



LIFE, ACCIDENT AND HEALTH COMPANIES/FRATERNAL BENEFIT SOCIETIES - ASSOCIATION EDITION

QUARTERLY STATEMENT

AS OF JUNE 30, 2023

OF THE CONDITION AND AFFAIRS OF THE

Massachusetts Mutual Life Insurance Company

NAIC Group Code 0435 (Current) 0435 (Prior) NAIC Company Code 65935 Employer's ID Number 04-1590850

Organized under the Laws of Massachusetts, State of Domicile or Port of Entry MA

Country of Domicile United States of America

Licensed as business type: Life, Accident and Health [X] Fraternal Benefit Societies []

Incorporated/Organized 05/15/1851 Commenced Business 08/01/1851

Statutory Home Office 1295 State Street Springfield, MA, US 01111 (Street and Number) (City or Town, State, Country and Zip Code)

Main Administrative Office 1295 State Street Springfield, MA, US 01111 (Street and Number) (City or Town, State, Country and Zip Code) 413-788-8411 (Area Code) (Telephone Number)

Mail Address 1295 State Street Springfield, MA, US 01111 (Street and Number or P.O. Box) (City or Town, State, Country and Zip Code)

Primary Location of Books and Records 1295 State Street Springfield, MA, US 01111 (Street and Number) (City or Town, State, Country and Zip Code) 413-788-8411 (Area Code) (Telephone Number)

Internet Website Address www.massmutual.com

Statutory Statement Contact Trevor Wade Gordon 617-695-4321 (Name) (Area Code) (Telephone Number) tgordon@MassMutual.com 413-226-4086 (E-mail Address) (FAX Number)

OFFICERS

President and Chief Executive Officer Roger William Crandall Secretary Akintokunbo Akinbajo Treasurer Julieta Giselle Sinisgalli Appointed Actuary Vy Quoc Ho

OTHER

Elizabeth Ward Chicares, Chief Financial Officer Eric William Partlan #, Chief Investment Officer Geoffrey James Craddock, Chief Risk Officer Susan Marie Cicco, Head of Human Resources & Employee Experience Michael James O'Connor, General Counsel Sears Andrew Merritt, Head of Enterprise Technology & Experience Dominic Lusean Blue #, Head of Third Party Distribution and New Markets Paul Anthony LaPiana #, Head of Brand, Product and Affiliated Distribution Peter John Rugel #, Head of Operations

DIRECTORS OR TRUSTEES

Roger William Crandall - Chairman Mark Thomas Bertolini Kathleen Ann Corbet James Henry DeGraffenreid, Jr. Isabella Davidov Goren Jeffrey Marc Leiden Laura Jeanne Sen William Taylor Spitz - Lead Director Howard Todd Stitzer Michelle Kwok Lee Bernard Anthony Harris, Jr.

State of Massachusetts County of Hampden SS:

The officers of this reporting entity being duly sworn, each depose and say that they are the described officers of said reporting entity, and that on the reporting period stated above, all of the herein described assets were the absolute property of the said reporting entity, free and clear from any liens or claims thereon, except as herein stated, and that this statement, together with related exhibits, schedules and explanations therein contained, annexed or referred to, is a full and true statement of all the assets and liabilities and of the condition and affairs of the said reporting entity as of the reporting period stated above, and of its income and deductions therefrom for the period ended, and have been completed in accordance with the NAIC Annual Statement Instructions and Accounting Practices and Procedures manual except to the extent that: (1) state law may differ; or, (2) that state rules or regulations require differences in reporting not related to accounting practices and procedures, according to the best of their information, knowledge and belief, respectively. Furthermore, the scope of this attestation by the described officers also includes the related corresponding electronic filing with the NAIC, when required, that is an exact copy (except for formatting differences due to electronic filing) of the enclosed statement. The electronic filing may be requested by various regulators in lieu of or in addition to the enclosed statement.

Roger William Crandall President and Chief Executive Officer

Akintokunbo Akinbajo Secretary

Julieta Giselle Sinisgalli Treasurer

Subscribed and sworn to before me this day of

- a. Is this an original filing? Yes [X] No []
b. If no,
1. State the amendment number.....
2. Date filed
3. Number of pages attached.....

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

ASSETS

	Current Statement Date			4 December 31 Prior Year Net Admitted Assets
	1 Assets	2 Nonadmitted Assets	3 Net Admitted Assets (Cols. 1 - 2)	
1. Bonds	140,090,475,744		140,090,475,744	136,445,220,548
2. Stocks:				
2.1 Preferred stocks	374,517,690		374,517,690	451,411,752
2.2 Common stocks	26,373,779,126		26,373,779,126	26,159,699,517
3. Mortgage loans on real estate:				
3.1 First liens	24,628,076,336		24,628,076,336	24,971,963,928
3.2 Other than first liens.....				
4. Real estate:				
4.1 Properties occupied by the company (less \$ encumbrances)	354,898,016		354,898,016	364,794,557
4.2 Properties held for the production of income (less \$ 285,000,000 encumbrances)	(17,334,948)		(17,334,948)	(12,001,151)
4.3 Properties held for sale (less \$ encumbrances)	4,547,351		4,547,351	1,954,867
5. Cash (\$353,109,156), cash equivalents (\$ 3,828,647,712) and short-term investments (\$ 1,408,632,177)	5,590,389,045		5,590,389,045	5,568,063,455
6. Contract loans (including \$ premium notes)	15,007,002,391	1,481,385	15,005,521,006	17,053,622,863
7. Derivatives	20,781,317,506		20,781,317,506	22,031,949,832
8. Other invested assets	13,255,399,705	43,190,822	13,212,208,883	12,296,408,175
9. Receivables for securities	2,339,896,640		2,339,896,640	1,865,109,907
10. Securities lending reinvested collateral assets				
11. Aggregate write-ins for invested assets				
12. Subtotals, cash and invested assets (Lines 1 to 11)	248,782,964,602	44,672,207	248,738,292,395	247,198,198,250
13. Title plants less \$ charged off (for Title insurers only)				
14. Investment income due and accrued	4,019,142,495	515,484	4,018,627,011	4,222,914,360
15. Premiums and considerations:				
15.1 Uncollected premiums and agents' balances in the course of collection	149,506,754		149,506,754	186,722,600
15.2 Deferred premiums, agents' balances and installments booked but deferred and not yet due (including \$ earned but unbilled premiums)	1,040,088,229		1,040,088,229	1,094,164,269
15.3 Accrued retrospective premiums (\$) and contracts subject to redetermination (\$)				
16. Reinsurance:				
16.1 Amounts recoverable from reinsurers	74,911,159	1,536,334	73,374,825	88,995,295
16.2 Funds held by or deposited with reinsured companies				
16.3 Other amounts receivable under reinsurance contracts	34,532,205		34,532,205	43,583,724
17. Amounts receivable relating to uninsured plans				
18.1 Current federal and foreign income tax recoverable and interest thereon	65,582,338		65,582,338	231,372,985
18.2 Net deferred tax asset	1,519,926,952	32,618,248	1,487,308,703	1,229,269,939
19. Guaranty funds receivable or on deposit	6,724,307		6,724,307	7,033,020
20. Electronic data processing equipment and software	256,391,805	243,515,486	12,876,319	8,472,305
21. Furniture and equipment, including health care delivery assets (\$)	39,723,897	39,723,897		
22. Net adjustment in assets and liabilities due to foreign exchange rates				
23. Receivables from parent, subsidiaries and affiliates	111,155,136		111,155,136	102,982,322
24. Health care (\$) and other amounts receivable				
25. Aggregate write-ins for other than invested assets	4,689,951,660	1,841,016,849	2,848,934,811	2,752,226,577
26. Total assets excluding Separate Accounts, Segregated Accounts and Protected Cell Accounts (Lines 12 to 25)	260,790,601,538	2,203,598,505	258,587,003,033	257,165,935,646
27. From Separate Accounts, Segregated Accounts and Protected Cell Accounts	54,204,536,253		54,204,536,253	53,413,804,658
28. Total (Lines 26 and 27)	314,995,137,791	2,203,598,505	312,791,539,286	310,579,740,304
DETAILS OF WRITE-INS				
1101.				
1102.				
1103.				
1198. Summary of remaining write-ins for Line 11 from overflow page				
1199. Totals (Lines 1101 through 1103 plus 1198)(Line 11 above)				
2501. Corporate owned life insurance	2,719,206,861		2,719,206,861	2,620,529,124
2502. Fully refundable deposits, prepayments and miscellaneous assets	99,274,063	30,714,248	68,559,814	71,442,867
2503. Employee insurance plan advances	41,192,498	3,620	41,188,879	40,252,979
2598. Summary of remaining write-ins for Line 25 from overflow page	1,830,278,238	1,810,298,982	19,979,257	20,001,607
2599. Totals (Lines 2501 through 2503 plus 2598)(Line 25 above)	4,689,951,660	1,841,016,849	2,848,934,811	2,752,226,577

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

LIABILITIES, SURPLUS AND OTHER FUNDS

	1 Current Statement Date	2 December 31 Prior Year
1. Aggregate reserve for life contracts \$ 152,623,363,184 less \$ included in Line 6.3 (including \$ 149,282,088 Modco Reserve)	152,623,363,184	149,267,177,229
2. Aggregate reserve for accident and health contracts (including \$ 0 Modco Reserve)	4,121,696,128	3,949,042,074
3. Liability for deposit-type contracts (including \$ Modco Reserve).....	18,956,195,564	18,089,278,812
4. Contract claims:		
4.1 Life	670,970,140	615,796,468
4.2 Accident and health	32,677,757	33,189,613
5. Policyholders' dividends/refunds to members \$ 9,025,533 and coupons \$ due and unpaid	9,025,533	8,979,074
6. Provision for policyholders' dividends, refunds to members and coupons payable in following calendar year - estimated amounts:		
6.1 Policyholders' dividends and refunds to members apportioned for payment (including \$ Modco)	1,982,710,321	1,918,216,473
6.2 Policyholders' dividends and refunds to members not yet apportioned (including \$ Modco)		
6.3 Coupons and similar benefits (including \$ Modco)		
7. Amount provisionally held for deferred dividend policies not included in Line 6		
8. Premiums and annuity considerations for life and accident and health contracts received in advance less \$ discount; including \$ 11,770,025 accident and health premiums	60,299,850	42,225,488
9. Contract liabilities not included elsewhere:		
9.1 Surrender values on canceled contracts		
9.2 Provision for experience rating refunds, including the liability of \$ accident and health experience rating refunds of which \$ is for medical loss ratio rebate per the Public Health Service Act	15,414,977	9,442,289
9.3 Other amounts payable on reinsurance, including \$ (2,356,314) assumed and \$ 249,655,334 ceded	247,299,020	48,081,237
9.4 Interest Maintenance Reserve		
10. Commissions to agents due or accrued-life and annuity contracts \$ 13,209,767 , accident and health \$ 128,328 and deposit-type contract funds \$ 0	13,338,095	16,379,844
11. Commissions and expense allowances payable on reinsurance assumed	3,363,641	3,196,883
12. General expenses due or accrued	867,238,800	1,108,191,181
13. Transfers to Separate Accounts due or accrued (net) (including \$ (61,209,840) accrued for expense allowances recognized in reserves, net of reinsured allowances)	(75,840,223)	(69,697,466)
14. Taxes, licenses and fees due or accrued, excluding federal income taxes	63,246,044	70,204,377
15.1 Current federal and foreign income taxes, including \$ on realized capital gains (losses)		
15.2 Net deferred tax liability		
16. Unearned investment income	257,845,362	246,340,792
17. Amounts withheld or retained by reporting entity as agent or trustee	(3,841,699)	3,398,273
18. Amounts held for agents' account, including \$ agents' credit balances	393,257,670	364,955,431
19. Remittances and items not allocated	2,316,279,027	2,614,943,056
20. Net adjustment in assets and liabilities due to foreign exchange rates		
21. Liability for benefits for employees and agents if not included above	230,809,612	218,843,513
22. Borrowed money \$ 49,884,072 and interest thereon \$ 0	49,884,072	249,516,715
23. Dividends to stockholders declared and unpaid		
24. Miscellaneous liabilities:		
24.01 Asset valuation reserve	5,680,512,401	5,674,344,857
24.02 Reinsurance in unauthorized and certified (\$) companies	240,013	109,902
24.03 Funds held under reinsurance treaties with unauthorized and certified (\$) reinsurers	9,966,013,064	10,344,839,427
24.04 Payable to parent, subsidiaries and affiliates	35,898,465	33,217,754
24.05 Drafts outstanding		
24.06 Liability for amounts held under uninsured plans		
24.07 Funds held under coinsurance	11,352,208,241	11,570,969,538
24.08 Derivatives	13,621,494,897	14,002,945,928
24.09 Payable for securities	524,446,554	23,308,806
24.10 Payable for securities lending		
24.11 Capital notes \$ and interest thereon \$		
25. Aggregate write-ins for liabilities	7,779,682,449	8,897,737,697
26. Total liabilities excluding Separate Accounts business (Lines 1 to 25)	231,795,728,959	229,355,175,264
27. From Separate Accounts Statement	54,072,844,040	53,283,506,525
28. Total liabilities (Lines 26 and 27)	285,868,572,999	282,638,681,789
29. Common capital stock		
30. Preferred capital stock		
31. Aggregate write-ins for other than special surplus funds		
32. Surplus notes	5,000,961,848	5,025,961,848
33. Gross paid in and contributed surplus		
34. Aggregate write-ins for special surplus funds	3,250,000	3,250,000
35. Unassigned funds (surplus)	21,918,754,439	22,911,846,667
36. Less treasury stock, at cost:		
36.1 shares common (value included in Line 29 \$)		
36.2 shares preferred (value included in Line 30 \$)		
37. Surplus (Total Lines 31+32+33+34+35-36) (including \$ 131,692,213 in Separate Accounts Statement)	26,922,966,287	27,941,058,515
38. Totals of Lines 29, 30 and 37	26,922,966,287	27,941,058,515
39. Totals of Lines 28 and 38 (Page 2, Line 28, Col. 3)	312,791,539,286	310,579,740,304
DETAILS OF WRITE-INS		
2501. Repurchase agreements	2,915,964,842	3,047,903,647
2502. Derivative collateral	2,610,982,333	4,065,226,774
2503. Derivative accrued interest	2,099,574,283	1,688,803,934
2598. Summary of remaining write-ins for Line 25 from overflow page	153,160,991	95,803,342
2599. Totals (Lines 2501 through 2503 plus 2598)(Line 25 above)	7,779,682,449	8,897,737,697
3101.		
3102.		
3103.		
3198. Summary of remaining write-ins for Line 31 from overflow page		
3199. Totals (Lines 3101 through 3103 plus 3198)(Line 31 above)		
3401. Designated surplus for group annuities	2,500,000	2,500,000
3402. Designated surplus for separate account business	750,000	750,000
3403.		
3498. Summary of remaining write-ins for Line 34 from overflow page		
3499. Totals (Lines 3401 through 3403 plus 3498)(Line 34 above)	3,250,000	3,250,000

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SUMMARY OF OPERATIONS

	1 Current Year To Date	2 Prior Year To Date	3 Prior Year Ended December 31
1. Premiums and annuity considerations for life and accident and health contracts	10,930,262,939	10,640,267,307	23,496,212,326
2. Considerations for supplementary contracts with life contingencies	10,156,954	14,736,939	27,567,010
3. Net investment income	4,862,813,846	4,461,024,886	9,352,723,221
4. Amortization of Interest Maintenance Reserve (IMR)	(27,776,827)	41,456,967	(50,411,515)
5. Separate Accounts net gain from operations excluding unrealized gains or losses	1,106,022	(102,062)	(283,027)
6. Commissions and expense allowances on reinsurance ceded	222,245,722	236,814,264	517,503,640
7. Reserve adjustments on reinsurance ceded	(5,016,266)	(2,115,280)	(10,510,838)
8. Miscellaneous Income:			
8.1 Income from fees associated with investment management, administration and contract guarantees from Separate Accounts	119,167,348	129,677,415	253,571,520
8.2 Charges and fees for deposit-type contracts			
8.3 Aggregate write-ins for miscellaneous income	151,863,783	105,295,509	378,492,917
9. Totals (Lines 1 to 8.3)	16,264,823,521	15,627,055,945	33,964,865,254
10. Death benefits	1,364,868,363	1,150,125,440	2,350,724,281
11. Matured endowments (excluding guaranteed annual pure endowments)	4,279,221	6,502,997	11,816,394
12. Annuity benefits	1,298,136,548	1,213,743,210	2,421,218,480
13. Disability benefits and benefits under accident and health contracts	183,254,175	193,652,630	377,457,003
14. Coupons, guaranteed annual pure endowments and similar benefits			
15. Surrender benefits and withdrawals for life contracts	7,225,870,607	6,920,848,571	11,269,837,564
16. Group conversions			
17. Interest and adjustments on contract or deposit-type contract funds	262,216,873	197,971,701	445,727,374
18. Payments on supplementary contracts with life contingencies	18,109,386	11,959,795	22,596,551
19. Increase in aggregate reserves for life and accident and health contracts	3,362,146,862	5,333,746,586	14,851,696,792
20. Totals (Lines 10 to 19)	13,718,882,036	15,028,550,031	31,751,074,439
21. Commissions on premiums, annuity considerations, and deposit-type contract funds (direct business only)	622,941,377	604,372,415	1,272,188,934
22. Commissions and expense allowances on reinsurance assumed	24,562,719	22,670,842	51,585,286
23. General insurance expenses and fraternal expenses	1,101,930,262	1,033,490,301	2,189,838,511
24. Insurance taxes, licenses and fees, excluding federal income taxes	178,991,977	173,161,366	310,306,868
25. Increase in loading on deferred and uncollected premiums	(22,963,562)	(1,584,767)	37,402,641
26. Net transfers to or (from) Separate Accounts net of reinsurance	(743,470,237)	(2,699,680,820)	(4,594,734,614)
27. Aggregate write-ins for deductions	520,265,525	288,391,672	699,949,747
28. Totals (Lines 20 to 27)	15,401,140,097	14,449,371,041	31,717,611,813
29. Net gain from operations before dividends to policyholders and federal income taxes (Line 9 minus Line 28)	863,683,424	1,177,684,905	2,247,253,442
30. Dividends to policyholders and refunds to members	921,185,612	871,175,784	1,905,770,356
31. Net gain from operations after dividends to policyholders, refunds to members and before federal income taxes (Line 29 minus Line 30)	(57,502,188)	306,509,120	341,483,085
32. Federal and foreign income taxes incurred (excluding tax on capital gains)	133,930,533	17,955,209	(64,368,788)
33. Net gain from operations after dividends to policyholders, refunds to members and federal income taxes and before realized capital gains or (losses) (Line 31 minus Line 32)	(191,432,720)	288,553,911	405,851,873
34. Net realized capital gains (losses) (excluding gains (losses) transferred to the IMR) less capital gains tax of \$ (79,043,551) (excluding taxes of \$ (75,405,434) transferred to the IMR)	(443,205,699)	54,030,087	326,388,986
35. Net income (Line 33 plus Line 34)	(634,638,419)	342,583,999	732,240,859
CAPITAL AND SURPLUS ACCOUNT			
36. Capital and surplus, December 31, prior year	27,941,058,515	26,979,255,991	26,979,255,991
37. Net income (Line 35)	(634,638,419)	342,583,999	732,240,859
38. Change in net unrealized capital gains (losses) less capital gains tax of \$ (82,358,149)	(534,988,832)	1,063,323,435	870,357,676
39. Change in net unrealized foreign exchange capital gain (loss)	207,514,263	(1,447,193,056)	(1,739,307,186)
40. Change in net deferred income tax	263,415,736	274,336,756	661,575,651
41. Change in nonadmitted assets	(239,285,162)	17,310,332	(562,886,836)
42. Change in liability for reinsurance in unauthorized and certified companies	(130,111)	7,193	12,520
43. Change in reserve on account of change in valuation basis, (increase) or decrease			(12,275,243)
44. Change in asset valuation reserve	(6,167,544)	689,941,166	739,839,478
45. Change in treasury stock			
46. Surplus (contributed to) withdrawn from Separate Accounts during period			(3)
47. Other changes in surplus in Separate Accounts Statement	288,058	(13,832,198)	(16,892,260)
48. Change in surplus notes	(25,000,000)	(25,000,000)	412,500,000
49. Cumulative effect of changes in accounting principles			
50. Capital changes:			
50.1 Paid in			
50.2 Transferred from surplus (Stock Dividend)			
50.3 Transferred to surplus			
51. Surplus adjustment:			
51.1 Paid in			
51.2 Transferred to capital (Stock Dividend)			
51.3 Transferred from capital			
51.4 Change in surplus as a result of reinsurance			
52. Dividends to stockholders			
53. Aggregate write-ins for gains and losses in surplus	(49,100,218)	(153,866,119)	(123,362,131)
54. Net change in capital and surplus for the year (Lines 37 through 53)	(1,018,092,228)	747,611,508	961,802,524
55. Capital and surplus, as of statement date (Lines 36 + 54)	26,922,966,287	27,726,867,499	27,941,058,515
DETAILS OF WRITE-INS			
08.301. Change in corporate owned life insurance asset	98,677,738	(47,651,382)	(51,864,798)
08.302. Management and administrative fees	47,972,931	147,790,483	208,945,821
08.303. Revenue sharing	45,694,261	13,609,453	42,123,388
08.398. Summary of remaining write-ins for Line 8.3 from overflow page	(40,481,146)	(8,453,046)	179,288,505
08.399. Totals (Lines 08.301 through 08.303 plus 08.398) (Line 8.3 above)	151,863,783	105,295,509	378,492,917
2701. Ceded income on funds withheld	503,145,875	420,763,579	806,904,305
2702. Change in liability for employee/agent benefit plans	48,693,625	(76,230,804)	(69,342,932)
2703. Miscellaneous charges to operations	(31,233,510)	20,803,003	28,069,282
2798. Summary of remaining write-ins for Line 27 from overflow page	(340,465)	(76,944,106)	(65,680,909)
2799. Totals (Lines 2701 through 2703 plus 2798)(Line 27 above)	520,265,525	288,391,672	699,949,747
5301. Other changes in surplus	(48,759,753)	(75,140,181)	(43,668,847)
5302. Deferred gain on reinsurance ceded	(340,465)	(78,725,939)	(120,008,304)
5303. Change in minimum pension liability			40,315,020
5398. Summary of remaining write-ins for Line 53 from overflow page			
5399. Totals (Lines 5301 through 5303 plus 5398)(Line 53 above)	(49,100,218)	(153,866,119)	(123,362,131)

