	(104)	(264)
Total statutory income tax (benefit) expense	$ (233)	$ 201	$ (258)

The Company paid federal income taxes of $234 million in 2015 and $10 million in 2014 and received refunds of $112 million in 2013.

The total income taxes incurred in prior years that will be available for recoupment in the event of future net losses total $39 million, $426 million and $46 million related to December 31, 2015, 2014 and 2013, respectively.

The Company and its eligible U.S. subsidiaries are included in a consolidated U.S. federal income tax return. The Company and its subsidiaries and affiliates also file income tax returns in various states and foreign jurisdictions. The Company and its eligible subsidiaries and certain affiliates (the Parties) have executed and are subject to a written tax allocation agreement (the Agreement). The Agreement sets forth the manner in which the total combined federal income tax is allocated among the Parties. The Agreement provides the Company with the enforceable right to recoup federal income taxes paid in prior years in the event of future net losses, which it may incur. Further, the Agreement provides the Company with the enforceable right to utilize its net losses carried forward as an offset to future net income subject to federal income taxes.

Companies are generally required to disclose unrecognized tax benefits, which are the tax effect of positions taken on their tax returns that may be challenged by various taxing authorities, in order to provide users of financial statements more information regarding potential liabilities. The Company recognizes tax benefits and related reserves in accordance with existing statutory accounting practices for liabilities, contingencies and impairments of assets.

The following is a reconciliation of the beginning and ending liability for unrecognized tax benefits (in millions):

Balance, January 1, 2015	$	144
Gross change related to positions taken in prior years		3
Gross change related to settlements		-
Gross change related to positions taken in current year		3
Gross change related to lapse of statutes of limitations		-
Balance, December 31, 2015	$	150

Included in the liability for unrecognized tax benefits as of December 31, 2015, are $141 million of tax positions for which the ultimate deductibility is highly certain but for which there is uncertainty about the timing of such deductibility. The liability for the unrecognized tax benefits as of December 31, 2015 includes $6 million of unrecognized tax benefits net of indirect tax benefits of $2 million that, if recognized, would impact the Company's effective tax rate.

The Company recognized an increase of $3 million in accrued interest related to the liability for unrecognized tax benefits as a component of the provision for income taxes. The amount of net interest recognized was $20 million as of December 31, 2015 and $17 million as of December 31, 2014. The Company has no accrued penalties related to the liability for unrecognized tax benefits. In the next year, the Company does not anticipate the total amount of uncertain tax positions to significantly increase or decrease.

The Internal Revenue Service (IRS) has completed its examination of the tax returns filed for years 2010 and prior. The IRS is currently auditing the years 2011 through 2013. The Company does not expect a material change in its financial position or liquidity as a result of these audits.

The Company's litigation with the federal government regarding the timing of the deduction for certain policyholder dividends for tax years 1995 through 1997 was successfully concluded in 2015. The favorable effect of the decision in the U.S. Court of Federal Claims was reflected in the Company's financial statements in prior years.

As of December 31, 2015 and 2014, the Company did not recognize any protective deposits as admitted assets.

The Tax Increase Prevention Act of 2014, signed into law on December 19, 2014, extended the 50% first year bonus depreciation to qualified property acquired and placed in service during 2014. On December 18, 2015, the Preventing Americans from Tax Hikes Act of 2015 (the PATH Act) was enacted and provides for a multi-year extension of this provision through 2019. The PATH Act extends 50% bonus depreciation to 2015 through 2017, it then phases down to 40% for 2018 and 30% for 2019. The extension of these tax provisions are not expected to have a material effect on the Company's financial position or liquidity.

6. *Other than invested assets*

a. Corporate-owned life insurance

In November 2015, the Company purchased COLI from unaffiliated third party insurers to cover the lives of certain qualified senior employees. The primary purpose of the program is to offset future employee benefit expenses. The Company pays all premiums and is the owner and beneficiary of these policies. As of December 31, 2015, the Company recorded $1,927 million for the cash surrender value of these policies.

b. Deferred and uncollected life insurance premium

Deferred and uncollected life insurance premium, net of loading and reinsurance, are included in other than invested assets in the Company's Statutory Statements of Financial Position. The following summarizes the deferred and uncollected life insurance premium on a gross basis, as well as, net of loading and reinsurance:

	December 31,			
	2015		2014	
	Gross	Net	Gross	Net
	(In Millions)			
Ordinary new business	$ 114	$ 35	$ 103	$ 33
Ordinary renewal	649	712	612	671
Group life	9	9	10	10
Total	$ 772	$ 756	$ 725	$ 714

Deferred premium is the portion of the annual premium not earned at the reporting date. Loading on deferred premium is an amount obtained by subtracting the valuation net deferred premium from the gross deferred premium and generally includes allowances for acquisition costs and other expenses. Refer to *Note 2s. "Policyholders' reserves"* for information on the Company's accounting policies regarding gross premium and net premium.

Uncollected premium is gross premium net of reinsurance that is due and unpaid as of the reporting date, net of loading. Net premium is the amount used in the calculation of reserves. The change in deferred and uncollected life insurance premium is included in premium income. The change in loading is included as an expense and is not shown as a reduction to premium income.

Ordinary new business and ordinary renewal business consist of the basic amount of premium required on the underlying life insurance policies.

In certain instances, gross premium is less than net premium according to the standard valuation set by the Division and the Department. The gross premium is less than the net premium needed to establish the reserves because the statutory reserves must use standard conservative valuation mortality tables, while the gross premium calculated in pricing uses mortality tables that reflect both the Company's experience and the transfer of mortality risk to reinsurers. The Company had life insurance in force of $28,223 million as of December 31, 2015 and $24,722 million as of December 31, 2014 for which gross premium was less than net premium.

c. Fixed assets

Fixed assets are carried at cost less accumulated depreciation and amortization. Depreciation and amortization are determined using the straight-line method over the estimated useful lives of the assets and include both admitted and nonadmitted assets. Estimated lives range up to fifteen years for leasehold improvements and up to ten years for all other fixed assets. Most unamortized software and office equipment are nonadmitted assets.

The Company's admitted fixed assets included EDP equipment of $39 million, net of accumulated depreciation of $179 million, as of December 31, 2015 and $32 million, net of accumulated depreciation of $215 million, as of December 31, 2014. The depreciation expense for all fixed assets was $49 million for the year ended December 31, 2015 and $43 million for the year ended December 31, 2014.

7. Policyholders' liabilities

a. Policyholders' reserves

The Company had life insurance in force of $514,840 million as of December 31, 2015 and $478,773 million as of December 31, 2014.

The following summarizes policyholders' reserves, net of reinsurance, and the range of interest rates by type of product:

	December 31,			
	2015		2014	
	Amount	Interest Rates	Amount	Interest Rates
	($ In Millions)			
Individual life	$ 44,724	2.5% - 6.0%	$ 41,977	2.5% - 6.0%
Group life	16,381	2.5% - 4.5%	14,423	2.5% - 4.5%
Group annuities	20,843	2.3% - 11.3%	17,584	2.3% - 11.3%
Individual annuities	12,149	2.3% - 11.8%	11,314	2.3% - 11.8%
Individual universal and variable life	5,542	3.5% - 6.0%	5,093	3.5% - 6.0%
Disabled life claim reserves	1,876	3.5% - 6.0%	1,879	3.5% - 6.0%
Disability active life reserves	808	3.5% - 6.0%	732	3.5% - 6.0%
Other	303	2.5% - 6.0%	289	2.5% - 6.0%
Total	$ 102,626		$ 93,291	

Individual life includes whole life and term insurance. Group life includes COLI, bank-owned life insurance (BOLI), group universal life and group variable universal life products. Individual annuities include individual annuity contracts and structured settlements. Group annuities include deferred annuities and single premium annuity contracts. Disabled life claim reserves include disability income and long-term care claims and expenses that have been incurred but not reported. Disability active life reserves include disability income and long-term care contracts issued. Other is comprised of disability life and accidental death insurance.

b. Liabilities for deposit-type contracts

The following summarizes liabilities for deposit-type contracts and the range of interest rates by type of product:

	December 31,			
	2015		2014	
	Amount	Interest Rates	Amount	Interest Rates
	($ In Millions)			
Guaranteed interest contracts:				
Note programs	$ 3,756	0.4% - 6.2%	$ 3,515	0.4% - 6.2%
Federal Home Loan Bank of Boston	1,104	1.8% - 3.0%	701	1.1% - 3.0%
Municipal contracts	955	0.4% - 7.8%	-	0.0% - 0.0%
Other	129	8.3% - 9.7%	2	8.3% - 9.7%
Supplementary contracts	751	0.3% - 7.0%	690	0.3% - 7.0%
Dividend accumulations	538	3.4% - 4.0%	547	3.4% - 4.1%
Other deposits	3,258	4.0% - 8.0%	3,590	4.0% - 8.0%
Total	$ 10,491		$ 9,045	

Note programs

Funding agreements are investment contracts sold to domestic and international institutional investors. Funding agreement liabilities are equal to the account value and are established by contract deposits, increased by interest credited and decreased by contract coupon payments and maturities. Contract holders do not have the right to terminate the contract prior to the contractually stated maturity date. The Company may retire funding agreements prior to the contractually-stated maturity date by repurchasing the agreement in the market or, in some cases, by calling the agreement. If this occurs, the difference in value is an adjustment to interest credited to liabilities for deposit-type contracts in the Consolidated Statutory Statements of Operations. Credited interest rates vary by contract and can be fixed or floating. Agreements do not have put provisions or ratings-based triggers. The liability of non-U.S. dollar denominated funding agreements may increase or decrease due to changes in foreign exchange rates. Currency swaps are employed to eliminate foreign exchange risk from all funding agreements issued to back non-U.S. dollar denominated notes.

Under the note programs, the Company creates special purpose entities (SPEs), which are investment vehicles or trusts, for the purpose of issuing medium-term notes to investors. Proceeds from the sale of the medium-term notes issued by these SPEs are used to purchase funding agreements from the Company. The payment terms of any particular series of notes are matched by the payment terms of the funding agreement securing the series. Notes were issued from the Company's $2.0 billion European Medium-Term Note Program with approximately $107 million remaining in run-off. Notes are currently issued from the Company's $17.0 billion Global Medium-Term Note Program.

Federal Home Loan Bank of Boston

The Company has funding agreements with Federal Home Loan Bank of Boston (FHLB Boston) in an investment spread strategy, consistent with its other funding agreements. These funding agreements are collateralized by securities with estimated fair values of $1.1 billion as of December 31, 2015. The Company's borrowing capacity with FHLB Boston is subject to the lower of the limitation on the pledge of collateral for a loan set forth by law or by the Company's internal limit. The Company's unused capacity was $900 million as of December 31, 2015. As a member of FHLB Boston, the Company held common stock of FHLB Boston with a statement value of $75 million as of December 31, 2015 and $57 million as of December 31, 2014.

Municipal contracts

In 2015, the Company entered into a contract and was assigned the liability for a block of municipal guaranteed investment contracts (municipal contracts) and was paid a premium since the contracts have above market credited rates. Liabilities for deposit-type contracts includes the municipal contracts' account values, which are established by contract deposits, increased by interest credited (fixed or floating) and decreased by contract coupon payments, additional withdrawals, maturities and amortization of premium. Certain municipal contracts allow additional deposits, subject to restrictions, which are credited based on the rates in the contracts. Contracts have scheduled payment dates and amounts and interest is paid periodically. In addition, certain contracts allow additional withdrawals above and beyond the scheduled payments. These additional withdrawals have certain restrictions on the number per year, minimum dollar amount and are limited to the maximum contract balance. The majority of the municipal contracts allow early contract termination under certain conditions.

Certain municipal contracts contain make-whole provisions, which document the formula for full contract payout. Certain municipal contracts have ratings-based triggers that allow the trustee to declare the entire balance due and payable. Municipal contracts may also have terms that require the Company to post collateral to a third party based on the contract balance in the event of a downgrade in ratings below certain levels under certain circumstances. When the collateral is other than cash, the collateral value is required to be greater than the account balance. The Company employs a rigorous asset/liability management process to help mitigate the economic impacts of various liability risks. By performing asset liability management and performing other risk management activities, the Company believes that these contract provisions do not create an undue level of operating risk to the Company.

Other deposits

Other deposits primarily consist of investment contracts assumed as part of the indemnity reinsurance agreement discussed in *Note 8. "Reinsurance"*. These contracts are used to fund retirement plans. Contract payments are not contingent upon the life of the retirement plan participant.

As of December 31, 2015, the Company's guaranteed interest contracts by expected maturity year were as follows (in millions):

2016	$	711
2017		572
2018		968
2019		675
2020		654
Thereafter		2,364
Total	$	5,944

Most guaranteed interest contracts only mature on their contractual maturity date. Actual maturities for municipal contracts may differ from their contractual maturity dates, as these contracts permit early contract termination under certain conditions.

c. Unpaid claims and claim expense reserves

The Company establishes unpaid claims and claim expense reserves to provide for the estimated costs of claims for individual disability and long-term care policies. These reserves include estimates for both claims that have been reported and those that have been incurred but not reported, and include estimates of all future expenses associated with the processing and settling of these claims. This estimation process is primarily based on the assumption that experience is an appropriate indicator of future events and involves a variety of actuarial techniques that analyze experience, trends and other relevant factors. The amounts recorded for unpaid claims and claim expense reserves represent the Company's best estimate based upon facts and actuarial guidelines. Accordingly, actual claim payouts may vary from these estimates.

The following summarizes the changes in disabled life and long-term care unpaid claims and claim expense

	December 31,	
	2015	2014
	(In Millions)	
Claim reserves, beginning of year	$ 2,044	$ 2,031
Less: Reinsurance recoverables	143	134
Net claim reserves, beginning of year	1,901	1,897
Claims paid related to:		
Current year	(13)	(15)
Prior years	(333)	(320)
Total claims paid	(346)	(335)
Incurred related to:		
Current year's incurred	228	236
Current year's interest	3	5
Prior year's incurred	35	17
Prior year's interest	80	81
Total incurred	346	339
Net claim reserves, end of year	1,901	1,901
Reinsurance recoverables	150	143
Claim reserves, end of year	$ 2,051	$ 2,044

The changes in reserves for incurred claims related to prior years are generally the result of recent loss development trends. The $35 million increase in the prior years' incurred claims for 2015 and the $17 million increase in the prior years' incurred claims for 2014 were generally the result of differences between actual termination experience and statutorily prescribed tables.

The following reconciles disabled life claim reserves to the net claim reserves at the end of the years presented in the previous table. Disabled life claim reserves are recorded in policyholders' reserves. Accrued claim liabilities are recorded in other liabilities.

	December 31,	
	2015	2014
	(In Millions)	
Disabled life claim reserves	$ 1,876	$ 1,877
Accrued claim liabilities	25	24
Net claim reserves, end of year	$ 1,901	$ 1,901

d. Additional liability for annuity contracts

Certain variable annuity contracts include additional death or other insurance benefit features, such as GMDBs, GMIBs, GMABs and GMWBs. In general, living benefit guarantees require the contract holder or policyholder to adhere to a company-approved asset allocation strategy. Election of these benefits is generally only available at contract issue.

The following shows the liabilities for GMDBs, GMIBs, GMABs and GMWBs (in millions):

Liability as of January 1, 2014	$ 274
Incurred guarantee benefits	214
Paid guarantee benefits	(2)
Liability as of December 31, 2014	486
Incurred guarantee benefits	89
Paid guarantee benefits	(3)
Liability as of December 31, 2015	$ 572

The Company held reserves in accordance with the stochastic scenarios as of December 31, 2015 and 2014. As of December 31, 2015 and 2014, the Company held additional reserves above those indicated based on the stochastic scenarios in order to maintain a prudent level of reserve adequacy.

