MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY

CONDENSED STATUTORY FINANCIAL STATEMENTS

As of March 31, 2019 and December 31, 2018 and for the three months ended
March 31, 2019 and 2018

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
CONDENSED STATUTORY FINANCIAL STATEMENTS
(UNAUDITED)

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MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
CONDENSED STATUTORY STATEMENTS OF FINANCIAL POSITION
(UNAUDITED)

	March 31, 2019	December 31, 2018	$ Change	% Change
	($ In Millions)			
Assets:				
Bonds	$ 98,271	$ 97,079	$ 1,192	1 %
Preferred stocks	748	744	4	1
Common stocks – subsidiaries and affiliates	13,224	12,327	897	7
Common stocks – unaffiliated	477	500	(23)	(5)
Mortgage loans	24,402	23,624	778	3
Policy loans	13,985	13,873	112	1
Real estate	469	488	(19)	(4)
Partnerships and limited liability companies	8,644	8,599	45	1
Derivatives	8,898	8,741	157	2
Cash, cash equivalents and short-term investments	3,416	4,318	(902)	(21)
Other invested assets	1,331	943	388	41
Total invested assets	173,865	171,236	2,629	2
Investment income due and accrued	2,448	3,018	(570)	(19)
Federal income taxes	239	612	(373)	(61)
Deferred income taxes	1,087	983	104	11
Other than invested assets	3,233	3,320	(87)	(3)
Total assets excluding separate accounts	180,872	179,169	1,703	1
Separate account assets	69,073	64,478	4,595	7
Total assets	$ 249,945	$ 243,647	$ 6,298	3 %
Liabilities and Surplus:				
Policyholders' reserves	$ 122,971	$ 121,978	$ 993	1 %
Liabilities for deposit-type contracts	15,255	14,370	885	6
Contract claims and other benefits	591	479	112	23
Policyholders' dividends	1,726	1,713	13	1
General expenses due or accrued	920	1,096	(176)	(16)
Asset valuation reserve	3,370	3,307	63	2
Repurchase agreements	4,391	4,768	(377)	(8)
Commercial paper	250	250	-	-
Collateral	2,379	2,946	(567)	(19)
Derivatives	5,688	4,912	776	16
Funds held under coinsurance	4,124	4,099	25	1
Other liabilities	3,508	3,641	(133)	(4)
Total liabilities excluding separate accounts	165,173	163,559	1,614	1
Separate account liabilities	69,073	64,478	4,595	7
Total liabilities	234,246	228,037	6,209	3
Surplus	15,699	15,610	89	1
Total liabilities and surplus	$ 249,945	$ 243,647	$ 6,298	3 %

See notes to condensed statutory financial statements

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
CONDENSED STATUTORY STATEMENTS OF OPERATIONS
(UNAUDITED)

	Three Months Ended March 31, 2019	Three Months Ended March 31, 2018	$ Change	% Change
	($ In Millions)			
Revenue:				
Premium income	$ 4,927	$ 6,001	$ (1,074)	(18) %
Net investment income	1,681	1,735	(54)	(3)
Fees and other income	336	159	177	111
Total revenue	6,944	7,895	(951)	(12)
Benefits and expenses:				
Policyholders' benefits	5,613	5,933	(320)	(5)
Change in policyholders' reserves	242	1,190	(948)	(80)
Change in group annuity reserves assumed	(223)	(458)	235	51
General insurance expenses	559	565	(6)	(1)
Commissions	258	257	1	NM
State taxes, licenses and fees	78	68	10	15
Total benefits and expenses	6,527	7,555	(1,028)	(14)
Net gain from operations before dividends and federal income taxes	417	340	77	23
Dividends to policyholders	393	364	29	8
Net gain (loss) from operations before federal income taxes	24	(24)	48	200
Federal income tax expense (benefit)	69	71	(2)	(3)
Net loss from operations	(45)	(95)	50	53
Net realized capital gains (losses)	39	(1,441)	1,480	103
Net loss	$ (6)	$ (1,536)	$ 1,530	100 %

NM = not meaningful

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
CONDENSED STATUTORY STATEMENTS OF CHANGES IN SURPLUS
(UNAUDITED)

	Three Months Ended March 31, 2019	Three Months Ended March 31, 2018	$ Change	% Change
	($ In Millions)			
Surplus, beginning of year	$ 15,610	$ 15,705	$ (95)	(1) %
Decrease due to:				-
Net loss	(6)	(1,536)	1,530	100
Change in net unrealized capital gains (losses), net of tax	(108)	(221)	113	51
Change in net unrealized foreign exchange capital				-
(losses) gains, net of tax	47	277	(230)	(83)
Change in other net deferred income taxes	12	219	(207)	(95)
Change in nonadmitted assets	245	(203)	448	221
Change in asset valuation reserve	(64)	951	(1,015)	(107)
Prior period adjustments	(34)	(67)	33	49
Other	(3)	(4)	1	25
Net increase (decrease)	89	(584)	673	115
Surplus, end of period	$ 15,699	$ 15,121	$ 578	4 %

See notes to condensed statutory financial statements

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
CONDENSED STATUTORY STATEMENTS OF CASH FLOWS
(UNAUDITED)

	Three Months Ended March 31, 2019	Three Months Ended March 31, 2018	$ Change	% Change
	($ In Millions)			
Cash from operations:				
Premium and other income collected	$ 5,317	$ 6,219	$ (902)	-15%
Net investment income	2,378	1,443	935	65
Benefit payments	(5,421)	(5,898)	477	8
Net transfers from separate accounts	717	223	494	222
Net receipts from group annuity reserves assumed	223	458	(235)	(51)
Commissions and other expenses	(1,013)	(1,002)	(11)	(1)
Dividends paid to policyholders	(380)	(353)	(27)	(8)
Federal and foreign income taxes recovered	330	164	166	101
Net cash from operations	2,151	1,254	897	72
Cash from investments:				
Proceeds from investments sold, matured or repaid:				
Bonds	4,584	3,518	1,066	30
Preferred and common stocks – unaffiliated	94	102	(8)	(8)
Common stocks – affiliated	7	-	7	NM
Mortgage loans	307	512	(205)	(40)
Real estate	28	261	(233)	(89)
Partnerships and limited liability companies	287	587	(300)	(51)
Derivatives	304	(394)	698	177
Other	(473)	(179)	(294)	(164)
Total investment proceeds	5,138	4,407	731	17
Cost of investments acquired:				
Bonds	(5,758)	(3,844)	(1,914)	(50)
Preferred and common stocks – unaffiliated	(68)	(90)	22	24
Common stocks – affiliated	(551)	(206)	(345)	(167)
Mortgage loans	(1,066)	(961)	(105)	(11)
Real estate	(24)	34	(58)	(171)
Partnerships and limited liability companies	(293)	(392)	99	25
Derivatives	(70)	(224)	154	-
Other	241	386	(145)	(38)
Total investments acquired	(7,589)	(5,297)	(2,292)	(43)
Net increase in policy loans	(111)	(145)	34	23
Net cash from investing activities	(2,562)	(1,035)	(1,527)	(148)
Cash from financing and miscellaneous sources:				
Net deposits on deposit-type contracts	43	598	(555)	(93)
Change in repurchase agreements	(377)	(103)	(274)	(266)
Change in collateral	(483)	(705)	222	31
Other cash provided (used)	326	(147)	473	322
Net cash from financing and miscellaneous sources	(491)	(357)	(134)	(38)
Net change in cash, cash equivalents and short-term investments	(902)	(138)	(764)	(554)
Cash, cash equivalents and short-term investments:				
Beginning of year	4,318	3,580	738	21
End of period	$ 3,416	$ 3,442	$ (26)	(1)%

