

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY

INTERIM STATUTORY FINANCIAL STATEMENTS

As of March 31, 2025 and December 31, 2024 and
for the three months ended March 31, 2025 and 2024

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

	March 31, 2025	December 31, 2024
	(In Millions)	
Assets:		
Bonds	\$ 164,527	\$ 163,629
Preferred stocks	1,080	1,019
Common stocks – subsidiaries and affiliates	26,114	25,840
Common stocks – unaffiliated	1,158	1,198
Mortgage loans	23,818	23,692
Policy loans	18,037	17,658
Real estate	317	323
Partnerships and limited liability companies	15,295	14,747
Derivatives	22,140	24,220
Cash, cash equivalents and short-term investments	5,326	6,004
Other invested assets	3,835	3,515
Total invested assets	281,647	281,845
Investment income due and accrued	4,524	5,347
Federal income taxes	616	552
Net deferred income taxes	1,881	1,857
Other than invested assets	6,288	6,334
Total assets excluding separate accounts	294,956	295,935
Separate account assets	46,573	49,251
Total assets	\$ 341,529	\$ 345,186
Liabilities and Surplus:		
Policyholders' reserves	\$ 179,219	\$ 178,258
Liabilities for deposit-type contracts	21,350	21,228
Contract claims and other benefits	763	595
Policyholders' dividends	2,559	2,533
General expenses due or accrued	872	917
Asset valuation reserve	6,072	5,952
Repurchase agreements	3,455	3,408
Debt	250	250
Collateral	1,891	1,915
Derivatives	15,542	16,774
Funds held under coinsurance	29,730	29,625
Other liabilities	5,474	6,741
Total liabilities excluding separate accounts	267,177	268,196
Separate account liabilities	46,427	49,108
Total liabilities	313,604	317,304
Surplus	27,925	27,882
Total liabilities and surplus	\$ 341,529	\$ 345,186

See accompanying notes to interim statutory financial statements

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

	Three Months Ended March 31,	
	2025	2024
	(In Millions)	
Revenue:		
Premium income	\$ 3,855	\$ 4,248
Net investment income	2,835	2,513
Fees and other income	232	259
Total revenue	<u>6,922</u>	<u>7,020</u>
Benefits, expenses and other deductions:		
Policyholders' benefits	4,176	3,894
Change in policyholders' reserves	760	1,299
General insurance expenses	599	637
Commissions	289	298
State taxes, licenses and fees	86	90
Other deductions	362	197
Total benefits and expenses	<u>6,272</u>	<u>6,415</u>
Net gain from operations before dividends and federal income taxes	650	605
Dividends to policyholders	562	487
Net gain from operations before federal income taxes	88	118
Federal income tax expense	26	98
Net gain from operations	62	20
Net realized capital gains (losses)	149	(237)
Net income (loss)	<u>\$ 211</u>	<u>\$ (217)</u>

See accompanying notes to interim statutory financial statements

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
INTERIM STATUTORY STATEMENTS OF CHANGE IN SURPLUS
(UNAUDITED)

	Three Months Ended March 31,	
	2025	2024
	(In Millions)	
Surplus, beginning of year	\$ 27,882	\$ 28,877
Net increase (decrease) due to:		
Net income (loss)	211	(217)
Change in net unrealized capital (losses) gains, net of tax	(149)	120
Change in net unrealized foreign exchange capital gains (losses), net of tax	225	(148)
Change in other net deferred income taxes	(50)	186
Change in nonadmitted assets	9	86
Change in asset valuation reserve	(120)	(297)
Change in surplus notes	—	(50)
Change in minimum pension liability	—	2
Prior period adjustments	(29)	(103)
Other	(54)	(121)
Net increase (decrease)	43	(542)
Surplus, end of period	\$ 27,925	\$ 28,335

See accompanying notes to interim statutory financial statements

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

	Three Months Ended March 31,	
	2025	2024
	(In Millions)	
Cash from operations:		
Premium and other income collected	\$ 4,315	\$ 4,680
Net investment income	3,538	3,726
Benefit payments	(4,194)	(4,044)
Net transfers from separate accounts	199	584
Commissions and other expenses	(1,413)	(1,346)
Dividends paid to policyholders	(540)	(464)
Federal and foreign income taxes paid	(13)	29
Net cash from operations	<u>1,892</u>	<u>3,165</u>
Cash from investments:		
Proceeds from investments sold, matured or repaid:		
Bonds	9,893	8,372
Preferred and common stocks – unaffiliated	(19)	37
Common stocks – affiliated	5	—
Mortgage loans	743	500
Real estate	(1)	—
Partnerships and limited liability companies	482	196
Derivatives	162	(138)
Other	(333)	(674)
Total investment proceeds	<u>10,932</u>	<u>8,293</u>
Cost of investments acquired:		
Bonds	(10,195)	(14,787)
Preferred and common stocks – unaffiliated	(77)	(266)
Common stocks – affiliated	(18)	(163)
Mortgage loans	(1,076)	(647)
Real estate	(1)	—
Partnerships and limited liability companies	(739)	(551)
Derivatives	102	(37)
Other	(262)	766
Total investments acquired	<u>(12,266)</u>	<u>(15,685)</u>
Net increase in policy loans	<u>(379)</u>	<u>(352)</u>
Net cash used in investing activities	<u>(1,713)</u>	<u>(7,744)</u>
Cash from financing and miscellaneous sources:		
Net deposits on deposit-type contracts	(95)	795
Change in surplus notes	—	(50)
Change in repurchase agreements	(166)	246
Change in collateral	(18)	(226)
Other cash (used) provided	<u>(578)</u>	<u>86</u>
Net cash (used in) from financing and miscellaneous sources	<u>(857)</u>	<u>851</u>
Net change in cash, cash equivalents and short-term investments	<u>(678)</u>	<u>(3,728)</u>
Cash, cash equivalents and short-term investments:		
Beginning of year	6,004	11,134
End of period	<u>\$ 5,326</u>	<u>\$ 7,406</u>

See accompanying notes to interim statutory financial statements

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
NOTES TO INTERIM STATUTORY FINANCIAL STATEMENTS
(UNAUDITED)

1. *Nature of operations*

Massachusetts Mutual Life Insurance Company (MassMutual or 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 income insurance (DI), 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 affiliated distribution channel, MassMutual Strategic Distributors (MMSD), Institutional Solutions (IS) and Worksite distribution channels.

The affiliated distribution channel is a sales force of financial professionals that operate in the U.S. The affiliated distribution channel sells life insurance, annuities, hybrid life and long term care insurance (LTC) and DI. The Company's MMSD channel sells life insurance, DI, annuity, and hybrid life and LTC solutions through a network of third-party distribution partners. The Company's IS distribution channel places group annuities, life insurance and GIC primarily through retirement advisory firms, actuarial consulting firms, investment banks, insurance benefit advisors and investment management companies. The Company's Worksite channel works with advisors and employers across the country to provide American workers with voluntary and executive benefits such as group whole life insurance, group critical illness insurance, group accident insurance and DI, through the workplace.

2. *Summary of significant accounting policies*

a. *Basis of presentation*

The interim 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 interim statutory financial statements and notes as of March 31, 2025 and December 31, 2024 and for three months ended March 31, 2025 and 2024 are unaudited. The interim Statutory Statement of Financial Position as of December 31, 2024 has been derived from the audited consolidated financial statements at that date, but do not include all of the information and footnotes required by statutory accounting practices for complete financial statements. These interim 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 interim statutory financial statements and notes should be read in conjunction with the statutory financial statements and notes thereto included in the Company's 2024 audited yearend financial statements as these interim statutory financial statements disclose only significant changes from yearend 2024. The results of operations for the interim periods should not be considered indicative of results to be expected for the full year.