The following summarizes the account values, net amount at risk and weighted average attained age for variable annuity contracts with GMDBs, GMIBs, GMABs and GMWBs classified as policyholders' reserves and separate account liabilities. The net amount at risk is defined as the minimum guarantee less the account value calculated on a policy-by-policy basis, but not less than zero.

	December 31, 2015			December 31, 2014		
	Account Value	Net Amount at Risk	Weighted Average Attained Age	Account Value	Net Amount at Risk	Weighted Average Attained Age
	($ In Millions)					
GMDB	$ 18,991	$ 90	63	$ 19,391	$ 37	63
GMIB Basic	959	107	66	1,136	64	65
GMIB Plus	3,106	561	65	3,373	300	64
GMAB	3,072	57	58	2,859	3	58
GMWB	209	15	68	232	4	68

As of December 31, 2015, the GMDB account value above consists of $4,675 million of Modco assumed within the separate accounts. As of December 31, 2014, the GMDB account value above consists of $4,956 million of Modco assumed within the separate accounts.

Account values of variable annuity contracts with GMDBs, GMIBs, GMABs and GMWBs are summarized below:

	December 31, 2015			December 31, 2014		
	Separate Account	General Account	Total	Separate Account	General Account	Total
	(In Millions)					
GMDB	$ 15,089	$ 3,902	$ 18,991	$ 15,658	$ 3,733	$ 19,391
GMIB Basic	943	16	959	1,121	15	1,136
GMIB Plus	3,106	-	3,106	3,373	-	3,373
GMAB	3,018	54	3,072	2,801	58	2,859
GMWB	209	-	209	232	-	232

e. Additional liability for individual life contracts

Certain universal life and variable universal life contracts include features such as GMDBs or other guarantees that ensure continued death benefit coverage when the policy would otherwise lapse. The value of the guarantee is only available to the beneficiary in the form of a death benefit.

The following presents the changes in the liability, net of reinsurance, for guarantees on universal life and variable universal life type contracts:

	December 31,	
	2015	2014
	(In Millions)	
Beginning balance	$ 2,673	$ 2,257
Net liability increase	374	416
Ending balance	$ 3,047	$ 2,673

8. Reinsurance

The Company enters into reinsurance agreements with affiliated and unaffiliated insurers in the normal course of business in order to mitigate the impact of underwriting mortality and morbidity risks. Such transfers do not relieve the Company of its primary liability to its customers and, as such, failure of reinsurers to honor their obligations could result in credit losses that could arise if a reinsurer defaults. The Company reduces reinsurance default risk by evaluating the financial condition of reinsurers and monitoring for possible concentrations within the Company's reinsurers. The Company reinsures a portion of its mortality risk in its life business under either a first dollar quota-share arrangement or an in excess of the retention limit arrangement with reinsurers. The Company also reinsures a portion of its morbidity risk in its disability and long-term care business. The amounts reinsured are on a yearly renewable term, coinsurance or Modco basis. The Company's mortality risk retention limit per individual life insured is generally $15 million.

Refer to *Note 17. "Related party transactions"* for information about the Company's affiliated assumed reinsurance transactions.

The Company did not reinsure any policies with a company chartered in a country other than the U.S., excluding U.S. branches of these companies, which was owned in excess of 10% or controlled directly or indirectly by an insured, a beneficiary, a creditor or any other person not primarily engaged in the insurance business. There are no reinsurance agreements in effect under which the reinsurer may unilaterally cancel any reinsurance for reasons other than for nonpayment of premium or other similar credits. The Company has no reinsurance agreements in effect such that the amount of losses paid or accrued through the statement date may result in a payment to the reinsurer of amounts which, in aggregate and allowing for offset of mutual credits from other reinsurance agreements with the same reinsurer, exceed the total direct premium collected under the reinsured policies.

If all reinsurance agreements were terminated by either party as of December 31, 2015, the resulting reduction in surplus due to loss of reinsurance reserve credits, net of unearned premium, would be approximately $3,475 million assuming no return of the assets, excluding assets in trust, backing these reserves from the reinsurer to the Company.

Reinsurance amounts included in the Statutory Statements of Operations were as follows:

	Years Ended December 31,		
	2015	2014	2013
	(In Millions)		
Direct premium	$ 20,754	$ 17,337	$ 19,260
Premium assumed	1,608	1,827	1,921
Premium ceded	(819)	(781)	(744)
Total net premium	$ 21,543	$ 18,383	$ 20,437
Reinsurance recoveries			
Assumed	$ (88)	$ (63)	$ (76)
Ceded	594	472	381

Reinsurance amounts included in the Statutory Statements of Financial Position were as follows:

	December 31, 2015	December 31, 2014
	(In Millions)	
Reinsurance reserves:		
Assumed	$ 9,359	$ 9,447
Ceded	(3,803)	(3,320)
Amounts recoverable from reinsurers		
Assumed	(37)	(20)
Ceded	195	128

Reinsurance reserves ceded to unaffiliated reinsurers as of December 31, 2015 include $2,344 million associated with life insurance policies, $1,407 million for long-term care, $39 million for disability and $13 million for group life and health. Reinsurance reserves ceded to unaffiliated reinsurers as of December 31, 2014 include $2,174 million associated with life insurance policies, $1,086 million for long-term care, $46 million for disability and $14 million for group life and health.

In 2015, the Company strengthened its gross long-term care policyholders' reserves by $200 million to reflect the risk inherent in the cash flows of this business. This risk is ceded to an unaffiliated reinsurer, therefore the ceded policyholders' reserves have also been increased by $200 million.

As of December 31, 2015, one reinsurer accounted for 28% of the outstanding balance of the reinsurance recoverable and the next largest reinsurer had 21%. The Company continues to monitor its morbidity risk ceded to one unaffiliated reinsurer for its long-term care business. Overall, the Company believes that each of these exposures to a single reinsurer does not create an undue concentration of risk and the Company's business is not substantially dependent upon any single reinsurer.

9. Withdrawal characteristics

a. Annuity actuarial reserves and liabilities for deposit-type contracts

The withdrawal characteristics of the Company's annuity actuarial reserves and deposit-type contracts as of December 31, 2015 are illustrated below:

	General Account	Separate Account w/ Guarantees	Separate Account Nonguaranteed	Amount	% of Total
	($ In Millions)				
Subject to discretionary withdrawal:					
With market value adjustment	$ 13,589	$ -	$ -	$ 13,589	14 %
At book value less current surrender charge of 5% or more	2,224	-	-	2,224	2
At fair value	-	15,991	39,929	55,920	56
Subtotal	15,813	15,991	39,929	71,733	72
Subject to discretionary withdrawal:					
At book value without fair value adjustment	9,235	550	-	9,785	10
Not subject to discretionary withdrawal	17,858	250	-	18,108	18
Total	$ 42,906	$ 16,791	$ 39,929	$ 99,626	100 %

The following is a summary of total annuity actuarial reserves and liabilities for deposit-type contracts as of December 31, 2015 (in millions):

Statutory Statements of Financial Position:	
Policyholders' reserves – group annuities	$ 20,838
Policyholders' reserves – individual annuities	11,577
Liabilities for deposit-type contracts	10,491
Subtotal	42,906
Separate Account Annual Statement:	
Annuities	54,896
Other annuity contract deposit-funds and guaranteed interest contracts	1,824
Subtotal	56,720
Total	$ 99,626

b. Separate accounts

The Company has guaranteed separate accounts classified as the following: (1) indexed, which are invested to outperform an established index based on the guarantee and (2) nonindexed, which have multiple concurrent guarantees, including a guarantee that applies for as long as the contract is in effect and does not exceed a 4% rate of return. The Company has nonguaranteed separate accounts which are variable accounts where the benefit is determined by the performance and/or market value of the investments held in the separate account with incidental risk, notional expense and minimum death benefit guarantees.

Information regarding the separate accounts of the Company as of and for the year ended December 31, 2015 is as follows:

	Guaranteed			
	Indexed	Nonindexed Less Than/ Equal to 4%	Non Guaranteed	Total
	(In Millions)			
Net premium, considerations or deposits for the year ended December 31, 2015	$ -	$ -	$ 8,719	$ 8,719
Reserves at December 31, 2015:				
For accounts with assets at:				
Fair value	$ 292	$ 16,540	$ 42,589	$ 59,421
Subtotal	292	16,540	42,589	59,421
Nonpolicy liabilities	-	-	955	955
Total	$ 292	$ 16,540	$ 43,544	$ 60,376
Reserves by withdrawal characteristics:				
Subject to discretionary withdrawal:				
At fair value	$ -	$ 15,990	$ 42,589	$ 58,579
At book value without market value adjustment and current surrender charge of less than 5%	-	550	-	550
Subtotal	-	16,540	42,589	59,129
Not subject to discretionary withdrawal	292	-	-	292
Nonpolicy liabilities	-	-	955	955
Total	$ 292	$ 16,540	$ 43,544	$ 60,376

The Company does not have any reserves in separate accounts for asset default risk in lieu of AVR.

The following is a reconciliation of amounts reported as transfers (from) to separate accounts in the summary of operations of the Company's NAIC Separate Account Annual Statement to the amounts reported as net transfers (from) to separate accounts in change in policyholders' reserves in the accompanying Statutory Statements of Operations:

	Years Ended December 31,		
	2015	2014	2013
	(In Millions)		
From the Separate Account Annual Statement:			
Transfers to separate accounts	$ 8,167	$ 6,164	$ 7,941
Transfers from separate accounts	(7,560)	(7,201)	(9,023)
Subtotal	607	(1,037)	(1,082)
Reconciling adjustments:			
Net withdrawals on deposit-type liabilities	(1,360)	(242)	1
Net transfers from separate accounts	$ (753)	$ (1,279)	$ (1,081)

Net deposits on deposit-type liabilities are not considered premium and therefore are excluded from the Statutory Statements of Operations.

10. Debt

The Company issues commercial paper in the form of Notes in minimum denominations of $250 thousand up to a total aggregation of $1 billion with maturity dates up to a maximum of 270 days from the date of issuance. Noninterest bearing Notes are sold at par less a discount representing an interest factor. Interest bearing Notes are sold at par. The Notes are not redeemable or subject to voluntary prepayments by the Company. The Notes had a carrying value and face amount of $250 million as of December 31, 2015 and 2014. Notes issued in 2015 had interest rates ranging from 0.14% to 0.45% with maturity dates ranging from 1 to 48 days. Interest expense for commercial paper was less than $1 million for the years ended December 31, 2015 and 2014.

On September 26, 2014, the Company signed a $1 billion, five year credit facility, with a syndicate of lenders that can be used for general corporate purposes and to support commercial paper borrowings. The credit facility replaced an existing $1 billion credit facility, which was due to expire in 2017. The facility has an upsize option for an additional $500 million. The terms of the credit facility provide for, among other provisions, covenants pertaining to liens, fundamental changes, transactions with affiliates and adjusted statutory surplus. As of and for the years ended December 31, 2015 and 2014, the Company was in compliance with all covenants under the credit facility. For the years ended December 31, 2015 and 2014, there were no draws on the credit facilities. Credit facility fees were $1 million for the year ended December 31, 2015 and less than $1 million for the year ended December 31, 2014.

11. Employee benefit plans

The Company provides multiple benefit plans including retirement plans and life and health benefits to employees, certain employees of unconsolidated subsidiaries, agents and retirees.

In August 2015, the Company communicated its intent to amend its retired employee and retired agent welfare benefit plans with regard to the medical coverage of Medicare-eligible and non-Medicare eligible retirees and their dependents as well as certain former employees receiving long-term disability benefits and surviving dependents (Covered Retirees). Effective January 1, 2016, MassMutual will no longer provide company-sponsored medical coverage to Covered Retirees through the self-insured medical options under its welfare benefit plans. Instead, the Company will provide access to health insurance coverage for Covered Retirees and their dependents through a private insurance marketplace. Eligible Covered Retirees will be provided with a company-funded health reimbursement account, which can be used for reimbursement of health insurance premiums or eligible out-of-pocket medical expenses. Effective January 1, 2016, the Medicare Part D subsidy will no longer apply as Medicare-eligible participants will no longer be covered under the self-insured retiree health care plans. The projected benefit obligation decreased $98 million as a result of this amendment. This decrease was recorded as part of the fourth quarter remeasurement and is being amortized through net periodic benefit cost over the average remaining years of service of the eligible employees and agents.

In October 2014, the Society of Actuaries issued RP 2014 mortality tables which included a mortality improvement scale. The mortality improvement scale was amended in October 2015. The Company adopted the new mortality tables and improvement scale as part of its 2015 remeasurement and completed its decrement study, which included the mortality tables and an update to other key plan assumptions. As a result of this change, the projected benefit obligation as of December 31, 2015 increased by approximately $155 million.

a. Pension plans

The Company has funded and unfunded noncontributory defined benefit pension plans that cover substantially all employees, agents and retirees. The qualified defined benefit plan (the Plan) includes a defined benefit formula and a cash balance formula. Participants earn benefits under the plan based on the defined benefit formula, the cash balance formula, or a combination of both formulas as determined by their date of hire or rehire. Under the defined benefit formula, benefits are calculated based on final average earnings and length of service. Benefits under the cash balance formula are determined based on age, service and salary during the participants' careers.

The Company's policy is to fund qualified pension costs in accordance with the Employee Retirement Income Security Act of 1974. The Company contributed $47 million in 2015 and $20 million in 2014 to its qualified defined benefit plan.

b. Defined contribution plans

The Company sponsors funded (qualified 401(k) thrift savings) and unfunded (nonqualified deferred compensation thrift savings) defined contribution plans for its employees, agents and retirees. The qualified 401(k) thrift savings plan's net assets available for benefits were $2,220 million as of December 31, 2015 and $2,149 million as of December 31, 2014. The Company match for the qualified 401(k) thrift savings plan is limited to 5% of eligible W-2 compensation. The Company's total matching thrift savings contributions, included in general insurance expenses were $42 million for the year ended December 31, 2015 and $44 million for the year ended December 31, 2014 and $36 million for 2013.

The Company also maintains a defined contribution plan for agents, which was frozen in 2001. The net assets available for these benefits were $177 million as of December 31, 2015 and $187 million as of December 31, 2014.

c. Other postretirement and postemployment benefits

The Company provides certain life insurance and health care benefits (other postretirement benefits) for its retired employees and agents, their beneficiaries and covered dependents. MMHLLC has the obligation to pay the Company's other postretirement benefits. The transfer of this obligation to MMHLLC does not relieve the Company of its primary liability. MMHLLC is allocated other postretirement expenses related to interest cost, amortization of actuarial gains (losses) and expected return on plan assets, whereas service cost and prior service cost are recorded by the Company.

The health care plan is contributory. A portion of the basic life insurance plan is noncontributory. Substantially all of the Company's U.S. employees and agents may become eligible to receive other postretirement benefits. These benefits are funded as the benefits are provided to the participants. The postretirement health care plans, which will be closed to most Covered Retirees effective January 1, 2016, include a limit on the Company's share of costs for certain retirees.

The Company provides retiree life insurance coverage for home office employees who, as of January 1, 2010, were age 50 with at least 10 years of service or had attained 75 points, generally age plus service, with a minimum 10 years of service.

Accrued Postemployment Benefits

The Company provides severance-related postemployment benefits for home office employees. The net accumulated liability for these benefits was $43 million as of December 31, 2015 and $35 million as of December 31, 2014.

The Company accrues postemployment benefits for the health benefits of agents who qualify for long-term disability and are not retired. The net accumulated liability for these benefits was $7 million as of December 31, 2015 and $10 million as of December 31, 2014.

d. Benefit obligations

Accumulated benefit obligations are the present value of pension benefits earned as of a December 31 measurement date (the Measurement Date) based on service and compensation and do not take into consideration future salary levels.