See notes to condensed 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 life insurance subsidiaries provide individual and group life insurance, disability insurance, individual and group annuities and guaranteed interest contracts (GIC) to individual and institutional customers in all 50 states of the United States of America (U.S.), the District of Columbia and Puerto Rico. Products and services are offered primarily through the Company's MassMutual Financial Advisors (MMFA), Direct to Consumer (DTC), Institutional Solutions (IS) and Workplace Solutions (WS) distribution channels.

MMFA is a sales force that includes financial advisors that operate in the U.S. MMFA sells individual life, individual annuities and disability insurance. The Company's DTC distribution channel sells individual life and supplemental health insurance primarily through direct response television advertising, digital media, search engine optimization and search engine marketing. The Company's IS distribution channel sells group annuities, group life and GIC primarily through retirement advisory firms, actuarial consulting firms, investment banks, insurance benefit advisors and investment management companies. The Company's WS distribution channel sells group life insurance and annuity products as well as individual life insurance, critical illness and long term care products distributed through investment advisors.

2. Summary of significant accounting policies

a. Basis of presentation

The condensed 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).

The condensed statutory financial statements and notes as of March 31, 2019 and December 31, 2018, and for the three months ended March 31, 2019 and 2018, are unaudited. These condensed statutory financial statements, in the opinion of management, reflect the fair presentation of the financial position, results of operations, changes in surplus and cash flows for the interim periods. These condensed statutory financial statements and notes should be read in conjunction with the statutory financial statements and notes thereto included in the Company's 2018 audited yearend financial statements as these condensed statutory financial statements disclose only significant changes from yearend 2018. The results of operations for the interim periods should not be considered indicative of results to be expected for the full year. The Condensed Statutory Statements of Financial Position as of December 31, 2018 have been derived from the audited financial statements at that date, but do not include all of the information and footnotes required by statutory accounting practices for complete financial statements.

For the full description of accounting policies, see *Note 2. "Summary of significant accounting policies"* of Notes to Statutory Financial Statements included in the Company's 2018 audited yearend financial statements

b. 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 MassMutual Holding LLC (MMHLLC), are accounted for using the statutory equity method. The Company accounts for the value of MMHLLC at its underlying U.S. generally accepted accounting principles (U.S GAAP) equity value, adjusted by a portion of its noncontrolling interests (NCI) 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 $3,022 million as of March 31, 2019 and $2,749 million as of December 31, 2018. Operating results, less dividends declared, for MMHLLC is reflected as net unrealized capital gains (losses) in the Statutory Statements of Changes in Surplus. Dividends declared from MMHLLC are recorded in net investment income when declared 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.

MassMutual International LLC (MMI) was classified as common stocks – subsidiaries and affiliates as of December 31, 2017 and as partnerships and LLCs as of December 31, 2018. MMI was accounted for using the statutory equity method in both years. Prior to December 31, 2018, the Company accounted for the value of MMI at its underlying U.S. GAAP equity value adjusted to remove certain nonadmitted and intangible assets. Beginning on December 31, 2018, the value of MMI is recorded at its underlying U.S. GAAP equity value. The change in the value of MMI is reflected as net unrealized capital gains (losses) in the Statutory Statements of Changes in Surplus.

Refer to *Note 5b. "Common stocks – subsidiaries and affiliates"* for further information on the valuation of MMHLLC and MMI.

3. New accounting standards

Adoption of new accounting standards

In June 2016, the NAIC adopted substantive revisions to Statements of Statutory Accounting Principles (SSAP) No. 51R, *Life Contracts*, to incorporate references to the Valuation Manual and to facilitate the implementation of principles-based reserving (PBR), which were effective on January 1, 2017. The adoption of PBR only applies to new life insurance policies issued after January 1, 2017, however the Company plans to adopt these revisions to SSAP No. 51R using the 3-year phased in approach by no later than January 1, 2020. The Company currently uses formulas and assumptions to determine reserves as prescribed by state laws and regulations. Under PBR, the Company will be required to hold the higher of (a) the reserve using prescribed factors and (b) the PBR reserve which considers a wide range of future economic conditions, computed using justified company experience factors, such as mortality, policyholder behavior and expenses. The modifications are not expected to have a material effect on the Company's total life reserves and surplus in the financial statements.

In October 2018, the NAIC issued SSAP No. 86, *Benchmark Interest Rates*, effective January 1, 2019. This guidance permits the use of the Overnight Index Swap (OIS) rate based on Secured Overnight Financing Rate as a U.S. benchmark interest rate for hedge accounting purposes under ASC Topic 815 in addition to the U.S. Treasury rate, the LIBOR swap rate, the OIS rate based on the Fed Funds Effective Rate, and the SIFMA Municipal Swap Rate. The Company has not elected to apply hedge accounting, therefore adoption of this guidance did not have an impact on the Company's financial statements.

In November 2018, the NAIC issued SSAP No. 30R, *Unaffiliated Common Stock*, effective January 1, 2019. These clarifications applies to unaffiliated common stock including Securities Exchange Commission registered investment companies, such as closed-end mutual funds and unit investments trusts. The modification also includes public stock warrants, while nonpublic stock warrants would be classified as derivative instruments. The modifications did not have a material effect on the Company's financial statements.

Future adoption of new accounting standards

In November 2018, the NAIC adopted modifications to the liquidity risk disclosure requirements of SSAP No. 51R, *Life Contracts*, No. 52, *Deposit-Type Contracts*, and No. 61R, *Life, Deposit-Type and Accident and Health Reinsurance*, effective December 31, 2019. The modifications will require the Company to provide additional liquidity risk information such as current surrender charges, amount of account value, cash value and reserves breakouts by withdrawal characteristics for certain general and separate account products and groups of products. Additionally, a reconciliation of amounts of total reserves disclosed to the applicable annual statement exhibits, and the corresponding financial statement line items will be required. The Company is currently evaluating the impact of the modifications to the liquidity risk disclosures in its financial statements.