For the full description of accounting policies, see Note 2. "*Summary of significant accounting policies*" of Notes to Interim Statutory Financial Statements included in the Company's 2024 audited yearend financial statements.

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
NOTES TO INTERIM STATUTORY FINANCIAL STATEMENTS, continued
(UNAUDITED)

b. Corrections of errors and reclassifications

For the three months ended March 31, 2025, corrections of prior years' errors were recorded in surplus, net of tax:

	Increase (Decrease) to:		
	Prior Years' Net Income	Current Year Surplus	Asset or Liability Balances
	(In Millions)		
Bonds	\$ (6)	\$ (6)	\$ (6)
Investment income due and accrued	(27)	(27)	(27)
Separate account assets	4	4	4
Other liabilities	4	4	(4)
Separate account liabilities	(4)	(4)	4
Total	<u>\$ (29)</u>	<u>\$ (29)</u>	

c. Common stocks - subsidiaries and affiliates

Common stocks of unconsolidated subsidiaries, primarily MassMutual Holding LLC (MMHLLC), Glidepath Holdings Inc. (Glidepath) and MM Investment Holding (MMIH), are accounted for using the statutory equity method. The Company accounts for the value of MMHLLC at its underlying U.S. generally accepted accounting principals (GAAP) equity value less adjustments for the limited statutory basis of accounting related to foreign insurance subsidiaries and controlled affiliated entities as well as an adjustment of \$519 million as of March 31, 2025 for a portion of its noncontrolling interests. Glidepath is valued on its underlying GAAP equity with adjustment to recognize its investment in MassMutual Ascend Life Insurance Company and other subsidiaries and affiliated entities (MM Ascend) based on MM Ascend's underlying statutory surplus, adjusted for any unamortized goodwill recognized under the statutory purchase method. Operating results, less dividends declared, for MMHLLC, Glidepath and MMIH are reflected as net unrealized capital gains in the Statutory Statements of Changes in Surplus. Dividends declared from MMHLLC, Glidepath and MMIH are recorded in net investment income when declared and are limited to MMHLLC, Glidepath and MMIH'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.

3. New accounting standards

Adoption of new accounting standards

Effective January 1, 2024, the NAIC adopted revisions to avoid allocating realized gains or losses from bond sales to the Interest Maintenance Reserve (IMR) when sold before a rating downgrade. Revisions were also made to avoid allocating realized gains or losses from mortgage loan sales when there is a credit loss allowance, where payments are not 90 days past due. Revisions were also made to update guidance on changes in credit ratings used to allocate credit or interest rate related gains or losses, requiring identification of realized losses from acute credit events to be allocated to asset valuation reserve. The modifications did not have a material effect on the Company's interim financial statements.

In March 2024, the NAIC adopted revisions to the requirements of audit and admissibility in SSAP No. 97 – Investments in Subsidiary, Controlled and Affiliated Entities (SCA), effective March 16, 2024, to better align with the guidance on the look-through methodology. The revisions allow for admitting audited investments in entities owned by unaudited downstream noninsurance holding company SCA entity. The modifications did not have a material effect on the Company's financial statements.

In August 2023, the NAIC adopted revisions to clarify and incorporate a new bond definition within disclosures SSAP No. 26 – Bonds, SSAP No. 43 – Asset-Backed Securities, and other related SSAPs, effective January 1, 2025. The revisions were issued in connection with its principle-based bond definition project, "the Bond Project".

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
NOTES TO INTERIM STATUTORY FINANCIAL STATEMENTS, continued
(UNAUDITED)

The Bond Project began in October 2020 through the development of a principle-based bond definition to be used for all securities in determining whether they qualify for reporting on the statutory annual statement Schedule D. Within the new bond definition, bonds are classified as an “issuer credit obligation” or an “asset-backed security.”

An issuer credit obligation is defined as a bond where repayment is supported by the general creditworthiness of an operating entity, and an asset-backed security is defined as a bond issued by an entity created for the primary purpose of raising capital through debt backed by financial assets. The revisions to SSAP No. 26 reflect the principle-based bond definition, and SSAP No. 43 provides accounting and reporting guidance for investments that qualify as asset-backed securities under the new bond definition. Upon adoption, investments that do not qualify as bonds will not be permitted to be reported as bonds on Schedule D, Part 1 thereafter as there will be no grandfathering for existing investments that do not qualify under the revised SSAPs. The Company has adopted this guidance, resulting in \$491 million for all securities reclassified off Schedule D-1, which includes \$298 million that resulted with a change in measurement basis. The adoption resulted in a decrease in change in Surplus of \$47 million for MassMutual on January 1, 2025. Modifications of disclosures by asset categories are prospectively applied to *Note 5a. "Investments – Bonds"*.

In March 2024, the NAIC adopted revisions to SSAP No. 21 - Other Admitted Assets, effective January 1, 2025, clarifying that residuals follow the effective yield approach with a cap and providing an election for the cost recovery method. The Company elected the effective yield method using the allowable earned yield, capped by the amount of cash distributions received. The modifications did not have a material effect on the Company’s interim financial statements.

Effective January 1, 2025, revisions were made to short-term investments, which include excluding additional investment types from being reported as cash equivalents or short-term investments regardless of maturity date of the investment at the date of acquisition. Investments will be eliminated from being reported as cash equivalents or short-term investments unless they would qualify under SSAP No. 26 – Bonds as an issuer credit obligation. Such investments will then only qualify as a cash equivalent or short-term investment if they have a maturity date within 3-months (cash equivalents) or 12-months (short-term) from the date of acquisition or meet the specifics requirements for money market mutual funds or cash pooling arrangement. The modifications did not have a material effect on the Company’s interim financial statements.

The NAIC adopted revisions to various SSAPs for investments in tax credits, acquired tax credits and updated annual statement reporting categories for tax credit investment risk-based capital. These revisions include broad criteria to scope in various tax credit programs, including solar programs and state specific programs. This adoption requires proportional amortization as the measurement approach, as with existing low-income housing tax credits, recording amortization of the investment in the partnership through net investment income and the use of the tax credits in the appropriate tax line. The adopted revisions were effective on January 1, 2025. The modifications were prospectively applied and did not have a material effect on the Company’s interim financial statements.

In, March 2025, the NAIC adopted revisions to clarify how assets held under modified coinsurance (Modco) or funds withheld (FWH) agreements shall be reflected within the restricted asset disclosure in SSAP No. 1 - Accounting Policies, Risks & Uncertainties, and Other Disclosures and in the corresponding disclosures in Note 5m of the statutory financial statements. It also proposes enhanced disclosures to fully identify the extent of restricted assets reported on balance sheet within a single disclosure as well as identify differences between the restricted asset annual statement disclosure and the amount reported in the annual statement general interrogatories, which is pulled directly into the risk-based capital formulas. The modifications did not have a material effect on the Company’s interim financial statements.