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

CASH FLOW

	1 Current Year To Date	2 Prior Year To Date	3 Prior Year Ended December 31
Cash from Operations			
1. Premiums collected net of reinsurance	11,110,285,492	10,809,329,757	23,358,051,170
2. Net investment income	5,685,487,510	4,368,040,029	8,171,862,985
3. Miscellaneous income	468,898,415	597,190,555	1,360,990,422
4. Total (Lines 1 to 3)	17,264,671,417	15,774,560,341	32,890,904,577
5. Benefit and loss related payments	10,311,976,823	9,741,541,701	16,698,464,149
6. Net transfers to Separate Accounts, Segregated Accounts and Protected Cell Accounts	(745,410,443)	(3,044,014,924)	(4,947,039,344)
7. Commissions, expenses paid and aggregate write-ins for deductions	2,528,755,443	2,609,999,430	5,291,765,427
8. Dividends paid to policyholders	860,296,080	825,788,846	1,806,389,059
9. Federal and foreign income taxes paid (recovered) net of \$ 697,168 tax on capital gains (losses)	(190,272,361)	(11,837,883)	(5,309,882)
10. Total (Lines 5 through 9)	12,765,345,542	10,121,477,170	18,844,269,409
11. Net cash from operations (Line 4 minus Line 10)	4,499,325,875	5,653,083,171	14,046,635,168
Cash from Investments			
12. Proceeds from investments sold, matured or repaid:			
12.1 Bonds	10,774,629,764	15,491,193,700	28,498,075,523
12.2 Stocks	48,506,733	226,965,743	494,712,547
12.3 Mortgage loans	1,448,891,169	2,449,754,755	3,783,955,926
12.4 Real estate		196,301,472	176,722,654
12.5 Other invested assets	623,371,459	799,040,859	2,909,717,338
12.6 Net gains or (losses) on cash, cash equivalents and short-term investments	(192,672,623)	(37,830,143)	(142,216,262)
12.7 Miscellaneous proceeds	(445,173,771)	(978,413,837)	(896,854,827)
12.8 Total investment proceeds (Lines 12.1 to 12.7)	12,257,552,731	18,147,012,549	34,824,112,899
13. Cost of investments acquired (long-term only):			
13.1 Bonds	14,308,672,539	21,476,667,567	43,002,751,228
13.2 Stocks	273,095,603	491,068,772	1,195,896,346
13.3 Mortgage loans	1,050,363,621	1,139,550,061	2,094,819,588
13.4 Real estate	2,997,090	47,217,757	13,292,853
13.5 Other invested assets	1,552,570,898	1,590,345,767	3,932,315,900
13.6 Miscellaneous applications	(435,131,571)	(78,813,383)	256,328,689
13.7 Total investments acquired (Lines 13.1 to 13.6)	16,752,568,180	24,666,036,541	50,495,404,604
14. Net increase (or decrease) in contract loans and premium notes	(2,047,205,111)	88,020,905	934,865,632
15. Net cash from investments (Line 12.8 minus Line 13.7 and Line 14)	(2,447,810,338)	(6,607,044,897)	(16,606,157,337)
Cash from Financing and Miscellaneous Sources			
16. Cash provided (applied):			
16.1 Surplus notes, capital notes	(25,000,000)	(25,000,000)	412,500,000
16.2 Capital and paid in surplus, less treasury stock			
16.3 Borrowed funds	(199,281,878)	(292,868)	(904,826)
16.4 Net deposits on deposit-type contracts and other insurance liabilities	735,013,570	610,761,682	806,327,920
16.5 Dividends to stockholders			
16.6 Other cash provided (applied)	(2,539,921,639)	226,110,529	966,863,256
17. Net cash from financing and miscellaneous sources (Line 16.1 through Line 16.4 minus Line 16.5 plus Line 16.6)	(2,029,189,947)	811,579,343	2,184,786,350
RECONCILIATION OF CASH, CASH EQUIVALENTS AND SHORT-TERM INVESTMENTS			
18. Net change in cash, cash equivalents and short-term investments (Line 11, plus Lines 15 and 17)	22,325,590	(142,382,384)	(374,735,819)
19. Cash, cash equivalents and short-term investments:			
19.1 Beginning of year	5,568,063,455	5,942,799,274	5,942,799,274
19.2 End of period (Line 18 plus Line 19.1)	5,590,389,045	5,800,416,890	5,568,063,455

Note: Supplemental disclosures of cash flow information for non-cash transactions:

20.0001. Bond conversions and refinancing	199,846,455	289,443,969	1,177,449,074
20.0002. Stock conversion	167,785,455	6,847,236	12,903,518
20.0003. Transfer of bonds to partnerships and LLCs	121,797,363		440,893,701
20.0004. Change in market value of COLI	99,017,375	47,330,329	(46,160,211)
20.0005. Net investment income payment-in-kind bonds	7,279,854	5,022,448	11,713,034
20.0006. Transfer of mortgage loans to bonds	2,801,548		
20.0007. Bonds transferred to mortgage loans			625,966,172
20.0008. Transfer of partnerships to partnerships			619,577,868
20.0009. Transfer of partnerships to common stocks - subsidiaries and affiliates			227,109,719
20.0010. Transfer of partnerships to bonds			187,357,404

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

Note: Supplemental disclosures of cash flow information for non-cash transactions:

20.0011. Transfer of common stocks unaffiliated to common stocks - subsidiaries and affiliates ....	.....	.....	97,458,165
20.0012. Transfer of mortgage loans to partnerships and limited liability companies .....	.....	.....	40,200,000
20.0013. Deferred gain on real estate .....	.....	.....	16,134,760
20.0014. Partnership conversions .....	.....	4,659,155	.....
20.0015. Common stock purchased as consideration for cash equivalents .....	.....	.....	224

EXHIBIT 1

DIRECT PREMIUMS AND DEPOSIT-TYPE CONTRACTS

	1 Current Year To Date	2 Prior Year To Date	3 Prior Year Ended December 31
1. Industrial life			
2. Ordinary life insurance	4,732,641,184	5,410,855,143	11,049,356,155
3. Ordinary individual annuities	5,585,878,812	4,271,307,983	10,415,834,474
4. Credit life (group and individual)			
5. Group life insurance	136,985,513	73,427,559	139,347,566
6. Group annuities	3,501,947,217	7,071,378,660	13,133,132,079
7. A & H - group	269,713	347,413	633,884
8. A & H - credit (group and individual)			
9. A & H - other	385,135,629	378,610,234	764,002,431
10. Aggregate of all other lines of business			
11. Subtotal (Lines 1 through 10)	14,342,858,069	17,205,926,992	35,502,306,589
12. Fraternal (Fraternal Benefit Societies Only)			
13. Subtotal (Lines 11 through 12)	14,342,858,069	17,205,926,992	35,502,306,589
14. Deposit-type contracts	3,458,835,781	2,630,389,340	5,109,590,954
15. Total (Lines 13 and 14)	17,801,693,850	19,836,316,332	40,611,897,543
DETAILS OF WRITE-INS			
1001.			
1002.			
1003.			
1098. Summary of remaining write-ins for Line 10 from overflow page			
1099. Totals (Lines 1001 through 1003 plus 1098)(Line 10 above)			

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NOTES TO FINANCIAL STATEMENTS

Note 1 – Summary of Significant Accounting Policies and Going Concern

a. Accounting practices:

The accompanying financial statements of Massachusetts Mutual Life Insurance Company (the Company) have been prepared in conformity with the Statutory Accounting Practices (SAP) 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).

A reconciliation of the Company's net income and capital and surplus between NAIC SAP and practices prescribed and permitted by the Commonwealth of Massachusetts is shown below:

	SSAP #	F/S Page	F/S Line #	2023	2022
NET INCOME					
(1) State basis (Page 4, Line 35, Columns 1 & 3)	XXX	XXX	XXX	\$ (634,638,419)	\$ 732,240,859
(2) State prescribed practices that increase/(decrease) NAIC	N/A	N/A	N/A	-	-
(3) State permitted practices that increase/(decrease) NAIC	N/A	N/A	N/A	-	-
(4) NAIC SAP (1-2-3=4)	XXX	XXX	XXX	\$ (634,638,419)	\$ 732,240,859
SURPLUS					
(5) State basis (Page 3, Line 38, Columns 1 & 2)	XXX	XXX	XXX	\$ 26,922,966,287	\$ 27,941,058,515
(6) State prescribed practices that increase/(decrease) NAIC	N/A	N/A	N/A	-	-
(7) State permitted practices that increase/(decrease) NAIC	N/A	N/A	N/A	-	-
(8) NAIC SAP (5-6-7=8)	XXX	XXX	XXX	\$ 26,922,966,287	\$ 27,941,058,515

b. Use of estimates in the preparation of the financial statements - No change

c. Accounting policy:

(1) No change

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

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

(3-5) No change

- (6) For loan-backed and structured securities, such as asset-backed securities, mortgage-backed securities, including RMBS and CMBS, and structured securities, including collateralized debt obligations, amortization or accretion is revalued quarterly based on the current estimated cash flows, using either the prospective or retrospective adjustment methodologies.

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

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

(7-14) No change

d. Going concern:

There is not substantial doubt regarding the Company's ability to continue as a going concern.

Note 2 – Accounting Changes and Corrections of Errors

- a. For the six months ended June 30, 2023, 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
Other Liabilities	\$ (43,445,251)	\$ (43,445,251)	\$ 43,445,251
Policyholders' reserves	(127,766,700)	(127,766,700)	127,766,700
Derivative assets	-	(124,676,448)	(124,676,448)
Investment income due and accrued	124,676,448	124,676,448	124,676,448
Derivative liabilities	-	41,513,416	(41,513,416)
Total	\$ (46,535,503)	\$ (129,698,535)	

Of the \$129,698,535 decrease to surplus for prior years' errors, \$46,535,503 was recorded as prior period adjustments and \$83,163,032 was recorded as a change in net realized capital gains (losses), net of taxes.

NOTES TO FINANCIAL STATEMENTS

For the six months ended June 30, 2022, 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
Policyholders' reserves	\$ (73,512,509)	\$ (73,512,509)	\$ 73,512,509
Total	\$ (73,512,509)	\$ (73,512,509)	

Of the \$73,512,509 decrease to surplus for prior years' errors, \$73,512,509 was recorded as prior period adjustments, net of taxes.

- b. Adoption of new accounting standards – No change.

Note 3 – Business Combinations and Goodwill - No change

Note 4 – Discontinued Operations - No change

Note 5 – Investments

- a. Mortgage loans, including mezzanine real estate loans

- (5) Investment in impaired loans with or without allowance for credit losses and impaired loans subject to a participant or co-lender mortgage loan agreement for which the reporting entity is restricted from unilaterally foreclosing on the mortgage loan:

	Residential		Commercial		Mezzanine	Total
	Farm	Insured	All Other	Insured			All Other
a. 2023						
1. With allowance for credit losses	\$ -	\$ -	\$ -	\$ -	\$ 188,056,353	\$ 188,056,353
2. No allowance for credit losses	-	-	-	-	14,383,673	14,383,673
3. Total (1+2)	-	-	-	-	202,440,026	202,440,026
4. Subject to a participant or co-lender mortgage loan agreement for which the reporting entity is restricted from unilaterally foreclosing on the mortgage loan	-	-	-	-	-	-
b. 2022						
1. With allowance for credit losses	\$ -	\$ -	\$ -	\$ -	\$ -	-
2. No allowance for credit losses	-	-	-	-	14,383,673	14,383,673
3. Total (1+2)	-	-	-	-	14,383,673	14,383,673
4. Subject to a participant or co-lender mortgage loan agreement for which the reporting entity is restricted from unilaterally foreclosing on the mortgage loan	-	-	-	-	-	-

NOTES TO FINANCIAL STATEMENTS

- (6) Investment in impaired loans - average recorded investment, interest income recognized, recorded investment on nonaccrual status and amount of interest income recognized using a cash-basis method of accounting:

	Residential			Commercial		Mezzanine	Total
	Farm	Insured	All Other	Insured	All Other		
a. 2023							
1. Average recorded investment	\$ -	\$ -	\$ -	\$ -	14,383,673	\$ -	14,383,673
2. Interest income recognized	-	-	-	-	187,928	-	187,928
3. Recorded investment on nonaccrual status	-	-	-	-	14,383,673	-	14,383,673
4. Amount of interest income recognized using a cash-basis method of accounting	-	-	-	-	-	-	-
b. 2022							
1. Average recorded investment	\$ -	\$ -	\$ -	\$ -	15,399,942	\$ -	15,399,942
2. Interest income recognized	-	-	-	-	774,774	-	774,774
3. Recorded investment on nonaccrual status	-	-	-	-	14,383,673	-	14,383,673
4. Amount of interest income recognized using a cash-basis method of accounting	-	-	-	-	-	-	-

	June 30, 2023	December 31, 2022
(7) Allowance for credit losses:		
a. Balance at beginning of period	\$ 0	0
b. Additions charged to operations	(47,980,338)	(7,291,634)
c. Direct write-downs charged against the allowances	-	3,897,317
d. Recoveries of amounts previously charged off	12,786,072	3,394,317
e. Balance at end of period	<u>\$ (35,194,266)</u>	<u>\$ -</u>

- (8) As of June 30, 2023, the Company did not have any mortgage loans derecognized as a result of foreclosure.

b. Debt restructuring – No change

c. Reverse mortgages – No change

d. Loan-backed securities:

- (1) Prepayment assumptions for loan-backed and structured securities are based on various assumptions and inputs obtained from external industry sources along with internal analysis and actual experience.
- (2) The following contains loan-backed and structured securities that recognized other-than-temporary impairments (OTTI) classified on the following bases for recognizing OTTI:

NOTES TO FINANCIAL STATEMENTS

	(1)	(2)		(3)
	Amortized Cost Basis Before OTTI	OTTI Recognized in Loss		Fair Value 1-(2a+2b)
		(2a)	(2b)	
		Interest	Non-interest	
OTTI recognized in the first quarter				
a. Intent to sell	\$	-	\$	-
b. Inability or lack of intent to retain the investment in the security for a period of time sufficient to recover the amortized cost basis	<u>56,797,190</u>	<u>-</u>	<u>10,797,613</u>	<u>45,999,577</u>
c. Total first quarter	<u>\$ 56,797,190</u>	<u>\$ -</u>	<u>\$ 10,797,613</u>	<u>\$ 45,999,577</u>
OTTI recognized in the second quarter				
d. Intent to sell	\$	-	\$	-
e. Inability or lack of intent to retain the investment in the security for a period of time sufficient to recover the amortized cost basis	<u>16,432,522</u>	<u>-</u>	<u>476,558</u>	<u>15,955,964</u>
f. Total second quarter	<u>\$ 16,432,522</u>	<u>\$ -</u>	<u>\$ 476,558</u>	<u>\$ 15,955,964</u>
OTTI recognized in the third quarter				
g. Intent to sell	\$	-	\$	-
h. Inability or lack of intent to retain the investment in the security for a period of time sufficient to recover the amortized cost basis	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
i. Total third quarter	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
OTTI recognized in the fourth quarter				
j. Intent to sell	\$	-	\$	-
k. Inability or lack of intent to retain the investment in the security for a period of time sufficient to recover the amortized cost basis	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
l. Total fourth quarter	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>
m. Annual aggregate total		<u>\$ -</u>	<u>\$ 11,274,171</u>	

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

- (3) 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.

NOTES TO FINANCIAL STATEMENTS

CUSIP	Amortized Cost before OTTI	Projected Cash Flow	Recognized OTTI	Amortized Cost after OTTI	Fair Value at Time of OTTI	Date of Financial Instrument Where Reported
12624QAC7	\$ 3,512,422	\$ 3,120,715	\$ (391,707)	\$ 3,120,715	\$ 1,664,875	March 31, 2023
12624SAE9	2,546,182	2,252,873	(293,309)	2,252,873	672,000	March 31, 2023
36192RAL6	2,950,000	1,475,000	(1,475,000)	1,475,000	527,313	March 31, 2023
040104RV5	1,466,218	1,404,587	(61,631)	1,404,587	1,357,561	March 31, 2023
040104TF8	44,673	40,179	(4,494)	40,179	34,156	March 31, 2023
040104TG6	471,373	395,907	(75,465)	395,907	442,138	March 31, 2023
04012XAC9	136,023	130,363	(5,660)	130,363	111,736	March 31, 2023
1248MBAF2	12,589,914	5,496,141	(7,093,773)	5,496,141	5,479,168	March 31, 2023
1248MGAJ3	43,914	42,609	(1,305)	42,609	35,260	March 31, 2023
17311YAC7	1,273,018	1,228,216	(44,802)	1,228,216	1,264,914	March 31, 2023
30247DAD3	572,150	552,362	(19,788)	552,362	512,472	March 31, 2023
35729RAE6	3,632,752	3,523,491	(109,261)	3,523,491	3,272,827	March 31, 2023
40431KAE0	2,092,929	2,043,034	(49,895)	2,043,034	2,095,485	March 31, 2023
45071KDD3	419,879	359,858	(60,022)	359,858	365,022	March 31, 2023
46629NAC7	34,588	32,979	(1,610)	32,979	27,783	March 31, 2023
46630KAA4	158,522	155,152	(3,370)	155,152	149,476	March 31, 2023
617463AA2	8,733	7,949	(785)	7,949	6,705	March 31, 2023
61749BAB9	61,518	60,870	(648)	60,870	64,742	March 31, 2023
61750FAE0	412,694	394,112	(18,582)	394,112	366,377	March 31, 2023
61750MAB1	3,264	3,129	(136)	3,129	3,014	March 31, 2023
61755AAB2	3,183	2,639	(544)	2,639	2,526	March 31, 2023
86359DXD4	193,613	183,061	(10,552)	183,061	184,312	March 31, 2023
86363HAB8	36,193	34,244	(1,949)	34,244	30,923	March 31, 2023
92926SAB2	493	381	(111)	381	382	March 31, 2023
93934XAB9	137,528	122,528	(15,000)	122,528	129,850	March 31, 2023
12668ALV5	1,990,831	1,755,977	(234,854)	1,755,977	1,754,077	March 31, 2023
22540VG71	36,270	36,232	(38)	36,232	37,823	March 31, 2023
22943HAD8	3,510,613	3,380,974	(129,638)	3,380,974	1,886,340	March 31, 2023
32053LAA0	19,363	19,262	(101)	19,262	18,644	March 31, 2023
45254TRX4	23,933	23,574	(359)	23,574	23,161	March 31, 2023
45254TSM7	615,674	594,492	(21,182)	594,492	528,927	March 31, 2023
45660LAU3	57,004	56,426	(578)	56,426	55,897	March 31, 2023
45660LYW3	797,875	786,087	(11,788)	786,087	724,845	March 31, 2023
466247XE8	622,921	612,163	(10,758)	612,163	537,075	March 31, 2023
525221AJ6	561,909	502,260	(59,649)	502,260	551,875	March 31, 2023
61915RBZ8	178,926	178,879	(47)	178,879	164,881	March 31, 2023
65535VRK6	479,926	469,432	(10,494)	469,432	495,515	March 31, 2023
75115DAH8	3,502	3,266	(235)	3,266	3,118	March 31, 2023
761118FM5	1,722,865	1,583,656	(139,209)	1,583,656	1,584,522	March 31, 2023
76112BUE8	107,208	96,659	(10,549)	96,659	122,032	March 31, 2023
855541AC2	219,356	180,352	(39,005)	180,352	226,114	March 31, 2023
86359BLQ2	792,449	779,863	(12,586)	779,863	701,652	March 31, 2023
92978EAA2	83,791	81,555	(2,236)	81,555	79,259	March 31, 2023
92979DAA3	15,795	15,379	(416)	15,379	15,469	March 31, 2023
41161PWB5	723,595	713,315	(10,280)	713,315	587,280	March 31, 2023
45660N5H4	1,202,840	1,156,288	(46,553)	1,156,288	1,159,986	March 31, 2023
45660NT88	14,960	14,830	(130)	14,830	14,372	March 31, 2023
92922F5T1	1,438,953	1,412,027	(26,926)	1,412,027	1,244,390	March 31, 2023
939336X65	1,599,517	1,419,593	(179,924)	1,419,593	1,427,509	March 31, 2023
05949CCB0	34,367	34,278	(89)	34,278	35,010	March 31, 2023
32051DCJ9	44,524	44,461	(63)	44,461	43,405	March 31, 2023
36228FWU6	150,442	141,049	(9,393)	141,049	147,677	March 31, 2023
362341VU0	1,530,315	1,520,759	(9,556)	1,520,759	1,428,432	March 31, 2023
36298XAA0	4,788,213	4,743,999	(44,214)	4,743,999	4,501,267	March 31, 2023
5899292N7	48,660	47,935	(724)	47,935	46,874	March 31, 2023
589929N38	42,499	40,236	(2,263)	40,236	39,978	March 31, 2023
59020UNZ4	89,539	75,877	(13,662)	75,877	85,656	March 31, 2023
86359DME4	439,975	415,180	(24,794)	415,180	400,433	March 31, 2023
92922ZF6	6,804	883	(5,921)	883	3,055	March 31, 2023
00442FAB8	50,571	38,681	(11,890)	38,681	8,265	June 30, 2023
040104RV5	1,421,615	1,379,721	(41,894)	1,379,721	1,316,932	June 30, 2023
1248MGAJ3	42,545	42,165	(380)	42,165	34,889	June 30, 2023