Projected benefit obligations for pension benefits are the present value of pension benefits earned as of the Measurement Date projected for estimated salary increases to an assumed date with respect to retirement, termination, disability or death.

Refer to *Note 12f,* "Amounts recognized in the Statutory Statements of Financial Position," for details on the funded status of the plans.

Accumulated and projected postretirement benefit obligations for other postretirement benefits are the present value of postretirement medical and life insurance benefits earned as of the Measurement Date projected for estimated salary and medical claim rate increases to an assumed date with respect to retirement, disability or death.

Actuarial (gains) losses represent the difference between the expected results and the actual results used to determine the projected benefit obligation, accumulated benefit obligation and current year expense. A few of the major assumptions used in this calculation include: expected future compensation levels, healthcare cost trends, mortality and expected retirement age.

The following presents the total pension and other postretirement accumulated benefit obligation:

	December 31,			
	2015	2014	2015	2014
	Pension Benefits		Other Postretirement Benefits	
	(In Millions)			
Accumulated benefit obligation	$ 2,606	$ 2,542	$ 305	$ 412

The following sets forth the change in projected benefit obligation of the defined benefit pension and other postretirement plans:

	December 31,			
	2015	2014	2015	2014
	Pension Benefits		Other Postretirement Benefits	
	(In Millions)			
Projected benefit obligation, beginning of year	$ 2,581	$ 2,269	$ 412	$ 357
Service cost	71	73	9	8
Interest cost	99	108	14	16
Contributions by plan participants	-	-	9	10
Plan amendments	-	-	(98)	-
Actuarial (gains) losses	44	(63)	(20)	4
Medicare prescription drug direct subsidy	-	-	1	1
Benefits paid	(111)	(101)	(28)	(29)
Change in discount rate	(134)	295	(24)	45
Change in actuarial assumptions	125	-	30	-
Projected benefit obligation, end of year	$ 2,675	$ 2,581	$ 305	$ 412

The determination of the discount rate is based upon rates commensurate with current yields on high quality corporate bonds as of the Measurement Date. A spot yield curve is developed from this data which is used to determine the present value for the obligation. The projected plan cash flows are discounted to the Measurement Date based on the spot yield curve. A single discount rate is utilized to ensure the present value of the benefits cash flow equals the present value computed using the spot yield curve. A 25 basis point change in the discount rate results in approximately an $84 million change in the projected pension benefit obligation. The methodology includes producing a cash flow of annual accrued benefits. See *Note 12h*. "*Assumptions*" for details on the discount rate.

e. Plan assets

All investments of the qualified pension plan are invested through the Company's group annuity contract. This contract invests in the General Investment Account (GIA) of the Company, pooled separate accounts and nonpooled separate accounts. Pooled separate account assets support more than one group annuity contract and are managed by the Company and its subsidiaries. These assets are assigned for the purposes of allocating investment returns and asset gains and losses. Nonpooled separate accounts are managed by the Company and unaffiliated asset managers.

The Company's qualified pension plan assets managed by the Company and its subsidiaries are as follows:

	December 31, 2015	December 31, 2014
	(In Millions)	
Babson Long Term Duration Bond Fund	$ 214	$ 190
Alternative Investment Separate Account	208	191
General Investment Account	197	215
MM Premier Core Bond Fund	126	125
Oppenheimer International Growth Fund	118	105
Oppenheimer Small Capitalization Core Fund	108	140
Oppenheimer Large Core Fund	88	96
MM Select Blue Chip Growth Fund	69	97
MM Select Growth Opportunities Fund	60	98
MM Select Large Cap Value Fund	45	46
MM Premier Strategic Emerging Markets Fund	37	42
MM Select Small Cap Value Fund	35	46
MM Select Small Cap Growth Fund	34	45
Oppenheimer Real Estate Fund	34	33
Babson Enhanced Index Value Fund	-	85
Oppenheimer Large Capitalization Value Fund	-	49
	$ 1,373	$ 1,603

The approximate amount of annual benefits to be paid to plan participants covered by a group annuity contract issued by the employer or related parties is $74 million for 2016.

The Company employs a total return investment approach whereby a mix of equities and fixed-income investments are used to maximize the long-term return of plan assets with a prudent level of risk. Risk tolerance is established through consideration of plan liabilities, plan funded status and the Company's financial condition. The investment portfolio contains a diversified blend of equity and fixed-income investments. Alternative assets such as private equity funds, equity index exchange traded funds and bond index exchange traded funds are used to improve portfolio diversification. Investment risk is measured and monitored on an ongoing basis through quarterly investment portfolio reviews, annual liability measurements, and periodic asset and liability studies.

The target range allocations for the qualified pension plan assets are 13% to 23% domestic equity securities, 25% to 45% long duration bond securities, 5% to 15% GIA and aggregate bond assets, 13% to 23% international equity securities and 10% to 30% alternative investments. Domestic equities primarily include investments in large capitalization (large-cap) companies and small capitalization (small-cap) companies. Long duration bond securities invest in several long-duration bond exchange traded funds. International equities include investments in American Depository Receipts and limited partnerships that trade primarily in foreign markets in Europe, Latin America and Asia. The pension plan assets invested in the GIA through the unallocated group annuity contract earn a fixed interest. These assets comprised approximately 9% of the Plan assets as of December 31, 2015 and 10% as of December 31, 2014.

The following presents the change in the fair value of plan assets:

	December 31,			
	2015	2014	2015	2014
	Pension Benefits		Other Postretirement Benefits	
	(In Millions)			
Fair value of plan assets, beginning of year	$ 2,139	$ 2,020	$ 5	$ 5
Actual return on plan assets	(20)	180	-	-
Employer contributions	66	40	19	19
Contributions by plan participants	-	-	9	10
Benefits paid	(111)	(101)	(28)	(29)
Fair value of plan assets, end of year	$ 2,074	$ 2,139	$ 5	$ 5

The *General Investment Account* is designed to provide stable, long-term investment growth. The account value is maintained at a stable value (generally referred to as "book value") regardless of financial market fluctuations; however, if the plan sponsor initiates a full or partial termination, the amount liquidated is subject to an adjustment that could result in an increase or decrease in the book value of the plan's investment.

The following presents the GIA allocation by type of investment:

	December 31,	
	2015	2014
Bonds	59 %	60 %
Mortgage loans	18	16
Partnerships and LLCs	6	6
Other investments	8	9
Common stocks - subsidiaries and affiliates	6	6
Cash and cash equivalents	2	2
Real estate	1	1
	100 %	100 %

The qualified pension plan invests in the following pooled and nonpooled separate account options:

Babson Long Term Duration Bond Fund is a nonpooled separate account advised by Babson Capital with a long duration bond strategy that invests in a diversified portfolio of fixed-income securities, including, short-term, intermediate and long-term credit, government securities and cash. The specific performance objective is to outperform the total return of the Barclays U.S. Long Government/Credit Bond index.

Alternative Investment Separate Account is a nonpooled separate account advised by Babson Capital. Babson Capital's strategy includes investing in holdings of private equity funds, hedge funds, a private real estate fund and an equity index exchange traded fund.

MassMutual (MM) Premier Core Bond Fund is a pooled separate account investing in a mutual fund sub-advised by Babson Capital. The mutual fund primarily invests in high-quality, investment grade bonds with selective and prudent investments in high yield bonds, which are deemed to provide an attractive risk/reward trade off. Security selection is done through an in-depth, bottom-up credit research process seeking securities with attractive yields among the corporate, U.S. government (treasury and agency) and mortgage and asset backed sectors.

Oppenheimer International Growth Fund is a pooled separate account investing in a mutual fund sub-advised by OFI Institutional that invests in international large-cap securities, primarily in the developed international markets. This international equity strategy focuses on well-positioned, well-managed businesses that have strong revenue growth, sustainable profit margins, capital efficiency and/or business integrity.

Oppenheimer Small Capitalization Core Fund is a pooled separate account advised by OFI Institutional Asset Management (OFI Institutional) that invests in domestic small and mid-cap, and international small and mid-cap securities. The fund aims to maintain a broadly diversified portfolio across all major economic sectors by applying risk controls for both sector and position size. The fund's strategy uses separate fundamental research and quantitative models to select securities.

Oppenheimer Large Core Fund is a nonpooled separate account advised by OFI Institutional that invests in a diversified mix of domestic large company stocks for capital appreciation potential. The strategy is a large-cap core equity strategy, where the portfolio managers combine fundamental research and quantitative models to identify investment opportunities among large, competitively advantaged companies whose earnings are growing faster than average, or whose shares appear to be mispriced by the market.

MM Select Blue Chip Growth Fund is a pooled separate account investing in a mutual fund sub-advised by T. Rowe Price Associates, Inc. (T. Rowe Price) and Loomis Sayles & Company (Loomis) that seeks growth of capital over the long-term. The strategy seeks well-established large cap companies with the potential for above-average earnings growth. In selecting securities, T. Rowe Price generally seeks to identify companies with a leading market position, seasoned management and strong financial fundamentals. Loomis emphasizes companies with sustainable competitive advantages, long-term secular and profitable growth, and management teams focused on creating long-term value for shareholders.

MM Select Growth Opportunities Fund is a pooled separate account investing in a mutual fund sub-advised by Sands Capital Management, LLC (Sands) and Jackson Square Partners (JSP) with a large-cap growth equity focus. Sands uses bottom-up, fundamental research and employs six key investment criteria: sustainable, above average earnings growth, a leadership position, competitive advantages, a value-added focus with a clear mission, financial strength and rational valuation. JSP seeks to select large-cap equities that it believes are undervalued in relation to their intrinsic value, as indicated by multiple factors, including a return on capital above its cost of capital.

MM Select Large Cap Value Fund is a pooled separate account investing in a mutual fund sub-advised by Barrow Hanley and Huber Capital (Huber). Barrow Hanley manages a dividend focused strategy with a high quality, conservative orientation. Huber employs a more concentrated, deeper value strategy using a dividend discount model (DDM) as the basis for determining intrinsic value opportunities.

MM Premier Strategic Emerging Markets Fund is a pooled separate account investing in a mutual fund sub-advised by OFI Institutional seeking long-term growth of capital by investing primarily in international emerging markets. OFI Institutional determines the universe of emerging market countries in which to invest, based on OFI Institutional's assessment of a country's suitability for investment.

MM Select Small Cap Value Fund is a pooled separate account investing in a mutual fund sub-advised by Wellington and Barrow Hanley that seeks to maximize total return through investing primarily in small-cap equity securities. Wellington employs a bottom-up stock selection process that utilizes proprietary, fundamental research to identify companies it considers to be undervalued but have the potential for significant longer-term returns. Barrow Hanley typically seeks to exploit market inefficiencies by using proprietary research to identify small-cap companies considered to be undervalued but with the potential to generate superior returns at below average levels of risk.

MM Select Small Cap Growth Fund is a pooled separate account investing in a mutual fund sub-advised by Waddell & Reed, Wellington Management and OFI Institutional. The fund invests in domestic small-cap equity securities and seeks long-term capital appreciation. Each sub-adviser employs a growth-based investment approach and may perform a number of analyses in considering whether to buy or sell a security for the fund. Each of the sub-advisers uses a combination of fundamental and quantitative analyses to identify small-cap companies that it believes are experiencing or will experience rapid earnings or revenue growth.

Oppenheimer Real Estate Fund is a pooled separate account that invests in an Oppenheimer mutual fund sub-advised by Cornerstone Real Estate Advisers. This real estate strategy seeks out exposure to the commercial real estate market and uses a fundamental research driven approach to search for what are believed to be high quality companies in the Real Estate Investment Trust (REIT) market. REITs are publicly-traded securities that sell like a stock on the major exchanges and which invest in real estate or represent operating companies that are involved in the real estate market.

Vanguard Russell 3000 Index is a pooled separate account investing in a mutual fund advised by Vanguard. The fund is passively managed and seeks to track the Russell 3000 Index.

Goldman Sachs Asset Management Long Duration Bond Fund is a nonpooled separate account advised by Goldman Sachs Asset Management that invests in a diversified portfolio of fixed-income securities, including short-term, intermediate and long-term credit, government securities and cash. The specific performance objective is to outperform the total return of the Barclays U.S. Long Government/Credit Bond index.

Pacific Investment Management Company Long Duration Bond Fund is a nonpooled separate account advised by Pacific Investment Management Company that invests in a diversified portfolio of fixed-income securities, including short-term, intermediate and long-term credit and government securities and cash. The specific performance objective is to outperform the total return of the Barclays U.S. Long Government/Credit Bond index.

Oakmark International Collective Fund is a non-pooled separate account advised by Harris Associates that invests primarily in developed market international large-cap equity securities, which may include common stocks, preferred stocks, securities that are convertible into common stocks, depositary receipts and rights and warrants to buy common stocks. This international equity strategy seeks out companies that it believes to be trading in the market at significant discounts to their underlying values.

T. Rowe Price Emerging Markets Stock Fund is a pooled separate account investing in a mutual fund advised by T. Rowe Price that seeks long-term growth of capital through investments primarily in the common stocks of companies located or with primary operations in the emerging markets of Latin America, Asia, Europe, Africa and the Middle East.

Fair Value Measurements

The Company's fair value hierarchy is defined in *Note 15. "Fair value of financial instruments".*

The following is a description of the valuation methodologies used to measure fair value for the investments in the qualified pension plan.

Pooled Separate Accounts: Unit value calculated based on the net assets of the underlying pool of securities which value their investment securities at fair value. The separate accounts are valued daily based on the NAV of shares of the underlying funds and are therefore generally classified as Level 2. As of December 31, 2015 and 2014, the Plan had no specific plans or intentions to sell investments at amounts other than NAV. These investments can be redeemed on a daily basis and have no lockups or funding commitments.

Nonpooled Separate Accounts: Valued primarily using the closing price reported on the active market on which the individual securities are traded.

Cash: Stated at cost, which is equal to fair value, and held by an unaffiliated bank.

The *General Investment Account option*: Liquidation value based on an actuarial formula as defined under the terms of the contract.