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
NOTES TO INTERIM STATUTORY FINANCIAL STATEMENTS, continued
(UNAUDITED)

Future adoption of new accounting standards

In March 2024, the NAIC proposed expansion of the guidance in SSAP No. 56 - Separate Accounts to further address situations and provide consistent accounting guidelines for when assets are reported at a measurement method other than fair value. This is to address an increase in assets reported at book value within the separate investment account, which have been approved under state prescribed practices and/or interpretations that the reference for fund accumulation contracts captures pension risk transfer or registered indexed-linked annuities and other similar general-account type products. In August 2024, the NAIC exposed further revisions as to treatment of IMR for transfers between general investment account and separate investment account, with the broad concept that such transfers would have offset IMR impacts between the general investment account and the book value separate investment account with a zero net impact to surplus. In February 2025, the NAIC adopted final revisions to SSAP No. 56 - Separate Accounts. The revisions clarify the measurement method guidance as well as prescribe guidance for how transfers to/from the general investment account and separate investment account shall be recognized. The adopted revisions will be effective on January 1, 2026, with early adoption permitted. The Company is assessing the potential impact on the Company's interim 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, 2025				
	Carrying Value	Fair Value	Level 1	Level 2	Level 3
	(In Millions)				
Financial assets:					
Bonds:					
Issuer credit obligations	\$ 105,472	\$ 97,100	\$ 728	\$ 50,366	\$ 46,006
Asset-backed securities	59,055	58,441	—	30,419	28,022
Preferred stocks	1,080	1,123	186	2	935
Common stocks - subsidiaries and affiliates	154	154	16	—	138
Common stocks - unaffiliated	1,158	1,158	297	—	861
Mortgage loans	23,818	22,498	—	—	22,498
Derivatives	22,140	16,217	170	16,047	—
Cash, cash equivalents and short-term investments	5,326	5,326	584	4,742	—
Separate account assets	46,573	46,573	31,111	13,637	1,825
Financial liabilities:					
GICs	18,124	15,875	—	—	15,875
Group annuity contracts and other deposits	1,610	1,488	—	—	1,488
Individual annuity contracts	29,296	30,290	—	—	30,290
Supplementary contracts	836	837	—	—	837
Repurchase agreements	3,455	3,497	—	3,497	—
Debt	250	250	—	250	—
Derivatives	15,542	15,597	84	15,513	—

Common stocks - subsidiaries and affiliates do not include unconsolidated subsidiaries, which had statutory carrying values of \$25,960 million.

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
NOTES TO INTERIM STATUTORY FINANCIAL STATEMENTS, continued
(UNAUDITED)

December 31, 2024					
	Carrying Value	Fair Value	Level 1	Level 2	Level 3
	(In Millions)				
Financial assets:					
Bonds	\$ 163,629	\$ 153,893	\$ 725	\$ 79,633	\$ 73,535
Preferred stocks	1,019	1,145	187	3	955
Common stocks - subsidiaries and affiliates	150	150	16	—	134
Common stocks - unaffiliated	1,198	1,198	292	—	906
Mortgage loans	23,692	22,145	—	—	22,145
Derivatives	24,220	18,021	128	17,893	—
Cash, cash equivalents and short-term investments	6,004	6,004	572	5,432	—
Separate account assets	49,251	49,251	33,240	14,194	1,817
Financial liabilities:					
GICs	17,955	17,249	—	—	17,249
Group annuity contracts and other deposits	1,714	1,570	—	—	1,570
Individual annuity contracts	29,402	30,328	—	—	30,328
Supplementary contracts	844	845	—	—	845
Repurchase agreements	3,408	3,420	—	3,420	—
Debt	250	250	—	250	—
Derivatives	16,774	17,240	75	17,165	—

Common stocks - subsidiaries and affiliates do not include unconsolidated subsidiaries, which had statutory carrying values of \$25,690 million.

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

March 31, 2025				
	Level 1	Level 2	Level 3	Total
	(In Millions)			
Financial assets:				
Bonds:				
Issuer credit obligations	\$ 728	\$ 22	\$ 263	\$ 1,013
Asset-backed securities	—	89	—	89
Preferred stocks	43	—	58	101
Common stocks - subsidiaries and affiliates	16	—	138	154
Common stocks - unaffiliated	297	—	861	1,158
Derivatives:				
Interest rate swaps	—	18,724	—	18,724
Options	160	460	—	620
Currency swaps	—	2,669	—	2,669
Forward contracts	—	73	—	73
Credit default swaps	—	2	—	2
Financial Futures	10	—	—	10
Separate account assets	31,111	13,637	1,825	46,573
Total financial assets carried at fair value	\$ 32,365	\$ 35,676	\$ 3,145	\$ 71,186

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
NOTES TO INTERIM STATUTORY FINANCIAL STATEMENTS, continued
(UNAUDITED)

March 31, 2025				
	Level 1	Level 2	Level 3	Total
	(In Millions)			
Financial liabilities:				
Derivatives:				
Interest rate swaps	\$ —	\$ 13,811	\$ —	\$ 13,811
Options	79	—	—	79
Currency swaps	—	255	—	255
Forward contracts	—	238	—	238
Credit default swaps	—	142	—	142
Financial futures	5	—	—	5
Total financial liabilities carried at fair value	\$ 84	\$ 14,446	\$ —	\$ 14,530

The Company does not have any financial instruments that were carried at net asset value 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, 2024				
	Level 1	Level 2	Level 3	Total
	(In Millions)			
Financial assets:				
Bonds:				
Special revenue	\$ —	\$ 1	\$ —	\$ 1
Industrial and miscellaneous	725	111	265	1,101
Preferred stocks	44	—	46	90
Common stocks - subsidiaries and affiliates	16	—	134	150
Common stocks - unaffiliated	293	—	905	1,198
Derivatives:				
Interest rate swaps	—	20,508	—	20,508
Options	114	453	—	567
Currency swaps	—	2,631	—	2,631
Forward contracts	—	412	—	412
Credit default swaps	—	2	—	2
Financial Futures	15	—	—	15
Separate account assets	33,240	14,194	1,817	49,251
Total financial assets carried at fair value	\$ 34,447	\$ 38,312	\$ 3,167	\$ 75,926
Financial liabilities:				
Derivatives:				
Interest rate swaps	\$ —	\$ 15,665	\$ —	\$ 15,665
Options	63	—	—	63
Currency swaps	—	201	—	201
Forward contracts	—	67	—	67
Credit default swaps	—	175	—	175
Financial futures	12	—	—	12
Total financial liabilities carried at fair value	\$ 75	\$ 16,108	\$ —	\$ 16,183

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 in the beginning fair value for the reporting period in which the changes occur.

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
NOTES TO INTERIM STATUTORY FINANCIAL STATEMENTS, continued
(UNAUDITED)