NOTES TO FINANCIAL STATEMENTS

17311YAC7	1,241,873	1,206,602	(35,271)	1,206,602	1,232,111	June 30, 2023
40431KAE0	2,053,478	2,006,843	(46,635)	2,006,843	2,030,117	June 30, 2023
45071KDD3	360,529	358,225	(2,304)	358,225	357,570	June 30, 2023
61750FAE0	396,971	394,270	(2,701)	394,270	358,577	June 30, 2023
84752CAE7	555,369	510,004	(45,365)	510,004	679,671	June 30, 2023
86359DXD4	182,513	169,184	(13,329)	169,184	170,546	June 30, 2023
92926SAB2	385	380	(5)	380	379	June 30, 2023
12667FYL3	212,185	199,941	(12,244)	199,941	201,624	June 30, 2023
12669FKR3	40,116	37,606	(2,510)	37,606	37,952	June 30, 2023
18974BAA7	131,289	130,311	(978)	130,311	133,783	June 30, 2023
18974BAN9	67,323	64,834	(2,489)	64,834	69,970	June 30, 2023
22540VG71	35,173	35,094	(79)	35,094	35,963	June 30, 2023
23321P6A1	1,405,020	1,371,044	(33,976)	1,371,044	1,329,368	June 30, 2023
32053LAA0	18,926	18,853	(72)	18,853	18,262	June 30, 2023
45660LAU3	69,258	65,015	(4,243)	65,015	67,725	June 30, 2023
466247XE8	578,949	575,151	(3,797)	575,151	499,997	June 30, 2023
525221AJ6	502,913	502,636	(277)	502,636	524,046	June 30, 2023
61915RBZ8	173,679	173,638	(41)	173,638	155,279	June 30, 2023
86358HHX0	176,678	173,936	(2,743)	173,936	129,387	June 30, 2023
92978EAA2	80,634	80,479	(156)	80,479	72,910	June 30, 2023
93935PAH2	112,081	105,729	(6,352)	105,729	109,259	June 30, 2023
05946XYP2	267,693	266,462	(1,231)	266,462	225,954	June 30, 2023
86360UAF3	977,832	929,807	(48,026)	929,807	761,473	June 30, 2023
92922FWU8	357,222	355,654	(1,568)	355,654	335,837	June 30, 2023
12669GTE1	4,194	3,937	(257)	3,937	4,201	June 30, 2023
32051DCJ9	41,478	41,458	(20)	41,458	39,754	June 30, 2023
36298XAA0	4,842,551	4,688,750	(153,800)	4,688,750	4,460,917	June 30, 2023
92922FBW7	31,480	29,553	(1,927)	29,553	29,205	June 30, 2023
Totals	\$ 73,229,712	\$ 61,955,542	\$ (11,274,171)	\$ 61,955,542	\$ 54,909,491	

- (4) As of June 30, 2023, the gross unrealized losses and fair values for investments in structured and loan-backed securities for which an OTTI has not been recognized in earnings is as follows:
- a. The aggregate amount of unrealized losses:
 1. Less than 12 months \$ (112,236,393)
 2. 12 months or longer \$ (1,480,902,324)
 - b. The aggregate related fair value of securities with unrealized losses:
 1. Less than 12 months \$ 3,081,052,154
 2. 12 months or longer \$ 16,790,422,184

(5) No change

e. Dollar repurchase agreements and/or securities lending transactions: The Company did not have any dollar repurchase agreements and/or securities lending transactions as of June 30, 2023.

f. Repurchase agreements transactions accounted for as secured borrowing:

- (1) 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.

(2) Type of Repo Trades Used

	1 FIRST QUARTER	2 SECOND QUARTER	3 THIRD QUARTER	4 FOURTH QUARTER
a. Bilateral (YES/NO)	YES	YES		
b. Tri-Party (YES/NO)	NO	NO		

NOTES TO FINANCIAL STATEMENTS

(3) Original (Flow) & Residual Maturity

	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
a. Maximum Amount				
1. Open – No Maturity	-	-	-	-
2. Overnight	-	-	-	-
3. 2 Days to 1 Week	-	-	-	-
4. > 1 Week to 1 Month	\$ 771,927,581	\$ 596,000,000	\$ -	\$ -
5. > 1 Month to 3 Months	\$ 3,053,763,802	\$ 3,614,915,774	\$ -	\$ -
7. > 1 Year	-	-	-	-

	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
b. Ending Balance				
1. Open – No Maturity	-	-	-	-
2. Overnight	-	-	-	-
3. 2 Days to 1 Week	-	-	-	-
4. > 1 Week to 1 Month	\$ 397,625,000	\$ -	\$ -	\$ -
5. > 1 Month to 3 Months	\$ 2,144,361,728	\$ 2,910,202,261	\$ -	\$ -
7. > 1 Year	-	-	-	-

(4) The company did not have any repurchase agreements where securities sold and/or acquired resulted in default as of June 30, 2023.

(5) Securities "Sold" Under Repo – Secured Borrowing

	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
a. Maximum Amount				
1. BACV	XXX	XXX	XXX	XXX
2. Nonadmitted - Subset of BACV	XXX	XXX	XXX	XXX
3. Fair Value	\$ 3,053,763,802	\$ 3,614,915,774	\$ -	\$ -

	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
b. Ending Balance				
1. BACV	\$ 3,018,615,774	\$ 2,910,202,261	\$ -	\$ -
2. Nonadmitted - Subset of BACV	-	-	-	-
3. Fair Value	\$ 3,018,615,774	\$ 2,910,202,261	\$ -	\$ -

(6) Securities Sold Under Repo – Secured Borrowing by NAIC Designation

ENDING BALANCE		1 NONE	2 NAIC 1	3 NAIC 2	4 NAIC 3
a.	Bonds - BACV	\$ -	\$ 2,910,202,261	\$ -	\$ -
b.	Bonds - FV	\$ -	\$ 2,910,202,261	\$ -	\$ -
c.	LB & SS - BACV	-	-	-	-
d.	LB & SS - FV	-	-	-	-
e.	Preferred Stock - BACV	-	-	-	-
f.	Preferred Stock - FV	-	-	-	-
g.	Common Stock	-	-	-	-
h.	Mortgage Loans - BACV	-	-	-	-
i.	Mortgage Loans - FV	-	-	-	-
j.	Real Estate - BACV	-	-	-	-
k.	Real Estate - FV	-	-	-	-
l.	Derivatives - BACV	-	-	-	-
m.	Derivatives - FV	-	-	-	-
n.	Other Invested Assets - BACV	-	-	-	-
o.	Other Invested Assets - FV	-	-	-	-
p.	Total Assets - BACV	\$ -	\$ 2,910,202,261	\$ -	\$ -
q.	Total Assets - FV	\$ -	\$ 2,910,202,261	\$ -	\$ -

ENDING BALANCE		5 NAIC 4	6 NAIC 5	7 NAIC 6	8 NON- ADMITTED
a.	Bonds - BACV	-	-	-	-
b.	Bonds - FV	-	-	-	-
c.	LB & SS - BACV	-	-	-	-
d.	LB & SS - FV	-	-	-	-
e.	Preferred Stock - BACV	-	-	-	-
f.	Preferred Stock - FV	-	-	-	-
g.	Common Stock	-	-	-	-
h.	Mortgage Loans - BACV	-	-	-	-
i.	Mortgage Loans - FV	-	-	-	-
j.	Real Estate - BACV	-	-	-	-
k.	Real Estate - FV	-	-	-	-
l.	Derivatives - BACV	-	-	-	-
m.	Derivatives - FV	-	-	-	-
n.	Other Invested Assets - BACV	-	-	-	-
o.	Other Invested Assets - FV	-	-	-	-
p.	Total Assets - BACV	-	-	-	-
q.	Total Assets - FV	-	-	-	-

$$p=a+c+e+g+h+j+l+n$$

$$q=b+d+f+g+i+k+m+o$$

NOTES TO FINANCIAL STATEMENTS

(7) Collateral Received - Secured Borrowing

	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
a. Maximum Amount				
1. Cash	\$ 129,727,704	\$ 88,818,692	\$ -	\$ -
2. Securities (FV)	\$ 3,065,998,409	\$ 3,030,633,372	\$ -	\$ -
b. Ending Balance				
1. Cash	\$ 18,780,877	\$ 4,295,004	\$ -	\$ -
2. Securities (FV)	\$ 3,021,946,900	\$ 2,918,204,480	\$ -	\$ -

(8) Cash & Non-Cash Collateral Received – Secured Borrowing by NAIC Designation

ENDING BALANCE		1 NONE	2 NAIC 1	3 NAIC 2	4 NAIC 3
a.	Cash	\$ 4,295,004	\$ -	\$ -	\$ -
b.	Bonds - FV	-	2,918,204,480	-	-
c.	LB & SS - FV	-	-	-	-
d.	Preferred Stock - FV	-	-	-	-
e.	Common Stock	-	-	-	-
f.	Mortgage Loans - FV	-	-	-	-
g.	Real Estate - FV	-	-	-	-
h.	Derivatives - FV	-	-	-	-
i.	Other Invested Assets - FV	-	-	-	-
j.	Total Collateral Assets - FV (Sum of a through i)	\$ 4,295,004	\$ 2,918,204,480	\$ -	\$ -

ENDING BALANCE		5 NAIC 4	6 NAIC 5	7 NAIC 6	8 DOES NOT QUALIFY AS ADMITTED
a.	Cash	\$ -	\$ -	\$ -	\$ -
b.	Bonds - FV	-	-	-	-
c.	LB & SS - FV	-	-	-	-
d.	Preferred Stock - FV	-	-	-	-
e.	Common Stock	-	-	-	-
f.	Mortgage Loans - FV	-	-	-	-
g.	Real Estate - FV	-	-	-	-
h.	Derivatives - FV	-	-	-	-
i.	Other Invested Assets - FV	-	-	-	-
j.	Total Collateral Assets - FV (Sum of a through i)	\$ -	\$ -	\$ -	\$ -

(9) Allocation of Aggregate Collateral by Remaining Contractual Maturity

	FAIR VALUE
a. Overnight and Continuous	\$ -
b. 30 Days or Less	\$ 91,692,308
c. 31 to 90 Days	\$ 2,925,452,298
d. > 90 Days	\$ -

(10) The company did not have any repurchase agreements where cash collateral received was reinvested as of June 30, 2023.

(11) Liability to Return Collateral – Secured Borrowing (Total)

	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
a. Maximum Amount				
1. Cash (Collateral – All)	\$ 129,727,704	\$ 88,818,692	\$ -	\$ -
2. Securities Collateral (FV)	\$ 3,065,998,409	\$ 3,030,633,372	\$ -	\$ -
b. Ending Balance				
1. Cash (Collateral – All)	\$ 18,780,877	\$ 4,295,004	\$ -	\$ -
2. Securities Collateral (FV)	\$ 3,021,946,900	\$ 2,918,204,480	\$ -	\$ -

- g. Reverse repurchase agreements transactions accounted for as secured borrowing: The Company did not have any reverse repurchase agreements transactions accounted for as secured borrowing as of June 30, 2023.
- h. Repurchase agreements transactions accounted for as a sale: The Company did not have any repurchase agreements transactions accounted for as a sale as of June 30, 2023.
- i. Reverse repurchase agreements transactions accounted for as a sale: The Company did not have any reverse repurchase agreements transactions accounted for as a sale as of June 30, 2023.
- j. Real estate - No change
- k. Low-income housing tax credit - No change
- l. Restricted assets - No change
- m. Working capital finance investments: The Company did not invest in working capital finance investments as of June 30, 2023.
- n. Offsetting and netting of assets and liabilities: The Company reports derivative and repurchase agreement assets and liabilities as gross in the financial statements without offsetting as of June 30, 2023.

NOTES TO FINANCIAL STATEMENTS

o. 5GI Securities:

Investment	Number of 5GI Securities		Aggregate BACV		Aggregate Fair Value	
	Current Year	Prior Year	Current Year	Prior Year	Current Year	Prior Year
(1) Bonds - AC	210	191	\$1,544,059,774	\$1,456,580,250	\$1,500,209,698	\$1,434,388,058
(2) LB&SS - AC						
(3) Preferred Stock - AC	3	3	7,129,836	7,014,496	11,719,911	9,920,777
(4) Preferred Stock - FV	1		11,873		11,873	
(5) Total (1+2+3+4)	214	194	\$1,551,201,483	\$1,463,594,746	\$1,511,941,482	\$1,444,308,835

AC - Amortized Cost FV - Fair Value

p. Short sales - The Company does not engage in short sale transactions.

q. Prepayment penalty and acceleration fees:

	Six Months Ended June 30, 2023	
	General Account	Separate Account
1. Number of CUSIPS	12	1
2. Aggregate amount of investment income	\$ 368,725	\$ 5,594

r. Reporting entity's share of cash pool by asset type – The Company does not have cash in a qualified cash pool.

Note 6 – Joint Ventures, Partnerships and Limited Liability Companies - No change**Note 7 – Investment Income** – No change**Note 8 – Derivative Instruments**

a. The Company did not have any deferred derivative premium payments under SSAP No. 86.

b. The Company did not account for any derivatives under SSAP No. 108.

Note 9 – Income Taxes – No change**Note 10 – Information Concerning Parent, Subsidiaries and Affiliates**

a-c. MassMutual Holding LLC (MMHLLC) paid \$730,000,000 in dividends to MassMutual for the six months ended June 30, 2023, \$450,000,000 of which were declared in 2022, and paid \$604,000,000 in dividends to MassMutual for the six months ended June 30, 2022, which were declared in 2021.

MassMutual contributed capital of \$53,150,245 to MMHLLC for the six months ended June 30, 2023 and \$218,807,953 for the six months ended June 30, 2022.

In May 2023, MassMutual made capital contributions of \$25,000,000 to ITPS Holding LLC.

In March 2023, MassMutual made capital contributions of \$87,814,303 to MassMutual Mortgage Lending LLC, \$50,000,000 to MMIH Bond Holdings LLC, and \$13,100,000 to MML CM LLC.

In February 2023, MassMutual made capital contributions of \$45,000,000 to ITPS Holding LLC.

d-f. No change

g. 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 surplus for a particular period depending upon, among other factors, the size of the loss and the level of the Company's changes in surplus for the period.

The Company has no parent.

h-o. No change

Note 11 – Debt

a. No change

b. Federal Home Loan Bank agreements:

(1) The Company is a member of the Federal Home Loan Bank of Boston (FHLB Boston). Through its membership, the Company has conducted business activity (borrowings) with the FHLB Boston. The Company uses these funding agreements with the FHLB Boston in an investment spread strategy, consistent with its other investment spread operations. The Company has determined the actual maximum borrowing capacity as \$6,000,000,000. The Company's unused capacity was \$3,889,469,017 as of June 30, 2023.

NOTES TO FINANCIAL STATEMENTS

(2) FHLB Boston capital stock

a. Aggregate totals:

		June 30, 2023		
		1 Total 2+3	2 General Account	3 Separate Account
1. Current Year:				
(a) Membership stock - Class A	\$	-	-	-
(b) Membership stock - Class B		5,000,000	5,000,000	-
(c) Activity Stock		84,000,000	84,000,000	-
(d) Excess Stock		2,670,000	2,670,000	-
(e) Aggregate Total		<u>\$ 91,670,000</u>	<u>\$ 91,670,000</u>	<u>\$ -</u>
(f) Actual or Estimated Borrowing Capacity as Determined by the Insurer	\$	6,000,000,000	\$ 6,000,000,000	\$ -
2. Prior Year-end:				
(a) Membership stock - Class A	\$	-	-	-
(b) Membership stock - Class B		5,000,000	5,000,000	-
(c) Activity Stock		84,000,000	84,000,000	-
(d) Excess Stock		2,670,000	2,670,000	-
(e) Aggregate Total		<u>\$ 91,670,000</u>	<u>\$ 91,670,000</u>	<u>\$ -</u>
(f) Actual or Estimated Borrowing Capacity as determined by the Insurer	\$	6,000,000,000	\$ 6,000,000,000	\$ -

b. Membership Stock (Class A and B) Eligible and Not Eligible for Redemption:

		Six Months Ended June 30, 2023				
Membership Stock	1 Current Year Total	2 Not Eligible for Redemption	Eligible for Redemption			
			3 Less Than 6 Months	4 6 Months to Less Than 1 Year	5 1 to Less Than 3 Years	6 3 to 5 Years
1. Class A	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2. Class B	5,000,000	5,000,000	-	-	-	-

NOTES TO FINANCIAL STATEMENTS

(3) Collateral pledged to FHLB:

a. Amount pledged as of June 30, 2023:

1. Current year total general and separate accounts:

	Fair Value	Carrying Value	Aggregate Total Borrowing
Total collateral pledged	\$ 3,287,584,728	\$ 2,413,366,409	\$ 2,110,530,983

2. Current year general account:

	Fair Value	Carrying Value	Aggregate Total Borrowing
Total collateral pledged	\$ 3,287,584,728	\$ 2,413,366,409	\$ 2,110,530,983

3. Current year separate accounts:

	Fair Value	Carrying Value	Aggregate Total Borrowing
Total collateral pledged	\$ -	\$ -	\$ -

4. Prior year-end total general and separate accounts:

	Fair Value	Carrying Value	Aggregate Total Borrowing
Total collateral pledged	\$ 3,663,321,862	\$ 2,536,224,711	\$ 2,110,751,541

b. Maximum amount pledged for the six months ended June 30, 2023:

1. Current year total general and separate accounts:

	Fair Value	Carrying Value	Amount Borrowed at Time of Maximum Collateral
Maximum collateral pledged	\$ 3,631,258,342	\$ 2,603,372,084	\$ 2,113,979,041

2. Current year general account:

	Fair Value	Carrying Value	Amount Borrowed at Time of Maximum Collateral
Maximum collateral pledged	\$ 3,631,258,342	\$ 2,603,372,084	\$ 2,113,979,041

3. Current year separate accounts:

	Fair Value	Carrying Value	Amount Borrowed at Time of Maximum Collateral
Maximum collateral pledged	\$ -	\$ -	\$ -

4. Prior year-end total general and separate accounts:

	Fair Value	Carrying Value	Amount Borrowed at Time of Maximum Collateral
Maximum collateral pledged	\$ 3,879,407,520	\$ 2,786,612,064	\$ 2,113,805,888

NOTES TO FINANCIAL STATEMENTS

(4) Borrowing from FHLB:

a. Amount:

1. Current year:

	June 30, 2023			
	1 Total 2+3	2 General Account	3 Separate Account	4 Funding Agreements Reserves Established
(a) Debt	\$ -	\$ -	\$ -	\$ -
(b) Funding agreements	2,110,530,983	2,110,530,983	-	2,110,530,983
(c) Other	-	-	-	-
(d) Aggregate total	<u>\$ 2,110,530,983</u>	<u>\$ 2,110,530,983</u>	<u>\$ -</u>	<u>\$ 2,110,530,983</u>

2. Prior Year-end:

	December 31, 2022			
	1 Total 2+3	2 General Account	3 Separate Account	4 Funding Agreements Reserves Established
(a) Debt	\$ -	\$ -	\$ -	\$ -
(b) Funding agreements	2,110,751,541	2,110,751,541	-	2,110,751,541
(c) Other	-	-	-	-
(d) Aggregate total	<u>\$ 2,110,578,389</u>	<u>\$ 2,110,578,389</u>	<u>\$ -</u>	<u>\$ 2,110,578,389</u>

b. Maximum Amount:

	Six Months Ended June 30, 2023		
	1 Total 2+3	2 General Account	3 Separate Account
1. Debt	\$ -	\$ -	\$ -
2. Funding	2,113,979,041	2,113,979,041	-
3. Other	-	-	-
4. Aggregate	<u>\$ 2,113,979,041</u>	<u>\$ 2,113,979,041</u>	<u>\$ -</u>

c. FHLB - Prepayment Obligations:

	Does the company have prepayment obligations under the following arrangements (YES/NO)?
1. Debt	N/A
2. Funding agreements	NO
3. Other	N/A

Note 12 – Retirement Plans, Deferred Compensation, Postemployment Benefits and Compensated Absences and Other Postretirement Benefit Plans

a. Defined Benefit Plan:

(1) 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.