The methods described above may produce a fair value calculation that is not indicative of net realizable value or reflective of the future values of the investments. Furthermore, while the Company believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

The following presents the fair value hierarchy of the Company's pension plan assets by asset class:

	December 31, 2015			
	Level 1	Level 2	Level 3	Total
	(In Millions)			
Investments in the qualified pension plan:				
Pooled separate accounts:				
Common stocks:				
U.S. large capitalization	$ -	$ 300	$ -	$ 300
International large capitalization	-	118	-	118
U.S. small capitalization value	-	68	-	68
International emerging markets	-	37	-	37
Real estate	-	34	-	34
Bonds:				
Diversified fixed-income	-	26	-	26
Registered investment companies:				
Emerging markets	57	-	-	57
Total pooled separate accounts	57	583	-	640
Nonpooled separate accounts:				
Common stocks:				
U.S. large capitalization	68	-	-	68
U.S. small capitalization	77	-	-	77
U.S. mid capitalization	32	-	-	32
International large capitalization value	5	-	-	5
International small/mid capitalization	8	-	-	8
Corporate and other bonds	-	249	-	249
Long duration bonds	140	-	-	140
Short-term bonds	2	-	-	2
Government securities	-	266	-	266
Mortgage backed securities	-	3	-	3
Registered investment companies:				
U.S. large capitalization	59	-	-	59
Multi-strategy hedge funds	-	-	37	37
Limited partnerships:				
International small/mid capitalization	-	-	155	155
Multi-strategy hedge funds	-	-	25	25
Private equity/venture capital	-	-	39	39
Asset backed securities	-	9	-	9
Real estate	-	-	46	46
Cash and short-term cash equivalents	9	8	-	17
Total nonpooled separate accounts	400	535	302	1,237
Total general investment account	-	-	197	197
Total	$ 457	$ 1,118	$ 499	$ 2,074

	December 31, 2014			
	Level 1	Level 2	Level 3	Total
	(In Millions)			
Investments in the qualified pension plan:				
Pooled separate accounts:				
Common stocks:				
U.S. large capitalization	$ -	$ 242	$ -	$ 242
International large capitalization value	-	105	-	105
U.S. small capitalization value	-	91	-	91
International emerging markets	-	42	-	42
Real estate	-	33	-	33
Bonds:				
Diversified fixed income	-	125	-	125
Registered investment companies:				
Emerging markets	45	-	-	45
Total pooled separate accounts	45	638	-	683
Nonpooled separate accounts:				
Common stocks:				
U.S. large capitalization	167	-	-	167
U.S. small capitalization	108	-	-	108
U.S. mid capitalization	64	-	-	64
International large capitalization value	15	-	-	15
International small/mid capitalization	9	-	-	9
Corporate and other bonds	-	235	-	235
Long duration bonds	116	-	-	116
Short term bonds	2	-	-	2
Government securities	-	197	-	197
Mortgage backed securities	-	7	-	7
Registered investment companies:				
U.S. large capitalization	63	-	-	63
Multi-strategy hedge funds	-	-	37	37
Limited partnerships:				
International small/mid capitalization	-	-	106	106
Multi-strategy hedge funds	-	-	23	23
Private equity/venture capital	-	-	28	28
Asset backed securities	-	8	-	8
Real estate	-	-	39	39
Cash and short-term cash equivalents	10	7	-	17
Total nonpooled separate accounts	554	454	233	1,241
Total general investment account	-	-	215	215
Total	$ 599	$ 1,092	$ 448	$ 2,139

The following sets forth a summary of changes in the fair value of the Plan's Level 3 invested assets:

	Beginning Balance 1/1/2015	Actual Return on Plan Assets	Purchases	Sales	Transfers to Level 3	Ending Balance 12/31/2015
	(In Millions)					
Limited partnerships:						
International small/mid cap	$ 106	$ (10)	$ 59	$ -	$ -	$ 155
Multi-strategy hedge fund	23	2	-	-	-	25
Private equity venture capital	28	8	5	(2)	-	39
Multi-strategy hedge fund	37	-	-	-	-	37
Real estate	39	7	-	-	-	46
General investment account	215	6	71	(95)	-	197
Total	$ 448	$ 13	$ 135	$ (97)	$ -	$ 499

	Beginning Balance 1/1/2014	Actual Return on Plan Assets	Purchases	Sales	Transfers to Level 3	Ending Balance 12/31/2014
	(In Millions)					
Limited partnerships:						
International large cap value	$ 111	$ 3	$ -	$ (114)	$ -	$ -
International small/mid cap	-	(8)	114	-	-	106
Multi-strategy hedge fund	22	1	-	-	-	23
Private equity venture capital	13	4	14	(3)	-	28
Multi-strategy hedge fund	35	2	-	-	-	37
Real estate	36	2	1	-	-	39
General investment account	242	8	47	(82)	-	215
Total	$ 459	$ 12	$ 176	$ (199)	$ -	$ 448

The Company evaluated the significance of transfers between levels based upon the nature of the financial instrument and size of the transfer relative to total net assets available for benefits. Based on this criteria, there were no significant transfers into or out of Level 1, 2, or 3 for the year ended December 31, 2015.

Postretirement Investments

Postretirement benefit plan assets are invested solely in a domestic fixed-income bond fund. The fair value of these postretirement benefit plan assets was $5 million as of December 31, 2015 and 2014 and was included within Level 1. The domestic fixed-income fund is a money market mutual fund that seeks the maximum potential return commensurate with the desired stability of the investments. The fund seeks to achieve this objective by investing in money market securities meeting specific credit quality standards.

The Company invests in cash, cash equivalents and liquid fixed-income securities to the extent necessary to satisfy reasonably anticipated routine current benefit payments, with additional funds held that are sufficient to satisfy reasonably unanticipated spikes in benefit payments.

f. Amounts recognized in the Statutory Statements of Financial Position

Unrecognized prior service cost is the adjustment to the projected benefit obligation as a result of plan amendments. It represents the increase or decrease in benefits for service performed in prior periods. For pension benefits, this cost is amortized into net periodic benefit cost over the average remaining service years of active employees at the time of the amendment. For other postretirement benefits, this cost is amortized into net periodic benefit cost over the average remaining lifetime of eligible employees and retirees at the time of the amendment.

Unrecognized net actuarial (gains) losses are variances between assumptions used and actual experience. These assumptions include return on assets, demographics and mortality. The unrecognized net actuarial gains (losses) are amortized if they exceed 10% of the projected benefit obligation and are amortized starting in the period after recognition. These are amortized into net periodic benefit cost over the remaining service-years of active employees and over the average remaining lifetime of eligible employees and retirees for other postretirement benefits.

As of December 31, 2015, the unamortized balance of the transition liability upon adoption of SSAP 102 was $18 million. This transition liability is being amortized through 2021.

The prepaid pension asset is a cumulative balance of employer contributions made to the plan netted against the plan's accumulated net periodic benefit costs. The prepaid pension asset is a nonadmitted asset.

The accrued benefit cost recognized is the funded status of the plan adjusted for the remaining balance of unrecognized prior service cost, unrecognized net actuarial loss and the nonadmitted prepaid pension asset.

The following sets forth the amounts in unassigned funds (surplus) recognized as components of net periodic benefit cost in 2015 and 2014 and the amounts expected to be recognized in 2016:

	December 31,					
	2016	2015	2014	2016	2015	2014
	Pension Benefits			Other Postretirement Benefits		
	(In Millions)					
Net prior service cost	$ 4	$ 4	$ 8	$ (6)	$ 2	$ 4
Net recognized actuarial losses	70	66	52	3	3	-

The following sets forth the amounts in unassigned funds (surplus) that have not yet been recognized as components of net periodic benefit cost:

	December 31,			
	2015	2014	2015	2014
	Pension Benefits		Other Postretirement Benefits	
	(In Millions)			
Net prior service cost	$ 9	$ 13	$ (58)	$ 42
Net actuarial losses	1,019	869	43	60
Unrecognized transition liability	18	24	-	-

The following sets forth the projected benefit obligation funded status of the plans:

	December 31,			
	2015	2014	2015	2014
	Pension Benefits		Other Postretirement Benefits	
	(In Millions)			
Projected benefit obligation	$ 2,675	$ 2,581	$ 305	$ 412
Less: fair value of plan assets	2,074	2,139	5	5
Projected benefit obligation funded status	$ (601)	$ (442)	$ (300)	$ (407)

The qualified pension plan was underfunded by $251 million as of December 31, 2015 and by $119 million as of December 31, 2014. The nonqualified pension plans are not funded and have total projected benefit obligations of $350 million as of December 31, 2015 and $323 million as of December 31, 2014.

The Company intends to fund $77 million in 2016 to meet its expected current obligations under its qualified and nonqualified pension plans and other postretirement benefit plans.

g. Net periodic cost

The net periodic cost represents the annual accounting income or expense recognized by the Company and included in general insurance expenses. The net periodic cost recognized in the Statutory Statements of Operations is as follows:

	Years Ended December 31,			
	2015	2014	2015	2014
	Pension Benefits		Other Postretirement/ Postemployment Benefits	
	(In Millions)			
Service cost	$ 71	$ 73	$ 10	$ 12
Interest cost	99	108	16	16
Expected return on plan assets	(154)	(151)	-	-
Amortization of unrecognized net actuarial and other losses	65	52	6	1
Amortization of unrecognized prior service cost	4	8	2	4
Total net periodic cost	$ 85	$ 90	$ 34	$ 33

The expected future pension and other postretirement benefit payments, which reflect expected future service, are as follows:

	Pension Benefits	Other Postretirement Benefits
	(In Millions)	
2016	$ 90	$ 20
2017	90	20
2018	96	20
2019	103	20
2020	109	20
2021-2025	643	92

The Company will no longer be eligible to receive the Medicare Prescription Drug Government Subsidy in 2016.

The net expense recognized in the Consolidated Statutory Statements of Operations for all employee and agent benefit plans is as follows:

	Years Ended December 31,		
	2015	2014	2013
	(In Millions)		
Pension	$ 85	$ 90	$ 132
Health	88	81	76
Thrift	42	44	36
Postretirement	27	28	32
Postemployment	4	5	3
Life	3	3	-
Disability	3	3	4
Other benefits	9	9	8
Total	$ 261	$ 263	$ 291

h. Assumptions

The assumptions the Company used to calculate the benefit obligations and to determine the benefit costs are as follows:

	December 31,					
	2015	2014	2013	2015	2014	2013
	Pension Benefits			Other Postretirement Benefits		
Weighted-average assumptions used to determine:						
Benefit obligations:						
Discount rate	4.30 %	3.90 %	4.85 %	3.95 %	3.75 %	4.70 %
Expected rate of compensation increase	3.50 %	4.00 %	4.00 %	3.50 %	4.00 %	4.00 %
Net periodic benefit cost:						
Discount rate	3.90 %	4.85 %	4.00 %	3.75 %	4.70 %	3.80 %
Expected long-term rate of return on plan assets	7.25 %	7.50 %	7.50 %	3.00 %	3.00 %	3.00 %
Expected rate of compensation increase	4.00 %	4.00 %	4.00 %	4.00 %	4.00 %	4.00 %
Assumed health care cost trend rates:						
Health care cost trend rate	-	-	-	8.00 %	7.00 %	7.00 %
Ultimate health care cost trend rate after gradual decrease until 2024 for 2015, 2023 for 2014 and 2021 for 2013.	-	-	-	5.00 %	5.00 %	5.00 %

Assumed health care cost trend rates do not have a significant effect on the amounts reported for the health care plans.

12. Employee compensation plans

The Company has a long-term incentive compensation plan under which certain employees of the Company and its subsidiaries may be issued phantom stock-based compensation awards. These awards include Phantom Stock Appreciation Rights (PSARs) and Phantom Restricted Stock (PRS). These awards do not grant an equity or ownership interest in the Company.

A summary of the weighted average grant price of PSARs and PRS shares granted, the intrinsic value of PSARs shares exercised, the PRS liabilities paid and the fair value of shares vested during the year is as follows:

	December 31,		
	2015	2014	2013
Weighted average grant date fair value:			
PSAR granted during the year	$ 99.42	$ 78.50	$ 78.55
PRS granted during the year	98.64	78.54	78.58
Intrinsic value (in thousands):			
PSAR options exercised	38,282	29,125	21,919
PRS liabilities paid	30,560	30,757	27,927
Fair value of shares vested during the year	44,476	71,207	65,724

A summary of PSARs and PRS shares is as follows:

	PSARs			PRS		
		Weighted Average			Weighted Average	
	Number of Share Units	Price	Remaining Contract Terms	Number of Share Units	Price	Remaining Contract Terms
	(In Thousands)		(In Years)	(In Thousands)		(In Years)
Outstanding as of December 31, 2013	2,620	$ 68.38	1.1	1,233	$ 59.71	3.2
Granted	945	78.50		315	78.54	
Exercised	(752)	56.46		(395)	45.66	
Forfeited	(58)	74.60		(41)	72.12	
Outstanding as of December 31, 2014	2,755	73.82	1.7	1,112	69.47	3.3
Granted	939	99.42		321	98.64	
Exercised	(1,090)	64.46		(309)	58.93	
Forfeited	(42)	83.74		(36)	76.83	
Outstanding as of December 31, 2015	2,562	85.88	3.3	1,088	80.89	2.7
Exercisable as of December 31, 2015	59	$ 72.51	1.8	-	$ 85.81	-

The PSARs compensation was a benefit of $5 million for the year ended December 31, 2015 and an expense of $63 million for the year ended December 31, 2014 and $6 million for the year ended December 31, 2013. The PSARs accrued compensation liability was $10 million as of December 31, 2015 and $58 million as of December 31, 2014. Unrecognized compensation expense related to nonvested PSARs awards was $3 million for the year ended December 31, 2015 and $18 million for the year ended December 31, 2014 and $3 million for the year ended December 31, 2013. The weighted average period over which the expense is expected to be recognized is 1.1 years.

The PSARs unrecognized compensation expense represents the total intrinsic value of all shares issued if 100% vested at current stock price, minus current compensation liability.

The PRS compensation expense was $16 million for the year ended December 31, 2015 and $38 million for the year ended December 31, 2014 and $22 million for the year ended December 31, 2013. The PRS accrued compensation liability was $49 million for the year ended December 31, 2015 and $65 million for the year ended December 31, 2014. Unrecognized compensation expense related to nonvested PRS awards was $39 million as of December 31, 2015, $47 million as of December 31, 2014 and $38 million for the year ended December 31, 2013. The weighted average period over which the expense is expected to be recognized is 2.7 years. The PRS unrecognized compensation expense represents the total value of all shares issued if 100% vested at the current stock price, minus current compensation liability.

13. Surplus notes

The following table summarizes the surplus notes issued and outstanding as of December 31, 2015:

Issue Date	Face Amount	Carrying Value	Interest Rate	Maturity Date	Scheduled Annual Interest Payment Dates
	($ In Millions)				
11/15/1993	$ 250	$ 250	7.625%	11/15/2023	May 15 & Nov 15
03/01/1994	100	100	7.500%	03/01/2024	Mar 1 & Sept 1
05/12/2003	250	249	5.625%	05/15/2033	May 15 & Nov 15
06/01/2009	750	743	8.875%	06/01/2039	Jun 1 & Dec 1
01/17/2012	400	399	5.375%	12/01/2041	Jun 1 & Dec 1
04/15/2015	500	491	4.500%	04/15/2065	Apr 15 & Oct 15
Total	$ 2,250	$ 2,232			

All payments of interest and principal are subject to the prior approval of the Division. Interest expense is not recorded until approval for payment is received from the Division. As of December 31, 2015, the unapproved interest was $19 million. Through December 31, 2015, the Company paid cumulative interest of $1,284 million on surplus notes. Interest of $140 million was approved and paid during the year ended December 31, 2015.

Anticipated sinking fund payments are due for the notes issued in 1993 and 1994 as follows: $62 million in 2021, $88 million in 2022, $150 million in 2023 and $50 million in 2024. There are no sinking fund requirements for the notes issued in 2003, 2009, 2012 or 2015.

These notes are unsecured and subordinate to all present and future indebtedness of the Company, all policy claims and all prior claims against the Company as provided by the Massachusetts General Laws. The surplus notes are all held by bank custodians for unaffiliated investors. All issuances were approved by the Division. Surplus notes are included in surplus on the Statutory Statements of Financial Position.

14. Presentation of the Statutory Statements of Cash Flows

The following table presents those transactions that have affected the Company's recognized assets or liabilities but have not resulted in cash receipts or payments during the years ended December 31, 2015, 2014 and 2013. In the Company's prior year financial statements, the non-cash activities shown below were included within the Statutory Statement of Cash Flows. In 2015, the NAIC issued clarifying guidance related to the exclusion of non-cash activities from the statement of cash flows. As a result, the Company has excluded the 2015 non-cash activities below from the Statutory Statement of Cash Flows for the year ended December 31, 2015; however, the 2014 and 2013 non-cash activities below continue to be included within the Statutory Statements of Cash Flows for the years ended December 31, 2014 and 2013.