In November 2018, the NAIC issued SSAP No. 108, *Derivatives Hedging Variable Annuity Guarantees*, to provide special accounting guidance for limited derivatives hedging variable annuity guarantee benefits that are subject to fluctuations from interest rates, effective January 1, 2020 with early adoption permitted as of January 1, 2019. This modification applies to variable annuity contracts and other contracts involving certain guaranteed benefits that are valued under principles-based reserving. This modification permits an insurer to use macro-hedging by designating as the host contract, an entire book of business or subsection consisting of interest sensitive variable annuity guarantee benefits, in a fair value hedge. The Company is required to record at fair value the interest rate sensitive variable annuity guarantee (that is, the hedged item) and the related derivative hedging instrument. Changes in the fair value of the derivatives attributable to the hedged item are recorded in realized gains and losses to offset the changes in the fair value of the hedged item. The excess or deficiency of the change in fair value of the derivative compared to the change in the fair value of the hedged item should be recorded as an admitted deferred asset or deferred liability, and amortized through realized capital gains and losses over the remaining term of the interest rate sensitive variable annuity, not to exceed 10 years. The Company is also required to record a special surplus allocation of an amount equal to the deferred asset and deferred liability from unassigned surplus. Changes in the fair value of the derivative that is not attributable to the hedge risk should be recorded in unrealized gains and losses. The Company will be required to disclose information about the derivative and related hedged items. The Company is currently evaluating this guidance to determine the potential impact on its financial statements.

4. Fair value of financial instruments

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

	March 31, 2019				
	Carrying Value	Fair Value	Level 1	Level 2	Level 3
	(In Millions)				
Financial assets:					
Bonds:					
U. S. government and agencies	$ 5,411	$ 5,840	$ -	$ 5,840	$ -
All other governments	1,643	1,710	-	1,642	68
States, territories and possessions	613	658	-	658	-
Political subdivisions	545	583	-	583	-
Special revenue	5,993	6,621	-	6,611	10
Industrial and miscellaneous	77,082	78,963	10	45,575	33,378
Parent, subsidiaries and affiliates	6,984	7,106	-	1,237	5,869
Preferred stocks	748	756	11	-	745
Common stocks - subsidiaries and affiliates	925	925	808	-	117
Common stocks - unaffiliated	477	477	243	-	234
Mortgage loans - commercial	23,123	23,872	-	-	23,872
Mortgage loans - residential	1,279	1,239	-	-	1,239
Derivatives:					
Interest rate swaps	7,230	7,712	-	7,712	-
Options	743	743	-	743	-
Currency swaps	708	708	-	708	-
Forward contracts	68	68	-	68	-
Credit default swaps	19	20	-	20	-
Financial futures	130	130	-	130	-
Cash, cash equivalents and short-term investments	3,416	3,416	214	3,202	-
Separate account assets	69,073	69,073	45,375	23,278	420
Financial liabilities:					
Guaranteed interest contracts	9,663	9,657	-	-	9,657
Group annuity contracts and other deposits	17,821	17,906	-	-	17,906
Individual annuity contracts	8,112	9,000	-	-	9,000
Supplementary contracts	1,176	1,178	-	-	1,178
Repurchase agreements	4,391	4,391	-	4,391	-
Commercial paper	250	250	-	250	-
Derivatives:					
Interest rate swaps	5,398	5,398	-	5,398	-
Options	2	2	-	2	-
Currency swaps	229	229	-	229	-
Forward contracts	36	36	-	36	-
Credit default swaps	1	1	-	1	-
Financial futures	22	22	-	22	-

Common stocks – subsidiaries and affiliates do not include unconsolidated subsidiaries, which had statutory carrying values of $12,299 million.

	December 31, 2018				
	Carrying Value	Fair Value	Level 1	Level 2	Level 3
	(In Millions)				
Financial assets:					
Bonds:					
U. S. government and agencies	$ 5,854	$ 6,193	$ -	$ 6,193	$ -
All other governments	1,487	1,481	-	1,415	66
States, territories and possessions	614	647	-	647	-
Political subdivisions	547	571	-	571	-
Special revenue	5,927	6,421	-	6,412	9
Industrial and miscellaneous	75,124	74,538	10	42,695	31,833
Parent, subsidiaries and affiliates	7,526	7,570	-	1,172	6,398
Preferred stocks	744	734	12	-	722
Common stocks - subsidiaries and affiliates	398	398	233	-	165
Common stocks - unaffiliated	500	500	194	-	306
Mortgage loans - commercial	22,357	22,794	-	-	22,794
Mortgage loans - residential	1,267	1,211	-	-	1,211
Derivatives:					
Interest rate swaps	6,629	6,858	-	6,858	-
Options	911	910	-	910	-
Currency swaps	843	844	-	844	-
Forward contracts	106	113	-	113	-
Credit default swaps	18	6	-	6	-
Interest rate caps and floors	18	18	-	18	-
Financial futures - short positions	216	216	-	216	-
Cash, cash equivalents and short-term investments	4,318	4,318	175	4,143	-
Separate account assets	64,478	64,478	41,358	22,569	551
Financial liabilities:					
Guaranteed interest contracts	8,825	8,729	-	-	8,729
Group annuity contracts and other deposits	17,863	17,951	-	-	17,951
Individual annuity contracts	8,131	8,925	-	-	8,925
Supplementary contracts	1,178	1,179	-	-	1,179
Repurchase agreements	4,768	4,768	-	4,768	-
Commercial paper	250	250	-	250	-
Derivatives:					
Interest rate swaps	4,647	5,111	-	5,112	-
Options	5	5	-	4	-
Currency swaps	232	232	-	224	-
Forward contracts	12	28	-	29	-
Credit default swaps	2	3	-	3	-
Financial futures - short positions	14	14	-	13	-

Common stocks – subsidiaries and affiliates do not include unconsolidated subsidiaries, which had statutory carrying values of $11,929 million.

The use of different assumptions or valuation methodologies may have a material impact on the estimated fair value amounts.

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

	March 31, 2019			
	Level 1	Level 2	Level 3	Total
	(In Millions)			
Financial assets:				
Bonds:				
Industrial and miscellaneous	$ 10	$ 102	$ 41	$ 153
Parent, subsidiaries and affiliates	-	74	57	131
Preferred stocks	-	-	11	11
Common stocks - subsidiaries and affiliates	808	-	117	925
Common stocks - unaffiliated	243	-	234	477
Derivatives:				
Interest rate swaps	-	7,230	-	7,230
Options	-	743	-	743
Currency swaps	-	708	-	708
Forward contracts	-	68	-	68
Financial futures	-	130	-	130
Separate account assets	45,375	23,278	420	69,073
Total financial assets carried at fair value	$ 46,436	$ 32,333	$ 880	$ 79,649
Financial liabilities:				
Derivatives:				
Interest rate swaps	$ -	$ 5,398	$ -	$ 5,398
Options	-	2	-	2
Currency swaps	-	229	-	229
Forward contracts	-	36	-	36
Financial futures	-	22	-	22
Total financial liabilities carried at fair value	$ -	$ 5,687	$ -	$ 5,687

For the three months ended March 31, 2019, there were no significant transfers between Level 1 and Level 2 and the Company does not have any financial instruments that were carried at NAV as a practical expedient.