(2-3) No change

(4) Components of net periodic benefit cost

	For Six Months Ended June 30, 2023					
	2023	2022	2023	2022	2023	2022
	Pension Benefits		Postretirement Benefits		Special or Contractual Benefits per SSAP No 11	
a. Service cost	\$ 43,246,130	\$ 48,492,310	\$ 3,900,000	\$ 4,800,000	\$ -	\$ -
b. Interest cost	62,438,691	42,865,980	7,750,000	5,150,000	-	-
c. Expected return on plan assets	(84,271,559)	(96,809,709)	-	-	-	-
d. Transition asset or obligation	-	-	-	-	-	-
e. Gains and losses	13,325,949	4,663,578	(4,350,000)	(800,000)	-	-
f. Prior service cost or (benefit)	-	-	(2,750,000)	(2,750,000)	-	-
h. Total net periodic benefit cost/(benefit)	<u>\$ 34,739,211</u>	<u>\$ (787,841)</u>	<u>\$ 4,550,000</u>	<u>\$ 6,400,000</u>	<u>\$ -</u>	<u>\$ -</u>

Note 13 – Capital and Surplus, Dividend Restrictions and Quasi-Reorganizations

a-c. No change

d. The Company is a mutual company, and as such does not pay stockholders' dividends.

e-m. No change

Note 14 – Liabilities, Contingencies and Assessments

a. Contingent commitments - No change

NOTES TO FINANCIAL STATEMENTS

- b. Assessments - No change
- c. Gain contingencies - No change
- d. Claims related to extra contractual obligations - No change
- e. Joint and several liabilities - No change

f. All other contingencies:

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.

Note 15 – Leases - No change

Note 16 – Information About Financial Instruments With Off-Balance Sheet Risk and Financial Instruments With Concentrations of Credit Risk - No change

Note 17 – Sale, Transfer and Servicing of Financial Assets and Extinguishments of Liabilities

- a. Transfers of receivables reported as sales - No change
- b. Transfer and servicing of financial assets:
 - (1) No change
 - (2) The Company did not have any servicing assets or liabilities in 2023 or 2022.
 - (3) No change
 - (4) The Company did not have interests that continue to be held by a transferor in securitized financial assets in 2023 or 2022.
 - (5-7) No change
- c. Wash sales:
 - (1) 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.
 - (2) The Company did not sell any securities with the NAIC Designation 3 or below, or unrated, through the six months ended June 30, 2023 that were reacquired within 30 days of the sale date.

Note 18 – Gain or Loss to the Reporting Entity from Uninsured Plans and the Uninsured Portion of Partially Insured Plans - No change

Note 19 – Direct Premium Written/Produced by Managing General Agents/Third Party Administrators - No change

Note 20 – Fair Value Measurements

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

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

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

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

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

The Company has established and maintains policies and guidelines that govern its valuation methodologies and their consistent application. These policies and guidelines address the use of inputs, price source hierarchies and provide controls around the valuation processes. These controls include appropriate review and analysis of prices against market activity or indicators for reasonableness,

NOTES TO FINANCIAL STATEMENTS

approval of price source changes, price overrides, methodology changes and classification of fair value hierarchy levels. The valuation policies and guidelines are reviewed and updated as appropriate.

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

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

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

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

	June 30, 2023				
	Level 1	Level 2	Level 3	Net Asset Value (NAV)	Total
Financial assets:					
Bonds:					
Special revenue	\$ -	\$ 1,117,180	\$ -	\$ -	\$ 1,117,180
Industrial and miscellaneous	65,571,717	80,558,882	157,702,476	-	303,833,075
Hybrid securities	-	3,150	-	-	3,150
Preferred stocks	23,841,395	-	58,287,738	-	82,129,133
Common stock - subsidiaries and affiliates	119,489,301	-	393,004,191	-	512,493,492
Common stock - unaffiliated	703,480,057	183,430	1,000,090,080	-	1,703,753,567
Derivatives:					
Interest rate swaps	-	17,226,284,374	-	-	17,226,284,374
Options	59,666,140	501,275,810	-	-	560,941,950
Currency swaps	-	2,940,254,273	-	-	2,940,254,273
Forward contracts	-	35,875,483	-	-	35,875,483
Credit default swaps	-	632,830	-	-	632,830
Financial futures	8,457,486	-	-	-	8,457,486
Separate account assets	36,317,422,627	16,202,267,108	1,684,846,522	-	54,204,536,257
Total financial assets carried at fair value	\$ 37,297,928,723	\$ 36,988,452,520	\$ 3,293,931,007	\$ -	\$ 77,580,312,250
Financial liabilities:					
Interest rate swaps	\$ -	\$ 12,312,417,235	\$ -	\$ -	\$ 12,312,417,235
Options	31,462,330	-	-	-	31,462,330
Currency swaps	-	171,337,781	-	-	171,337,781
Forward contracts	-	59,569,414	-	-	59,569,414
Credit default swaps	-	39,680,541	-	-	39,680,541
Financial futures	19,419,595	-	-	-	19,419,595
Total financial liabilities carried at fair value	\$ 50,881,925	\$ 12,583,004,971	\$ -	\$ -	\$ 12,633,886,896

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 period ended June 30, 2023, there were derivative transfers between Level 2 and Level 1 for options and futures are priced using quoted marks. The Company does not have any financial instruments that were carried at NAV as a practical expedient.

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December 31, 2022

	December 31, 2022			Net Asset Value (NAV)	Total
	Level 1	Level 2	Level 3		
Financial assets:					
Bonds:					
All other governments	-	5,554,888	-	-	5,554,888
Special revenue	\$ -	\$ 1,381,125	\$ -	\$ -	\$ 1,381,125
Industrial and miscellaneous	-	85,060,941	219,991,919	-	305,052,860
Preferred stocks	20,529,430	-	46,860,117	-	67,389,547
Common stock - subsidiaries and affiliates	109,945,579	-	349,974,518	-	459,920,097
Common stock - unaffiliated	506,886,908	-	970,148,972	-	1,477,035,880
Derivatives:					
Interest rate swaps	-	18,287,418,022	-	-	18,287,418,022
Options	29,969,900	608,882,832	-	-	638,852,732
Currency swaps	-	3,070,767,448	-	-	3,070,767,448
Forward contracts	-	13,803,075	-	-	13,803,075
Financial futures	21,108,555	-	-	-	21,108,555
Separate account assets	34,930,934,386	16,789,645,046	1,693,225,225	-	53,413,804,657
Total financial assets carried at fair value	\$ 35,619,374,758	\$ 38,862,513,377	\$ 3,280,200,751	\$ -	\$ 77,762,088,886

Financial liabilities:**Derivatives:**

Interest rate swaps	\$ -	\$ 13,036,298,722	\$ -	\$ -	\$ 13,036,298,722
Options	5,952,000	-	-	-	5,952,000
Currency swaps	-	708,572,178	-	-	708,572,178
Forward contracts	-	236,132,392	-	-	236,132,392
Credit default swaps	-	12,319,618	-	-	12,319,618
Financial futures	2,985,920	-	-	-	2,985,920
Total financial liabilities carried at fair value	\$ 8,937,920	\$ 13,993,322,910	\$ -	\$ -	\$ 14,002,260,830

(2) The following presents changes in the Company's Level 3 financial instruments that are carried at fair value:

	Balance as of 01/01/2023		Transfers ⁽¹⁾		Gains (Losses) in Net Income		Gains (Losses) in Surplus		Balance as of 6/30/2023		
	In	Out	In	Out	Net Income	Surplus	Purchases	Issuances	Sales	Settlements	
Financial assets:											
Bonds:											
Industrial and miscellaneous	\$ 219,761,776	\$ -	\$ (57,243,601)	\$ -	\$ (208,150)	\$ (2,207,878)	\$ 3,684,273	\$ 113,076	\$ -	\$ (6,197,020)	\$ 157,702,476
Preferred stock	47,089,392	-	2,601,644	-	-	7,286,153	1,310,549	-	-	-	58,287,738
Common stock - subsidiaries and affiliates	-	-	(5,593,352)	-	-	10,801,430	25,378,489	12,443,105	-	-	393,004,191
Common stock - unaffiliated	970,144,486	43,805	(3,255,976)	342,272	342,272	(56,930,635)	70,994,149	19,253,051	-	(501,072)	1,000,090,080
Separate account assets	1,693,225,223	4,826,843	-	-	18,956,800	-	18,117,378	-	(49,568,937)	(710,785)	1,684,846,522
Total financial assets	\$ 3,280,195,396	\$ 4,870,648	\$ (63,491,285)	\$ 19,090,922	\$ (41,050,930)	\$ 119,484,838	\$ 31,809,232	\$ (49,568,937)	\$ (7,408,877)	\$ 3,293,931,007	

	Balance as of 01/01/2022		Transfers ⁽¹⁾		Gains (Losses) in Net Income		Gains (Losses) in Surplus		Balance as of 12/31/2022		
	In	Out	In	Out	Net Income	Surplus	Purchases	Issuances	Sales	Settlements	
Financial assets:											
Bonds:											
Industrial and miscellaneous	\$ 186,869,899	\$ 63,585,571	\$ -	\$ -	\$ 2,558,223	\$ (8,848,976)	\$ 19,170,175	\$ 8,598,716	\$ -	\$ (52,171,832)	\$ 219,761,776
Preferred Stock	18,015,655	47,000,000	-	-	-	(17,926,263)	-	-	-	-	47,089,392
Common stock - subsidiaries and affiliates	253,282,028	-	(116,414,688)	-	(12,864,161)	110,495,297	(793,391,645)	979,949,809	(64,925,851)	(6,156,270)	349,974,519
Common stock - unaffiliated	753,425,003	416	(3,730,890)	27,616,461	27,616,461	2,294,443	326,642,527	3,111,577	(27,035,206)	(112,179,845)	970,144,486
Separate account assets	1,893,940,793	-	(12,868,618)	(173,960,223)	(173,960,223)	-	282,160,365	-	(295,557,370)	(489,724)	1,693,225,223
Total financial assets	\$ 3,105,533,378	\$ 110,585,987	\$ (133,014,196)	\$ (156,649,700)	\$ 86,014,501	\$ (165,418,578)	\$ 991,660,102	\$ (387,518,427)	\$ (170,997,671)	\$ 3,280,195,396	

⁽¹⁾ Level 3 transfers include assets that are consistently carried at fair value but have had a level change, are 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. The common stock unaffiliated assets were transferred from Level 2 to Level 3 due to a change in the observability of pricing inputs.

NOTES TO FINANCIAL STATEMENTS

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

(4) *Valuation Techniques and Inputs*

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

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

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

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

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

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

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

- (5) Derivative assets and liabilities fair value disclosures on a gross basis are included in paragraph 1 above. Since there are no derivative assets or liabilities classified in Level 3, the reconciliation disclosures required under paragraphs 2 through 4 are not applicable.

- b. The Company provides additional fair value information in Note 21 "Other Items".

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

	June 30, 2023						Net Asset Value (NAV)	Not Practicable (Carrying Value)
	Aggregate	Admitted						
	Fair Value	Assets	Level 1	Level 2	Level 3			
Financial assets:								
Bonds:								
U. S. government and agencies	\$ 4,817,975,798	\$ 5,103,038,196	-	\$ 4,817,963,665	\$ 12,133	-	-	-
All other governments	1,083,252,391	1,260,702,975	-	1,053,650,769	29,601,622	-	-	-
States, territories and possessions	234,142,920	237,990,091	-	234,142,920	-	-	-	-
Political subdivisions	357,519,483	366,924,191	-	357,519,483	-	-	-	-
Special revenue	4,173,318,622	4,194,547,143	-	4,148,129,558	25,189,064	-	-	-
Industrial and miscellaneous	109,749,965,036	120,401,665,704	65,571,717	47,684,307,068	62,000,086,252	-	-	-
Parent, subsidiaries and affiliates	7,859,354,817	8,525,607,443	-	1,126,785,729	6,732,569,088	-	-	-
Preferred stocks	378,525,009	374,517,690	64,199,895	-	314,325,113	-	-	-
Common stocks - subsidiaries and affiliates ⁽¹⁾	520,104,601	520,104,601	119,467,063	-	400,637,538	-	-	-
Common stocks - unaffiliated	1,703,753,567	1,703,753,567	703,480,057	183,430	1,000,090,080	-	-	-
Mortgage loans - commercial	18,583,382,492	20,205,710,947	-	-	18,583,382,492	-	-	-
Mortgage loans - residential	4,129,819,906	4,422,365,389	-	-	4,129,819,906	-	-	-
Cash, cash equivalents and short-term investments	5,590,389,045	5,590,389,045	353,109,156	5,237,279,889	-	-	-	-
Derivatives:								
Interest rate swaps	12,512,026,677	17,231,412,204	-	12,506,898,847	-	-	-	-
Options	560,941,950	560,941,950	59,666,140	501,275,810	-	-	-	-
Currency swaps	2,943,997,553	2,943,997,553	-	2,940,254,273	-	-	-	-
Forward contracts	35,875,483	35,875,483	-	35,875,483	-	-	-	-
Credit default swaps	1,092,830	632,830	-	1,092,830	-	-	-	-
Financial futures	8,457,486	8,457,486	8,457,486	-	-	-	-	-
Separate account assets	54,204,536,256	54,204,536,256	36,317,422,627	16,202,267,108	1,684,846,522	-	-	-
Financial liabilities:								
Repurchase agreements	2,908,631,349	2,908,631,349	-	2,908,631,349	-	-	-	-
Commercial paper	49,884,072	49,884,072	-	49,884,072	-	-	-	-
Guaranteed interest contracts	14,799,054,237	15,567,776,095	-	-	14,799,054,237	-	-	-
Group annuity contracts and other deposits	1,947,710,272	2,219,009,114	-	-	1,947,710,272	-	-	-
Individual annuity contracts	19,382,093,223	19,880,790,961	-	-	19,382,093,223	-	-	-
Supplementary contracts	995,987,826	994,975,664	-	-	995,987,826	-	-	-
Derivatives:								
Interest rate swaps	17,441,417,235	12,312,417,235	-	17,441,417,235	-	-	-	-
Options	31,462,330	31,462,330	31,462,330	-	-	-	-	-
Currency swaps	1,158,376,413	1,158,376,413	-	171,337,781	-	-	-	-
Forward contracts	59,569,414	59,569,414	-	59,569,414	-	-	-	-
Credit default swaps	39,493,739	40,249,910	-	39,493,739	-	-	-	-
Financial futures	19,419,595	19,419,595	19,419,595	-	-	-	-	-

⁽¹⁾ Common stocks - subsidiaries and affiliates do not include unconsolidated subsidiaries, which had a statutory carrying value of \$24,157,532,067

NOTES TO FINANCIAL STATEMENTS

December 31, 2022

	Aggregate	Admitted				Net	Not
	Fair Value	Assets	Level 1	Level 2	Level 3	Asset	Practicable
						Value	(Carrying
						(NAV)	Value)
Financial assets:							
Bonds:							
U. S. government and agencies	\$ 4,427,766,511	\$ 4,764,141,765	\$ -	\$ 4,427,676,771	\$ 89,740	\$ -	\$ -
All other governments	1,385,020,246	1,635,488,544	-	1,322,861,870	62,158,376	-	-
States, territories and possessions	241,029,806	248,419,799	-	241,029,806	-	-	-
Political subdivisions	388,165,728	404,416,301	-	388,165,728	-	-	-
Special revenue	4,110,747,489	4,186,668,736	-	4,101,957,597	8,789,892	-	-
Industrial and miscellaneous	105,790,586,118	117,023,317,719	42,325,191	45,769,408,257	59,978,852,670	-	-
Parent, subsidiaries and affiliates	7,956,165,771	8,182,767,682	-	1,014,933,180	6,941,232,591	-	-
Preferred stocks	445,941,513	451,411,752	45,250,616	-	400,690,897	-	-
Common stock - subsidiaries and affiliates ⁽¹⁾	459,920,097	459,920,097	109,945,579	-	349,974,518	-	-
Common stock - unaffiliated	1,477,035,880	1,477,035,880	506,886,908	-	970,148,972	-	-
Mortgage loans - commercial	19,151,961,603	20,755,372,546	-	-	19,151,961,603	-	-
Mortgage loans - residential	3,892,448,035	4,216,591,382	-	-	3,892,448,035	-	-
Cash, cash equivalents and short-term investments	5,568,063,455	5,568,063,455	419,730,608	5,148,332,847	-	-	-
Derivatives:							
Interest rate swaps	18,456,834,141	18,287,418,022	-	18,456,834,141	-	-	-
Options	638,852,732	638,852,732	29,969,900	608,882,832	-	-	-
Currency swaps	3,070,767,448	3,070,767,448	-	3,070,767,448	-	-	-
Forward contracts	13,803,075	13,803,075	-	13,803,075	-	-	-
Credit default swaps	460,000	-	-	460,000	-	-	-
Financial futures	15,850,595	15,850,595	15,850,595	-	-	-	-
Separate account assets	53,413,804,657	53,413,804,657	34,930,934,386	16,789,645,046	1,693,225,225	-	-
Financial liabilities:							
Repurchase agreements	3,041,983,723	3,041,983,723	-	3,041,983,723	-	-	-
Commercial paper	249,947,917	249,947,917	-	249,947,917	-	-	-
Guaranteed investment contracts	13,802,550,862	14,701,159,948	-	-	13,802,550,862	-	-
Group annuity contracts and other deposits	1,889,919,988	2,162,490,271	-	-	1,889,919,988	-	-
Individual annuity contracts	16,214,481,799	17,000,232,720	-	-	16,214,481,799	-	-
Supplementary contracts	1,139,882,636	1,138,650,972	-	-	1,139,882,636	-	-
Derivatives:							
Interest rate swaps	18,165,298,722	13,036,298,722	-	18,165,298,722	-	-	-
Options	5,952,000	5,952,000	5,952,000	-	-	-	-
Currency swaps	708,572,178	708,572,178	-	708,572,178	-	-	-
Forward contracts	236,132,392	236,132,392	-	236,132,392	-	-	-
Credit default swaps	12,574,665	13,004,716	-	12,574,665	-	-	-
Financial futures	2,985,920	2,985,920	2,985,920	-	-	-	-

⁽¹⁾Common stocks - subsidiaries and affiliates do not include unconsolidated subsidiaries, which had statutory carrying values of \$24,222,743,219

d. As of June 30, 2023 and December 31, 2022, the Company had no investments where it was not practicable to estimate fair value.

Note 21 – Other Items

- Unusual or infrequent items - No change
- Troubled debt restructuring - No change
- Other disclosures and unusual items:

Business risks

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 disclosure in the Company's 2022 Annual Statement.

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.

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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 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.

The long-term impact of the COVID-19 pandemic is dependent on numerous factors including, but not limited to, the length and severity of the pandemic, the efficacy and rate of vaccine adoption and therapeutics, the responses to the pandemic taken by governments and private sector businesses, and the impacts on MassMutual's policyholders, employees and counterparties. At its height, the pandemic led to significant economic disruption, including significant volatility in the U.S. and international markets, which had an adverse effect on MassMutual's business. The extent to which the COVID-19 pandemic continues to impact MassMutual's business will depend on future developments which are highly uncertain, including the emergence of future variants of COVID-19 and the efficacy of vaccines in the broader population (including with respect to future variants).

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.

Other Disclosures

- d. Business interruption insurance recoveries - No change
- e. State transferrable tax credits - No change
- f. Subprime mortgage related risk exposure:
 - (1) No change
 - (2) No change

NOTES TO FINANCIAL STATEMENTS

(3) Direct exposure through other investments:

Alt-A:	Six Months Ended June 30, 2023			
	Actual Cost	Carrying Value	Fair Value	OTTI
a. Residential mortgage-backed securities	\$ 149,285,626	\$ 173,156,772	\$ 175,100,326	\$ 1,068,306
b. Commercial mortgage-backed securities	-	-	-	-
c. Collateralized debt obligations	-	-	-	-
d. Structured securities	-	-	-	-
e. Equity investments in SCAs *	\$ 6,194,917	\$ 7,681,709	\$ 7,597,230	\$ 51,560
f. Other assets	-	-	-	-
g. Total	<u>\$ 155,480,544</u>	<u>\$ 180,838,481</u>	<u>\$ 182,697,556</u>	<u>\$ 1,119,866</u>

*The Company's SCA, C.M. Life, has investments in Alt-A and subprime mortgages, as does C.M. Life's SCA, MML Bay State. These investments comprise less than 1% of the Company's invested assets.