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

	Balance as of 01/01/25	Gains (Losses) in Net Income	Losses (Gains) in Surplus	Purchases	Issuances	Sales	Settlements	Transfers			Balance as of 03/31/25
								In	Out	Other	
	(In Millions)										
Financial assets:											
Bonds:											
Issuer credit obligations	\$ 265	\$ (3)	\$ (19)	\$ 56	\$ 37	\$ —	\$ (15)	\$ —	\$ —	\$ (58)	\$ 263
Preferred stocks	46	—	—	11	—	—	—	—	—	1	58
Common Stocks:											
Subsidiaries and affiliates	134	—	(1)	—	4	—	—	—	—	1	138
Unaffiliated	905	—	(66)	27	—	(1)	(5)	1	—	—	861
Separate account assets	1,817	34	—	11	—	(20)	(2)	—	(15)	—	1,825
Total financial assets	<u>\$ 3,167</u>	<u>\$ 31</u>	<u>\$ (86)</u>	<u>\$ 105</u>	<u>\$ 41</u>	<u>\$ (21)</u>	<u>\$ (22)</u>	<u>\$ 1</u>	<u>\$ (15)</u>	<u>\$ (56)</u>	<u>\$ 3,145</u>
	Balance as of 01/01/24	Gains (Losses) in Net Income	Losses (Gains) in Surplus	Purchases	Issuances	Sales	Settlements	Transfers			Balance as of 12/31/24
								In	Out	Other	
	(In Millions)										
Financial assets:											
Bonds:											
Industrial and miscellaneous	\$ 172	\$ (130)	\$ 9	\$ 7	\$ 3	\$ —	\$ (10)	\$ —	\$ —	\$ 214	\$ 265
Preferred stocks	63	(9)	8	—	—	—	—	—	—	(16)	46
Common Stocks:											
Subsidiaries and affiliates	177	3	3	415	(259)	66	(346)	—	(156)	231	134
Unaffiliated	957	(6)	136	258	221	(12)	(674)	25	—	—	905
Separate account assets	1,914	83	—	21	—	(196)	(5)	—	—	—	1,817
Total financial assets	<u>\$ 3,283</u>	<u>\$ (59)</u>	<u>\$ 156</u>	<u>\$ 701</u>	<u>\$ (35)</u>	<u>\$ (142)</u>	<u>\$ (1,035)</u>	<u>\$ 25</u>	<u>\$ (156)</u>	<u>\$ 429</u>	<u>\$ 3,167</u>

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.

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.

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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

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

	March 31, 2025			
	Carrying Value	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
	(In Millions)			
Issuer credit obligations:				
Corporate bonds	\$ 80,109	\$ 480	\$ 7,784	\$ 72,805
Bank loans	8,644	71	122	8,593
U.S. government obligation	4,920	33	548	4,405
Bond issued from SEC registered BDC/CEF/REIT	2,223	23	66	2,180
Municipal bonds	2,124	26	129	2,021
Single entity backed bonds	2,025	19	60	1,984
Other U.S. government securities	1,731	56	20	1,767
Non-U.S. sovereign jurisdiction securities	1,524	9	320	1,213
Mortgages loans that qualify as SVO - identified credit tenant loans	731	—	—	731
SVO - identified bond funds	728	—	—	728
Project finance bonds issued by operating entities	319	3	27	295
Other issuer credit obligations	394	10	26	378
Total issuer credit obligations	105,472	730	9,102	97,100
Asset-back securities:				
Non-agency - CLOs/CBOs/CDOs	17,129	44	29	17,144
Equity-backed securities	9,024	1	168	8,857
Non-agency residential mortgage-backed securities	4,012	74	29	4,057
Non-agency commercial mortgage-backed securities	2,744	15	265	2,494
Lease-backed securities	1,300	12	46	1,266
Agency residential mortgage-backed securities	220	—	4	216
Agency commercial mortgage-backed securities	28	—	1	27
Other financial asset-backed securities	24,598	89	307	24,380
Total asset-backed securities	\$ 59,055	\$ 235	\$ 849	\$ 58,441
Total bonds	\$ 164,527	\$ 965	\$ 9,951	\$ 155,541

The March 31, 2025 gross unrealized losses exclude \$201 million of losses included in the carrying value. These losses include \$199 million from NAIC Class 6 bonds and \$2 million from RMBS and CMBS whose ratings were obtained from third-party modelers. These losses were primarily included in industrial and miscellaneous or parent, subsidiaries and affiliates.

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	December 31, 2024			
	Carrying Value	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
	(In Millions)			
U.S. government and agencies	\$ 5,604	\$ 22	\$ 658	\$ 4,968
All other governments	979	6	176	809
States, territories and possessions	157	—	11	146
Political subdivisions	276	5	16	265
Special revenue	3,402	36	117	3,321
Industrial and miscellaneous	139,384	743	9,213	130,914
Hybrid securities	1,019	44	22	1,041
Parent, subsidiaries and affiliates	12,808	29	408	12,429
Total	<u>\$ 163,629</u>	<u>\$ 885</u>	<u>\$ 10,621</u>	<u>\$ 153,893</u>

The December 31, 2024 gross unrealized losses exclude \$186 million of losses included in the carrying value. These losses include \$183 million from NAIC Class 6 bonds and \$3 million from RMBS and CMBS whose ratings were obtained from third-party modelers. These losses were primarily included in industrial and miscellaneous or parent, subsidiaries and affiliates.

As of March 31, 2025, investments in structured and loan-backed securities that had unrealized losses, which were not recognized in earnings, had a fair value of \$16,615 million. Securities in an unrealized loss position for less than 12 months had a fair value of \$9,707 million and unrealized losses of \$48 million. Securities in an unrealized loss position for greater than 12 months had a fair value of \$6,908 million and unrealized losses of \$819 million. These securities were primarily categorized as industrial and miscellaneous or parent, subsidiaries and affiliates.

As of December 31, 2024, investments in structured and loan-backed securities that had unrealized losses, which were not recognized in earnings, had a fair value of \$11,250 million. Securities in an unrealized loss position for less than 12 months had a fair value of \$4,249 million and unrealized losses of \$42 million. Securities in an unrealized loss position for greater than 12 months had a fair value of \$7,001 million and unrealized losses of \$887 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, 2025 or 2024 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, 2025, RMBS had a total carrying value of \$3,630 million and a fair value of \$3,666 million of which approximately 2%, based on carrying value, was classified as Alt-A. Alt-A and subprime RMBS had a total carrying value of \$2,115 million and a fair value of \$2,144 million. As of December 31, 2024, RMBS had a total carrying value of \$3,882 million and a fair value of \$3,904 million of which approximately 2%, based on carrying value, was classified as Alt-A. Alt-A and subprime RMBS had a total carrying value of \$2,246 million and a fair value of \$2,268 million.

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b. 5GI Securities

Securities owned by the Company with an NAIC designation of 5GI securities:

	March 31, 2025			December 31, 2024		
	Number of 5GI Securities	Carrying Value	Fair Value	Number of 5GI Securities	Carrying Value	Fair Value
	(In Millions)					
Investments:						
Bonds - amortized cost	236	\$ 1,064	\$ 1,049	242	\$ 1,002	\$ 987
Preferred stock - fair value	2	1	1	2	1	1
Total	238	\$ 1,065	\$ 1,050	244	\$ 1,003	\$ 988

c. Preferred stocks

No significant changes.

d. Common stocks – subsidiaries and affiliates

MMHLLC paid \$570 million in dividends to MassMutual for the three months ended March 31, 2025, which were declared in 2024, and paid \$630 million in dividends to MassMutual for the three months ended March 31, 2024, \$630 million which was declared in 2023.

MassMutual contributed capital of \$20 million to MMHLLC for the three months ended March 31, 2025, and \$56 million for the three months ended March 31, 2024.

On March 14, 2025, Barings LLC, a downstream wholly-owned subsidiary of MMHLLC, acquired Artemis Real Estate Partners, a U.S.-based real estate debt and equity investment manager with gross assets under management of approximately \$11 billion. The total purchase price included an upfront payment of \$396 million and a final payment of \$255 million to be paid in 2030. The acquisition is expected to bolster Barings LLC's position as a key player in the real estate asset management sector.

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 could 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 Interim 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.

e. Common stocks – unaffiliated

No significant changes.

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f. Mortgage loans

Mortgage loans are comprised of 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, some of which are backed by Federal Housing Administration (FHA) and Veterans Administration (VA) guarantee.