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

	December 31, 2018			
	Level 1	Level 2	Level 3	Total
	(In Millions)			
Financial assets:				
Bonds:				
Industrial and miscellaneous	10	30	64	104
Parent, subsidiaries and affiliates	-	82	66	148
Common stocks - subsidiaries and affiliates	233	-	165	398
Common stocks - unaffiliated	194	-	306	500
Derivatives:				
Interest rate swaps	-	6,629	-	6,629
Options	-	911	-	911
Currency swaps	-	843	-	843
Forward contracts	-	106	-	106
Interest rate caps and floors	-	18	-	18
Financial futures	-	216	-	216
Separate account assets	41,358	22,569	551	64,478
Total financial assets carried at fair value	$ 41,795	$ 31,404	$ 1,152	$ 74,351
Financial liabilities:				
Derivatives:				
Interest rate swaps	$ -	$ 4,647	$ -	$ 4,647
Options	-	5	-	5
Currency swaps	-	232	-	232
Forward contracts	-	12	-	12
Financial futures - short positions	-	14	-	14
Financial futures - long positions	-	1	-	1
Total financial liabilities carried at fair value	$ -	$ 4,911	$ -	$ 4,911

The Company reviews the fair value hierarchy classifications each reporting period. Changes in the observability of the valuation attributes and the level of market activity may result in a reclassification of certain financial assets or liabilities between fair value hierarchy classifications. Such reclassifications are reported as transfers between levels at the beginning fair value for the reporting period in which the changes occur. For the year ended December 31, 2018, there were no significant transfers from Level 2 to Level 1.

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

	Balance as of 1/1/19	Gains (Losses) in Net Income	Gains (Losses) in Surplus	Purchases	Issuances	Sales	Settlements	Transfers In	Transfers Out	Other	Balance as of 3/31/19
	(In Millions)										
Financial assets:											
Bonds:											
Industrial and miscellaneous	$ 64	$ 1	$ (1)	$ -	$ -	$ -	$ (13)	$ 2	$ -	$ (12)	$ 41
Parent, subsidiaries, and affiliates	66	-	(1)	-	-	-	-	-	(8)	-	57
Preferred stocks	-	-	-	-	1	-	-	-	-	10	11
Common stocks - subsidiaries and affiliates	165	1	(46)	-	-	-	(3)	-	-	-	117
Common stocks - unaffiliated	306	11	(24)	2	-	(61)	-	-	-	-	234
Derivatives:											
Separate account assets	551	12	-	-	-	(143)	-	-	-	-	420
Total financial assets	$ 1,153	$ 25	$ (72)	$ 2	$ 1	$ (204)	$ (16)	$ 2	$ (8)	$ (2)	$ 880

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. Industrial and miscellaneous bonds in other contain assets that are now carried at fair value due to ratings changes and assets are no longer carried at fair value where the fair value is now higher than the book value.

	Balance as of 1/1/18	Gains (Losses) in Net Income	Gains (Losses) in Surplus	Purchases	Issuances	Sales	Settlements	Transfers In	Transfers Out	Other	Balance as of 12/31/18
	(In Millions)										
Financial assets:											
Bonds:											
Industrial and miscellaneous	$ 55	$ (4)	$ (5)	$ -	$ 1	$ -	$ (9)	$ -	$ -	$ 26	$ 64
Parent, subsidiaries, and affiliates	61	4	(7)	9	-	-	(6)	5	-	-	66
Preferred stocks	2	-	-	-	-	-	-	-	-	(2)	-
Common stocks - subsidiaries and affiliates	110	-	41	5	6	-	(10)	9	-	4	165
Common stocks - unaffiliated	311	6	14	16	3	-	(44)	-	-	-	306
Derivatives:											
Currency swaps	1	-	-	-	-	-	-	-	(1)	-	-
Separate account assets	709	7	1	112	-	(278)	-	-	-	-	551
Total financial assets	$ 1,249	$ 13	$ 44	$ 142	$ 10	$ (278)	$ (69)	$ 14	$ (1)	$ 28	$ 1,152
Financial liabilities											
Derivatives:											
Currency swaps	$ 8	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ (8)	$ -	$ -

Level 3 transfers in are assets that are consistently carried at fair value but have had a level change. Common stocks unaffiliated assets were transferred from Level 2 to Level 3 due to a change in the observability of pricing inputs, at the beginning fair value for the reporting period.

5. 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

As of March 31, 2019, investments in structured and loan-backed securities that had unrealized losses, which were not recognized in earnings, had a fair value of $9,028 million. Securities in an unrealized loss position for less than 12 months had a fair value of $6,130 million and unrealized losses of $70 million. Securities in an unrealized loss position for greater than 12 months had a fair value of $2,898 million and unrealized losses of $74 million. These securities were primarily categorized as industrial and miscellaneous or parent, subsidiaries and affiliates.

As of December 31, 2018, investments in structured and loan-backed securities that had unrealized losses, which were not recognized in earnings, had a fair value of $9,992 million. Securities in an unrealized loss position for less than 12 months had a fair value of $7,859 million and unrealized losses of $141 million. Securities in an unrealized loss position for greater than 12 months had a fair value of $2,133 million and unrealized losses of $78 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. The Company did not sell any securities with the NAIC Designation 3 or below for the three months ended March 31, 2019 or 2018, that were reacquired within 30 days of the sale date.

Residential mortgage-backed exposure

Residential mortgage-backed securities (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 March 31, 2019, RMBS had a total carrying value of $1,242 million and a fair value of $1,357 million, of which approximately 20%, based on carrying value, was classified as Alt-A. Alt-A and subprime RMBS had a total carrying value of $451 million and a fair value of $528 million. As of December 31, 2018, RMBS had a total carrying value of $1,287 million and a fair value of $1,395 million, of which approximately 20%, based on carrying value, was classified as Alt-A. Alt-A and subprime RMBS had a total carrying value of $472 million and a fair value of $553 million.

b. Common stocks – subsidiaries and affiliates

MMHLLC paid $650 million in dividends for the period ended March 31, 2019, which were declared in December 2018, and recorded no dividends for the period ended March 31, 2018.