Alt-A:	Year Ended December 31, 2022			
	Actual Cost	Carrying Value	Fair Value	OTTI
a. Residential mortgage-backed securities	\$ 189,197,356	\$ 214,100,764	\$ 207,297,157	\$ 3,225,895
b. Commercial mortgage-backed securities	-	-	-	-
c. Collateralized debt obligations	-	-	-	-
d. Structured securities	-	-	-	-
e. Equity investments in SCAs *	13,715,675	50,459,242	15,231,106	81,767
f. Other assets	-	-	-	-
g. Total	<u>\$ 202,913,030</u>	<u>264,560,006</u>	<u>222,528,263</u>	<u>3,307,662</u>

*The Company's Subsidiaries and Controlled Affiliates (SCA), C.M. Life Insurance Company (C.M. Life), has investments in Alt-A and subprime mortgages, as does C.M. Life's SCA, MML Bay State Insurance Company (MML Bay State). These investments comprise less than 1% of the Company's invested assets.

(4) The Company has no underwriting exposure to subprime mortgage risk through Mortgage Guaranty or Financial Guaranty insurance coverage.

g. Retained asset accounts - No change

Note 22 – Events Subsequent

Management of the Company has evaluated subsequent events through August 14, 2023, 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:

On July 5, 2023, the Company recaptured approximately \$16,000,000 of statutory reserves reinsured on a yearly renewable term (YRT) basis for certain closed blocks of long-term care business and reinsured on a coinsurance basis a portion of this product resulting in ceding approximately \$680,000,000 statutory reserves to a different reinsurer. The recapture settlement of \$17,000,000 relieved the reinsurer of all obligations under the YRT agreement and resulted in an offset to premiums and disability benefits. As part of the coinsurance transaction, the Company transferred \$644,000,000 of premium to the reinsurer and received \$4,000,000 of expense allowance.

On July 19, 2023, MassMutual issued a \$300,000,000 funding agreement with a floating rate based on the Secured Overnight Financing Rate plus 0.87% and a 3-year maturity.

Note 23 – Reinsurance - No Change**Note 24 – Retrospectively Rated Contracts and Contracts Subject to Redetermination**

a – d. No change

e. The Company does not write any accident and health insurance premium that is subject to the Affordable Care Act risk-sharing provisions.

Note 25 – Change in Incurred Losses and Loss Adjustment Expenses

There was no increase to reserves in 2023 for incurred losses and loss adjustment expenses attributable to insured events of prior years, which considered corrections of prior year errors.

Note 26 – Intercompany Pooling Arrangements - No change**Note 27 – Structured Settlements - No change****Note 28 – Health Care Receivables - No change****Note 29 – Participating Policies - No change****Note 30 – Premium Deficiency Reserves - No change****Note 31 – Reserves for Life Contracts and Annuity Contracts - No change****Note 32 – Analysis of Annuity Actuarial Reserves and Deposit Type Liabilities by Withdrawal Characteristics - No change****Note 33 – Analysis of Life Actuarial Reserves by Withdrawal Characteristics - No change**

NOTES TO FINANCIAL STATEMENTS

Note 34 – Premium and Annuity Considerations Deferred and Uncollected - No change

Note 35 – Separate Accounts - No change

Note 36 – Loss/Claim Adjustment Expenses - No change

GENERAL INTERROGATORIES

PART 1 - COMMON INTERROGATORIES

GENERAL

- 1.1 Did the reporting entity experience any material transactions requiring the filing of Disclosure of Material Transactions with the State of Domicile, as required by the Model Act? Yes [] No [X]
- 1.2 If yes, has the report been filed with the domiciliary state? Yes [] No []
- 2.1 Has any change been made during the year of this statement in the charter, by-laws, articles of incorporation, or deed of settlement of the reporting entity? Yes [] No [X]
- 2.2 If yes, date of change:
- 3.1 Is the reporting entity a member of an Insurance Holding Company System consisting of two or more affiliated persons, one or more of which is an insurer? Yes [X] No []
If yes, complete Schedule Y, Parts 1 and 1A.
- 3.2 Have there been any substantial changes in the organizational chart since the prior quarter end? Yes [] No [X]
- 3.3 If the response to 3.2 is yes, provide a brief description of those changes.
.....
- 3.4 Is the reporting entity publicly traded or a member of a publicly traded group? Yes [] No [X]
- 3.5 If the response to 3.4 is yes, provide the CIK (Central Index Key) code issued by the SEC for the entity/group.
- 4.1 Has the reporting entity been a party to a merger or consolidation during the period covered by this statement? Yes [] No [X]
- 4.2 If yes, provide the name of the entity, NAIC Company Code, and state of domicile (use two letter state abbreviation) for any entity that has ceased to exist as a result of the merger or consolidation.

1	2	3
Name of Entity	NAIC Company Code	State of Domicile

- 5. If the reporting entity is subject to a management agreement, including third-party administrator(s), managing general agent(s), attorney-in-fact, or similar agreement, have there been any significant changes regarding the terms of the agreement or principals involved? Yes [] No [X] N/A []
If yes, attach an explanation.
.....
- 6.1 State as of what date the latest financial examination of the reporting entity was made or is being made. 12/31/2019
- 6.2 State the as of date that the latest financial examination report became available from either the state of domicile or the reporting entity. This date should be the date of the examined balance sheet and not the date the report was completed or released. 12/31/2019
- 6.3 State as of what date the latest financial examination report became available to other states or the public from either the state of domicile or the reporting entity. This is the release date or completion date of the examination report and not the date of the examination (balance sheet date). 06/25/2021
- 6.4 By what department or departments?
Commonwealth of Massachusetts Division of Insurance
- 6.5 Have all financial statement adjustments within the latest financial examination report been accounted for in a subsequent financial statement filed with Departments? Yes [] No [] N/A [X]
- 6.6 Have all of the recommendations within the latest financial examination report been complied with? Yes [X] No [] N/A []
- 7.1 Has this reporting entity had any Certificates of Authority, licenses or registrations (including corporate registration, if applicable) suspended or revoked by any governmental entity during the reporting period? Yes [] No [X]
- 7.2 If yes, give full information:
.....
- 8.1 Is the company a subsidiary of a bank holding company regulated by the Federal Reserve Board? Yes [] No [X]
- 8.2 If response to 8.1 is yes, please identify the name of the bank holding company.
.....
- 8.3 Is the company affiliated with one or more banks, thrifts or securities firms? Yes [X] No []
- 8.4 If response to 8.3 is yes, please provide below the names and location (city and state of the main office) of any affiliates regulated by a federal regulatory services agency [i.e. the Federal Reserve Board (FRB), the Office of the Comptroller of the Currency (OCC), the Federal Deposit Insurance Corporation (FDIC) and the Securities Exchange Commission (SEC)] and identify the affiliate's primary federal regulator.

1	2	3	4	5	6
Affiliate Name	Location (City, State)	FRB	OCC	FDIC	SEC
Barings LLC	Charlotte, NC .....	.....	.....	.....	YES.....
Baring International Investment Limited	London, UK .....	.....	.....	.....	YES.....
Barings Securities LLC	Charlotte, NC .....	.....	.....	.....	YES.....
MML Distributors, LLC	Springfield, MA .....	.....	.....	.....	YES.....
MML Investment Advisers, LLC	Springfield, MA .....	.....	.....	.....	YES.....
MML Investors Services, LLC	Springfield, MA .....	.....	.....	.....	YES.....
MML Strategic Distributors, LLC	Springfield, MA .....	.....	.....	.....	YES.....
The MassMutual Trust Company, OCC	Windsor, CT .....	.....	YES.....	.....	.....
Flourish Financial, LLC	New York, NY .....	.....	.....	.....	YES.....

GENERAL INTERROGATORIES

- 9.1 Are the senior officers (principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions) of the reporting entity subject to a code of ethics, which includes the following standards? Yes [] No []
- (a) Honest and ethical conduct, including the ethical handling of actual or apparent conflicts of interest between personal and professional relationships;
- (b) Full, fair, accurate, timely and understandable disclosure in the periodic reports required to be filed by the reporting entity;
- (c) Compliance with applicable governmental laws, rules and regulations;
- (d) The prompt internal reporting of violations to an appropriate person or persons identified in the code; and
- (e) Accountability for adherence to the code.
- 9.11 If the response to 9.1 is No, please explain:
- 9.2 Has the code of ethics for senior managers been amended? Yes [] No []
- 9.21 If the response to 9.2 is Yes, provide information related to amendment(s).
Code has been updated to reflect policy name changes and removed policy links from the document.
- 9.3 Have any provisions of the code of ethics been waived for any of the specified officers? Yes [] No []
- 9.31 If the response to 9.3 is Yes, provide the nature of any waiver(s).

FINANCIAL

- 10.1 Does the reporting entity report any amounts due from parent, subsidiaries or affiliates on Page 2 of this statement? Yes [] No []
- 10.2 If yes, indicate any amounts receivable from parent included in the Page 2 amount: \$

INVESTMENT

- 11.1 Were any of the stocks, bonds, or other assets of the reporting entity loaned, placed under option agreement, or otherwise made available for use by another person? (Exclude securities under securities lending agreements.) Yes [] No []
- 11.2 If yes, give full and complete information relating thereto:
12. Amount of real estate and mortgages held in other invested assets in Schedule BA: \$ 4,467,609,803
13. Amount of real estate and mortgages held in short-term investments: \$
- 14.1 Does the reporting entity have any investments in parent, subsidiaries and affiliates? Yes [] No []
- 14.2 If yes, please complete the following:
- | | 1
Prior Year-End
Book/Adjusted
Carrying Value | 2
Current Quarter
Book/Adjusted
Carrying Value |
|---|--|---|
| 14.21 Bonds | \$ 8,182,767,683 | \$ 8,526,285,236 |
| 14.22 Preferred Stock | \$ | \$ |
| 14.23 Common Stock | \$ 24,256,245,062 | \$ 24,672,142,996 |
| 14.24 Short-Term Investments | \$ | \$ |
| 14.25 Mortgage Loans on Real Estate | \$ | \$ |
| 14.26 All Other | \$ 5,819,534,587 | \$ 6,524,129,297 |
| 14.27 Total Investment in Parent, Subsidiaries and Affiliates (Subtotal Lines 14.21 to 14.26) | \$ 38,258,547,333 | \$ 39,722,557,529 |
| 14.28 Total Investment in Parent included in Lines 14.21 to 14.26 above | \$ | \$ |
- 15.1 Has the reporting entity entered into any hedging transactions reported on Schedule DB? Yes [] No []
- 15.2 If yes, has a comprehensive description of the hedging program been made available to the domiciliary state? Yes [] No [] N/A []
If no, attach a description with this statement.
16. For the reporting entity's security lending program, state the amount of the following as of the current statement date:
- 16.1 Total fair value of reinvested collateral assets reported on Schedule DL, Parts 1 and 2. \$
- 16.2 Total book/adjusted carrying value of reinvested collateral assets reported on Schedule DL, Parts 1 and 2 \$
- 16.3 Total payable for securities lending reported on the liability page. \$

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company
GENERAL INTERROGATORIES

17. Excluding items in Schedule E - Part 3 - Special Deposits, real estate, mortgage loans and investments held physically in the reporting entity's offices, vaults or safety deposit boxes, were all stocks, bonds and other securities, owned throughout the current year held pursuant to a custodial agreement with a qualified bank or trust company in accordance with Section 1, III - General Examination Considerations, F. Outsourcing of Critical Functions, Custodial or Safekeeping Agreements of the NAIC Financial Condition Examiners Handbook? Yes [X] No []
- 17.1 For all agreements that comply with the requirements of the NAIC Financial Condition Examiners Handbook, complete the following:

1 Name of Custodian(s)	2 Custodian Address
Citibank, N.A.	333 West 34th Street, New York, NY 10001
State Street Global Services	801 Pennsylvania Avenue, Kansas City, MO 64105
Citibank, N.A.	2 Park Street Sydney, NSW 2000
Citibank, N.A.	London Canada SQ Service CTR Citigroup CTR 25 Canada Sq London E14 5LB UK

- 17.2 For all agreements that do not comply with the requirements of the NAIC Financial Condition Examiners Handbook, provide the name, location and a complete explanation:

1 Name(s)	2 Location(s)	3 Complete Explanation(s)

- 17.3 Have there been any changes, including name changes, in the custodian(s) identified in 17.1 during the current quarter? Yes [] No [X]

- 17.4 If yes, give full information relating thereto:

1 Old Custodian	2 New Custodian	3 Date of Change	4 Reason

- 17.5 Investment management – Identify all investment advisors, investment managers, broker/dealers, including individuals that have the authority to make investment decisions on behalf of the reporting entity. For assets that are managed internally by employees of the reporting entity, note as such. ["...that have access to the investment accounts"; "...handle securities"]

1 Name of Firm or Individual	2 Affiliation
20 Gates Management, LLC	U.....
Angelo, Gordon & Co., L.P.	U.....
Apollo Capital Management, L.P.	U.....
Apollo Insurance Solutions Group LP	U.....
Ares Management LLC	U.....
Barings LLC	A.....
Carlyle Aviation Group Capital Markets LLC	U.....
Centerbridge Martello Advisors, LLC	U.....
Fractal Investments LLC	U.....
Franklin Advisers, Inc.	U.....
Great-West Capital Management LLC	U.....
IFM Investors Pty Ltd	U.....
Invesco Investment Management Company	U.....
Jefferies Finance LLC	A.....
Pacific Investment Management Company LLC	U.....
Western Asset Management Company	U.....

- 17.5097 For those firms/individuals listed in the table for Question 17.5, do any firms/individuals unaffiliated with the reporting entity (i.e. designated with a "U") manage more than 10% of the reporting entity's invested assets?..... Yes [] No [X]

- 17.5098 For firms/individuals unaffiliated with the reporting entity (i.e. designated with a "U") listed in the table for Question 17.5, does the total assets under management aggregate to more than 50% of the reporting entity's invested assets?..... Yes [] No [X]

- 17.6 For those firms or individuals listed in the table for 17.5 with an affiliation code of "A" (affiliated) or "U" (unaffiliated), provide the information for the table below.

1 Central Registration Depository Number	2 Name of Firm or Individual	3 Legal Entity Identifier (LEI)	4 Registered With	5 Investment Management Agreement (IMA) Filed
155480	20 Gates Management, LLC	549300P9T431XY751068	SEC	NO.....
131940	Angelo, Gordon & Co., L.P.	XXJ808RONB9FETPCB63	SEC	NO.....
143161	Apollo Capital Management, L.P.	549300C43L0TF7UALB02	SEC	NO.....
143161	Apollo Insurance Solutions Group LP	549300C43L0TF7UALB02	SEC	NO.....
130074	Ares Management LLC	549300JA9GMPFTSVQQ05	SEC	NO.....
106006	Barings LLC	549300G36F1E2S4MQM37	SEC	DS.....
168456	Carlyle Aviation Group Capital Markets LLC	54930010815L9BP71G93	SEC	NO.....
311767	Fractal Investments LLC	984500D14JFD006CBC96	SEC	NO.....
104517	Franklin Advisers, Inc.	B1CG1NRZIDDJDDQEXB52	SEC	NO.....
84-1444062	Great-West Capital Management LLC	549300S3EPOXXVYMD485	SEC	NO.....
162754	IFM Investors Pty Ltd	5493002BVK0Q17K1W7H93	SEC	NO.....
110363	Invesco Investment Management Company	037NHJVF7S22110N0U83	SEC	NO.....
162264	Jefferies Finance LLC	549300SKVB18YSSIDT75	SEC	NO.....
104559	Pacific Investment Management Company LLC	549300GPHYQZGMYYN38	SEC	NO.....
801-8162	Western Asset Management Company	549300C5A561UXU1CN46	SEC	NO.....
157359	Centerbridge Martello Advisors, LLC	549300F5X7LPP05D3544	SEC	NO.....

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

- 18.1 Have all the filing requirements of the Purposes and Procedures Manual of the NAIC Investment Analysis Office been followed? Yes [] No [X]
- 18.2 If no, list exceptions:
 At 6/30/2023, 216 issues for 165 issuers did not meet the filing requirements of the Purposes and Procedures Manual. The majority of these issues currently lack one or more of the following: Valid cusip/PPN, audited financials and/or executed legal documentation.
 Exceptions totaled \$3,842,721,611 or 2.31% of all assets.
19. By self-designating 5GI securities, the reporting entity is certifying the following elements for each self-designated 5GI security:
 a. Documentation necessary to permit a full credit analysis of the security does not exist or an NAIC CRP credit rating for an FE or PL security is not available.
 b. Issuer or obligor is current on all contracted interest and principal payments.
 c. The insurer has an actual expectation of ultimate payment of all contracted interest and principal.
 Has the reporting entity self-designated 5GI securities? Yes [X] No []
20. By self-designating PLGI securities, the reporting entity is certifying the following elements of each self-designated PLGI security:
 a. The security was purchased prior to January 1, 2018.
 b. The reporting entity is holding capital commensurate with the NAIC Designation reported for the security.
 c. The NAIC Designation was derived from the credit rating assigned by an NAIC CRP in its legal capacity as a NRSRO which is shown on a current private letter rating held by the insurer and available for examination by state insurance regulators.
 d. The reporting entity is not permitted to share this credit rating of the PL security with the SVO.
 Has the reporting entity self-designated PLGI securities? Yes [] No [X]
21. By assigning FE to a Schedule BA non-registered private fund, the reporting entity is certifying the following elements of each self-designated FE fund:
 a. The shares were purchased prior to January 1, 2019.
 b. The reporting entity is holding capital commensurate with the NAIC Designation reported for the security.
 c. The security had a public credit rating(s) with annual surveillance assigned by an NAIC CRP in its legal capacity as an NRSRO prior to January 1, 2019.
 d. The fund only or predominantly holds bonds in its portfolio.
 e. The current reported NAIC Designation was derived from the public credit rating(s) with annual surveillance assigned by an NAIC CRP in its legal capacity as an NRSRO.
 f. The public credit rating(s) with annual surveillance assigned by an NAIC CRP has not lapsed.
 Has the reporting entity assigned FE to Schedule BA non-registered private funds that complied with the above criteria? Yes [] No [X]

GENERAL INTERROGATORIES

PART 2 - LIFE AND ACCIDENT AND HEALTH COMPANIES/FRATERNAL BENEFIT SOCIETIES

Life and Accident Health Companies/Fraternal Benefit Societies:

1. Report the statement value of mortgage loans at the end of this reporting period for the following categories: 1
Amount
- 1.1 Long-Term Mortgages In Good Standing
- 1.11 Farm Mortgages\$.....
- 1.12 Residential Mortgages\$..... 4,422,372,739
- 1.13 Commercial Mortgages\$..... 20,174,430,215
- 1.14 Total Mortgages in Good Standing\$..... 24,596,802,954
- 1.2 Long-Term Mortgages In Good Standing with Restructured Terms
- 1.21 Total Mortgages in Good Standing with Restructured Terms.....\$.....
- 1.3 Long-Term Mortgage Loans Upon which Interest is Overdue more than Three Months
- 1.31 Farm Mortgages\$.....
- 1.32 Residential Mortgages\$.....
- 1.33 Commercial Mortgages\$.....
- 1.34 Total Mortgages with Interest Overdue more than Three Months\$.....
- 1.4 Long-Term Mortgage Loans in Process of Foreclosure
- 1.41 Farm Mortgages\$.....
- 1.42 Residential Mortgages\$.....
- 1.43 Commercial Mortgages\$..... 31,273,382
- 1.44 Total Mortgages in Process of Foreclosure\$..... 31,273,382
- 1.5 Total Mortgage Loans (Lines 1.14 + 1.21 + 1.34 + 1.44) (Page 2, Column 3, Lines 3.1 + 3.2)\$..... 24,628,076,336
- 1.6 Long-Term Mortgages Foreclosed, Properties Transferred to Real Estate in Current Quarter
- 1.61 Farm Mortgages\$.....
- 1.62 Residential Mortgages\$.....
- 1.63 Commercial Mortgages\$.....
- 1.64 Total Mortgages Foreclosed and Transferred to Real Estate\$.....
2. Operating Percentages:
- 2.1 A&H loss percent %
- 2.2 A&H cost containment percent %
- 2.3 A&H expense percent excluding cost containment expenses %
- 3.1 Do you act as a custodian for health savings accounts? Yes [] No [X]
- 3.2 If yes, please provide the amount of custodial funds held as of the reporting date\$.....
- 3.3 Do you act as an administrator for health savings accounts? Yes [] No [X]
- 3.4 If yes, please provide the balance of the funds administered as of the reporting date\$.....
4. Is the reporting entity licensed or chartered, registered, qualified, eligible or writing business in at least two states? Yes [X] No []
- 4.1 If no, does the reporting entity assume reinsurance business that covers risks residing in at least one state other than the state of domicile of the reporting entity? Yes [] No []

Fraternal Benefit Societies Only:

- 5.1 In all cases where the reporting entity has assumed accident and health risks from another company, provisions should be made in this statement on account of such reinsurances for reserve equal to that which the original company would have been required to establish had it retained the risks. Has this been done? Yes [] No [] N/A []
- 5.2 If no, explain:
- 6.1 Does the reporting entity have outstanding assessments in the form of liens against policy benefits that have increased surplus? Yes [] No []
- 6.2 If yes, what is the date(s) of the original lien and the total outstanding balance of liens that remain in surplus?