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

	March 31, 2025		December 31, 2024	
	Carrying Value	Fair Value	Carrying Value	Fair Value
	(In Millions)			
Commercial mortgage loans:				
Primary lender	\$ 16,448	\$ 15,260	\$ 16,854	\$ 15,477
Mezzanine loans	111	102	108	98
Total commercial mortgage loans	16,559	15,362	16,962	15,575
Residential mortgage loans:				
FHA insured and VA guaranteed	1,535	1,435	1,599	1,487
Other residential loans	5,724	5,701	5,131	5,083
Total residential mortgage loans	7,259	7,136	6,730	6,570
Total mortgage loans	\$ 23,818	\$ 22,498	\$ 23,692	\$ 22,145

The following presents a summary of the Company's impaired mortgage loans as of March 31, 2025 and December 31, 2024:

	March 31, 2025				
	Carrying Value	Average Carrying Value	Unpaid Principal Balance	Valuation Allowance	Interest Income
	(In Millions)				
With allowance recorded:					
Commercial mortgage loans:					
Primary lender	\$ 15	\$ 16	\$ 18	\$ (4)	\$ —
Total	15	16	18	(4)	—
With no allowance recorded:					
Commercial mortgage loans:					
Primary lender	\$ 271	\$ 275	\$ 425	\$ —	\$ 1
Total	271	275	425	—	1
Total impaired commercial mortgage loans	\$ 286	\$ 291	\$ 443	\$ (4)	\$ 1

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December 31, 2024					
	Carrying Value	Average Carrying Value	Unpaid Principal Balance	Valuation Allowance	Interest Income
	(In Millions)				
With allowance recorded:					
Commercial mortgage loans:					
Primary lender	\$ 88	\$ 102	\$ 125	\$ (35)	\$ 4
Total	88	102	125	(35)	4
With no allowance recorded:					
Commercial mortgage loans:					
Primary lender	\$ 399	\$ 403	\$ 552	\$ —	\$ 3
Total	399	403	552	—	3
Total impaired commercial mortgage loans	<u>\$ 487</u>	<u>\$ 505</u>	<u>\$ 677</u>	<u>\$ (35)</u>	<u>\$ 7</u>

Allowance for credit losses:

	March 31, 2025	December 31, 2024
Balance at the beginning of year	\$ (35)	\$ (157)
Additions charged to operations	(4)	(94)
Direct write-downs charged against the allowances	(54)	—
Recoveries of amounts previously charged off	35	216
Balance at the end of the period	<u>\$ (58)</u>	<u>\$ (35)</u>

g. Real estate

No significant changes.

h. Partnerships and limited liability companies

No significant changes.

i. 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 replicated synthetic investments. These replicated synthetic investments are created when they are economically more attractive than the actual instrument or when similar instruments are unavailable. Replicated 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 replicated synthetic investments with a notional amount of \$35,257 million as of March 31, 2025 and \$33,462 million as of December 31, 2024, 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, currency, equity, bond, and credit default swaps; options; 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.

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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. The Company uses currency swaps for the purpose of managing currency exchange risks in its assets and liabilities.

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 to the counterparties was \$1,091 million as of March 31, 2025, and net collateral pledged by the counterparties was \$441 million as of December 31, 2024. In the event of default, the full market value exposure at risk, net of offsets and collateral, was \$219 million and \$160 million as of March 31, 2025 and December 31, 2024, respectively. The statutory net amount at risk, defined as net collateral pledged and statement values excluding accrued interest, was \$4,836 million and \$5,170 million as of March 31, 2025 and December 31, 2024, respectively.

As of March 31, 2025, the company had the right to rehypothecate or repledge securities totaling \$1,222 million, pledged by the counterparties, of the \$1,091 million of the net collateral pledged to counterparties. As of December 31, 2024, the company had the right to rehypothecate or repledge securities totaling \$1,489 million, pledged by the counterparties, of the \$441 million of the net collateral pledged to counterparties. There were no securities rehypothecated to other counterparties as of March 31, 2025 or December 31, 2024.

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

	March 31, 2025				December 31, 2024			
	Assets		Liabilities		Assets		Liabilities	
	Carrying Value	Notional Amount	Carrying Value	Notional Amount	Carrying Value	Notional Amount	Carrying Value	Notional Amount
	(In Millions)							
Interest rate swaps	\$ 18,729	\$184,248	\$ 13,811	\$155,474	\$ 20,513	\$173,481	\$ 15,665	\$164,073
Options	620	11,998	79	1,264	567	11,002	63	242
Currency swaps	2,706	30,667	1,266	17,103	2,711	31,042	792	15,461
Forward contracts	73	8,703	238	8,425	412	12,503	67	5,519
Credit default swaps	2	140	143	7,924	2	162	175	7,903
Financial futures	10	725	5	349	15	567	12	506
Total	<u>\$ 22,140</u>	<u>\$236,481</u>	<u>\$ 15,542</u>	<u>\$190,539</u>	<u>\$ 24,220</u>	<u>\$228,757</u>	<u>\$ 16,774</u>	<u>\$193,704</u>

The average fair value of outstanding derivative assets was \$22,848 and \$22,341 million for the three months ended March 31, 2025 and 2024, respectively. The average fair value of outstanding derivative liabilities was \$15,849 and \$15,101 million for the three months ended March 31, 2025 and 2024, respectively.

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

	March 31, 2025	December 31, 2024
	(In Millions)	
Due after one year through five years	\$ 120	\$ 8,065
Due after five years through ten years	7,944	—
Total	<u>\$ 8,064</u>	<u>\$ 8,065</u>

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

	Three Months Ended March 31,			
	2025		2024	
	Net Realized Gains (Losses) on Closed Contracts	Change in Net Unrealized (Losses) Gains on Open Contracts	Net Realized (Losses) Gains on Closed Contracts	Change in Net Unrealized (Losses) Gains on Open Contracts
	(In Millions)			
Interest rate swaps	\$ 21	\$ 70	\$ (6)	\$ (299)
Currency swaps	4	(16)	15	(87)
Options	(9)	11	(6)	(23)
Credit default swaps	27	(1)	(16)	(9)
Forward contracts	262	(510)	(123)	351
Financial futures	18	1	11	(29)
Total	<u>\$ 323</u>	<u>\$ (445)</u>	<u>\$ (147)</u>	<u>\$ (96)</u>

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

	March 31, 2025			December 31, 2024		
	Derivative Assets	Derivative Liabilities	Net	Derivative Assets	Derivative Liabilities	Net
	(In Millions)					
Gross	\$ 22,140	\$ 15,542	\$ 6,598	\$ 24,220	\$ 16,774	\$ 7,446
Due and accrued	1,101	2,529	(1,428)	1,421	2,515	(1,094)
Gross amounts offset	(20,363)	(20,363)	—	(22,311)	(22,311)	—
Net asset	2,878	(2,292)	5,170	3,330	(3,022)	6,352
Collateral posted	(3,063)	(4,154)	1,091	(3,366)	(3,807)	441
Net	\$ (185)	\$ (6,446)	\$ 6,261	\$ (36)	\$ (6,829)	\$ 6,793

j. 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 accounted for as collateralized borrowings with the proceeds from the sale of the securities recorded as a liability and 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, which is at cost, reported in the Company's liabilities as repurchase agreements approximates the fair value.