MassMutual contributed additional capital of $10 million to MMHLLC for the period ended March 31, 2019 and $141 million for the period ended March 31, 2018.

In October 2018, MassMutual announced a transaction in which Invesco Ltd. (Invesco), a global asset manager, will acquire MassMutual's retail asset management affiliate, OppenheimerFunds, Inc (OFI). In turn, MassMutual is expected to receive an approximate 15.5% common equity interest in the combined company. Under the terms of the agreement, MassMutual and OFI employee shareholders will receive 81.9 million shares of Invesco common equity and $4.0 billion in perpetual, noncumulative preferred shares with a fixed dividend rate of 5.9%. As part of this transaction, Invesco and MassMutual will enter into a shareholder agreement in which MassMutual will have customary minority shareholder rights, including appointment of a director to Invesco's board of directors. Pending regulatory and other customary approvals, the transaction is expected to close in the second quarter of 2019.

In February 2019, MassMutual purchased approximately $570 million of OFI seed capital investments, primarily in the form of common stocks – affiliated and novated the associated derivatives at fair market value.

c. 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 or a participant or co-lender in a mortgage loan agreement and mezzanine loans that are subordinate to senior secured first liens. Residential mortgage loans are primarily seasoned pools of homogeneous residential mortgage loans substantially backed by Federal Housing Administration (FHA) and Veterans Administration (VA) guarantees.

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

	March 31, 2019		December 31, 2018	
	Carrying Value	Fair Value	Carrying Value	Fair Value
	(In Millions)			
Commercial mortgage loans:				
Primary lender	$ 23,106	$ 23,854	$ 22,287	$ 22,723
Mezzanine loans	17	18	70	71
Total commercial mortgage loans	23,123	23,872	22,357	22,794
Residential mortgage loans:				
FHA insured and VA guaranteed	1,163	1,123	1,263	1,207
Other residential loans	116	116	4	4
Total residential mortgage loans	1,279	1,239	1,267	1,211
Total mortgage loans	$ 24,402	$ 25,111	$ 23,624	$ 24,005

As of March 31, 2019 and December 31, 2018, the loan-to-value ratios of 99% of the Company's commercial mortgage loans were less than 81%.

As of March 31, 2019 and December 31, 2018, the Company had no impaired mortgage loans with or without a valuation allowance or mortgage loans derecognized as a result of foreclosure, including mortgage loans subject to a participant or co-lender mortgage loan agreement with a unilateral mortgage loan foreclosure restriction or mortgage loan derecognized as a result of a foreclosure.

As of and for the three months ended March 31, 2019 and 2018, the Company had no valuation allowance recorded for commercial mortgage loans.

d. 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 and foreign currency exposure or to create an investment in a particular asset. The Company held synthetic investments with a notional amount of $16,341 million as of March 31, 2019 and $15,522 million as of December 31, 2018. These notional amounts included replicated asset transaction values of $14,401 million as of March 31, 2019 and $13,582 million as of December 31, 2018, as defined under statutory accounting practices as the result of pairing of a long derivative contract with cash instruments.

The Company's principal derivative exposures to market risk are interest rate risk, which includes inflation and credit risk. Interest rate risk pertains to the change in fair value of the derivative instruments as a result of changes in market interest rates. The Company is exposed to credit-related losses in the event of nonperformance by counterparties to derivative financial instruments. The Company regularly monitors counterparty credit ratings, derivative positions, valuations and the value of collateral posted to ensure counterparties are credit-worthy and the concentration of exposure is minimized, and monitors its derivative credit exposure as part of its overall risk management program.

The Company enters derivative transactions through bilateral derivative agreements with counterparties, or through over the counter cleared derivatives with a counterparty and the use of a clearinghouse. To minimize credit risk for bilateral transactions, the Company and its counterparties generally enter into master netting agreements based on agreed upon requirements that outline the framework for how collateral is 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 are considered cleared transactions. These cleared transactions require initial and daily variation margin collateral postings. These 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 credit exposure.

Net collateral pledged by the counterparties was $2,049 million as of March 31, 2019 and $2,491 million as of December 31, 2018. In the event of default, the full market value exposure at risk in a net gain position, net of offsets and collateral, was $163 million as of March 31, 2019 and $146 million as of December 31, 2018. The statutory net amount at risk, defined as net collateral pledged and statement values excluding accrued interest, was $753 million as of March 31, 2019 and $695 million as of December 31, 2018.

The Company had the right to rehypothecate or repledge securities totaling $1,185 million of the $2,049 million as of March 31, 2019 and $709 million of the $2,491 million as of December 31, 2018 of net collateral pledged by counterparties. There were no securities rehypothecated to other counterparties as of March 31, 2019 or December 31, 2018.

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

	March 31, 2019			
	Assets		Liabilities	
	Carrying Value	Notional Amount	Carrying Value	Notional Amount
	(In Millions)			
Interest rate swaps	$ 7,230	$ 84,583	$ 5,398	$ 96,695
Options	743	19,639	2	3
Currency swaps	708	8,389	229	5,302
Forward contracts	68	5,662	36	3,858
Credit default swaps	19	1,115	1	104
Financial futures	130	2,978	22	291
Total	$ 8,898	$ 122,366	$ 5,688	$ 106,253

	December 31, 2018			
	Assets		Liabilities	
	Carrying Value	Notional Amount	Carrying Value	Notional Amount
	(In Millions)			
Interest rate swaps	$ 6,629	$ 88,214	$ 4,647	$ 86,096
Options	911	19,657	5	3
Currency swaps	843	8,976	232	4,022
Interest rate caps and floors	18	8,465	-	-
Forward contracts	106	6,642	12	3,633
Credit default swaps	18	1,135	2	104
Financial futures	216	3,036	14	291
Total	$ 8,741	$ 136,125	$ 4,912	$ 94,149

The average fair value of outstanding derivative assets was $8,528 million for the three months ended March 31, 2019 and $8,329 million for the three months ended March 31, 2018. The average fair value of outstanding derivative liabilities was $5,361 million for the three months ended March 31, 2019 and $5,875 million for the three months ended March 31, 2018.