Date	Outstanding Lien Amount
.....

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE S - CEDED REINSURANCE

Showing All New Reinsurance Treaties - Current Year to Date

1	2	3	4	5	6	7	8	9	10
NAIC Company Code	ID Number	Effective Date	Name of Reinsurer	Domiciliary Jurisdiction	Type of Reinsurance Ceded	Type of Business Ceded	Type of Reinsurer	Certified Reinsurer Rating (1 through 6)	Effective Date of Certified Reinsurer Rating
00000	AA-3191494	03/15/2023	MARTELLO RE LIMITED (MR23)	BMJ	COFW/G	FA	Unauthorized		
00000	AA-5420050	11/20/2021	KOREAN REINSURANCE COMPANY (KRUH)	KOR	YRT/I	OL	Unauthorized		
82627	06-0839705	11/20/2021	SWISS RE LIFE & HEALTH AMERICA INC. (SRUH)	MO	YRT/I	OL	Authorized		
86258	13-2572994	11/20/2021	GENERAL RE LIFE CORPORATION (GRUH)	CT	YRT/I	OL	Authorized		
88340	59-2859797	01/01/2023	HANNOVER LIFE REASSURANCE COMPANY OF AMERICA (HAEA)	FL	YRT/I	OL	Authorized		
88340	59-2859797	01/01/2023	HANNOVER LIFE REASSURANCE COMPANY OF AMERICA (HAEC)	FL	YRT/I	OL	Authorized		
88340	59-2859797	01/01/2023	HANNOVER LIFE REASSURANCE COMPANY OF AMERICA (HAH4)	FL	YRT/I	OL	Authorized		
97071	13-3126819	07/07/2018	SCOR GLOBAL LIFE USA REINSURANCE COMPANY (SUU2)	DE	CO/I	OL	Authorized		
97071	13-3126819	11/20/2021	SCOR GLOBAL LIFE USA REINSURANCE COMPANY (SUUH)	DE	YRT/I	OL	Authorized		

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company
SCHEDULE T - PREMIUMS AND ANNUITY CONSIDERATIONS

Current Year To Date - Allocated by States and Territories

	1	Life Contracts		Direct Business Only			
		2	3	4	5	6	7
States, Etc.	Active Status (a)	Life Insurance Premiums	Annuity Considerations	Accident and Health Insurance Premiums, Including Policy, Membership and Other Fees	Other Considerations	Total Columns 2 Through 5	Deposit-Type Contracts
1. Alabama	AL	31,249,200	44,151,447	3,817,959	9,673,833	88,892,439	17,739,563
2. Alaska	AK	2,145,995	8,806,258	246,192	808,126	12,006,571	1,252,402
3. Arizona	AZ	54,029,994	190,555,248	6,009,841	1,904,016	252,499,099	14,221,788
4. Arkansas	AR	11,910,897	24,052,017	1,462,261	508,294	37,933,469	4,976,457
5. California	CA	445,748,482	723,772,124	33,687,856	141,275,691	1,344,484,153	133,886,843
6. Colorado	CO	75,222,204	114,161,625	5,900,252	14,215,108	209,499,189	18,127,651
7. Connecticut	CT	100,936,835	91,476,770	9,095,744	39,948,532	241,457,881	11,349,419
8. Delaware	DE	12,571,792	24,184,832	1,095,614	7,113,335	44,965,573	2,231,983,293
9. District of Columbia	DC	20,332,916	4,232,835	2,020,088	9,602,117	36,187,956	4,710,003
10. Florida	FL	297,792,672	486,274,327	19,733,887	48,662,756	852,463,642	127,352,248
11. Georgia	GA	114,000,602	110,578,371	13,059,284	34,897,409	272,535,666	25,142,294
12. Hawaii	HI	10,508,395	15,619,890	1,587,646	2,932,692	30,648,623	2,161,468
13. Idaho	ID	16,905,608	30,448,601	969,311	4,404,856	52,728,376	2,812,768
14. Illinois	IL	143,330,386	177,833,825	12,233,215	191,992,935	525,390,361	117,853,555
15. Indiana	IN	90,157,139	80,174,385	5,004,023	19,464,437	194,799,984	21,183,461
16. Iowa	IA	24,440,434	39,315,179	1,881,808	6,836,513	72,473,934	24,720,088
17. Kansas	KS	30,471,960	414,681,104	2,667,245	18,449,491	466,269,800	1,428,347
18. Kentucky	KY	15,175,135	40,158,759	2,661,282	4,810,926	62,806,102	9,004,543
19. Louisiana	LA	26,994,872	51,047,992	3,513,318	9,238,151	90,794,333	11,429,918
20. Maine	ME	9,710,335	243,197,674	1,266,144	2,231,957	256,406,110	4,065,047
21. Maryland	MD	78,304,131	95,009,280	13,124,599	56,293,707	242,731,717	14,840,086
22. Massachusetts	MA	129,932,967	300,644,856	15,843,859	624,948,708	1,071,370,390	87,527,580
23. Michigan	MI	73,188,908	171,624,789	7,140,574	49,215,306	301,169,577	39,720,534
24. Minnesota	MN	46,011,418	119,450,212	4,312,329	37,917,385	207,691,344	14,737,429
25. Mississippi	MS	25,798,643	22,648,812	4,989,925	9,625,222	63,062,602	4,441,307
26. Missouri	MO	38,302,200	126,651,732	5,322,995	25,763,443	196,040,370	15,159,441
27. Montana	MT	8,443,329	18,790,264	957,154	1,67,059	28,357,806	2,173,002
28. Nebraska	NE	18,697,542	15,518,747	2,804,650	181,487,071	218,508,010	10,188,486
29. Nevada	NV	24,545,838	42,535,945	1,878,459	7,583,446	76,543,688	2,416,807
30. New Hampshire	NH	21,937,669	58,358,692	2,151,390	5,156,365	87,604,116	5,742,145
31. New Jersey	NJ	250,632,709	290,902,444	18,746,269	96,307,208	656,588,630	44,480,101
32. New Mexico	NM	17,037,809	36,315,924	1,428,420	104,833	54,886,986	11,223,321
33. New York	NY	738,107,880	685,906,342	42,444,504	157,939,450	1,624,398,176	77,654,553
34. North Carolina	NC	88,299,926	174,187,205	15,307,215	10,304,485	288,098,831	51,984,542
35. North Dakota	ND	17,817,737	5,318,184	413,938	191,674	23,741,533	4,751,434
36. Ohio	OH	86,185,329	210,874,515	9,084,971	53,588,829	359,733,644	39,218,874
37. Oklahoma	OK	52,536,883	104,326,521	4,045,144	17,926,493	178,835,041	8,148,909
38. Oregon	OR	20,840,286	51,792,545	2,944,522	11,130,357	86,707,710	8,705,770
39. Pennsylvania	PA	224,910,618	280,844,189	20,747,162	75,047,932	601,549,901	12,721,334
40. Rhode Island	RI	10,776,045	24,295,301	1,525,680	5,251,752	41,848,778	4,923,623
41. South Carolina	SC	42,070,547	66,894,442	7,983,072	5,677,732	122,625,793	27,439,689
42. South Dakota	SD	9,313,841	8,291,572	372,318	48,300	18,026,031	1,754,099
43. Tennessee	TN	81,857,514	97,027,991	10,061,234	29,247,541	218,194,280	20,103,444
44. Texas	TX	250,849,952	522,614,949	25,432,154	66,417,669	865,314,724	91,016,340
45. Utah	UT	28,732,998	41,574,188	2,159,919	2,166,166	74,633,271	12,834,493
46. Vermont	VT	9,930,764	18,777,769	819,363	5,358,878	34,886,774	439,286
47. Virginia	VA	105,149,455	150,236,900	15,945,605	40,370,521	311,702,481	27,922,322
48. Washington	WA	46,274,349	116,181,810	6,108,368	22,457,911	191,022,438	8,906,360
49. West Virginia	WV	8,447,856	13,750,656	775,675	5,569,153	28,543,340	12,865,410
50. Wisconsin	WI	29,839,307	63,363,682	3,331,224	22,074,475	118,608,688	5,900,935
51. Wyoming	WY	4,967,943	13,491,967	327,001	61,364	18,848,275	1,764,354
52. American Samoa	AS	N	N	N	N	N	N
53. Guam	GU	1,119	1,119	11,642	11,642	12,761	12,761
54. Puerto Rico	PR	39,153,920	8,583,342	5,203,064	3,301,073	56,241,399	1,704,125
55. U.S. Virgin Islands	VI	24,068	9,582	9,968	9,968	43,618	43,618
56. Northern Mariana Islands	MP	N	N	N	N	N	N
57. Canada	CAN	1,513,570	51,596	43,909	126,258	1,735,333	1,735,333
58. Aggregate Other Aliens	OT	8,471,311	1,600	321,112	18,117,528	26,911,551	24,490
59. Subtotal	XXX	4,172,542,234	6,871,571,808	382,032,357	2,215,916,469	13,642,062,868	3,458,835,781
90. Reporting entity contributions for employee benefits plans	XXX						
91. Dividends or refunds applied to purchase paid-up additions and annuities	XXX	745,346,612	337,753			745,684,365	
92. Dividends or refunds applied to shorten endowment or premium paying period	XXX						
93. Premium or annuity considerations waived under disability or other contract provisions	XXX	15,528,904		5,195,454		20,724,358	
94. Aggregate or other amounts not allocable by State	XXX	136,576,021				136,576,021	
95. Totals (Direct Business)	XXX	5,069,993,771	6,871,909,561	387,227,811	2,215,916,469	14,545,047,612	3,458,835,781
96. Plus Reinsurance Assumed	XXX	21,436,888	106,822,522		369,721,664	497,981,074	451,791,163
97. Totals (All Business)	XXX	5,091,430,659	6,978,732,083	387,227,811	2,585,638,133	15,043,028,685	3,910,626,944
98. Less Reinsurance Ceded	XXX	611,491,250	1,514,231,645	56,748,986	1,751,021,303	3,933,493,184	
99. Totals (All Business) less Reinsurance Ceded	XXX	4,479,939,409	5,464,500,438	330,478,825	834,616,830	11,109,535,502	3,910,626,944
DETAILS OF WRITE-INS							
58001. HKG Hong Kong	XXX	136,435				136,435	
58002. ZZZ Other Alien	XXX	8,334,876	1,600	321,112	18,117,528	26,775,116	24,490
58003.	XXX						
58998. Summary of remaining write-ins for Line 58 from overflow page	XXX						
58999. Totals (Lines 58001 through 58003 plus 58998)(Line 58 above)	XXX	8,471,311	1,600	321,112	18,117,528	26,911,551	24,490
9401. Reinvested Net Non Forfeiture Option Proceeds	XXX	136,576,021				136,576,021	
9402.	XXX						
9403.	XXX						
9498. Summary of remaining write-ins for Line 94 from overflow page	XXX						
9499. Totals (Lines 9401 through 9403 plus 9498)(Line 94 above)	XXX	136,576,021				136,576,021	

(a) Active Status Counts:

- 1. L - Licensed or Chartered - Licensed insurance carrier or domiciled RRG..... 52
- 2. R - Registered - Non-domiciled RRGs.....
- 3. E - Eligible - Reporting entities eligible or approved to write surplus lines in the state.....
- 4. Q - Qualified - Qualified or accredited reinsurer.....
- 5. N - None of the above - Not allowed to write business in the state..... 5

SCHEDULE Y – INFORMATION CONCERNING ACTIVITIES OF INSURER MEMBERS OF A HOLDING COMPANY GROUP

PART 1 – ORGANIZATIONAL CHART

The following entities are general partner level or above of **Massachusetts Mutual Life Insurance Company** (Parent)

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY	04-1590850	65935	Massachusetts
Direct & Indirect Owned Subsidiaries:			
C.M. Life Insurance Company	06-1041383	93432	Connecticut
MML Bay State Life Insurance Company	43-0581430	70416	Connecticut
CML Special Situations Investor LLC	None		Delaware
CM Life Mortgage Lending LLC	None		Delaware
CML Mezzanine Investor III, LLC	None		Delaware
CML Global Capabilities LLC	None		Delaware
MM Global Capabilities I LLC	None		Delaware
MassMutual Global Business Services India LLP	None		India
MM Global Capabilities (Netherlands) B.V.	None		Netherlands
MassMutual Global Business Services Romania S.R.L.	None		Romania
MM Global Capabilities II LLC	None		Delaware
MM Global Capabilities III LLC	None		Delaware
MM/Barings Multifamily TEBS 2020 LLC	None		Delaware
Berkshire Way LLC	04-1590850		Delaware
MML Special Situations Investor LLC	None		Delaware
Timberland Forest Holding LLC	47-5322979		Delaware
Lyme Adirondack Forest Company, LLC	None		Delaware
Lyme Adirondack Timberlands I, LLC	None		Delaware
Lyme Adirondack Timberlands II, LLC	None		Delaware
Lyme Adirondack Timber Sales, LLC	None		Delaware
MSP-SC, LLC	04-1590850		Delaware
Insurance Road LLC	04-1590850		Delaware
MassMutual Trad Private Equity LLC	04-1590850		Delaware
MassMutual Intellectual Property LLC	04-1590850		Delaware
Trad Investments I LLC	None		Delaware
ITPS Holding LLC	None		Delaware
HITPS LLC	None		Delaware
EM Opportunities LLC	None		Delaware
MassMutual MCAM Insurance Company, Inc.	None		Vermont
MassMutual Ventures US IV, GP, LLC	None		Delaware
MassMutual Ventures US IV, L.P.	None		Delaware
MassMutual Ventures Europe/APAC I GP, LLC	None		Delaware
MassMutual Ventures Europe/APAC I GP, L.P.	None		Cayman Islands
MassMutual Ventures Europe/APAC I L.P.	None		Cayman Islands
Counterpointe Sustainable Advisors LLC	None		Delaware
CSA Intermediate Holdco LLC	None		Delaware
Counterpointe Trust Services LLC	None		Delaware

*This entity is owned by another or multiple entities in the group. Please refer to Sch Y Part 1A for the ownership and percentage information.

SCHEDULE Y – INFORMATION CONCERNING ACTIVITIES OF INSURER MEMBERS OF A HOLDING COMPANY GROUP
PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
CP PACE LLC	None		Delaware
CSA Employee Services Company LLC	None		Delaware
Counterpointe Sustainable Real Estate II LLC	None		Delaware
Counterpointe Energy Solutions II LLC	None		Delaware
Counterpointe Energy Solutions (CA) II LLC	27-0105644		Delaware
Counterpointe Energy Services LLC	None		Delaware
JFIN Parent LLC	None		Delaware
Jefferies Finance LLC	27-0105644		Delaware
JFIN GP Adviser LLC	None		Delaware
JFIN Fund III LLC	None		Delaware
Jefferies Credit Partners LLC	None		Delaware
APEX Credit Partners LLC	None		Delaware
Jefferies Credit Management LLC	None		Delaware
JCP Direct Lending CLO 2022 LLC	None		Delaware
Jefferies Direct Lending Europe SCSp SICAV-RAIF	None		Luxembourg
Jefferies Credit Management Holdings LLC	None		Delaware
Senior Credit Investments, LLC	None		Delaware
JDLF GP (Europe) S.a.r.l	None		Luxembourg
JFAM GP LLC	None		Delaware
JFAM GP LP	None		Delaware
Jefferies Direct Lending Fund C LP	None		Delaware
Jefferies DLF C Holdings LLC	None		Delaware
Jefferies Direct Lending Fund C SPE LLC	None		Delaware
JDLF II GP LLC	None		Delaware
JDLF II GP LP	None		Delaware
Jefferies Direct Lending Fund II C LP	None		Delaware
Jefferies DLF 2 C Holdings LLC	None		Delaware
Jefferies Direct Lending Fund II C SPE LLC	None		Delaware
JCP Direct Lending CLO 2023-1 LLC	None		Delaware
JCP Direct Lending CLO 2023 Ltd.	None		Jersey Channel Islands
Jefferies Private Credit BDC Inc.	None		Maryland
Jefferies Senior Lending LLC	None		Delaware
Jefferies Credit Partners BDC Inc	None		Maryland
JFIN Revolver Holdings LLC	None		Delaware
JFIN Revolver Holdings II LLC	None		Delaware
JFIN Revolver Holdings IV LLC	None		Delaware
JFIN Co-Issuer Corporation	None		Delaware
JFIN Europe GP, S.a.r.l.	None		Luxembourg
Jefferies Finance Europe, S.L.P.	None		Luxembourg
Jefferies Finance Europe, SCSp	None		Luxembourg
Jefferies Finance Business Credit LLC	None		Delaware
JFIN Business Credit Fund I LLC	None		Delaware
JFIN Funding 2021 LLC	None		Delaware

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SCHEDULE Y – INFORMATION CONCERNING ACTIVITIES OF INSURER MEMBERS OF A HOLDING COMPANY GROUP
PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
JFIN High Yield Investments LLC	None		Delaware
JFIN LC Fund LLC	None		Delaware
JFIN Revolver CLO 2017 Ltd.	None		Cayman Islands
JFIN Revolver CLO 2017-II Ltd.	None		Cayman Islands
JFIN Revolver CLO 2017-III Ltd.	None		Cayman Islands
JFIN Revolver CLO 2018 Ltd.	None		Cayman Islands
JFIN Revolver CLO 2019 Ltd.	None		Cayman Islands
JFIN Revolver CLO 2019-II Ltd.	None		Cayman Islands
JFIN Revolver CLO 2020 Ltd.	None		Cayman Islands
JFIN Revolver CLO 2021-II Ltd.	None		Cayman Islands
JFIN Revolver CLO 2021-V Ltd.	None		Cayman Islands
JFIN Revolver CLO 2022-II Ltd.	None		Cayman Islands
JFIN Revolver CLO 2022-III Ltd.	None		Cayman Islands
JFIN Revolver CLO 2022-IV Ltd.	None		Cayman Islands
JFIN Revolver CLO 2022-IV LLC	None		Cayman Islands
JFIN Revolver Fund, L.P.	None		Delaware
JFIN Revolver Funding 2021 Ltd.	None		Delaware
JFIN Revolver Funding 2021-III Ltd.	None		Delaware
JFIN Revolver Funding 2021-IV Ltd.	None		Delaware
JFIN Revolver Funding 2022-I Ltd.	None		Bermuda
JFIN Revolver SPE1 2022 LLC	None		Delaware
JFIN Revolver SPE3 2022 LLC	None		Delaware
JFIN Revolver SPE4 2022 LLC	None		Delaware
SFL Parkway Funding 2022 LLC	None		Delaware
JCP Private Loan Management GP LLC	None		Delaware
JCP Private Loan Management LP	None		Delaware
Beauty Brands Acquisition Holdings LLC	None		Delaware
Beauty Brands Acquisition LLC	None		Delaware
Beauty Brands Acquisition Intermediate LLC	None		Delaware
Forma Brands, LLC	None		Delaware
Apex Credit Holdings LLC	None		Delaware
JFIN CLO 2012 Ltd.	None		Cayman Islands
JFIN CLO 2013 Ltd.	None		Cayman Islands
JFIN CLO 2014 Ltd.	None		Cayman Islands
JFIN CLO 2014-II Ltd.	None		Cayman Islands
JFIN CLO 2015 Ltd.	None		Cayman Islands
JFIN CLO 2015-II Ltd.	None		Cayman Islands
JFIN CLO 2016 Ltd.	None		Cayman Islands
JFIN CLO 2017 Ltd.	None		Cayman Islands
JFIN CLO 2017 II Ltd.	None		Cayman Islands
Tomorrow Parent, LLC	None		Delaware
Custom Ecology Holdco, LLC	None		Delaware
Glidepath Holdings Inc.	86-2294635		Delaware

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*This entity is owned by another or multiple entities in the group. Please refer to Sch Y Part 1A for the ownership and percentage information.