The following table provides contractual maturity, maximum balance during the year, and ending balance for bilateral repurchase agreements:

	March 31,			
	2025		2024	
	Maximum Balance	Ending Balance	Maximum Balance	Ending Balance
	(In Millions)			
Greater than 1 Month to 3 Months	\$ 3,455	\$ 3,455	\$ 2,383	\$ 1,141
Greater than 3 Months to 1 Year	630	—	2,325	2,325
Total	\$ 4,085	\$ 3,455	\$ 4,708	\$ 3,466

The company did not have any repurchase agreements where securities sold and/or acquired resulted in default as of March 31, 2025 and December 31, 2024.

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The following table presents the fair value and amortized cost of securities sold under bilateral repurchase agreement transactions, which were all NAIC rating of 1, for the three months ended March 31, 2025 and 2024:

	Maximum Balance	Ending Balance
	(In Millions)	
March 31, 2025		
Fair Value	\$ (3,524)	\$ (3,497)
Carrying Value	\$ —	\$ (3,838)
March 31, 2024		
Fair Value	\$ 4,473	\$ 3,466
Carrying Value	\$ —	\$ 3,466

The following table presents the cash collateral and the fair value of security collateral, which were all NAIC rating of 1, received in the bilateral repurchase agreement transactions for the three months ended March 31, 2025 and 2024:

	Maximum Balance	Ending Balance
	Cash Securities	Cash Securities
	(In Millions)	
March 31, 2025	\$ 3,358 \$ 10	\$ 3,426 \$ 5
March 31, 2024	\$ 96 \$ 3,530	\$ 16 \$ 3,487

The following table presents collateral received, aggregate allocation of the collateral by the remaining contractual maturity of the repurchase agreements for the three months ended March 31, 2025 and 2024:

	Overnight and Continuous	30 Days or Less	31 to 90 Days	> 90days
	(In Millions)			
Maximum Balance				
March 31, 2025	\$ —	\$ —	\$ 3,252	\$ 145
March 31, 2024	\$ —	\$ —	\$ 1,626	\$ 1,880
Ending Balance				
March 31, 2025	\$ —	\$ —	\$ 3,252	\$ 145
March 31, 2024	\$ —	\$ —	\$ 1,626	\$ 1,880

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The following table presents cash collateral received that has been reinvested, the total reinvested cash and the aggregate amortized cost and fair value of the invest asset acquired with the cash collateral for the three months ended March 31, 2025 and 2024:

	1 to 2 Years		2 to 3 Years		> 3 Years	
	Amortized Cost	Fair Value	Amortized Cost	Fair Value	Amortized Cost	Fair Value
Maximum Balance						
March 31, 2025	\$ —	\$ —	\$ 1,163	\$ 1,192	\$ 2,260	\$ 1,947
March 31, 2024	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Ending Balance						
March 31, 2025	\$ —	\$ —	\$ 1,163	\$ 1,192	\$ 2,260	\$ 1,947
March 31, 2024	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —

To help manage the mismatch of maturity dates between the security lending transactions and the related reinvestment of the collateral received, the Company invests in highly liquid assets.

The following table presents liability recognized to return cash collateral, and the liability recognized to return securities received as collateral as required pursuant to the terms of the secured borrowing transactions for the three months ended March 31, 2025 and 2024:

	Maximum Balance		Ending Balance	
	Cash	Securities	Cash	Securities
	(In Millions)			
March 31, 2025	\$ 3,358	\$ 10	\$ 3,426	\$ 5
March 31, 2024	\$ 96	\$ 3,530	\$ 16	\$ 3,487

The company did not have any reverse repurchase transactions accounted for as secured borrowings as of March 31, 2025 and December 31, 2024.

The Company did not have any repurchase agreements or reverse repurchase agreements transactions accounted for as a sale as of March 31, 2025 and December 31, 2024.

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k. Net investment income

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

	Three Months Ended March 31,	
	2025	2024
	(In Millions)	
Bonds	\$ 2,236	\$ 1,940
Preferred stocks	6	5
Common stocks - subsidiaries and affiliates	1	—
Common stocks - unaffiliated	19	22
Mortgage loans	305	265
Policy loans	276	247
Real estate	19	17
Partnerships and limited liability companies	206	187
Derivatives	(8)	(127)
Cash, cash equivalents and short-term investments	66	129
Other	28	90
Subtotal investment income	3,154	2,775
Amortization of the IMR	(44)	(19)
Net gains from separate accounts	2	—
Investment expenses	(277)	(243)
Net investment income	<u>\$ 2,835</u>	<u>\$ 2,513</u>

l. Net realized capital gains (losses)

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,	
	2025	2024
	(In Millions)	
Bonds	\$ (37)	\$ (51)
Preferred stocks	(32)	—
Common stocks - subsidiaries and affiliates	(1)	—
Common stocks - unaffiliated	(5)	10
Mortgage loans	(77)	(9)
Partnerships and limited liability companies	(116)	(31)
Derivatives	323	(146)
Other	18	6
Net realized capital gains (losses) before federal and state taxes and deferral to the IMR	73	(221)
Net federal and state tax benefit (expense)	64	(12)
Net realized capital gains (losses) before deferral to the IMR	137	(233)
Net after tax capital gains (losses) deferred to the IMR	12	(4)
Net realized capital gains (losses)	<u>\$ 149</u>	<u>\$ (237)</u>

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OTTI, included in the net realized capital gains (losses), consisted of the following:

	Three Months Ended March 31,	
	2025	2024
	(In Millions)	
Bonds	\$ (31)	\$ (24)
Common stocks - subsidiaries and affiliates	(1)	—
Mortgage loans	(54)	—
Partnerships and limited liability companies	(38)	(26)
Total OTTI	<u>\$ (124)</u>	<u>\$ (50)</u>

The Company recognized OTTI of \$12 million and \$3 million for the three months ended March 31, 2025 and 2024, respectively, 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.

The Company utilized internally-developed models to determine less than 1% of the \$31 million of bond OTTI for the three months ended March 31, 2025, and less than 1% of the \$24 million of bond OTTI for the three months ended March 31, 2024. The remaining OTTI amounts were determined using external inputs such as publicly observable fair values and credit ratings. Refer to *Note 2dd. "Net 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.

m. Restricted assets

No significant changes.

6. Federal income taxes

No significant changes.

7. Other than invested assets

a. Admitted negative (disallowed) IMR

As of March 31, 2025, the Company had \$1,392 million of disallowed IMR in aggregate and in the general account.

As of March 31, 2025, the calculated adjusted general capital and surplus was \$24,107 million.

As of March 31, 2025, the percentage of adjusted general capital and surplus for which the admitted disallowed IMR represents was 6%.

The following represents allocated gains (losses) to IMR from derivatives:

	March 31, 2025 (In Millions)
Unamortized fair value derivative gain	\$ 2,733
Unamortized fair value derivative losses	(3,899)
Total allocated net losses to IMR from derivatives	<u>\$ (1,166)</u>

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When the Company sells bonds and recognizes losses due to interest-rate related factors, and the realized losses are transferred to the IMR, the sales proceeds are generally used for reinvestment as governed by prudent asset liability management (ALM) policies and procedures. Such sales of bonds are intermittently used to meet liquidity needs and managed within the ALM framework.

IMR losses for fixed income related derivatives were in accordance with documented risk management procedures, as well as the Company's derivative use plans, and reflect the same historical treatment of derivative gains reversed to IMR and amortized rather than immediately recognized as realized gain upon termination.