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

	March 31, 2019	December 31, 2018
	(In Millions)	
Due in one year or less	$ -	$ 20
Due after one year through five years	9	1,219
Due after five years through ten years	1,210	-
Total	$ 1,219	$ 1,239

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:

	Three Months Ended March 31,			
	2019		2018	
	Net Realized Gains on Closed Contracts	Change In Net Unrealized Gains (Losses) on Open Contracts	Net Realized Gains (Losses) on Closed Contracts	Change In Net Unrealized Gains (Losses) on Open Contracts
	(In Millions)			
Interest rate swaps	$ (26)	$ (133)	$ (31)	$ (32)
Currency swaps	2	(132)	(2)	(486)
Options	(26)	(135)	(43)	39
Credit default swaps	5	-	7	-
Interest rate caps and floors	-	(6)	-	-
Forward contracts	76	(63)	(185)	68
Financial futures	142	(91)	(284)	125
Total	$ 173	$ (560)	$ (538)	$ (286)

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

	March 31, 2019			December 31, 2018		
	Derivative Assets	Derivative Liabilities	Net	Derivative Assets	Derivative Liabilities	Net
	(In Millions)					
Gross	$ 8,898	$ 5,688	$ 3,210	$ 8,741	$ 4,912	$ 3,829
Due and accrued	784	2,051	(1,267)	839	1,899	(1,060)
Gross amounts offset	(6,484)	(6,484)	-	(6,034)	(6,034)	-
Net asset	3,198	1,255	1,943	3,546	777	2,769
Collateral posted	(3,545)	(1,496)	(2,049)	(3,657)	(1,166)	(2,491)
Net	$ (347)	$ (241)	$ (106)	$ (111)	$ (389)	$ 278

e. Net investment income

Net investment income, including interest maintenance reserve (IMR) amortization, comprised the following:

	Three Months Ended March 31, 2019	Three Months Ended March 31, 2018
	(In Millions)	
Bonds	$ 1,086	$ 974
Preferred stocks	6	4
Common stocks - subsidiaries and affiliates	2	5
Common stocks - unaffiliated	7	8
Mortgage loans	265	242
Policy loans	221	206
Real estate	40	30
Partnerships and LLCs	103	312
Derivatives	92	75
Cash, cash equivalents and short-term investments	25	18
Other	17	(2)
Subtotal investment income	1,864	1,872
Amortization of the IMR	4	18
Investment expenses	(187)	(155)
Net investment income	$ 1,681	$ 1,735

f. Net realized capital (losses) gains

Net realized capital gains (losses), which include other-than-temporary impairments (OTTI) and are net of deferral to the IMR, comprised the following:

	Three Months Ended March 31, 2019	Three Months Ended March 31, 2018
	(In Millions)	
Bonds	$ (11)	$ (19)
Common stocks - subsidiaries and affiliates	-	(1,257)
Common stocks - unaffiliated	10	20
Mortgage loans	1	1
Real estate	8	164
Partnerships and LLCs	(5)	(19)
Derivatives	173	(538)
Other	2	10
Net realized capital gains (losses) before federal and state taxes and deferral to the IMR	178	(1,638)
Net federal and state tax benefit	17	1
Net realized capital gains (losses) before deferral to the IMR	195	(1,637)
Net after tax (gains) losses deferred to the IMR	(156)	196
Net realized capital gains (losses)	$ 39	$ (1,441)

IMR had an asset balance of $409 million as of March 31, 2019 and $563 million as of December 31, 2018, which was nonadmitted.

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

	Three Months Ended March 31, 2019	Three Months Ended March 31, 2018
	(In Millions)	
Bonds	$ (10)	$ (34)
Common stocks - subsidiaries and affiliates	-	(1,258)
Common stocks - unaffiliated	(7)	-
Partnerships and LLCs	(11)	(27)
Total OTTI	$ (28)	$ (1,319)

The Company recognized OTTI less than $1 million for the year ended March 31, 2019 and $2 million for the year ended March 31, 2018 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.

6. Federal income taxes

No significant changes

7. Other than invested assets

No significant changes.

8. Policyholders' liabilities

a. Liabilities for deposit-type contracts

On March 8, 2019, MassMutual issued a $650 million funding agreement, which supports a series of medium-term notes with 3.4% fixed rate coupons and 7-year maturities.

On March 13, 2019, MassMutual issued a $200 million funding agreement, which supports a series of medium-term notes with 2.7% rate coupons and 2-year maturities.

b. Additional liability for annuity contracts

Certain variable annuity contracts include additional death or other insurance benefit features, such as guaranteed minimum death benefits (GMDB), guaranteed minimum income benefits (GMIB), guaranteed minimum accumulation benefits (GMAB) and guaranteed minimum withdrawal benefits (GMWB). In general, living benefit guarantees require the contract holder or policyholder to adhere to a company approved asset allocation strategy. Election of these benefits guarantees is generally only available at contract issue.

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

Liability as of January 1, 2018	$	512
Incurred guarantee benefits		250
Paid guarantee benefits		(6)
Liability as of December 31, 2018		756
Incurred guarantee benefits		(130)
Paid guarantee benefits		(2)
Liability as of March 31, 2019	$	624

The Company held reserves in accordance with the stochastic scenarios as of March 31, 2019 and December 31, 2018. As of March 31, 2019 and December 31, 2018, 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.

	March 31, 2019			December 31, 2018		
	Account Value	Net Amount at Risk	Weighted Average Attained Age	Account Value	Net Amount at Risk	Weighted Average Attained Age
	($ In Millions)					
GMDB	$ 18,086	$ 46	64	$ 17,392	$ 132	64
GMIB Basic	744	52	69	700	97	69
GMIB Plus	2,866	619	67	2,687	813	67
GMAB	2,681	9	60	2,573	74	60
GMWB	163	16	71	160	23	70

As of March 31, 2019, the GMDB account value above consists of $3.9 billion within the general account and $14.2 billion within separate accounts that includes $3.9 billion of modified coinsurance assumed. As of December 31, 2018, the GMDB account value above consists of $3.9 billion within the general account and $13.5 billion within separate accounts that includes $3.8 billion of modified coinsurance assumed.

9. Reinsurance

No significant changes.

10. Withdrawal characteristics

No significant changes.

11. Debt

No significant changes.

12. Employee benefit plans

The Company sponsors multiple employee benefit plans, providing retirement, life, health and other benefits to employees, certain employees of unconsolidated subsidiaries, agents, general agents and retirees who meet plan eligibility requirements.

Net periodic cost

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

	Three Months Ended March 31,			
	2019	2018	2019	2018
	Pension Benefits		Other Postretirement Benefits	
	(In Millions)			
Service cost	$ 28	$ 28	$ 3	$ 3
Interest cost	29	27	3	3
Expected return on plan assets	(40)	(43)	-	-
Amortization of unrecognized net actuarial and other losses	14	14	-	1
Amortization of unrecognized prior service cost	-	1	(1)	(2)
Total net periodic cost	$ 31	$ 27	$ 5	$ 5

13. Employee compensation plans

No significant changes.

14. Surplus notes

No significant changes.

15. 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 three months ended March 31, 2019 and 2018. Accordingly, the Company has excluded these non-cash activities from the Statutory Statements of Cash Flows for the three months ended March 31, 2019 and 2018.