SCHEDULE Y – INFORMATION CONCERNING ACTIVITIES OF INSURER MEMBERS OF A HOLDING COMPANY GROUP
PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
MassMutual Ascend Life Insurance Company	13-1935920	63312	Ohio
AAG Insurance Agency, LLC	31-1422717		Kentucky
Annuity Investors Life Insurance Company	31-1021738	93661	Ohio
MM Ascend Life Investor Services, LLC	31-1395344		Ohio
MM Ascend Mortgage Lending LLC	31-1395344		Ohio
Manhattan National Holding, LLC	26-3260520		Ohio
Manhattan National Life Insurance Company	45-0252531	67083	Ohio
MassMutual Mortgage Lending LLC	None		Delaware
MM Copper Hill Road LLC	04-1590850		Delaware
MMV CTF I GP LLC	None		Delaware
MassMutual Ventures Climate Technology Fund I LP	None		Delaware
MM Direct Private Investment Holding LLC	None		Delaware
MM Direct Private Investments UK Limited	None		England & Wales
DPI-ACRES Capital LLC	None		Delaware
MM Investment Holding	None		Cayman Islands
MMIH Bond Holdings LLC	None		Delaware
MassMutual Asset Finance LLC*	26-0073611		Delaware
MMAF Equipment Finance LLC 2017-B	32-0546197		Delaware
MMAF Equipment Finance LLC 2018-A	82-5335801		Delaware
MMAF Equipment Finance LLC 2019-A	83-3722640		Delaware
MMAF Equipment Finance LLC 2019-B	None		Delaware
MMAF Equipment Finance LLC 2020-A	None		Delaware
MMAF Equipment Finance LLC 2020-B	None		Delaware
MMAF Equipment Finance LLC 2021-A	None		Delaware
MMAF Equipment Finance LLC 2022-A	None		Delaware
MMAF Equipment Finance LLC 2022-B	None		Delaware
MMAF Equipment Finance LLC 2023-A	None		Delaware
Rozier LLC	None		Delaware
MML Management Corporation	04-2443240		Massachusetts
MassMutual International Holding MSC, Inc.	04-3548444		Massachusetts
MassMutual Holding MSC, Inc.	04-3341767		Massachusetts
MML CM LLC	None		Delaware
Blueprint Income LLC	None		New York
Flourish Digital Assets LLC	None		Delaware
Flourish Financial LLC	None		Delaware
Flourish Holding Company LLC	None		Delaware
Flourish Insurance Agency LLC	None		Delaware
Flourish Technologies LLC	None		Delaware
MassMutual Ventures US IV GP	04-1590850		Delaware
MassMutual Venture US IV LP	04-1590850		Delaware
MML Distributors LLC*	04-3356880		Massachusetts
MML Investment Advisers, LLC	None		Delaware
MML Strategic Distributors, LLC	46-3238013		Delaware

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SCHEDULE Y – INFORMATION CONCERNING ACTIVITIES OF INSURER MEMBERS OF A HOLDING COMPANY GROUP
PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
The MassMutual Trust Company, FSB	06-1563535		Connecticut
MML Private Placement Investment Company I, LLC	04-1590850		Delaware
MML Private Equity Fund Investor LLC	04-1590850		Delaware
MM Private Equity Intercontinental LLC	04-1590850		Delaware
Pioneers Gate LLC	45-2738137		Delaware
MassMutual Holding LLC	04-2854319		Delaware
Fern Street LLC	37-1732913		Delaware
Low Carbon Energy Holding	None		United Kingdom
Sleeper Street LLC	None		Delaware
Teaktree Acquisition, LLC	None		Delaware
VGS Acquisition Holding, LLC	None		Delaware
Haven Life Insurance Agency, LLC	46-2252944		Delaware
Aland Royalty Holdings LP	None		Delaware
GASL Holdings LLC	None		Delaware
Barings Asset-Based Income Fund (US) LP	None		Delaware
Babson Capital Global Special Situation Credit Fund 2*	98-1206017		Delaware
Barings Global Real Assets Fund LP	82-3867745		Delaware
Barings Global Special Situations Credit Fund 3	None		Ireland
Barings North American Private Loan Fund LP	38-4010344		Delaware
MassMutual Assignment Company	06-1597528		North Carolina
MassMutual Capital Partners LLC	04-1590850		Delaware
Marco Hotel LLC	46-4253307		Delaware
HB Naples Golf Owner LLC	45-3623262		Delaware
RB Apartments LLC	82-4411267		Delaware
MassMutual Ventures Holding LLC	None		Delaware
Athens Fund Management LLC	None		Delaware
Crane Venture Partners LLP	None		United Kingdom
MassMutual Ventures Management LLC	None		Delaware
MassMutual Ventures SEA Management Private Limited	None		Singapore
MMV UK/SEA Limited	None		England & Wales
MassMutual Ventures Southeast Asia I LLC	None		Delaware
MassMutual Ventures Southeast Asia II LLC	None		Delaware
MassMutual Ventures Southeast Asia III LLC	None		Delaware
MMV Digital I LLC	None		Cayman Islands
MassMutual Ventures UK LLC	None		Delaware
MassMutual Ventures US I LLC	47-1296410		Delaware
MassMutual Ventures US II LLC	None		Delaware
MassMutual Ventures US III LLC	None		Delaware
MassMutual Ventures US IV LLC	None		Delaware
MM Catalyst Fund LLC	None		Delaware
MM Catalyst Fund II LLC	None		Delaware
MM Rothesay Holdco US LLC	04-1590850		Delaware
Rothesay Limited	None		United Kingdom

*This entity is owned by another or multiple entities in the group. Please refer to Sch Y Part 1A for the ownership and percentage information.

SCHEDULE Y – INFORMATION CONCERNING ACTIVITIES OF INSURER MEMBERS OF A HOLDING COMPANY GROUP
PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
Rothesay Mortgages Limited	None		United Kingdom
Rothesay Life Plc	None		United Kingdom
Rothesay MA No.1 Limited	None		United Kingdom
Rothesay MA No.3 Limited	None		United Kingdom
Rothesay MA No.4 Limited	None		United Kingdom
LT Mortgage Finance Limited	None		United Kingdom
Rothesay Property Partnership 1 LLP	None		United Kingdom
Rothesay Foundation	None		United Kingdom
Rothesay Pensions Management Limited	None		United Kingdom
Rothesay Asset Management UK Limited	None		United Kingdom
Rothesay Asset Management Australia Pty Ltd	None		Australia
Rothesay Asset Management North America LLC	None		Delaware
MML Investors Services, LLC	04-1590850		Massachusetts
MML Insurance Agency, LLC	04-1590850		Massachusetts
MMLISI Financial Alliances, LLC	41-2011634		Delaware
LifeScore Labs, LLC	47-1466022		Massachusetts
MM Asset Management Holding LLC	45-4000072		Delaware
Barings LLC	51-0504477		Delaware
Baring Asset Management (Asia) Holdings Limited	98-0524271		Hong Kong, Special Administrative Region of China
Baring International Fund Managers (Bermuda) Limited	98-0457465		Bermuda
Baring Asset Management (Asia) Limited	98-0457463		Hong Kong, Special Administrative Region of China
Baring Asset Management Korea Limited	None		Korea
Baring Investment Management (Shanghai) Limited	None		Hong Kong, Special Administrative Region of China
Barings Overseas Investment Fund Management (Shanghai) Limited	None		Hong Kong, Special Administrative Region of China
Baring SICE (Taiwan) Limited	98-0457707		Taiwan ROC
Barings Singapore Pte. Ltd.	None		Singapore
Barings Japan Limited	98-0236449		Japan
Barings Australia Holding Company Pty Ltd	None		Australia
Barings Australia Pty Ltd	None		Australia
Barings Australia Real Estate Holdings Pty Ltd	None		Australia
Barings Australia Real Estate Pty Ltd	14-0045656		Australia
Altis Property Partners Holdings Pty Ltd	98-0457456		Australia
Altis Asset Management Pty Ltd	None		Australia
Altis Property Partners Pty Ltd	None		Australia
Barings Australia Structured Finance Holdings Pty Ltd	None		Australia
Barings Australia Structured Finance Pty Ltd	None		Australia
Gryphon Capital Partners Pty Ltd	None		Australia
Gryphon Capital Management Pty Ltd	None		Australia
Gryphon Capital Investments Pty Ltd	None		Australia
Barings Finance LLC	80-0875475		Delaware
BCF Europe Funding Limited	None		Ireland
BCF Senior Funding I LLC	None		Delaware
BCF Senior Funding I Designated Activity Company	None		Ireland

*This entity is owned by another or multiple entities in the group. Please refer to Sch Y Part 1A for the ownership and percentage information.

SCHEDULE Y – INFORMATION CONCERNING ACTIVITIES OF INSURER MEMBERS OF A HOLDING COMPANY GROUP

PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
Barings Real Estate Acquisitions LLC	None		Delaware
Barings Securities LLC	04-3238351		Delaware
Barings Guernsey Limited	98-0437588		Guernsey
Barings Europe Limited	None		United Kingdom
Barings Asset Management Spain SL	None		Spain
Baring France SAS	None		France
Baring International Fund Managers (Ireland) Limited	None		Ireland
Barings GmbH	None		Germany
Barings Italy S.r.l.	None		Italy
Barings Sweden AB	None		Sweden
Barings Netherlands B.V.	None		Netherlands
Barings (U.K.) Limited	98-0432153		United Kingdom
Barings Switzerland Sàrl	None		Switzerland
Baring Asset Management Limited	98-0241935		United Kingdom
Barings European Direct Lending 1 GP LLP	None		United Kingdom
Baring International Investment Limited	98-0457328		United Kingdom
Baring International Investment Management Holdings	98-0457587		United Kingdom
Baring Asset Management UK Holdings Limited	98-0457576		United Kingdom
Baring Fund Managers Limited	98-0457586		United Kingdom
BCGSS 2 GP LLP	None		United Kingdom
Baring Investment Services Limited	98-0457578		United Kingdom
Barings Core Fund Feeder I GP S.à.r.l.	None		Luxembourg
Barings Investment Fund (LUX) GP S.à r.l.	None		Luxembourg
Barings BME GP S.à.r.l.	None		United Kingdom
Barings GPC GP S.à.r.l.	None		Luxembourg
Barings European Core Property Fund GP Sà.r.l	None		United Kingdom
Barings Umbrella Fund (LUX) GP S.à.r.l.	None		Luxembourg
GPLF4(S) GP S.à r. l	None		Luxembourg
PREIF Holdings Limited Partnership	None		United Kingdom
BMC Holdings DE LLC	None		Delaware
Barings Real Estate Advisers Inc.	04-3238351		Delaware
CRA Aircraft Holding LLC*	81-4258759		Delaware
Chassis Acquisition Holding LLC	81-2244465		Delaware
EIP Holdings I, LLC	None		Delaware
Red Lake Ventures, LLC	46-5460309		Delaware
Remington L & W Holdings LLC	81-4065378		Delaware
Validus Holding Company LLC	46-0687392		Delaware
Aland Royalty GP, LLC	None		Delaware
Alaska Future Fund GP, LLC	None		Delaware
BAI Funds SLP, LLC	None		Delaware
BAI GP, LLC	None		Delaware
Baring Asset-Based Income Fund (US) GP, LLC	None		Delaware
Barings CMS Fund GP, LLC	None		Delaware

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SCHEDULE Y – INFORMATION CONCERNING ACTIVITIES OF INSURER MEMBERS OF A HOLDING COMPANY GROUP
PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
Barings Infiniti Fund Management LLC	None		Delaware
Barings Hotel Opportunity Venture I GP, LLC	None		Delaware
Barings Investment Series LLC	None		Delaware
Barings Emerging Generation Fund GP, LLC	None		Delaware
Barings Emerging Generation Fund GP II, LLC	None		Delaware
Barings ERS PE Emerging Manager III GP, LLC	None		Delaware
Barings Global Investment Funds (U.S.) Management LLC	04-1590850		Delaware
Barings CLO Investment Partners GP, LLC	None		Delaware
Barings Core Property Fund GP LLC	None		Delaware
Barings Direct Lending GP Ltd.	None		Cayman Islands
Barings Emerging Generation Fund LP	84-3784245		Delaware
Barings Global Energy Infrastructure Advisors, LLC	None		Delaware
Barings Centre Street CLO Equity Partnership GP, LLC	None		Delaware
Barings Centre Street CLO Equity Partnership LP	None		Delaware
Barings Global Real Assets Fund GP, LLC	None		Delaware
Barings GPSF LLC	None		Delaware
Barings North American Private Loan Fund Management, LLC	None		Delaware
Barings North American Private Loan Fund II Management, LLC	None		Delaware
Barings North American Private Loan Fund III Management, LLC	None		Delaware
Barings Global Special Situations Credit Fund 4 GP (Delaware) LLC	None		Delaware
Barings - MM Revolver Fund GP LLC	None		Delaware
Barings Real Estate European Value Add Fund II Feeder LLC	None		Cayman Islands
BMT RE Debt Fund GP LLC	None		Delaware
Barings Small Business Fund LLC	84-5063008		Delaware
Benton Street Advisors, Inc.	98-0536233		Cayman Islands
BHOVI Incentive LLC	None		Delaware
BIG Real Estate Fund GP LLC	None		Delaware
BIG Real Estate Incentive I LLC	None		Delaware
BIG Real Estate Incentive II LLC	None		Delaware
BRECS VII GP LLC	None		Delaware
BREDIF GP LLC	None		Delaware
CREF X GP LLC	None		Delaware
Great Lakes III GP, LLC	04-1590850		Delaware
Lake Jackson LLC	None		Delaware
Barings Emerging Markets Blended Fund I GP, LLC	None		Delaware
Mezzco III LLC	41-2280126		Delaware
Mezzco IV LLC	80-0920285		Delaware
Mezzco Australia II LLC	None		Delaware
RECSA-NY GP LLC	None		Delaware
SBNP SIA II LLC	None		Delaware
SBNP SIA III LLC	None		Delaware
Barings CLO 2022-I	98-1624360		Cayman Island
Barings CLO 2022-II	None		Cayman Island

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SCHEDULE Y – INFORMATION CONCERNING ACTIVITIES OF INSURER MEMBERS OF A HOLDING COMPANY GROUP
PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
Amherst Long Term Holdings, LLC	None		Delaware
MassMutual International LLC	04-3313782		Delaware
MassMutual Solutions LLC	None		Delaware
Haven Technologies Asia Limited	None		Hong Kong
Yunfeng Financial Group Limited	None		Hong Kong
MassMutual Asia Limited (SPV)	None		Hong Kong
MassMutual External Benefits Group LLC	27-3576835		Delaware
MMV CTF I GP LLC	None		Delaware
MassMutual Ventures Climate Technology Fund I LP	27-3576835		Delaware
Other Affiliates & Funds:			
100 w. 3 rd Street LLC	04-1590850		Delaware
300 South Tryon Hotel LLC	82-2432216		Delaware
2160 Grand Manager LLC	04-1590850		Delaware
300 South Tryon LLC	04-1590850		Delaware
Almack Mezzanine Fund II Unleveraged LP	None		United Kingdom
Barings Affordable Housing Mortgage Fund I LLC	82-3468147		Delaware
Barings Affordable Housing Mortgage Fund II LLC	61-1902329		Delaware
Barings Affordable Housing Mortgage Fund III LLC	85-3036663		Delaware
Barings Emerging Markets Corporate Bond Fund*	None		Ireland
Barings European Real Estate Debt Income Fund	None		Luxembourg
Babson Capital Loan Strategies Fund, L.P.*	37-1506417		Delaware
Barings US High Yield Bond Fund*	None		Ireland
Babson CLO Ltd. 2012-II	None		Cayman Islands
Babson CLO Ltd. 2015-I	None		Cayman Islands
Babson CLO Ltd. 2015-II	None		Cayman Islands
Babson CLO Ltd. 2016-I	None		Cayman Islands
Babson CLO Ltd. 2016-II	None		Cayman Islands
Barings CLO Ltd. 2017-I	None		Cayman Islands
Barings CLO 2018-III	None		Cayman Islands
Barings CLO 2018-IV	None		Cayman Islands
Barings CLO 2019-II	98-1473665		Cayman Islands
Barings CLO 2019-III	None		Cayman Islands
Barings CLO 2019-IV	None		Cayman Islands
Barings CLO 2020-I	None		Cayman Islands
Barings CLO 2020-II	None		Cayman Islands
Barings CLO 2020-III	None		Cayman Islands
Barings CLO 2020-IV	None		Cayman Islands
Barings CLO 2021-I	None		Cayman Islands
Barings CLO 2021-II	None		Cayman Islands
Barings CLO 2021-III	None		Cayman Islands
Babson Euro CLO 2014-I BV	None		Netherlands
Babson Euro CLO 2014-II BV	None		Netherlands
Babson Euro CLO 2015-I BV	None		Netherlands

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SCHEDULE Y – INFORMATION CONCERNING ACTIVITIES OF INSURER MEMBERS OF A HOLDING COMPANY GROUP
PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
Barings Euro CLO 2019-I	3603726OH		Ireland
Barings Euro CLO 2019-II	None		Ireland
Barings Euro CLO 2020-I DAC	None		Ireland
Barings Euro CLO 2021-I DAC	3715576VH		Ireland
Barings Euro CLO 2021-II DAC	3750378QH		Ireland
Barings Euro CLO 2021-III DAC	None		Ireland
Barings Euro CLO 2022-I DAC	None		Ireland
Barings Global Em. Markets Equity Fund	82-5330194		North Carolina
Barings Global Energy Infrastructure Fund I LP	98-1332384		Cayman Islands
Barings Global Special Situations Credit 4 Delaware*	85-1465973		Delaware
Barings Global Special Situations Credit 4 LUX*	98-1570693		Luxembourg
Barings Global Technology Equity Fund	None		Ireland
Barings Europe Select Fund	None		Ireland
Barings Hotel Opportunity Venture	87-0977058		Connecticut
Barings Innovations & Growth Real Estate Fund*	86-3661023		Delaware
Barings Middle Market CLO 2017-I Ltd & LLC	None		Cayman Islands
Barings Middle Market CLO 2018-I	None		Cayman Islands
Barings Middle Market CLO 2019-I	None		Cayman Islands
Barings Middle Market CLO Ltd 2021-I	98-1612604		Cayman Islands
Barings RE Credit Strategies VII LP	98-1332384		Delaware
Barings Target Yield Infrastructure Debt Fund*	98-1567942		Luxembourg
Barings CLO Investment Partners LP	81-0841854		Delaware
Barings Euro Value Add II (BREEVA II) *	None		Luxembourg
Barings Real Estate European Value Add I SCSp*	None		United Kingdom
Barings Real Estate Debt Income Fund LP*	85-3449260		Delaware
Barings Transportation Fund LP*	87-1262754		Delaware
Braemar Energy Ventures I, L.P.*	None		Delaware
Barings European Core Property Fund SCSp	None		Luxembourg
Barings European Private Loan Fund III A	46-5001122		Luxembourg
Benchmark 2018-B2 Mortgage Trust	38-4059932		New York
Benchmark 2018-B4	None		New York
Benchmark 2018-B8	38-4096530		New York
Barings Core Property Fund LP	20-5578089		Delaware
DPI Acres Capital SPV LLC	04-1590850		Delaware
Gateway Mezzanine Partners II LP*	90-0991195		Delaware
Great Lakes III, L.P.	37-1708623		Delaware
GIA EU Holdings - Emerson JV Sarl	98-1607033		Luxembourg
JPMCC Commercial Mortgage Securities Trust 2017-JP7	38-4041011; 38-4041012		New York
JPMDB Commercial Mortgage Securities Trust 2017-C5	38-4032059		New York
Martello Re Limited	None		Bermuda
Miami Douglas Three MM LLC	04-1590850		Delaware
MM BIG Peninsula Co-Invest Member LLC	87-4021641		Delaware
MM Direct Private Investment Holding	04-1590850		Delaware

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SCHEDULE Y – INFORMATION CONCERNING ACTIVITIES OF INSURER MEMBERS OF A HOLDING COMPANY GROUP
PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
MM CM Holding LLC	None		Delaware
MM Debt Participations LLC	81-3000420		Delaware
MM MD1 Station Member LLC	04-1590850		Delaware
MM MD2 Station Member LLC	04-1590850		Delaware
MMV Climate Technology Fund GP	04-1590850		Delaware
MM Subline Borrower LLC	04-1590850		Delaware
Washington Pine LLC	04-1590850		Delaware
Somerset Special Opportunities Fund L.P.*	20-8856877		Delaware
Ten Fan Pier Boulevard LLC	35-2553915		Delaware
Tower Square Capital Partners III, L.P.	41-2280127		Delaware
Tower Square Capital Partners IIIA, L.P.	41-2280129		Delaware
Trailside MM Member LLC*	04-1590850		Delaware
Washington Gateway Two LLC*	83-1325764		Delaware
Washington Gateway Three LLC*	32-0574045		Delaware
Barings Affiliates & Funds:			
Babson Capital Loan Strategies Master Fund LP	None		Cayman Islands
Barings China Aggregate Bond Private Securities Investment Fund	None		Peoples Republic of China
Barings European Growth Trust Fund	None		United Kingdom
Barings Global High Yield Fund	47-3790192		Massachusetts
CCIC Fund	None		Peoples Republic of China
Great Lakes II LLC*	71-1018134		Delaware
Wood Creek Venture Fund LLC	04-1590850		Delaware
Barings Real Estate Affiliates & Funds:			
Barings California Mortgage Fund IV	None		California
Barings Umbrella Fund LUX SCSp SICAV RAIF*	None		Luxembourg
Calgary Railway Holding LLC*	82-2285211		Delaware
Combrook PRS Holdings LLC	82-3307907		Delaware
Cornerstone California Mortgage Fund I LLC	95-4207717		California
Cornerstone California Mortgage Fund II LLC	95-4207717		California
Cornerstone California Mortgage Fund III LLC	95-4207717		California
Cornerstone Fort Pierce Development LLC*	56-2630592		Delaware
Cornerstone Permanent Mortgage Fund	45-2632610		Massachusetts
Cornerstone Permanent Mortgage Fund II	61-1750537		Massachusetts
Cornerstone Permanent Mortgage Fund III	35-2531693		Massachusetts
Cornerstone Permanent Mortgage Fund IV	61-1793735		Massachusetts
CREA/PPC Venture LLC	20-0348173		Delaware
Danville Riverwalk Venture, LLC	82-2783393		Delaware
Euro Real Estate Holdings LLC	04-1590850		Delaware
Fan Pier Development LLC*	20-3347091		Delaware
GIA EU Holdings LLC	04-1590850		Delaware
Landmark Manchester Holdings LLC	81-5360103		Delaware
MMLIC Debt Participations LLC	13-1935920		Delaware
MM Brookhaven Member LLC	04-1590850		Delaware