As of March 31, 2025, the IMR asset admitted under the currently adopted statutory accounting interpretation includes approximately \$123 million, net of tax, related to various FWH reinsurance treaties. Included in the FWH assets are reimbursements of capital losses on the invested assets to back the ceded reinsurance liabilities and are recorded as an adjustment to the income statement. Both the IMR and FWH assets are admitted under statutory accounting guidance.

8. *Policyholders' liabilities*

a. *Liabilities for deposit-type contracts*

On January 10, 2025, MassMutual issued a \$600 million funding agreement with a 4.95% fixed rate and a 5-year maturity.

On March 27, 2025, MassMutual issued a \$600 million funding agreement with a 4.45% fixed rate and a 3-year maturity.

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 lifetime withdrawal benefits (GLWB). In general, living benefit guarantees require the contract holder or policyholder to adhere to a company approved asset allocation strategy. Election of these benefit guarantees is generally only available at contract issue.

The following shows the changes in the liabilities for GMDB, GMIB, GMAB and GLWB (in millions):

Liability as of January 1, 2024	\$ 49
Incurred guarantee benefits	20
Paid guarantee benefits	(8)
Liability as of December 31, 2024	61
Incurred guarantee benefits	21
Paid guarantee benefits	(2)
Liability as of March 31, 2025	<u>\$ 80</u>

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The following summarizes the account values, net amount at risk and weighted average attained age for variable annuity contracts with GMDB, GMIB, GMAB and GLWB 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, 2025			December 31, 2024		
	Account Value	Net Amount at Risk	Weighted Average Attained Age	Account Value	Net Amount at Risk	Weighted Average Attained Age
	(\$ In Millions)					
GMDB	\$ 7,763	\$ 96	68	\$ 8,161	\$ 80	68
GMIB Basic	375	3	74	412	3	73
GMIB Plus	1,160	455	70	1,200	429	69
GMAB	1,001	5	64	1,089	4	64
GLWB	74	13	76	82	13	76

As of March 31, 2025, the GMDB account value above consists of \$811 million within the general account and \$6,952 million within separate accounts that includes \$3,561 million of Modco assumed. As of December 31, 2024, the GMDB account value above consists of \$819 million within the general account and \$7,342 million within separate accounts that includes \$3,807 million of Modco 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.

a-f. No significant changes.

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g. 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 Interim Statutory Statements of Operations. The net periodic cost recognized is as follows:

	Three Months Ended March 31,			
	2025	2024	2025	2024
	Pension Benefits		Other Postretirement Benefits	
	(In Millions)			
Service cost	\$ 2	\$ 24	\$ 2	\$ 2
Interest cost	34	31	4	4
Expected return on plan assets	(42)	(43)	—	—
Amortization of unrecognized losses (gains)	4	5	(2)	(2)
Amortization of unrecognized prior service benefit	—	—	(1)	(2)
Total net periodic (benefit) expense	\$ (2)	\$ 17	\$ 3	\$ 2

13. Employee compensation plans

No significant changes.

14. Surplus notes

No significant changes.

15. Presentation of the Interim 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, 2025 and 2024. Accordingly, the Company has excluded these non-cash activities from the Statutory Statements of Cash Flows for the three months ended March 31, 2025 and 2024.

	Three Months Ended March 31,	
	2025	2024
	(In Millions)	
Transfer of mortgage loans to partnerships and limited liability companies	\$ 242	\$ —
Bond conversions and refinancing	211	118
Transfer of bonds to partnerships and limited liability companies	152	—
Change in market value of corporate owned life insurance asset	20	62
Stock conversions	11	10
Net investment income payment-in-kind bonds	7	4

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. The interim risks and uncertainties disclosure should be read in conjunction with the statutory disclosure in the Company's 2024 audited year-end 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 LTC 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.

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Currency exchange risk

The Company has currency risk due to its non-U.S. dollar denominated 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 risks related to product offerings, profitability, or any of the risk factors described above. Whether those underlying risk factors are driven by geopolitics or not, the Company's dynamic approach to managing risks enables management to identify risks, internally and externally, develop mitigation plans, and respond to risks in an attempt to proactively 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 interim financial statement financial position, or on our reputation.

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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 offset by related insurance recoveries or other contributions, if any. An accrual may be subject to subsequent adjustment as a result of additional information and other developments. The resolution of matters is 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.

17. *Related party transactions*

Capital Contributions from MassMutual

- \$28 million to Counterpointe MM Mortgage Lending in March 2025
- \$26 million to ITPS Holding LLC in March 2025

Return of Capital to MassMutual

- ITPS Holding LLC paid \$25 million (non-cash) in March 2025

Dividends paid to MassMutual

- MMLIA paid \$10 million in March 2025

18. *Subsequent events*

Management of the Company has evaluated subsequent events through May 15, 2025, 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 financial statements, except for:

MassMutual and Invesco Ltd (Invesco) announced that Invesco will repurchase approximately \$1 billion of its \$4 billion of outstanding MassMutual's preferred shares in May 2025, providing MassMutual with a 15% premium payout. This transaction will enhance MassMutual's financial flexibility and is expected to be earnings accretive for Invesco. MassMutual will retain approximately 18.2% ownership of Invesco's common shares.

Additionally, Invesco and Barings LLC, MassMutual's subsidiary, have formed a strategic partnership for U.S. Wealth channels. MassMutual plans to invest up to \$650 million in seed capital to support new private credit products. This partnership aims to expand Barings' product and distribution opportunities.

On May 7, 2025, MassMutual issued a \$800 million funding agreement with a 4.55% fixed rate and a 5-year maturity.

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, 2025	\$ 39,862,354	\$ —	\$ 39,862,354	\$ 28,301,166	\$ (11,561,188)	\$ 28,301,166	\$ 27,669,096
December 31, 2024	22,493,605	—	22,493,605	15,603,907	(6,889,698)	15,603,907	14,525,080
September 30, 2024	9,854,964	—	9,854,964	8,633,308	(1,221,656)	8,633,308	8,589,373
June 30, 2024	54,957,279	—	54,957,279	49,033,522	(5,923,757)	49,033,522	36,231,196
March 31, 2024	36,924,401	—	36,924,401	33,979,195	(2,945,206)	33,979,195	33,244,880

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December 31, 2023	53,672,524	—	53,672,524	51,118,891	(2,553,633)	51,118,891	42,903,097
September 30, 2023	24,928,010	—	24,928,010	24,065,666	(862,344)	24,065,666	21,743,474
June 30, 2023	16,432,523	—	16,432,523	15,955,963	(476,560)	15,955,963	15,431,923
March 31, 2023	56,797,193	—	56,797,193	45,999,577	(10,797,616)	45,999,577	39,477,567
December 31, 2022	47,152,655	—	47,152,655	42,630,344	(4,522,311)	42,630,344	35,962,545
September 30, 2022	23,315,048	—	23,315,048	22,016,070	(1,298,978)	22,016,070	19,284,696
June 30, 2022	17,306,639	—	17,306,639	15,826,391	(1,480,248)	15,826,391	13,534,918
March 31, 2022	30,135,997	—	30,135,997	23,857,778	(6,278,219)	23,857,778	23,674,371
December 31, 2021	6,658,614	—	6,658,614	6,490,508	(168,106)	6,490,508	6,369,198
September 30, 2021	4,061,382	—	4,061,382	3,955,723	(105,659)	3,955,723	3,595,213
June 30, 2021	11,352,643	—	11,352,643	10,386,581	(966,062)	10,386,581	11,323,900
March 31, 2021	11,247,256	—	11,247,256	5,074,493	(6,172,763)	5,074,493	5,237,174
December 31, 2020	16,071,907	—	16,071,907	14,674,300	(1,397,607)	14,674,300	15,473,517
September 30, 2020	21,375,383	—	21,375,383	19,160,250	(2,215,133)	19,160,250	18,862,027
June 30, 2020	10,180,123	—	10,180,123	8,992,610	(1,187,513)	8,992,610	9,249,851
March 31, 2020	24,799,788	—	24,799,788	20,197,344	(4,602,444)	20,197,344	24,683,947
December 31, 2019	3,992,400	—	3,992,400	3,539,281	(453,119)	3,539,281	3,439,138
September 30, 2019	16,909,029	—	16,909,029	15,191,932	(1,717,097)	15,191,932	14,639,756
June 30, 2019	6,980,030	—	6,980,030	6,187,029	(793,001)	6,187,029	7,133,620
March 31, 2019	7,791,000	—	7,791,000	7,634,637	(156,363)	7,634,637	7,683,021
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	448,994
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	(2,375,943)	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	(4,865,523)	45,665,859	58,523,652
June 30, 2015	66,924,927	—	66,924,927	65,240,585	(1,684,342)	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	(5,075,364)	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	(27,259,680)	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	(58,307,046)	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)			\$ (722,647,739)		