	Years Ended December 31,		
	2015	2014	2013
	(In Millions)		
Premium recognized for group annuity contracts	$ 1,471	$ -	$ -
Bonds received as consideration for group annuity contracts	(1,466)	-	-
Bond conversions and refinancing	1,197	1,066	658
Bonds received as consideration for assignment of deposit-type liabilities	(690)	-	-
Deposit-type liabilities assigned in exchange for bonds	690	-	-
Bonds received in exchange for equity of an indirect subsidiary	185	-	-
Bank loan rollovers	143	625	1,924
Other	129	110	351
Mortgage loan issued in sale of real estate	-	150	-
Bond conversions to other invested assets		-	181
Related to the group annuity reinsurance agreement:			
Deposits for policyholders' reserves related to reinsurance agreement	-	-	5,298
Liabilities for deposit-type contracts related to reinsurance agreement	-	-	3,885
Other liabilities	-	-	879
Bonds	-	-	(8,602)
Mortgage loans	-	-	(736)
Other assets	-	-	(383)
Preferred stock	-	-	(13)

Bank loan rollovers are transactions processed as the result of rate resets on existing bank loans and are included in the proceeds from investments sold, matured or repaid on bonds. In 2013, bank loan rollovers that were a result of rate resets were presented on a gross basis. In 2015 and 2014, bank loan rollovers that are a result of rate resets are presented on a net basis.

15. Fair value of financial instruments

The following presents a summary of the carrying values and fair values of the Company's financial instruments:

	December 31, 2015				
	Carrying Value	Fair Value	Level 1	Level 2	Level 3
	(In Millions)				
Financial assets:					
Bonds:					
U. S. government and agencies	$ 8,015	$ 8,526	$ -	$ 8,521	$ 5
All other governments	762	762	-	690	72
States, territories and possessions	727	776	-	776	-
Political subdivisions	468	503	-	503	-
Special revenue	5,414	6,061	-	6,025	36
Industrial and miscellaneous	57,984	58,260	-	35,010	23,250
Parent, subsidiaries and affiliates	6,177	6,340	-	646	5,694
Preferred stocks	533	520	13	30	477
Common stocks - subsidiaries and affiliates	441	441	307	94	40
Common stocks - unaffiliated	1,140	1,140	445	515	180
Mortgage loans - commercial	20,287	20,815	-	-	20,815
Mortgage loans - residential	1,721	1,684	-	-	1,684
Derivatives:					
Interest rate swaps	8,033	8,554	-	8,554	-
Options	622	622	-	622	-
Currency swaps	536	536	-	536	-
Forward contracts	55	55	-	55	-
Credit default swaps	22	13	-	13	-
Cash, cash equivalents and short-term investments	3,049	3,049	174	2,875	-
Separate account assets	60,386	60,386	39,355	20,306	725
Financial liabilities:					
Repurchase agreements	5,130	5,130	-	5,130	-
Commercial paper and other borrowed money	277	277	-	250	27
Guaranteed interest contracts	5,944	5,933	-	-	5,933
Group annuity contracts and other deposits	17,939	18,667	-	-	18,667
Individual annuity contracts	6,501	8,025	-	-	8,025
Supplementary contracts	1,094	1,095	-	-	1,095
Derivatives:					
Interest rate swaps	5,797	5,839	-	5,839	-
Options	7	7	-	7	-
Currency swaps	4	4	-	4	-
Forward contracts	13	13	-	13	-
Credit default swaps	19	20	-	20	-

Common stocks – subsidiaries and affiliates do not include unconsolidated subsidiaries, which had statutory carrying values of $7,519 million.

	December 31, 2014				
	Carrying Value	Fair Value	Level 1	Level 2	Level 3
	(In Millions)				
Financial assets:					
Bonds:					
U. S. government and agencies	$ 7,395	$ 8,206	$ -	$ 8,199	$ 7
All other governments	526	560	-	486	74
States, territories and possessions	1,735	1,884	-	1,868	16
Political subdivisions	493	540	-	517	23
Special revenue	4,562	5,384	-	5,266	118
Industrial and miscellaneous	54,482	57,323	-	36,313	21,010
Parent, subsidiaries and affiliates	5,526	5,779	-	646	5,133
Preferred stocks	525	531	1	14	516
Common stocks - subsidiaries and affiliates	713	713	515	117	81
Common stocks - unaffiliated	1,188	1,188	587	441	160
Mortgage loans - commercial	17,585	18,204	-	-	18,204
Mortgage loans - residential	1,772	1,738	-	-	1,738
Derivatives:					
Interest rate swaps	7,688	8,136	-	8,136	-
Options	524	524	-	524	-
Currency swaps	233	233	-	233	-
Forward contracts	70	70	-	70	-
Credit default swaps	16	18	-	18	-
Cash, cash equivalents and short-term investments	1,880	1,880	303	1,577	-
Separate account assets	60,384	60,384	40,104	19,680	600
Financial liabilities:					
Repurchase agreements	4,658	4,658	-	4,658	-
Commercial paper and other borrowed money	268	268	-	250	18
Guaranteed interest contracts	4,218	4,301	-	-	4,301
Group annuity contracts and other deposits	17,454	18,446	-	-	18,446
Individual annuity contracts	6,394	7,365	-	-	7,365
Supplementary contracts	1,040	1,041	-	-	1,041
Derivatives:					
Interest rate swaps	5,359	5,368	-	5,368	-
Options	9	9	-	9	-
Currency swaps	45	45	-	45	-
Forward contracts	3	3	-	3	-
Credit default swaps	8	7	-	7	-

Common stocks – subsidiaries and affiliates do not include unconsolidated subsidiaries, which had a statutory carrying value of $7,227 million.

Fair value is defined as the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The authoritative guidance around fair value establishes a measurement framework that includes a hierarchy used to classify the inputs used in measuring fair value. The hierarchy prioritizes the inputs to valuation techniques into three levels. Each level reflects a unique description of the inputs that are significant to the fair value measurements. The levels of the fair value hierarchy are as follows:

Level 1 – Observable inputs in the form of quoted prices for identical instruments in active markets.

Level 2 – Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active or other inputs that are observable or can be derived from observable market data for substantially the full term of the assets or liabilities.

Level 3 – One or more unobservable inputs that are supported by little or no market activity and are significant to the fair value of the assets or liabilities. Level 3 assets and liabilities include financial instruments whose value is determined using internal models, as well as instruments for which the determination of fair value requires significant management judgment or estimation.

When available, the Company generally uses unadjusted quoted market prices from independent sources to determine the fair value of investments, and classifies such items within Level 1 of the fair value hierarchy. If quoted prices are not available, prices are derived from observable market data for similar assets in an active market or obtained directly from brokers for identical assets traded in inactive markets. Investments that are priced using these inputs are classified within Level 2 of the fair value hierarchy. When some of the necessary observable inputs are unavailable, fair value is based upon internally developed models. These models use inputs not directly observable or correlated with observable market data. Typical inputs, which are integrated in the Company's internal discounted cash flow models and discounted earnings models include, but are not limited to, issuer spreads derived from internal credit ratings and benchmark yields such as London Inter-Bank Offered Rate (LIBOR), cash flow estimates and earnings before interest, taxes, depreciation and amortization estimates. Investments that are priced with such unobservable inputs are classified within Level 3 of the fair value hierarchy.

The Company has established and maintains policies and guidelines that govern its valuation methodologies and their consistent application. These policies and guidelines address the use of inputs, price source hierarchies and provide controls around the valuation processes. These controls include appropriate review and analysis of prices against market activity or indicators for reasonableness, approval of price source changes, price overrides, methodology changes and classification of fair value hierarchy levels. The valuation policies and guidelines are reviewed and updated as appropriate.

Annually, the Company reviews the primary pricing vendor to validate that the inputs used in that vendor's pricing process are deemed to be market observable as defined above. While the Company was not provided access to proprietary models of the vendor, the reviews have included on-site walk-throughs of the pricing process, methodologies and control procedures for each asset class and level for which prices are provided. The review also included an examination of the underlying inputs and assumptions for a sample of individual securities across asset classes. In addition, the Company and its pricing vendors have an established challenge process in place for all security valuations, which facilitates identification and resolution of prices that fall outside expected ranges. The Company believes that the prices received from the pricing vendors are representative of prices that would be received to sell the assets at the applicable measurement date (exit prices) and are classified appropriately in the hierarchy.

The Company reviews the fair value hierarchy classifications at each reporting period. Overall, reclassifications between levels occur when there are changes in the observability of inputs and market activity used in the valuation of a financial asset or liability. Such reclassifications are reported as transfers between levels at the beginning fair value for the reporting period in which the changes occur. Given the types of assets classified as Level 1 (primarily equity securities including mutual fund investments), transfers between Level 1 and Level 2 measurement categories are expected to be infrequent. Transfers into and out of Level 3 are summarized in the schedule of changes in Level 3 assets and liabilities.

The fair value of group annuity contracts and other deposits is determined by multiplying the book value of the contract by an average market value adjustment factor. The market value adjustment factor is directly related to the difference between the book value of client liabilities and the present value of installment payments discounted at current market value yields. The market value yield is measured by the Barclay's Aggregate Bond Index, subject to certain adjustments, and the installment period is equivalent to the duration of the Company's invested asset portfolio.

The fair value of individual annuity and supplementary contracts is determined using one of several methods based on the specific contract type. For short-term contracts, generally less than 30 days, the fair value is assumed to be the book value. For contracts with longer durations, guaranteed interest contracts and investment-type contracts, the fair value is determined by calculating the present value of future cash flows discounted at current market interest rates, the risk-free rate or a current pricing yield curve based on pricing assumptions using assets of a comparable corporate bond quality. Annuities receiving dividends are accumulated at the average minimum guaranteed rate and discounted at the risk-free rate. All others are valued using cash flow projections from the Company's asset-liability management analysis.

The following presents the Company's fair value hierarchy for assets and liabilities that are carried at fair value:

	December 31, 2015			
	Level 1	Level 2	Level 3	Total
	(In Millions)			
Financial assets:				
Bonds:				
States, territories and possessions	$ -	$ 2	$ -	$ 2
Special revenue	-	4	-	4
Industrial and miscellaneous	-	18	22	40
Parent, subsidiaries and affiliates	-	47	45	92
Preferred stocks	-	3	2	5
Common stocks - subsidiaries and affiliates	307	94	40	441
Common stocks - unaffiliated	445	515	180	1,140
Derivatives:				
Interest rate swaps	-	8,033	-	8,033
Options	-	622	-	622
Currency swaps	-	536	-	536
Forward contracts	-	55	-	55
Credit default swaps	-	2	-	2
Separate account assets	39,355	20,306	725	60,386
Total financial assets carried at fair value	$ 40,107	$ 30,237	$ 1,014	$ 71,358
Financial liabilities:				
Derivatives:				
Interest rate swaps	$ -	$ 5,797	$ -	$ 5,797
Options	-	7	-	7
Currency swaps	-	4	-	4
Forward contracts	-	13	-	13
Credit default swaps	-	2	-	2
Total financial liabilities carried at fair value	$ -	$ 5,823	$ -	$ 5,823

In 2015, there were no significant transfers between Level 1 and Level 2.

The following presents the Company's fair value hierarchy for assets and liabilities that are carried at fair value:

	December 31, 2014			
	Level 1	Level 2	Level 3	Total
	(In Millions)			
Financial assets:				
Bonds:				
All other governments	$ -	$ 4	$ -	$ 4
Industrial and miscellaneous	-	33	109	142
Parent, subsidiaries and affiliates	-	10	79	89
Preferred stocks	-	-	3	3
Common stocks - subsidiaries and affiliates	515	117	81	713
Common stocks - unaffiliated	587	441	160	1,188
Derivatives:				
Interest rate swaps	-	7,688	-	7,688
Options	-	524	-	524
Currency swaps	-	233	-	233
Forward contracts	-	70	-	70
Separate account assets	40,104	19,680	600	60,384
Total financial assets carried at fair value	$ 41,206	$ 28,800	$ 1,032	$ 71,038
Financial liabilities:				
Derivatives:				
Interest rate swaps	$ -	$ 5,359	$ -	$ 5,359
Options	-	9	-	9
Currency swaps	-	45	-	45
Forward contracts	-	3	-	3
Credit default swaps	-	5	-	5
Total financial liabilities carried at fair value	$ -	$ 5,421	$ -	$ 5,421

In 2014, there were no significant transfers between Level 1 and Level 2.

Valuation Techniques and Inputs

The Company determines the fair value of its investments using primarily the market approach or the income approach. The use of quoted prices for identical assets and matrix pricing or other similar techniques are examples of market approaches, while the use of discounted cash flow methodologies is an example of the income approach. The Company attempts to maximize the use of observable inputs and minimize the use of unobservable inputs in selecting whether the market or the income approach is used.

A description of the significant valuation techniques and inputs to the determination of estimated fair value for the more significant asset and liability classes measured at fair value on a recurring basis and categorized within Level 2 and Level 3 of the fair value hierarchy is as follows:

Separate account assets – These assets primarily include bonds (industrial and miscellaneous; U.S. government and agencies), and derivatives. Their fair values are determined as follows:

Bonds (Industrial and miscellaneous) – These securities are principally valued using the market or the income approaches. Level 2 valuations are based primarily on quoted prices in markets that are not active, broker quotes, matrix pricing or other similar techniques that use standard market observable inputs such as benchmark yields, spreads versus benchmark yields, new issuances, issuer ratings, duration, and trades of identical or comparable securities. Privately placed securities are valued using discounted cash flow models using standard market observable inputs, and inputs derived from, or corroborated by, market observable data including market yield curve, duration, call provisions, observable prices and spreads for similar publicly traded or privately traded issuances that incorporate the credit quality and industry sector of the issuer. This level also includes securities priced by independent pricing services that use observable inputs. Valuations based on matrix pricing or other similar techniques that utilize significant unobservable inputs or inputs that cannot be derived principally from, or corroborated by, observable market data, including adjustments for illiquidity, delta spread adjustments or spreads to reflect industry trends or specific credit−related issues are classified as Level 3. In addition, inputs including quoted prices for identical or similar securities that are less liquid and based on lower levels of trading activity than securities classified in Level 2 are classified as Level 3.

Bonds (U.S. government and agencies) – These securities are principally valued using the market approach. Level 2 valuations are based primarily on quoted prices in markets that are not active, or using matrix pricing or other similar techniques using standard market observable inputs such as the benchmark U.S. Treasury yield curve, the spreads versus the U.S. Treasury yield curve for the identical security and comparable securities that are actively traded.

Derivative assets and liabilities – These financial instruments are primarily valued using the market approach. The estimated fair value of derivatives is based primarily on quotations obtained from counterparties and independent sources, such as quoted market values received from brokers. These quotations are compared to internally derived prices and a price challenge is lodged with the counterparties and an independent source when a significant difference cannot be explained by appropriate adjustments to the internal model. When quoted market values are not reliable or available, the value is based upon an internal valuation process using market observable inputs that other market participants would use. Significant inputs to the valuation of derivative financial instruments include overnight index swaps (OIS) and LIBOR basis curves, interest rate volatility, swap yield curve, currency spot rates, cross currency basis curves and dividend yields. Due to the observability of the significant inputs to these fair value measurements, they are classified as Level 2.

The use of different assumptions or valuation methodologies may have a material impact on the estimated fair value amounts. For the periods presented, there were no significant changes to the Company's valuation techniques.