	Three Months Ended March 31,	
	2019	2018
	(In Millions)	
Bond conversions and refinancing	$ 215	$ 89
Transfer of mortgage loans to partnerships and LLCs	39	-
Stock conversion	34	14
Dividend declared from Insurance Road LLC	-	59
Bank loan rollovers	-	19
Other	66	13

16. Business risks, commitments and contingencies

a. Risks and uncertainties

The Company operates in a business environment subject to various risks and uncertainties. The principal risks include insurance and underwriting risks, investment and interest rate risks, currency exchange risk and credit risk. The combined impact of these risks could have a material, adverse effect on the Company's financial statements or result in operating losses in future periods. The Company employs the use of reinsurance, portfolio diversification, asset/liability management processes and other risk management techniques to mitigate the impact of these risks. This condensed risks and uncertainties disclosure should be read in conjunction with the statutory disclosure in the Company's 2018 audited yearend financial statements.

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 Company uses derivatives, such as interest rate swaps and swaptions, as well as synthetic assets to reduce interest rate and duration imbalances determined in asset/liability analyses.

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 a portion of its 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, 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.

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.

Political Uncertainties

Political events, domestically or internationally, may directly or indirectly trigger or exacerbate the risk factors described above. Whether those underlying risk factors are driven by politics or not, the Company's dynamic approach to managing risks enables management to utilize the mitigating actions described above to attempt to reduce the potential impact of each underlying risk factor on the Company.

b. Litigation and regulatory matters

In the normal course of business, the Company is involved in disputes, litigation and governmental or regulatory inquiries, administrative proceedings, examinations and investigations, both pending and threatened. These matters, if resolved adversely against the Company or settled, may result in monetary damages, fines and penalties or require changes in the Company's business practices. The resolution or settlement of these matters is inherently difficult to predict. Based upon the Company's assessment of these pending matters, the Company does not believe that the amount of any judgment, settlement or other action arising from any pending matter is likely to have a material adverse effect on the statement of financial position. However, an adverse outcome in certain matters could have a material adverse effect on the results of operations for the period in which such matter is resolved, or an accrual is determined to be required, on the financial statement financial position, or on our reputation.

The Company evaluates the need for accruals of loss contingencies for each matter. When a liability for a matter is probable and can be estimated, the Company accrues an estimate of the loss and any related insurance recoveries, if any. An accrual is subject to subsequent adjustment as a result of additional information and other developments. The resolution of matters are inherently difficult to predict, especially in the early stages of matter. Even if a loss is probable, due to many complex factors, such as speed of discovery and the timing of court decisions or rulings, a loss or range of loss may not be reasonably estimated until the later stages of the matter. For matters where a loss is material and it is either probable or reasonably possible then it is disclosed. For matters where a loss may be reasonably possible, but not probable, or is probable but not reasonably estimated, no accrual is established, but the matter, if material, is disclosed.

c. Commitments

In March 2019, MassMutual entered into a Contingent Capital Facility Agreement (the Facility) with an unaffiliated entity (the Trust). Under the Facility, subject to regulatory approval in certain circumstances, MassMutual has the right, and upon the occurrence of certain events has an obligation, to issue up to $800 million of surplus notes to the Trust in exchange for all or a pro rata portion of certain principal and interest strips of U.S. Treasury Securities held by the Trust. MassMutual is required to pay a facility fee of approximately 2.00% per year to the Trust on the undrawn portion of the Facility, totaling approximately $16 million per year if the Facility remains undrawn, and certain additional administrative fees and expenses.

17. Related party transactions

No significant changes.

18. Subsequent events

Management of the Company has evaluated subsequent events through May 13, 2019, the date the financial statements were available to be issued to state regulators and subsequently on the Company's website. No events have occurred subsequent to the date of the Statements of Financial Position and before the date of evaluation that would require disclosure.

19. *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
March 31, 2019	$ 7,728,041	$ -	$ 7,728,041	$ 7,592,730	$ (135,311)	$ 7,592,730	$ 7,624,610
December 31, 2018	4,550,173	-	4,550,173	3,815,559	(734,614)	3,815,559	4,014,514
September 30, 2018	4,320,826	-	4,320,826	3,663,181	(657,645)	3,663,181	3,687,297
June 30, 2018	634,235	-	634,235	279,221	(355,014)	279,221	386,752
March 31, 2018	645,690	-	645,690	488,181	(157,509)	488,181	448,494
December 31, 2017	3,949,513	-	3,949,513	1,958,759	(1,990,754)	1,958,759	2,023,952
September 30, 2017	4,436,542	-	4,436,542	876,942	(3,559,600)	876,942	4,647,683
June 30, 2017	40,538,551	-	40,538,551	39,808,956	(729,595)	39,808,956	60,990,732
March 31, 2017	41,788,380	-	41,788,380	41,391,889	(396,491)	41,391,889	56,156,936
December 31, 2016	42,175,938	-	42,175,938	42,045,721	(130,217)	42,045,721	54,619,477
September 30, 2016	44,266,478	-	44,266,478	41,890,535	(2,375,942)	41,890,535	61,300,066
June 30, 2016	49,097,217	-	49,097,217	48,202,703	(894,514)	48,202,703	63,207,410
March 31, 2016	57,985,071	-	57,985,071	55,783,979	(2,201,092)	55,783,979	70,578,397
December 31, 2015	4,881,394	-	4,881,394	4,783,194	(98,200)	4,783,194	4,728,736
September 30, 2015	50,531,382	-	50,531,382	45,665,859	(4,865,524)	45,665,859	58,523,652
June 30, 2015	66,924,927	-	66,924,927	65,240,585	(1,684,341)	65,240,585	72,953,475
March 31, 2015	17,856,447	-	17,856,447	17,681,510	(174,937)	17,681,510	17,553,999
December 31, 2014	69,225,743	-	69,225,743	68,301,291	(924,452)	68,301,291	79,410,553
September 30, 2014	645,721	-	645,721	604,437	(41,284)	604,437	627,381
June 30, 2014	57,012,606	-	57,012,606	55,422,168	(1,590,438)	55,422,168	75,253,388
March 31, 2014	91,702,041	-	91,702,041	80,744,074	(10,957,967)	80,744,074	97,672,071
December 31, 2013	113,707,951	-	113,707,951	108,815,640	(4,892,311)	108,815,640	111,783,052
September 30, 2013	81,945,730	-	81,945,730	80,589,482	(1,356,248)	80,589,482	77,049,314
June 30, 2013	147,215,936	-	147,215,936	142,140,572	(5,075,365)	142,140,572	130,973,023
March 31, 2013	194,772,025	-	194,772,025	188,372,089	(6,399,936)	188,372,089	176,678,910
December 31, 2012	378,096,660	-	378,096,660	366,323,110	(11,773,550)	366,323,110	333,086,073
September 30, 2012	816,573,456	-	816,573,456	788,350,823	(28,222,633)	788,350,823	697,683,289
June 30, 2012	912,025,937	-	912,025,937	890,494,221	(21,531,716)	890,494,221	708,872,106
March 31, 2012	1,095,018,529	-	1,095,018,529	1,058,132,041	(36,886,488)	1,058,132,041	841,095,013
December 31, 2011	1,090,904,993	-	1,090,904,993	1,056,761,288	(34,143,705)	1,056,761,288	754,310,838
September 30, 2011	762,320,632	-	762,320,632	738,510,048	(23,810,584)	738,510,048	546,494,232
June 30, 2011	1,130,732,656	-	1,130,732,656	1,078,535,670	(52,196,986)	1,078,535,670	839,143,290
March 31, 2011	1,097,705,351	-	1,097,705,351	1,068,852,204	(28,853,147)	1,068,852,204	816,688,348
December 31, 2010	968,742,508	-	968,742,508	950,111,417	(18,631,091)	950,111,417	708,895,637
September 30, 2010	915,728,030	-	915,728,030	889,896,058	(25,831,972)	889,896,058	673,462,493
June 30, 2010	1,362,887,892	-	1,362,887,892	1,335,628,212	(27,259,681)	1,335,628,212	975,241,506
March 31, 2010	1,471,905,696	-	1,471,905,696	1,391,337,543	(80,568,153)	1,391,337,543	1,015,645,802
December 31, 2009	1,349,124,214	-	1,349,124,214	1,290,817,168	(58,307,047)	1,290,817,168	852,088,739
September 30, 2009	2,953,442,689	(106,853,708)	2,846,588,981	2,700,948,264	(145,640,717)	2,700,948,264	1,692,409,640
Totals		$ (106,853,708)			$ (646,036,769)		