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The following contains asset-backed and structured securities that recognized OTTI classified on the following bases for recognizing OTTI:

	(1)	(2)		(3)
	Amortized Cost Basis Before OTTI Impairment	OTTI Recognized in Loss		Fair Value 1-(2a+2b)
		(2a) Interest	(2b) Non-interest	
	(In Millions)			
OTTI recognized in the first quarter				
Intent to sell	\$ —	\$ —	\$ —	\$ —
Inability or lack of intent to retain the investment in the security for a period of time sufficient to recover the amortized cost basis	40	—	12	28
Total first quarter	\$ 40	\$ —	\$ 12	\$ 28
Annual aggregate total		\$ —	\$ 12	

All impairments were taken due to the present value of cash flows expected to be collected being less than the amortized cost basis.

The following is a CUSIP detail list of impaired structured securities where the present value of cash flows expected to be collected is less than the amortized cost basis.

1 CUSIP	2 Adjusted Carrying Value Amortized Cost before OTTI	3 Present Value of Projected Cash Flow	4 Recognized OTTI	5 Amortized Cost after OTTI	6 Fair Value at Time of OTTI	7 Date of Financial Instrument Where Reported
12591KAK1	\$ 2,522,379	\$ 146,877	\$ 2,375,502	\$ 146,877	\$ 124,746	March 31, 2025
12624SAE9	248,748	110,461	138,287	110,461	98,365	March 31, 2025
36192RAL6	1,551,160	90,269	1,460,891	90,269	89,025	March 31, 2025
46639YAX5	4,586,035	556,702	4,029,333	556,702	485,515	March 31, 2025
040104TF8	34,691	32,812	1,879	32,812	32,430	March 31, 2025
04012XAC9	118,897	111,231	7,666	111,231	109,745	March 31, 2025
12479DAC2	1,401,484	1,191,041	210,443	1,191,041	1,197,453	March 31, 2025
1248MGAJ3	37,490	31,642	5,848	31,642	30,707	March 31, 2025
17311YAC7	1,141,895	1,011,829	130,066	1,011,829	1,005,185	March 31, 2025
30247DAD3	466,662	454,606	12,056	454,606	453,035	March 31, 2025
35729RAE6	3,352,329	3,071,627	280,702	3,071,627	2,989,992	March 31, 2025
40431KAE0	1,891,530	1,867,901	23,629	1,867,901	1,858,939	March 31, 2025
46629NAC7	30,472	26,243	4,229	26,243	26,040	March 31, 2025
46630KAA4	135,020	132,318	2,702	132,318	133,052	March 31, 2025
57643LMP8	589,786	563,237	26,549	563,237	559,730	March 31, 2025
617463AA2	7,401	7,391	10	7,391	6,264	March 31, 2025
61750MAB1	2,890	2,825	65	2,825	2,801	March 31, 2025
61757MAB4	1,725,577	1,519,928	205,649	1,519,928	1,357,104	March 31, 2025
86363HAB8	30,993	27,056	3,937	27,056	26,975	March 31, 2025
05535DAN4	415,847	372,365	43,482	372,365	395,389	March 31, 2025
12667GKG7	37,835	37,336	499	37,336	37,191	March 31, 2025
12669FKR3	29,890	28,642	1,248	28,642	28,822	March 31, 2025
18974BAA7	110,444	107,107	3,337	107,107	106,506	March 31, 2025
22541NUB3	128,939	23,799	105,140	23,799	33,947	March 31, 2025
22943HAD8	3,018,787	1,546,388	1,472,399	1,546,388	1,478,700	March 31, 2025
251510FB4	913,345	894,538	18,807	894,538	889,965	March 31, 2025
32053LAA0	14,933	14,019	914	14,019	13,988	March 31, 2025
45254TRX4	47,367	43,619	3,748	43,619	43,547	March 31, 2025
45660LYW3	623,135	561,324	61,811	561,324	565,004	March 31, 2025
466247XE8	591,715	419,365	172,350	419,365	414,726	March 31, 2025

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY
NOTES TO INTERIM STATUTORY FINANCIAL STATEMENTS, continued
(UNAUDITED)

65535VRK6	423,317	365,711	57,606	365,711	356,789	March 31, 2025
75115DAH8	2,809	2,522	287	2,522	2,507	March 31, 2025
761118FM5	1,263,358	1,249,033	14,325	1,249,033	1,187,830	March 31, 2025
761118RJ9	57,864	56,661	1,203	56,661	56,265	March 31, 2025
85554NAG5	42,648	39,744	2,904	39,744	39,702	March 31, 2025
86358HHX0	76,292	54,864	21,428	54,864	54,655	March 31, 2025
86359BLQ2	563,115	462,214	100,901	462,214	488,829	March 31, 2025
92978EAA2	72,298	62,785	9,513	62,785	61,254	March 31, 2025
93935PAH2	105,569	103,242	2,327	103,242	102,522	March 31, 2025
23332UCM4	14,705	14,499	206	14,499	14,471	March 31, 2025
41161PTP8	147,426	138,290	9,136	138,290	137,423	March 31, 2025
45660NSH4	930,508	891,303	39,205	891,303	887,231	March 31, 2025
45660NT88	12,754	12,017	737	12,017	11,543	March 31, 2025
86360UAF3	781,063	660,195	120,868	660,195	652,812	March 31, 2025
12669GTE1	3,216	3,132	84	3,132	3,392	March 31, 2025
32051DCJ9	15,503	15,444	59	15,444	15,423	March 31, 2025
362341VU0	1,141,358	1,083,000	58,358	1,083,000	1,052,829	March 31, 2025
36298XAA0	3,898,283	3,779,774	118,509	3,779,774	3,774,883	March 31, 2025
36298XAB8	3,874,410	3,684,784	189,626	3,684,784	3,679,498	March 31, 2025
576433NH5	255,668	247,477	8,191	247,477	123,743	March 31, 2025
5899292N7	22,441	22,348	93	22,348	22,324	March 31, 2025
589929N38	59,285	58,382	903	58,382	58,287	March 31, 2025
86359DME4	290,788	289,247	1,541	289,247	289,996	March 31, 2025
Totals	\$ 39,862,354	\$ 28,301,166	\$ 11,561,188	\$ 28,301,166	\$ 27,669,096	XXX