The following presents changes in the Company's Level 3 assets carried at fair value:

	Year Ended December 31, 2015						
	Bonds						Total Level 3
	Industrial and Miscellaneous	Parent, Subsidiaries, and Affiliates	Preferred Stock	Common Stock Affiliated	Common Stock Unaffiliated	Separate Account Assets	Financial Assets Carried at Fair Value
	(In Millions)						
Balance as of January 1, 2015	$ 109	$ 79	$ 3	$ 81	$ 160	$ 600	$ 1,032
(Losses) gains in net income	(39)	(1)	-	7	11	26	4
Gains (losses) in surplus	1	(6)	-	(28)	(10)	-	(43)
Purchases	-	-	-	460	37	168	665
Issuances	3	-	-	35	-	-	38
Sales	(4)	-	-	(493)	(12)	(68)	(577)
Settlements	(4)	(1)	-	(26)	(1)	(1)	(33)
Transfers out	-	(19)	-	-	(1)	-	(20)
Other transfers	(44)	(7)	(1)	4	(4)	-	(52)
Balance as of December 31, 2015	$ 22	$ 45	$ 2	$ 40	$ 180	$ 725	$ 1,014

Transfers out of Level 3 occur when quoted prices are received in markets that have not been previously active, and therefore the assets are moved to Level 2. Industrial and miscellaneous were transferred out of Level 3 into Level 2 due to a change in the observability of pricing inputs.

Other transfers include assets that are either no longer carried at fair value, or have just begun to be carried at fair value, such as assets with no level changes but a change in the lower of cost or market carrying basis.

	Year Ended December 31, 2014						
	Bonds						Total Level 3
	Industrial and Miscellaneous	Parent, Subsidiaries, and Affiliates	Preferred Stock	Common Stock Affiliated	Common Stock Unaffiliated	Separate Account Assets	Financial Assets Carried at Fair Value
	(In Millions)						
Balance as of January 1, 2014	$ 23	$ -	$ 1	$ 35	$ 185	$ 490	$ 734
(Losses) gains in net income	-	-	-	(1)	(71)	82	10
(Losses) gains in surplus	(13)	(6)	-	(3)	40	-	18
Purchases	3	20	3	103	9	238	376
Issuances	117	96	-	2	4	-	219
Sales	-	-	-	(34)	(4)	(320)	(358)
Settlements	(8)	(84)	-	(21)	(6)	110	(9)
Transfers in	-	53	-	-	3	-	56
Other transfers	(13)	-	(1)	-	-	-	(14)
Balance as of December 31, 2014	$ 109	$ 79	$ 3	$ 81	$ 160	$ 600	$ 1,032

The fair value of real estate separate accounts is carried net of encumbrances in the Statutory Statements of Financial Position and the change in encumbrances is included in the settlements within separate account assets.

Level 3 transfers in are assets that are consistently carried at fair value but have had a level change. The parent, subsidiaries, and affiliates were transferred in to Level 3 from Level 2 due to a change in the observability of pricing inputs.

16. Business risks, commitments and contingencies

a. Risks and uncertainties

The Company operates in a business environment subject to various risks and uncertainties. The principle risks include insurance and underwriting risks, investment and interest rate risks, currency exchange risk and credit risk.

Insurance and underwriting risks

The Company prices its products based on estimated benefit payments reflecting assumptions with respect to mortality, morbidity, longevity, persistency, interest rates and other factors. If actual policy experience emerges that is significantly and adversely different from assumptions used in product pricing, the effect could be material to the profitability of the Company. For participating whole life products, the Company's dividends to policyholders primarily reflect the difference between actual investment, mortality, expense and persistency experience and the experience embedded in the whole life premiums and guaranteed elements. The Company also reinsures certain life insurance and other long-term care insurance policies to mitigate the impact of its underwriting risk.

Investment and interest rate risks

The fair value, cash flows and earnings of investments can be influenced by a variety of factors including changes in interest rates, credit spreads, equity markets, portfolio asset allocation and general economic conditions. The Company employs a rigorous asset/liability management process to help mitigate the economic impacts of various investment risks, in particular interest rate risk. By effectively matching the market sensitivity of assets with the liabilities they support, the impact of interest rate changes is addressed, on an economic basis, as the change in the value of the asset is offset by a corresponding change in the value of the supported liability.

The levels of U.S. interest rates are influenced by U.S. monetary policies and by the relative attractiveness of U.S. markets to investors versus other global markets. As interest rates increase, certain debt securities may experience amortization or prepayment speeds that are slower than those assumed at purchase, impacting the expected maturity of these securities and the ability to reinvest the proceeds at the higher yields. Rising interest rates may also result in a decrease in the fair value of the investment portfolio. As interest rates decline, certain debt securities may experience accelerated amortization and prepayment speeds than what was assumed at purchase. During such periods, the Company is at risk of lower net investment income as it may not be able to reinvest the proceeds at comparable yields. Declining interest rates may also increase the fair value of the investment portfolio.

Interest rates also have an impact on the Company's products with guaranteed minimum payouts and on interest credited to account holders. As interest rates decrease, investment spreads may contract as crediting rates approach minimum guarantees, resulting in an increased liability.

In periods of increasing interest rates, policy loans, surrenders and withdrawals may increase as policyholders seek investments with higher perceived returns. This could result in cash outflows requiring the Company to sell invested assets at a time when the prices of those assets are adversely affected by the increase in market interest rates, which could cause the Company to realize investment losses.

Currency exchange risk

The Company has currency risk due to its non-U.S. dollar investments and medium-term notes along with its indirect international operations. The Company mitigates currency risk through the use of cross-currency swaps and forward contracts. Cross-currency swaps are used to minimize currency risk for certain non-U.S. dollar assets and liabilities through a pre-specified exchange of interest and principal. Forward contracts are used to hedge movements in exchange rates.

Credit and other market risks

The Company manages its investments to limit credit and other market risks by diversifying its portfolio among various security types and industry sectors as well as purchasing credit default swaps to transfer some of the risk.

Stressed conditions, volatility and disruptions in global capital markets or in particular markets or financial asset classes can have an adverse effect on the Company, in part because the Company has a large investment portfolio and assets supporting the Company's insurance liabilities are sensitive to changing market factors. Global market factors, including interest rates, credit spread quality, equity prices, real estate markets, foreign currency exchange rates, consumer spending, business investment, government spending, the volatility and strength of the capital markets, deflation and inflation, all affect the business and economic environment and, ultimately, the profitability of the Company's business. Disruptions in one market or asset class can also spread to other markets or asset classes. Upheavals in the financial markets can also affect the Company's business through their effects on general levels of economic activity, employment and customer behavior.

Significant volatility in the financial markets, and government actions taken in response, may exacerbate some of the risks the Company faces. The Company holds investments in energy and certain other commodity sectors, which have experienced similar overall market volatility and declines. With the continued weaker economic outlook in these sectors, there may be an increase in reported default rates or potential downgrades to the ratings of companies exposed to these sectors. In addition, concerns over the solvency of certain countries and sovereignties and the entities that have significant exposure to their debt have created market volatility. This volatility may continue to affect the performance of various asset classes until there is an ultimate resolution of the sovereign debt related concerns.

Real estate markets are monitored continuously with attention on regional differences in price performance, absorption trends and supply and demand fundamentals that can impact the rate of foreclosures and delinquencies. Public sector strengths and weaknesses, job growth and macro-economic issues are factors that are closely monitored to identify any impact on the Company's real estate related investments.

The CMBS, RMBS and leveraged loan sectors are sensitive to evolving conditions that can impair the cash flows realized by investors and is subject to uncertainty. Management's judgment regarding OTTI and estimated fair value depends upon the evolving investment sector and economic conditions. It can also be affected by the market liquidity, a lack of which can make it difficult to obtain accurate market prices for RMBS and other investments, including CMBS and leveraged loans. Any deterioration in economic fundamentals, especially related to the housing sector could affect management's judgment regarding OTTI.

The Company has investments in structured products exposed primarily to the credit risk of corporate bank loans, corporate bonds or credit default swap contracts referencing corporate credit risk. Most of these structured investments are backed by corporate loans and are commonly known as collateralized loan obligations that are classified as CDOs. The portfolios backing these investments are actively managed and diversified by industry and individual issuer concentrations. Due to the complex nature of CDOs and the reduced level of transparency to the underlying collateral pools for many market participants, the recovery in CDO valuations generally lags the overall recovery in the underlying assets. Management believes its scenario analysis approach, based primarily on actual collateral data and forward looking assumptions, does capture the credit and most other risks in each pool. However, in a rapidly changing economic environment, the credit and other risks in each collateral pool will be more volatile and actual credit performance of CDOs may differ from the Company's assumptions.

The Company continuously monitors its investments and assesses their liquidity and financial viability; however, the existence of the factors described above, as well as other market factors, could negatively impact the market value of the Company's investments. If the Company sells its investments prior to maturity or market recovery, these investments may yield a return that is less than the Company otherwise would have been able to realize.

Asset-based fees calculated as a percentage of the separate account assets are a source of revenue to the Company. Gains and losses in the investment markets may result in corresponding increases and decreases in the Company's separate account assets and related revenue.

Market risk arises within the Company's employee benefit plans to the extent that the obligations of the plans are not fully matched by assets with determinable cash flows. Pension and postretirement obligations are subject to change due to fluctuations in the discount rates used to measure the liabilities as well as factors such as changes in inflation, salary increases and participants living longer. The risks are that such fluctuations could result in assets that are insufficient over time to cover the level of projected benefit obligations. In addition, increases in inflation and members living longer could increase the pension and postretirement obligations. Management determines the level of this risk using reports prepared by independent actuaries and takes action, where appropriate, in terms of setting investment strategy and determining contribution levels. In the event that the pension obligations arising under the Company's employee benefit plans exceed the assets set aside to meet the obligations, the Company may be required to make additional contributions or increase its level of contributions to these plans.

b. Leases

The Company leases office space and equipment in the normal course of business under various noncancelable operating lease agreements. Additionally, the Company, as lessee, has entered various sublease agreements with affiliates for office space, such as OFI and Babson Capital. Total rental expense on net operating leases, recorded in general insurance expenses, was $76 million for the year ended December 31, 2015, $117 million for the year ended December 31, 2014 and $89 million for the year ended December 31, 2013. Net operating leases are net of $6 million of sublease receipts for the year ended December 31, 2015, $8 million for the year ended December 31, 2014 and $13 million for the year ended December 31, 2013.

The Company has entered into two sale-leaseback transactions with unrelated parties to sell and leaseback certain fixed assets with book values of $120 million and $110 million, which resulted in no gain or loss. The leases have five year terms, which expire in 2018 and 2020 with annual lease payments of approximately $25 million and $22 million. At the end of the leases, the Company has the option to purchase the underlying assets at fair value.

Future minimum commitments for all lease obligations as of December 31, 2015 were as follows:

	Gross	Affiliated Subleases	Net
	(In Millions)		
2016	$ 99	$ 7	$ 92
2017	95	7	88
2018	83	8	75
2019	60	8	52
2020	53	8	45
Thereafter	61	10	51
Total	$ 451	$ 48	$ 403

In December 31, 2015, nonaffiliated subleases were less than $1 million.

c. Guaranty funds

The Company is subject to state insurance guaranty fund laws. These laws assess insurance companies amounts to be used to pay benefits to policyholders and policy claimants of insolvent insurance companies. Many states allow these assessments to be credited against future premium taxes. The Company believes such assessments in excess of amounts accrued will not materially impact its financial position, results of operations or liquidity.

d. Litigation

The Company is involved in litigation arising in the normal course of business, which seeks compensatory damages, punitive damages and equitable remedies. Although the Company is not aware of any actions or allegations that reasonably should give rise to a material adverse impact to the Company's financial position or liquidity, the outcome of litigation cannot be foreseen with certainty. It is the opinion of management that the ultimate resolution of these matters will not materially impact the Company's financial position or liquidity. However, the outcome of a particular proceeding may be material to the Company's results of operations for a particular period depending upon, among other factors, the size of the loss and the level of the Company's results of operations for the period.

In 2008, the Company and MMHLLC were named as defendants in several lawsuits filed in federal and state courts in Colorado, Massachusetts, New Mexico, New York and Washington by investors seeking to recover investments they allegedly lost as a result of the "Ponzi" scheme run by Bernard L. Madoff through his company, Bernard L. Madoff Investment Securities, LLC. Certain of these lawsuits also named Tremont Group Holdings, Inc. and certain of its affiliates, and certain of their respective current or former officers and directors, as defendants. The plaintiffs alleged a variety of state law and federal security claims against the defendants. In 2015, the companies entered into settlement agreements and paid $37 million in connection with these agreements. The Company recorded the loss as a change in net unrealized capital losses, net of tax, in the Statutory Statements of Changes in Surplus.

In 2009, several lawsuits were filed as putative class actions and later consolidated before the U.S. District Court for the District of Colorado in connection with the investment performance of Oppenheimer Rochester California Municipal Fund (the California Fund Suit). This fund was advised by OppenheimerFunds, Inc. (OFI) and distributed by its subsidiary OppenheimerFunds Distributor, Inc. (OFDI). The plaintiffs in the California Fund Suit asserted claims against the Company, OFI, OFDI and certain present and former trustees and officers of the fund under federal securities laws and allege, among other things, the disclosure documents of the fund contained misrepresentations and omissions, that the investment policies of the fund were not followed, and that the fund and the other defendants violated federal securities laws and regulations and certain state laws. Plaintiffs filed an amended complaint and defendants filed a motion to dismiss. In 2011, the court issued an order that granted in part and denied in part the defendants' motion to dismiss. In March 2015, the court granted the plaintiffs' motion to certify a class and to appoint class representatives and class counsel. In December 2015, the U.S. Court of Appeals for the Tenth Circuit denied defendants' petition to appeal the district court's class certification order. The defendants believe they have substantial defenses and will continue to vigorously defend themselves in this action. No reasonable estimate can be made at this time regarding the potential liability, if any, or the amount or range of any loss that may result from this suit.

In 2009, the Company was named as a defendant in a lawsuit related to certain losses in a bank owned life insurance (BOLI) policy issued by the Company. The plaintiff alleges, among other things, fraud, breach of contract and breach of fiduciary duty claims against the Company, and it seeks to recover losses arising from investments pursuant to the BOLI policy. The parties have completed discovery and are preparing for trial. In May 2015, the plaintiff voluntarily dismissed its complaint and refiled the case. The Company believes it has substantial defenses and will continue to vigorously defend itself in this action. No reasonable estimate can be made at this time regarding the potential liability, if any, or the amount or range of any loss that may result from this suit.

In 2010, Christina Chavez (Chavez) filed a putative class action complaint against the Company. Chavez alleges that the Company breached its obligations to its term life policyholders in California by not paying dividends on those policies. The parties are engaged in active discovery. In June 2014, the parties participated in a mediation of their dispute, which did not result in a settlement. In July 2015, the judge certified a subclass consisting of one of twenty-six potential term products at issue in this case. All remaining subclasses were dismissed without prejudice. The Company believes it has substantial defenses and will continue to vigorously defend itself in this action. No reasonable estimate can be made at this time regarding the potential liability, if any, or the amount or range of any loss that may result from this claim.

In 2011, Golden Star, Inc. (Golden Star), plan administrator of the Golden Star Administrative Associates 401(k) Plan and Golden Star Bargaining Associates 401(k) Plan, filed a putative class action lawsuit in the U.S. District Court for the District of Massachusetts against the Company. Golden Star alleges, among other things, that the Company breached its alleged fiduciary duties while performing services to 401(k) plans and that certain of its actions constituted “Prohibited Transactions” under the Employee Retirement Income Security Act of 1974. In June 2014, the Company recorded a liability for the loss paid in 2015 in connection with this lawsuit, which did not have a significant impact on the Company.

In 2012, Karen Bacchi filed a putative class action complaint against the Company in federal court alleging that the Company breached its contracts by allegedly failing to distribute surplus in excess of the statutorily prescribed limit. The court denied the Company’s motion to dismiss and the parties are engaged in active discovery. The Company believes that it has substantial defenses and will continue to vigorously defend itself in this action. No reasonable estimate can be made at this time regarding the potential liability, if any, or the amount or range of any loss that may result from this claim.