The following is the impairment listing for loan-backed and structured securities for the three months ended March 31, 2019:

CUSIP	Amortized Cost before Cumulative Adjustment	Cumulative Adjustment	Amortized Cost before OTTI	Projected Cash Flow	Recognized OTTI	Amortized Cost after OTTI	Fair Value
61750MAB1	$ 5,275	-	5,275	4,933	(341.08)	4,933	4,989
65106FAG7	232,843	-	232,843	215,726	(17,117.74)	215,726	6,316
18974BAA7	285,889	-	285,889	270,801	(15,087.72)	270,801	278,616
18974BAN9	149,774	-	149,774	139,333	(10,440.84)	139,333	148,234
22541QQR6	(10,378)	-	(10,378)	(11,947)	(1,568.63)	(11,947)	1
32051GCF0	22,786	-	22,786	(6,720)	(29,506.60)	(6,720)	17,553
761118FM5	3,259,303	-	3,259,303	3,218,368	(40,934.87)	3,218,368	3,244,154
17309FAE8	200,512	-	200,512	200,501	(10.61)	200,501	208,828
466247UG6	467,713	-	467,713	452,359	(15,353.77)	452,359	459,812
57643QAE5	3,114,325	-	3,114,325	3,109,376	(4,949.11)	3,109,376	3,256,107
Totals	$ 7,728,041	-	7,728,041	7,592,730	(135,311)	7,592,730	7,624,610

The following is the impairment listing for loan-backed and structured securities for the three months ended December 31, 2018:

CUSIP	Amortized Cost before Cumulative Adjustment	Cumulative Adjustment	Amortized Cost before OTTI	Projected Cash Flow	Recognized OTTI	Amortized Cost after OTTI	Fair Value
65106FAG7	$ 205,885	$ -	$ 205,885	$ 17,668	$ (188,218)	$ 17,668	$ 21,031
18974BAA7	306,428	-	306,428	295,291	(11,137)	295,291	294,986
22541QQR6	28,742	-	28,742	(9,704)	(38,446)	(9,704)	1
32051GCF0	32,493	-	32,493	20,481	(12,012)	20,481	20,063
17309FAE8	203,743	-	203,743	202,326	(1,417)	202,326	201,875
57643QAE5	3,657,695	-	3,657,695	3,177,611	(480,084)	3,177,611	3,365,017
92990GAE3	115,186	-	115,186	111,886	(3,300)	111,886	111,541
Totals	$ 4,550,173	$ -	$ 4,550,173	$ 3,815,559	$ (734,614)	$ 3,815,559	$ 4,014,514

The following is the impairment listing for loan-backed and structured securities for the three months ended September 30, 2018:

CUSIP	Amortized Cost before Cumulative Adjustment	Cumulative Adjustment	Amortized Cost before OTTI	Projected Cash Flow	Recognized OTTI	Amortized Cost after OTTI	Fair Value
05535DCF9	$ 3,454,425	$ -	$ 3,454,425	$ 3,141,048	$ (313,377)	$ 3,141,048	$ 3,134,409
07384YPP5	321,829	-	321,829	148,884	(172,945)	148,884	132,968
07386HCP4	2,164	-	2,164	(6,255)	(8,418)	(6,255)	320
76110H4M8	1,715	-	1,715	(3,719)	(5,434)	(3,719)	641
79548KXQ6	423,086	-	423,086	383,222	(39,864)	383,222	292,015
939336Z48	117,607	-	117,607	-	(117,607)	-	126,945
Totals	$ 4,320,826	$ -	$ 4,320,826	$ 3,663,181	$ (657,645)	$ 3,663,181	$ 3,687,297

The following is the impairment listing for loan-backed and structured securities for the three months ended June 30, 2018:

CUSIP	Amortized Cost before Cumulative Adjustment	Cumulative Adjustment	Amortized Cost before OTTI	Projected Cash Flow	Recognized OTTI	Amortized Cost after OTTI	Fair Value
59020UW43	$ 337,732	$ -	$ 337,732	$ 271,686	$ (66,046)	$ 271,686	$ 354,508
76110H4M8	6,848	-	6,848	1,969	(4,879)	1,969	1,713
863579DV7	289,655	-	289,655	5,567	(284,089)	5,567	30,531
Totals	$ 634,235	$ -	$ 634,235	$ 279,221	$ (355,014)	$ 279,221	$ 386,752

The following is the impairment listing for loan-backed and structured securities for the three months ended March 31, 2018:

CUSIP	Amortized Cost before Cumulative Adjustment	Cumulative Adjustment	Amortized Cost before OTTI	Projected Cash Flow	Recognized OTTI	Amortized Cost after OTTI	Fair Value
07386HEN7	$ 43,711	$ -	$ 43,711	$ 2,334	$ (41,377)	$ 2,334	$ 1,609
79548KXQ6	520,764	-	520,764	476,293	(44,471)	476,293	365,994
45660NZY4	81,215	-	81,215	9,554	(71,661)	9,554	80,891
Totals	$ 645,690	$ -	$ 645,690	$ 488,181	$ (157,509)	$ 488,181	$ 448,494