In 2013, seven participants in the MassMutual Thrift Plan (the Thrift Plan) filed a putative class action complaint in the U.S. District Court for the District of Massachusetts. The complaint alleges, among other things, that the Company, the Investment Fiduciary Committee, the Thrift Plan Administrative Committee and individually named "fiduciaries" breached their duties by allowing the Thrift Plan to pay excessive fees and by engaging in self-dealing. The Company believes that it has substantial defenses and will continue to vigorously defend itself in this action. No reasonable estimate can be made at this time regarding the potential liability, if any, or the amount or range of any loss that may result from this claim.

e. Regulatory matters

The Company is subject to governmental and administrative proceedings and regulatory inquiries, examinations and investigations in the ordinary course of its business. In connection with regulatory inquiries, examinations and investigations, the Company has been contacted by various regulatory agencies including, among others, the Securities and Exchange Commission, the U.S. Department of Labor and various state insurance departments and state attorneys general. The Company has cooperated fully with these regulatory agencies with regard to their inquiries, examinations and investigations and has responded to information requests and comments.

Market volatility in the financial services industry over the last several years has contributed to increased scrutiny of the entire financial services industry. Therefore, the Company believes that it is reasonable to expect that proceedings, regulatory inquiries, examinations and investigations into the insurance and financial services industries will continue for the foreseeable future. Additionally, new industry-wide legislation, rules and regulations could significantly affect the insurance and financial services industries as a whole. It is the opinion of management that the ultimate resolution of these regulatory inquiries, examinations, investigations, legislative and regulatory changes of which we are aware will not materially impact the Company’s financial position or liquidity. However, the outcome of a particular matter may be material to the Company’s operating results for a particular period depending upon, among other factors, the financial impact of the matter and the level of the Company’s results of operations for the period.

f. Commitments

In the normal course of business, the Company provides specified guarantees and funding to MMHLLC and certain of its subsidiaries. As of December 31, 2015 the Company had approximately $324 million of these unsecured funding commitments to its subsidiaries and had $125 million for the year ended December 31, 2014. The unsecured commitments are included in private placements in the table below. As of December 31, 2015 and 2014, the Company had not funded, nor had an outstanding balance due on, these commitments.

In the normal course of business, the Company enters into letter of credit arrangements. The Company had outstanding letter of credit arrangements of approximately $159 million as of December 31, 2015 and approximately $63 million as of December 31, 2014. As of December 31, 2015 and 2014, the Company did not have any funding requests attributable to these letter of credit arrangements.

In the normal course of business, the Company enters into commitments to purchase certain investments. The majority of these commitments have funding periods that extend between one and five years. The Company is not required to fund commitments once the commitment period expires.

As of December 31, 2015, the Company had the following outstanding commitments:

	2016	2017	2018	2019	2020	Thereafter	Total
	(In Millions)						
Private placements	$ 1,140	$ 234	$ 59	$ 320	$ 250	$ 338	$ 2,341
Mortgage loans	386	469	294	-	261	-	1,410
Real estate	26	-	-	-	204	-	230
Partnerships and LLC	455	559	472	419	628	408	2,941
LIHTCs (including equity contributions)	2	-	-	-	16	129	147
Total	$ 2,009	$ 1,262	$ 825	$ 739	$ 1,359	$ 875	$ 7,069

In the normal course of business the Company enters into commitments related to property lease arrangements, certain indemnities, investments and other business obligations. As of December 31, 2015 and 2014, the Company had no outstanding obligations attributable to these commitments.

g. Guarantees

In the normal course of business the Company enters into guarantees related to employee and retirement benefits, the maintenance of subsidiary regulatory capital, surplus levels and liquidity sufficient to meet certain obligations, and other property lease arrangements. If the Company were to recognize a liability, the financial statement impact would be to recognize either an expense or an investment in a subsidiary, controlled, or affiliated entity. The Company has no expectations for recoveries from third parties should these guarantees be triggered. As of December 31, 2015 and 2014, the Company had no outstanding obligations to any obligor attributable to these guarantees.

The following details contingent guarantees that are made on behalf of the Company's subsidiaries and affiliates as of December 31, 2015.

Type of guarantee	Nature of guarantee (including term) and events and circumstances that would require the guarantor to perform under guarantee	Carrying amount of liability	Maximum potential amount of future payments (undiscounted) required under the guarantee
Employee and Retirement Benefits	The Company guarantees the payment of certain employee and retirement benefits for specific wholly-owned subsidiaries (CREA and Babson Capital), if the subsidiary is unable to pay.	-	The liabilities for these plans of $178 million have been recorded on the subsidiaries' books and represent the Company's maximum obligation.
Capital and Surplus Support of Subsidiaries	Certain guarantees of the Company provide for the maintenance of a subsidiary's regulatory capital, surplus levels and liquidity sufficient to meet certain obligations. These unlimited guarantees are made on behalf of certain wholly-owned subsidiaries. (C.M. Life Insurance Company, MML Bay State Life Insurance Company and MassMutual Japan).	-	These guarantees are not limited and cannot be estimated.
Other Property Lease Arrangements	The Company guarantees the payment of various lease obligations on behalf of its subsidiaries and affiliates.	-	The future maximum potential obligations are immaterial to the Company.
Real Estate Development Completion Guarantee	The Company issued a construction loan for a real estate development project. The land on which the property is to be built is subject to a ground lease. In conjunction with issuing this construction loan, the Company has also issued a completion guarantee to the land owner that pays only in the event the project is not completed. The project is expected to be completed by June 2019.	-	$350 million

17. Related party transactions

The Company has management and service contracts and cost-sharing arrangements with various subsidiaries and affiliates where the Company, for a fee, will furnish a subsidiary or affiliate, as required, operating facilities, human resources, computer software development and managerial services. Fees from C.M. Life accounted for $39 million in 2015, $48 million in 2014 and $51 million in 2013. Fees from MML Bay State accounted for $9 million in 2015 and $11 million in 2014 and 2013.

The Company has agreements with its subsidiaries and affiliates, including OFI, MML Investment Advisers, LLC, The MassMutual Trust Company, FSB and Baring International Investment Limited, where the Company receives revenue for certain recordkeeping and other services that the Company provides to customers who select, as investment options, mutual funds managed by these affiliates.

The Company has agreements with its subsidiaries, Babson Capital, Cornerstone Real Estate Advisers, LLC (CREA), OFI, Wood Creek Capital Management LLC and MML Investment Advisers LLC, which provide investment advisory services to the Company.

The following table summarizes the transactions between the Company and the related parties:

	Years Ended December 31,		
	2015	2014	2013
	(In Millions)		
Fee income:			
Management and service contracts and cost-sharing arrangements	$ 253	$ 275	$ 214
Investment advisory income	24	30	27
Recordkeeping and other services	21	18	50
Fee expense:			
Investment advisory services	270	264	239

The Company reported amounts due from subsidiaries and affiliates of $54 million as of December 31, 2015 and $59 million as of December 31, 2014. The Company reported amounts due to subsidiaries and affiliates of $18 million as of December 31, 2015 and $23 million as of December 31, 2014. Terms generally require settlement of these amounts within 30 to 90 days.

The Company's subsidiaries, Babson Capital and CREA, invest a portion of their nonqualified compensation plan in guaranteed interest contracts with the Company. Interest credited on deposits to the Babson Capital and CREA contracts was $5 million for the years ended December 31, 2015, 2014 and 2013.

The Company approved financing of $3,013 million as of December 31, 2015 and 2014, for MassMutual Asset Finance, LLC (MMAF) that can be used to finance ongoing asset purchases and refinance existing Company provided lines of credit. During 2015, MMAF borrowed $1,272 million and repaid $1,115 million under the credit facility. During 2014 MMAF borrowed $1,417 million and repaid $812 million under the credit facility. Outstanding borrowings under the facility with the Company were $2,701 million as of December 31, 2015 and $2,280 million as of December 31, 2014. Interest for these borrowings was $47 million for the year ended December 31, 2015 and $37 million for the year ended December 31, 2014. The interest of this facility adjusts monthly based on the 30-day LIBOR.

The Company approved financing of $225 million as of December 31, 2015 and $315 million as of December 31, 2014 for Jefferies Finance, LLC that can be used for the short-term financing of assets underwritten by Jefferies Finance, LLC. During 2015, Jefferies Finance, LLC borrowed $682 million and repaid $641 million under the credit facility. During 2014, Jefferies Finance, LLC borrowed $2,700 million and repaid $3,061 million under the credit facility. There were no outstanding borrowings under the facility as of December 31, 2015 and 2014 and all outstanding interest had been paid. The interest of this facility is calculated based on a full pass through of interest accrued on the underlying loans purchased

On November 23, 2015, the Company and Pioneers Gate LLC (Pioneers Gate) completed an equity for debt swap. Pioneers Gate swapped $185 million of the Company's contributed capital for $185 million of additional Pioneers Gate debt. No cash was distributed by Pioneers Gate.

The Company held debt issued by MMHLLC that amounted to $2,068 million as of December 31, 2015 and 2014. The Company recorded interest income on MMHLLC debt of $84 million in 2015 and $104 million in 2014.

The Company had two Modco agreements with the Japanese subsidiary of MMHLLC, MassMutual Life Insurance Company, on certain life insurance products. Under these Modco agreements, the Company was the reinsurer and the Japanese subsidiary retained the reserve and associated assets on individual life insurance policies. The predominant contract types were whole life, endowments and term insurance. The Modco agreements allowed the Japanese subsidiary to keep control of the investment and management of the assets supporting the reserves. The

Modco adjustment was the mechanism by which the Company funded the reserve on the reinsured portion of the risk. It was needed to adjust for the financial effect of the Japanese subsidiary holding the reserves on the ceded coverage rather than the Company. These two Modco agreements were recaptured, effective May 31, 2013, resulting in a $7 million increase to income due to the recapture fee paid to the Company from the Japanese subsidiary. In addition to the recapture fee, the Company reported a $3 million increase to income for reinsurance transactions prior to the recapture on May 31, 2013.

The Company has reinsurance agreements with its subsidiary, C.M. Life, and its indirect subsidiary, MML Bay State, including stop-loss, coinsurance, Modco and yearly renewable term agreements on life insurance products. The Company also has coinsurance agreements with C.M. Life where the Company assumes substantially all of the premium on certain universal life policies.

Effective January 1, 2014, C.M. Life recaptured certain life insurance policies that were previously assumed by the Company under a Modco reinsurance arrangement, resulting in a $25 million gain for the Company. Prior to the recapture, the Company assumed 75% of the premium on certain universal life policies. The Company had funded C.M. Life a stipulated expense allowance, death and surrender benefits, and a Modco adjustment based on experience.

As of December 31, 2015, the net reinsurance amounts due to C.M. Life and MML Bay State were $49 million and as of December 31, 2014, the net reinsurance amounts due to C.M. Life and MML Bay State were $31 million. These outstanding balances are due and payable with terms ranging from monthly to annually, depending on the agreement in effect.

The following table summarizes the reinsurance transactions for these reinsurance agreements:

	Years Ended December 31,		
	2015	2014	2013
	(In Millions)		
Premium assumed	$ 57	$ 57	$ 68
Modco adjustments, included in fees and other income	15	13	32
Expense allowance on reinsurance assumed, included in commissions	(21)	(20)	(24)
Policyholders' benefits	(97)	(69)	(107)
Experience refunds paid	-	-	(1)
Recapture fee	-	20	-

For further information on common stocks - subsidiaries and affiliates, refer to *Note 4d. "Common stocks - subsidiaries and affiliates."*

In the normal course of business, the Company provides specified guarantees and funding to MMHLLC and certain of its subsidiaries. Refer to *Note 16f. "Commitments"* for information on the Company's accounting policies regarding these related party commitments and *Note 16g. "Guarantees"* for information on the guarantees.

18. Subsequent events

Management of the Company has evaluated subsequent events through February 19, 2016, the date the financial statements were available to be issued. No events have occurred subsequent to the balance sheet date and before the date of evaluation that would require disclosure.

19. Subsidiaries and affiliated companies

A summary of ownership and relationship of the Company and its subsidiaries and affiliated companies as of December 31, 2015 is illustrated below. Subsidiaries are wholly owned, except as noted.

Subsidiaries of Massachusetts Mutual Life Insurance Company
C.M. Life Insurance Company
MML Distributors LLC – 99% (remaining 1% owned by MassMutual Holding LLC)
MassMutual Holding LLC
The MassMutual Trust Company, FSB
MML Private Placement Investment Company I, LLC
MML Mezzanine Investor, LLC
MML Mezzanine Investor II, LLC
MMC Equipment Finance LLC
MML Mezzanine Investor L, LLC
MML Re Finance LLC
WP – SC, LLC – 81% (remaining 19% owned by C.M. Life Insurance Company)
MSP – SC, LLC
Country Club Office Plaza LLC – 88% (remaining 12% owned by C.M. Life Insurance Company)
MML Mezzanine Investor III, LLC
MassMutual External Benefits Group LLC
MSC Holding Company, LLC
Berkshire Way LLC
MassMutual Retirement Services, LLC
Fern Street LLC
MML Strategic Distributors, LLC
MML Investment Advisers, LLC
Pioneers Gate LLC
MML Special Situations Investor LLC

Subsidiaries of C.M. Life Insurance Company
MML Bay State Life Insurance Company
CML Mezzanine Investor, LLC
CML Mezzanine Investor L, LLC
CML Mezzanine Investor III, LLC
CML Re Finance LLC
CML Special Situations Investor LLC

Subsidiaries of MML Bay State Life Insurance Company
(No subsidiaries)

The MassMutual Trust Company, FSB
(No subsidiaries)

Subsidiaries of MassMutual Holding LLC
MML Investors Services, LLC
MML Management Corporation
MassMutual International LLC
MassMutual Assignment Company
MassMutual Capital Partners LLC
MassMutual Ventures LLC
First Mercantile Trust Company
Society of Grownups, LLC
MM Caerulus Holdco US LLC
MassMutual Ventures LLC

Haven Life Insurance Agency, LLC
MM Rothesay Holdco US LLC
MM Asset Management Holding LLC

Subsidiaries of MML Investment Advisers LLC
(No subsidiaries)

Subsidiaries of Babson Capital Management LLC (a subsidiary of MM Asset Management Holding LLC)
Babson Capital Securities LLC
Babson Capital Management (Japan) KK
Babson Capital Management (Australia) Holding Company Pty Ltd.
Babson Capital Guernsey Limited
Cornerstone Real Estate Advisers LLC
Wood Creek Capital Management LLC
Babson Capital Cornerstone Asia Limited
Babson Capital Finance LLC
Babson Capital Floating Rate Income Fund Management, LLC
Babson Capital Core Fixed Income Fund Management, LLC
Babson Capital Total Return Management LLC
Babson CLO Investment Partners GP, LLC
Babson Global Loan Feeder Management, LLC
Babson TERO Management LLC
Babson Investment Grade CLO Debt Management LLC
Benton Street Advisors, Inc.
SDCOS Management LLC
Great Lakes III GP, LLC
Loan Strategies Management LLC
Mezzco LLC
Mezzco II LLC
Mezzco III LLC
Mezzco IV LLC
Mezzco Australia LLC
Mezzco Australia II LLC
Somerset Special Opportunities Management LLC

Subsidiaries of Cornerstone Real Estate Advisers LLC
Cornerstone Real Estate Advisers Inc.
Cornerstone Real Estate UK Holdings Limited
Cornerstone Real Estate Advisers Japan K.K.

Subsidiaries of Wood Creek Capital Management LLC
Wood Creek Index Company, LLC
Milestone Acquisition Holding, LLC.

Subsidiaries of MassMutual Asset Finance LLC (a subsidiary of MMC Equipment Finance LLC)
MMAF Equipment Finance LLC 2009-A
MMAF Equipment Finance LLC 2011-A

Subsidiaries of OppenheimerFunds, Inc. (an indirect subsidiary of MM Asset Management Holding LLC)
OFI Global Asset Management, Inc.
OppenheimerFunds Distributor, Inc.
Oppenheimer Real Asset Management, Inc.
OFI SteelPath, Inc.
Shareholder Services, Inc.
VTL Associates, LLC

OFI Private Investments, Inc.
OFI Global Institutional, Inc.

Subsidiaries of OppenheimerFunds Distributor, Inc.
(No subsidiaries)

Subsidiaries of Tremont Group Holdings, Inc. (an indirect subsidiary of MM Asset Management Holding LLC)
Tremont (Bermuda) Limited
Tremont Partners, LLC
Tremont GP, LLC
Settlement Agent LLC

Subsidiaries of Baring Asset Management Limited (an indirect subsidiary of MassMutual Baring Holding LLC)
Baring Fund Managers Limited
Baring International Investment Limited
Baring Pension Trustees Limited
Baring Investment Services Limited
Baring Investments (UK) Limited
Baring International Investment Management Holdings

Subsidiaries of Baring International Investment Limited
(No subsidiaries)

Pioneers Gate LLC
(No subsidiaries)

Other Affiliates:
Jefferies Finance LLC – 45% (5% owned by Babson Capital Management LLC; remaining 50% owned by Jefferies Group, Inc.) [no subsidiaries]

Information regarding filings of Subsidiaries and Controlled Affiliates

The following presents certain information regarding the Company's valuation filings for non-domestic insurance subsidiaries and controlled affiliates of the Company:

		As of December 31, 2015					
	CUSIP	Gross Value	Non-admitted	Admitted	Latest Filing	2014 Approved Valuation	Valuation Method Disallowed?
		($ in Millions)					
Sub-2 Filings							
MassMutual Holding LLC	57543#-11-8	$ 5,717	$ -	$ 5,717	6/1/2015	$ 5,549	No
MSC Holding Company, LLC	55367*-10-1	373	-	373	6/1/2015	358	No
Babson Capital Global Umbrella	G0R5P5-24-5	100	-	100	5/28/2015	101	No
Babson Capital Global Umbrella	G0R5P5-74-0	82	-	82	5/29/2015	95	No
Babson Capital Global Umbrella	G0756M-11-8	46	-	46	5/29/2015	47	No
The MassMutual Trust Co, FSB	57631@-10-5	17	-	17	6/1/2015	15	No
Cornerstone Global REIT Corp	21926@-10-5	1	-	1	8/19/2015	1	No
Babson Capital Global Umbrella	G0R5P3-10-9	-	-	-	8/6/2015	69	No
Aggregate Total:		$ 6,336	$ -	$ 6,336		$ 6,235	

The Company also has other subsidiaries and controlled affiliates included in partnerships and LLCs that do not require Sub-2 valuation fillings with the NAIC. Affiliated partnerships and LLCs were $4,213 million as of December 31, 2015.

20. Impairment listing for loan-backed and structured securities

The following are the total cumulative adjustments and impairments for loan-backed and structured securities since July 1, 2009:

Period Ended	Amortized Cost before Cumulative Adjustment	Cumulative Adjustment	Amortized Cost before OTTI	Projected Cash Flow	Recognized OTTI	Amortized Cost after OTTI	Fair Value
December 31, 2015	$ 4,881,393.98	$ -	$ 4,881,393.98	$ 4,783,193.97	$ (98,200.01)	$ 4,783,193.97	$ 4,728,735.62
September 30, 2015	50,531,382.40	-	50,531,382.40	45,665,858.52	(4,865,523.88)	45,665,858.52	58,523,652.24
June 30, 2015	66,924,926.70	-	66,924,926.70	65,240,585.41	(1,684,341.29)	65,240,585.41	72,953,475.23
March 31, 2015	17,856,447.05	-	17,856,447.05	17,681,510.35	(174,936.70)	17,681,510.35	17,553,998.88
December 31, 2014	69,225,742.98	-	69,225,742.98	68,301,291.28	(924,451.70)	68,301,291.28	79,410,553.48
September 30, 2014	645,720.82	-	645,720.82	604,437.11	(41,283.71)	604,437.11	627,381.39
June 30, 2014	57,012,606.16	-	57,012,606.16	55,422,168.01	(1,590,438.15)	55,422,168.01	75,253,387.54
March 31, 2014	91,702,041.47	-	91,702,041.47	80,744,073.99	(10,957,967.48)	80,744,073.99	97,672,070.74
December 31, 2013	113,707,950.98	-	113,707,950.98	108,815,640.18	(4,892,310.80)	108,815,640.18	111,783,051.88
September 30, 2013	81,945,730.49	-	81,945,730.49	80,589,482.19	(1,356,248.30)	80,589,482.19	77,049,314.39
June 30, 2013	147,215,936.13	-	147,215,936.13	142,140,571.53	(5,075,364.60)	142,140,571.53	130,973,022.96
March 31, 2013	194,772,024.52	-	194,772,024.52	188,372,088.50	(6,399,936.02)	188,372,088.50	176,678,910.26
December 31, 2012	378,096,660.04	-	378,096,660.04	366,323,110.21	(11,773,549.83)	366,323,110.21	333,086,072.58
September 30, 2012	816,573,456.06	-	816,573,456.06	788,350,822.82	(28,222,633.24)	788,350,822.82	697,683,288.85
June 30, 2012	912,025,936.52	-	912,025,936.52	890,494,220.76	(21,531,715.76)	890,494,220.76	708,872,106.49
March 31, 2012	1,095,018,529.18	-	1,095,018,529.18	1,058,132,041.09	(36,886,488.09)	1,058,132,041.09	841,095,012.78
December 31, 2011	1,090,904,993.06	-	1,090,904,993.06	1,056,761,288.41	(34,143,704.65)	1,056,761,288.41	754,310,837.90
September 30, 2011	762,320,631.78	-	762,320,631.78	738,510,047.63	(23,810,584.15)	738,510,047.63	546,494,231.96
June 30, 2011	1,130,732,656.14	-	1,130,732,656.14	1,078,535,670.23	(52,196,985.91)	1,078,535,670.23	839,143,290.12
March 31, 2011	1,097,705,351.09	-	1,097,705,351.09	1,068,852,203.67	(28,853,147.42)	1,068,852,203.67	816,688,348.33
December 31, 2010	968,742,508.30	-	968,742,508.30	950,111,416.81	(18,631,091.49)	950,111,416.81	708,895,636.97
September 30, 2010	915,728,029.86	-	915,728,029.86	889,896,058.18	(25,831,971.68)	889,896,058.18	673,462,492.71
June 30, 2010	1,362,887,892.31	-	1,362,887,892.31	1,335,628,211.52	(27,259,680.79)	1,335,628,211.52	975,241,505.93
March 31, 2010	1,471,905,695.71	-	1,471,905,695.71	1,391,337,542.96	(80,568,152.75)	1,391,337,542.96	1,015,645,802.04
December 31, 2009	1,349,124,213.70	-	1,349,124,213.70	1,290,817,167.68	(58,307,046.02)	1,290,817,167.68	852,088,739.42
September 30, 2009	2,953,442,689.02	(106,853,708.32)	2,846,588,980.70	2,700,948,264.43	(145,640,716.27)	2,700,948,264.43	1,692,409,639.54
Totals		$ (106,853,708.32)			$ (631,718,470.69)		

The following is the impairment listing for loan-backed and structured securities for the three months ended December 31, 2015:

CUSIP	Amortized Cost before Cumulative Adjustment	Cumulative Adjustment	Amortized Cost before OTTI	Projected Cash Flow	Recognized OTTI	Amortized Cost after OTTI	Fair Value
45660LYW3	$ 2,035,456.46	$ -	$ 2,035,456.46	$ 1,960,235.34	$ (75,221.12)	$ 1,960,235.34	$ 1,957,687.26
589929N38	366,246.39	-	366,246.39	362,448.35	(3,798.04)	362,448.35	354,617.03
79549ASN0	6,838.97	-	6,838.97	3,582.43	(3,256.54)	3,582.43	51,563.43
9393365V1	845,779.69	-	845,779.69	837,217.39	(8,562.30)	837,217.39	793,294.33
939336KZ5	1,627,072.47	-	1,627,072.47	1,619,710.46	(7,362.01)	1,619,710.46	1,571,573.57
Totals	$ 4,881,393.98	$ -	$ 4,881,393.98	$ 4,783,193.97	$ (98,200.01)	$ 4,783,193.97	$ 4,728,735.62

The following is the impairment listing for loan-backed and structured securities for the three months ended September 30, 2015:

CUSIP	Amortized Cost before Cumulative Adjustment	Cumulative Adjustment	Amortized Cost before OTTI	Projected Cash Flow	Recognized OTTI	Amortized Cost after OTTI	Fair Value
17307GKZ0	$ 117,486.80	$ -	$ 117,486.80	$ 117,127.93	$ (358.87)	$ 117,127.93	$ 115,240.08
55274SAM3	341,582.01	-	341,582.01	324,346.42	(17,235.59)	324,346.42	334,591.45
77277LAF4	28,226,832.71	-	28,226,832.71	25,446,697.16	(2,780,135.55)	25,446,697.16	33,421,879.80
77277LAH0	1,413,733.84	-	1,413,733.84	1,278,117.52	(135,616.32)	1,278,117.52	3,220,416.00
77277LAJ6	20,018,166.31	-	20,018,166.31	18,098,147.21	(1,920,019.10)	18,098,147.21	21,031,329.24
79549ASM2	413,580.73	-	413,580.73	401,422.28	(12,158.45)	401,422.28	400,195.67
Totals	$ 50,531,382.40	$ -	$ 50,531,382.40	$ 45,665,858.52	$ (4,865,523.88)	$ 45,665,858.52	$ 58,523,652.24

The following is the impairment listing for loan-backed and structured securities for the three months ended June 30, 2015:

CUSIP	Amortized Cost before Cumulative Adjustment	Cumulative Adjustment	Amortized Cost before OTTI	Projected Cash Flow	Recognized OTTI	Amortized Cost after OTTI	Fair Value
125435AA5	$ 5,591,390.77	$ -	$ 5,591,390.77	$ 5,519,187.17	$ (72,203.60)	$ 5,519,187.17	$ 5,281,761.87
17307GKZ0	119,235.99	-	119,235.99	118,847.22	(388.73)	118,847.22	116,727.92
77277LAF4	29,050,737.79	-	29,050,737.79	28,226,832.71	(823,905.08)	28,226,832.71	33,335,201.70
77277LAH0	1,453,924.32	-	1,453,924.32	1,413,733.82	(40,190.50)	1,413,733.82	3,212,064.00
77277LAJ6	20,587,172.84	-	20,587,172.84	20,018,166.32	(569,006.52)	20,018,166.32	20,976,785.46
86359DMC8	10,122,465.03	-	10,122,465.03	9,943,818.17	(178,646.86)	9,943,818.17	10,030,934.28
Totals	$ 66,924,926.74	$ -	$ 66,924,926.74	$ 65,240,585.41	$ (1,684,341.29)	$ 65,240,585.41	$ 72,953,475.23

The following is the impairment listing for loan-backed and structured securities for the three months ended March 31, 2015:

CUSIP	Amortized Cost before Cumulative Adjustment	Cumulative Adjustment	Amortized Cost before OTTI	Projected Cash Flow	Recognized OTTI	Amortized Cost after OTTI	Fair Value
05948JAA0	$ 140,272.10	$ -	$ 140,272.10	$ 134,123.48	$ (6,148.62)	$ 134,123.48	$ 134,714.77
125435AA5	761,146.58	-	761,146.58	760,429.38	(717.20)	760,429.38	756,781.89
17307GKZ0	181,599.21	-	181,599.21	181,427.62	(171.59)	181,427.62	178,302.24
585525FC7	39,641.31	-	39,641.31	39,369.38	(271.93)	39,369.38	39,067.16
589929N38	442,399.12	-	442,399.12	440,825.92	(1,573.20)	440,825.92	427,585.66
61750MAB1	6,703.44	-	6,703.44	6,082.46	(620.98)	6,082.46	6,632.60
81744FDK0	1,457,921.03	-	1,457,921.03	1,443,546.61	(14,374.42)	1,443,546.61	1,418,067.40
86359DMC8	10,456,789.36	-	10,456,789.36	10,378,178.75	(78,610.61)	10,378,178.75	10,326,945.98
885220FS7	3,341,468.04	-	3,341,468.04	3,273,617.68	(67,850.36)	3,273,617.68	3,293,395.98
92922F2G2	56,110.80	-	56,110.80	55,440.74	(670.06)	55,440.74	54,572.94
939336KZ5	972,396.06	-	972,396.06	968,468.33	(3,927.73)	968,468.33	917,932.26
Totals	$ 17,856,447.05	$ -	$ 17,856,447.05	$ 17,681,510.35	$ (174,936.70)	$ 17,681,510.35	$ 17,553,998.88

21. Structured Notes

A structured note is a direct debt issuance by a corporation, municipality, or government entity, ranking pari-passu with the issuer's other debt issuance of equal seniority where either: (a) the coupon and/or principal payments are linked, in whole or in part, to prices or payment streams from index or indices, or assets deriving their value from other than the issuer's credit quality, or (b) the coupon and/or principal payments are leveraged by a formula that is different from either a fixed coupon, or a non-leveraged floating rate coupon linked to an interest rate index, including but not limited to LIBOR or the prime rate. As structured notes are issuer obligations without a trust, they are within the scope of SSAP No. 26, "Bonds, Excluding Loan-backed and Structured Securities" (SSAP No. 26). Structured notes are different than the asset backed structured securities, which are accounted for under SSAP No. 43R, "Revised - Loan-Backed and Structured Securities" (SSAP No. 43R), as they lack either a trust or assets backing them. The disclosure below allows regulators to assess the volume of activity in structured notes and to determine whether additional accounting or reporting revisions, such as valuation and risk-based capital, are needed. To satisfy this request, the Company is required to separately identify structured notes, on a CUSIP basis and provide information by CUSIP for actual cost, fair value, book/adjusted carrying value, and whether the structured note is a mortgage-referenced security. The following sets forth the actual cost, fair value and carrying value of structured notes as of December 31, 2015:

CUSIP Identification	Actual Cost	Fair Value	Book / Adjusted Carrying Value	Mortgage-Referenced Security (YES/NO)
165167BZ9	$ 94,600	$ 103,400	$ 94,606	NO
289237AD1	2,000,000	1,927,200	2,000,000	NO
289237AE9	1,699,200	1,937,800	1,976,237	NO
30256YAA1	27,755,666	29,456,915	27,734,159	NO
30711XAW4	3,606,970	3,595,473	3,606,970	YES
30711XBE3	7,852,782	7,843,356	7,852,782	YES
3137G0EQ8	5,168,092	5,158,179	5,168,092	YES
912810FR4	4,944,283	6,053,297	4,881,186	NO
912810PS1	1,874,118	2,590,433	1,884,028	NO
912810RA8	318,453,774	332,656,340	322,488,588	NO
912810RF7	1,368,352,416	1,266,362,818	1,363,581,292	NO
912810RL4	22,647,985	22,020,970	22,683,498	NO
912828GD6	1,881,627	2,296,153	1,933,204	NO
912828GX2	1,982,647	2,097,510	1,838,360	NO
TT3256233	1,262,834	1,283,550	1,267,299	NO
Total	$ 1,769,576,994	$ 1,685,383,394	$ 1,768,990,301	