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SCHEDULE Y – INFORMATION CONCERNING ACTIVITIES OF INSURER MEMBERS OF A HOLDING COMPANY GROUP
PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
MM Kannapolis Industrial Member LLC	04-1590850		Delaware
MM East South Crossing Member LLC	04-1590850		Delaware
MM Horizon Savannah Member LLC*	04-1590850		Delaware
MM National Self-Storage Program Member LLC	04-1590850		Delaware
MM 1400 E 4th Street Member LLC	04-1590850		Delaware
One Harbor Shore LLC*	80-0948028		Delaware
PACO France Logistics LLC	04-1590850		Delaware
Salomon Brothers Commercial Mortgage Trust 2001-MM	None		Delaware
Three PW Office Holding LLC	81-5273574		Delaware
Trailside MM Member II LLC	04-1590850		Delaware
Unna, Dortmund Holding LLC	82-3250684		Delaware
Washington Gateway Apartments Venture LLC*	45-5401109		Delaware
West 37th Street Hotel LLC*	88-3861481		Delaware
MassMutual Premier Funds:			
MassMutual Premier Main Street Fund	51-0529328		Massachusetts
MassMutual Premier Strategic Emerging Markets Fund	26-3229251		Massachusetts
MassMutual Select Funds:			
MassMutual Select Fundamental Growth Fund	04-3512593		Massachusetts
MassMutual Select Mid-Cap Value Fund	42-1710935		Massachusetts
MassMutual Select Small Capital Value Equity Fund	02-0769954		Massachusetts
MassMutual Select Small Company Value Fund	04-3584140		Massachusetts
MassMutual Select T. Rowe Price Retirement 2005 Fund	82-3347422		Massachusetts
MassMutual Select T. Rowe Price Retirement 2010 Fund	82-3355639		Massachusetts
MassMutual Select T. Rowe Price Retirement 2015 Fund	82-3382389		Massachusetts
MassMutual Select T. Rowe Price Retirement 2020 Fund	82-3396442		Massachusetts
MassMutual Select T. Rowe Price Retirement 2025 Fund	82-3417420		Massachusetts
MassMutual Select T. Rowe Price Retirement 2030 Fund	82-3430358		Massachusetts
MassMutual Select T. Rowe Price Retirement 2035 Fund	82-3439837		Massachusetts
MassMutual Select T. Rowe Price Retirement 2040 Fund	82-3451779		Massachusetts
MassMutual Select T. Rowe Price Retirement 2045 Fund	82-3472295		Massachusetts
MassMutual Select T. Rowe Price Retirement 2050 Fund	82-3481715		Massachusetts
MassMutual Select T. Rowe Price Retirement 2055 Fund	82-3502011		Massachusetts
MassMutual Select T. Rowe Price Retirement 2060 Fund	82-3525148		Massachusetts
MassMutual Select T. Rowe Price Retirement Balanced Fund	82-3533944		Massachusetts
MML Series Investment Funds:			
MML Series International Equity Fund	46-4257056		Massachusetts
MML Series Investment Funds II:			
MML Series II Dynamic Bond Fund	47-3529636		Massachusetts
MML Series II Equity Rotation Fund	47-3544629		Massachusetts
MassMutual RetireSMART Funds:			
MassMutual RetireSMART 2035 Fund	27-1933380		Massachusetts
MassMutual RetireSMART 2045 Fund	27-1932769		Massachusetts
MassMutual RetireSMART 2055 Fund	46-3289207		Massachusetts

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SCHEDULE Y – INFORMATION CONCERNING ACTIVITIES OF INSURER MEMBERS OF A HOLDING COMPANY GROUP
PART 1 – ORGANIZATIONAL CHART

	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
MassMutual RetireSMART 2060 Fund	47-5326235		Massachusetts
MassMutual 20/80 Allocation Fund	45-1618155		Massachusetts
MassMutual 80/20 Allocation Fund	45-1618222		Massachusetts
MassMutual RetireSMART In Retirement Fund	03-0532464		Massachusetts
MassMutual 40/60 Allocation Fund	45-1618262		Massachusetts
MassMutual 60/40 Allocation Fund	45-1618046		Massachusetts
MassMutual ishares 60/40 Allocation Fund	45-1618046		Massachusetts
MassMutual Balanced Fund	04-3212054		Massachusetts
MassMutual Blue Chip Growth Fund	04-3556992		Massachusetts
MassMutual Core Bond Fund	04-3277549		Massachusetts
MassMutual Disciplined Growth Fund	04-3539084		Massachusetts
MassMutual Disciplined Value Fund	04-3539083		Massachusetts
MassMutual Diversified Value Fund	01-0821120		Massachusetts
MassMutual Equity Opportunities Fund	04-3512590		Massachusetts
MassMutual Growth Opportunities Fund	04-3512589		Massachusetts
MassMutual Inflation-Protected and Income Fund	03-0532475		Massachusetts
MassMutual Mid Cap Growth Fund	04-3512596		Massachusetts
MassMutual Premier Diversified Bond Fund	04-3464165		Massachusetts
MassMutual RetireSMART by JPMorgan 2065 Fund	92-1441036		Massachusetts
MassMutual Select 80/20 Allocation Fund	45-1618222		Massachusetts
MassMutual Select Fundamental Value Fund	04-3584138		Massachusetts
MassMutual Select Overseas Fund	04-3557000		Massachusetts
MassMutual Select T Rowe Price Retirement 2065 Fund	92-1427882		Massachusetts
MassMutual Small Cap Growth Equity Fund	04-3464205		Massachusetts
MassMutual Small Cap Opportunities Fund	04-3424705		Massachusetts
MassMutual Small Cap Value Equity Fund	02-0769954		Massachusetts
MassMutual Strategic Bond Fund	26-0099965		Massachusetts

12.12

*This entity is owned by another or multiple entities in the group. Please refer to Sch Y Part 1A for the ownership and percentage information.

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE Y

PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Group Code	Group Name	NAIC Company Code	ID Number	Federal RSSD	CIK	Name of Securities Exchange if Publicly Traded (U.S. or International)	Names of Parent, Subsidiaries Or Affiliates	Domiciliary Location	Relationship to Reporting Entity	Directly Controlled by (Name of Entity/Person)	Type of Control (Ownership, Board, Management, Attorney-in-Fact, Influence, Other)	If Control is Ownership Provide Percentage	Ultimate Controlling Entity(ies)/Person(s)	Is an SCA Filing Required? (Yes/No)	*
.0435	Massachusetts Mut Life Ins Co	65935	04-1590850	3848388			Massachusetts Mutual Life Insurance Company (MMLIC)	MA	RE	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
							MassMutual Ventures Europe/APAC I GP, LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
							MassMutual Ventures Europe/APAC I GP, L.P.	CYM	DS	MassMutual Ventures Europe/APAC I GP, LLC	Ownership	100.000	MMLIC		
							MassMutual Ventures Europe/APAC I L.P.	CYM	DS	MassMutual Ventures Europe/APAC I GP, L.P.	Ownership	100.000	MMLIC		
							Counterpointe Sustainable Advisors LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
							CSA Intermediate Holdco LLC	DE	DS	Counterpointe Sustainable Advisors LLC	Ownership	100.000	MMLIC		
							Counterpointe Trust Services LLC	DE	DS	CSA Intermediate Holdco LLC	Ownership	100.000	MMLIC		
							CP PACE LLC	DE	DS	CSA Intermediate Holdco LLC	Ownership	100.000	MMLIC		
							CSA Employee Services Company LLC	DE	DS	CSA Intermediate Holdco LLC	Ownership	100.000	MMLIC		
							Counterpointe Sustainable Real Estate II LLC	DE	DS	CSA Intermediate Holdco LLC	Ownership	100.000	MMLIC		
							Counterpointe Energy Solutions II LLC	DE	DS	CSA Intermediate Holdco LLC	Ownership	100.000	MMLIC		
							Counterpointe Energy Solutions (CA) II LLC	DE	DS	Counterpointe Energy Solutions (CA) II LLC	Ownership	100.000	MMLIC		
							Counterpointe Energy Services LLC	DE	DS	CSA Intermediate Holdco LLC	Ownership	100.000	MMLIC		
.0435	Massachusetts Mut Life Ins Co	93432	06-1041383				C.M. Life Insurance Company	CT	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0435	Massachusetts Mut Life Ins Co	70416	43-0581430				MML Bay State Life Insurance Company	CT	DS	C.M. Life Insurance Company	Ownership	100.000	MMLIC		
							CM Life Mortgage Lending LLC	DE	DS	C.M. Life Insurance Company	Ownership	100.000	MMLIC		
							CM Mezzanine Investor III, LLC	DE	DS	C.M. Life Insurance Company	Ownership	100.000	MMLIC		
.0000							CM Special Situations Investor LLC	DE	DS	C.M. Life Insurance Company	Ownership	100.000	MMLIC		
.0000							CM Global Capabilities LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							MM Global Capabilities I LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							MassMutual Global Business Services India LLP	IND	DS	MM Global Capabilities I LLC	Ownership	100.000	MMLIC		
.0000							MM Global Capabilities (Netherlands) B.V.	NLD	DS	MM Global Capabilities I LLC	Ownership	100.000	MMLIC		
.0000							MassMutual Global Business Services Romania S.R.L.	ROU	DS	MM Global Capabilities (Netherlands) B.V.	Ownership	100.000	MMLIC		
.0000							MM Global Capabilities II LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							MM Global Capabilities III LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							MM/Barings Multifamily TEBS 2020 LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							MML Special Situations Investor LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			47-5322979				Timberland Forest Holding LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			47-5322979				Timberland Forest Holding LLC	DE	DS	C.M. Life Insurance Company	Influence	0.000	MMLIC		
.0000			47-5322979				Timberland Forest Holding LLC	DE	DS	Wood Creek Capital Management LLC	Management		MMLIC		
.0000							Lyme Adirondack Forest Company, LLC	DE	DS	Timberland Forest Holding LLC	Ownership	100.000	MMLIC		
.0000							Lyme Adirondack Timberlands I, LLC	DE	DS	Lyme Adirondack Forest Company, LLC	Ownership	100.000	MMLIC		
.0000							Lyme Adirondack Timberlands II, LLC	DE	DS	Lyme Adirondack Forest Company, LLC	Ownership	100.000	MMLIC		
.0000							Lyme Adirondack Timber Sales, LLC	DE	DS	Lyme Adirondack Forest Company, LLC	Ownership	100.000	MMLIC		

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE Y

PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Group Code	Group Name	NAIC Company Code	ID Number	Federal RSSD	CIK	Name of Securities Exchange if Publicly Traded (U.S. or International)	Names of Parent, Subsidiaries Or Affiliates	Domiciliary Location	Relationship to Reporting Entity	Directly Controlled by (Name of Entity/Person)	Type of Control (Ownership, Board, Management, Attorney-in-Fact, Influence, Other)	If Control is Ownership Provide Percentage	Ultimate Controlling Entity(ies)/Person(s)	Is an SCA Filing Required? (Yes/No)	*
.0000			04-1590850				Berkshire Way LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			04-1590850				MSP-SC, LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							EM Opportunities LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							MassMutual MCAM Insurance Company, Inc.	VT	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							MassMutual Ventures US IV, GP, LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							MassMutual Ventures US IV, LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			04-1590850				Insurance Road LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			04-1590850				MassMutual Trad Private Equity LLC	DE	NIA	Insurance Road LLC	Ownership	100.000	MLLIC		
.0000			04-1590850				MassMutual Intellectual Property LLC	DE	NIA	Insurance Road LLC	Ownership	100.000	MLLIC		
.0000							Trad Investments I LLC	DE	NIA	Insurance Road LLC	Ownership	100.000	MLLIC		
.0000							ITPSHolding LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							HITPS LLC	DE	NIA	ITPS Holding LLC	Ownership	100.000	MLLIC		
.0000							JFIN Parent LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							Forma Brands, LLC*	DE	NIA	JFIN Parent LLC	Ownership	100.000	MLLIC		
.0000			27-0105644				Jefferies Finance LLC	DE	NIA	JFIN Parent LLC	Ownership	50.000	MLLIC		1
.0000			86-2294635				Glidepath Holdings Inc.	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0435	Massachusetts Mut Life Ins Co	63312	13-1935920				MassMutual Ascend Life Insurance Company	OH	DS	Glidepath Holdings Inc.	Ownership	100.000	MLLIC		
.0000			31-1422717				AAG Insurance Agency, LLC	KY	DS	MassMutual Ascend Life Insurance Company	Ownership	100.000	MLLIC		
.0435	Massachusetts Mut Life Ins Co	93661	31-1021738				Annuity Investors Life Insurance Company	OH	DS	MassMutual Ascend Life Insurance Company	Ownership	100.000	MLLIC		
.0000			31-1395344				MM Ascend Life Investor Services, LLC	OH	DS	MassMutual Ascend Life Insurance Company	Ownership	100.000	MLLIC		
.0000							MM Ascend Mortgage Lending LLC	OH	DS	MassMutual Ascend Life Insurance Company	Ownership	100.000	MLLIC		
.0000			26-3260520				Manhattan National Holding, LLC	OH	DS	MassMutual Ascend Life Insurance Company	Ownership	100.000	MLLIC		
.0435	Massachusetts Mut Life Ins Co	67083	45-0252531				Manhattan National Life Insurance Company	OH	DS	Manhattan National Holding LLC	Ownership	100.000	MLLIC		
.0000							MassMutual Mortgage Lending LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							Jefferies Private Credit BDC Inc.	MD	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN GP Adviser LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN Fund III LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							Jefferies Credit Partners LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							Apex Credit Partners LLC	DE	NIA	Jefferies Credit Partners LLC	Ownership	100.000	MLLIC		
.0000							Jefferies Credit Management LLC	DE	NIA	Jefferies Credit Partners LLC	Ownership	100.000	MLLIC		
.0000							JCP Direct Lending CLO 2022 LLC	DE	NIA	Jefferies Credit Partners LLC	Ownership	9.900	MLLIC		
.0000							Jefferies Direct Lending Europe SCSp SICAV-RAIF	LUX	NIA	Jefferies Credit Partners LLC	Ownership	9.900	MLLIC		
.0000							Jefferies Credit Management Holdings LLC	DE	NIA	Jefferies Credit Partners LLC	Ownership	9.900	MLLIC		
.0000							Senior Credit Investments, LLC	DE	NIA	Jefferies Credit Partners LLC	Ownership	9.900	MLLIC		
.0000							JDLF GP (Europe) S.a.r.l	LUX	NIA	Jefferies Credit Partners LLC	Ownership	100.000	MLLIC		
.0000							JFAM GP LLC	DE	NIA	Jefferies Credit Partners LLC	Ownership	100.000	MLLIC		
.0000							JFAM GP LP	DE	NIA	Jefferies Credit Partners LLC	Ownership	100.000	MLLIC		
.0000							Jefferies Direct Lending Fund C LP	DE	NIA	JFAM GP LP	Ownership	100.000	MLLIC		
.0000							Jefferies DLF C Holdings LLC	DE	NIA	Jefferies Direct Lending Fund C LLC	Ownership	100.000	MLLIC		
.0000							Jefferies Direct Lending Fund C SPE LLC	DE	NIA	Jefferies DLF C Holdings LLC	Ownership	100.000	MLLIC		

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SCHEDULE Y
PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

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Group Code	Group Name	NAIC Company Code	ID Number	Federal RSSD	CIK	Name of Securities Exchange if Publicly Traded (U.S. or International)	Names of Parent, Subsidiaries Or Affiliates	Domi-ciliary Location	Relation-ship to Reporting Entity	Directly Controlled by (Name of Entity/Person)	Type of Control (Ownership, Board, Management, Attorney-in-Fact, Influence, Other)	If Control is Ownership Provide Percentage	Ultimate Controlling Entity(ies)/Person(s)	Is an SCA Filing Re-quired? (Yes/No)	*
.0000							JDLF II GP LLC	DE	NIA	Jefferies Credit Partners LLC	Ownership	100.000	MMLIC		
.0000							JDLF II GP LP	DE	NIA	JDLF II GP LLC	Ownership	100.000	MMLIC		
.0000							Jefferies Direct Lending Fund II C LP	DE	NIA	JDLF II GP LP	Ownership	100.000	MMLIC		
.0000							Jefferies DLF 2 C Holdings LLC	DE	NIA	Jefferies Direct Lending Fund II C LP	Ownership	100.000	MMLIC		
.0000							Jefferies Direct Lending Fund II C SPE LLC	DE	NIA	Jefferies DLF 2 C Holdings LLC	Ownership	100.000	MMLIC		
.0000							JCP Direct Lending CLO 2023-1 LLC	DE	NIA	Jefferies Credit Partners LLC	Ownership	100.000	MMLIC		
.0000							JCP Direct Lending CLO 2023 Ltd.	DE	NIA	JCP Direct Lending CLO 2023 Ltd.	Ownership	100.000	MMLIC		
.0000							Jefferies Senior Lending LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							Jefferies Credit Partners BDC Inc	MD	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver Holdings LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver Holdings II LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver Holdings IV LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Co-Issuer Corporation	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Europe GP, S.a.r.l.	LUX	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							Jefferies Finance Europe, S.L.P.	LUX	NIA	JFIN Europe GP, S.a.r.l.	Ownership	100.000	MMLIC		
.0000							Jefferies Finance Europe, SCSp	LUX	NIA	JFIN Europe GP, S.a.r.l.	Ownership	100.000	MMLIC		
.0000							Jefferies Finance Business Credit LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Business Credit Fund I LLC	DE	NIA	Jefferies Finance Business Credit LLC	Ownership	100.000	MMLIC		
.0000							JFIN Funding 2021 LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN High Yield Investments LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN LC Fund LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							Beauty Brands Acquisition Holdings LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							Beauty Brands Acquisition LLC	DE	NIA	Beauty Brands Acquisition Holdings LLC	Ownership	100.000	MMLIC		
.0000							Beauty Brands Acquisition Intermediate LLC	DE	NIA	Beauty Brands Acquisition LLC	Ownership	100.000	MMLIC		
.0000							Beauty Brands Acquisition Intermediate LLC	DE	NIA	Beauty Brands Acquisition Intermediate LLC	Ownership	100.000	MMLIC		
.0000							Forma Brands, LLC	DE	NIA		Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2017 Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2017-III Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2017-III Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2018 Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2019 Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2019-II Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2020 Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2021-III Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2021-V Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2022-II Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2022-III Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2022-IV Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver CLO 2022-IV LLC	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver Fund, L.P.	DE	NIA	Jefferies Finance LLC	Ownership	90.000	MMLIC		
.0000							JFIN Revolver Funding 2021 Ltd.	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver Funding 2021 III Ltd.	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver Funding 2021 IV Ltd.	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver Funding 2022-I Ltd.	BMJ	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver SPE1 2022 LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver SPE3 2022 LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JFIN Revolver SPE4 2022 LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							SFL Parkway Funding 2022 LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							JCP Private Loan Management GP LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		

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SCHEDULE Y
PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

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Group Code	Group Name	NAIC Company Code	ID Number	Federal RSSD	CIK	Name of Securities Exchange if Publicly Traded (U.S. or International)	Names of Parent, Subsidiaries Or Affiliates	Domi-ciliary Location	Relation-ship to Reporting Entity	Directly Controlled by (Name of Entity/Person)	Type of Control (Ownership, Board, Management, Attorney-in-Fact, Influence, Other)	If Control is Ownership Provide Percentage	Ultimate Controlling Entity(ies)/Person(s)	Is an SCA Filing Re-quired? (Yes/No)	*
.0000							JCP Private Loan Management LP	DE	NIA	JCP Private Loan Management GP LLC	Ownership	100.000	MMLIC		
.0000							Apex Credit Holdings LLC	DE	NIA	JFIN Parent LLC	Ownership	100.000	MMLIC		
.0000							JFIN CLO 2012 Ltd.	CYM	NIA	Apex Credit Partners LLC	Ownership	100.000	MMLIC		
.0000							JFIN CLO 2013 Ltd.	CYM	NIA	Apex Credit Partners LLC	Ownership	100.000	MMLIC		
.0000							JFIN CLO 2014 Ltd.	CYM	NIA	Apex Credit Partners LLC	Ownership	100.000	MMLIC		
.0000							JFIN CLO 2014-II Ltd.	CYM	NIA	Apex Credit Partners LLC	Ownership	100.000	MMLIC		
.0000							JFIN CLO 2015 Ltd.	CYM	NIA	Apex Credit Partners LLC	Ownership	100.000	MMLIC		
.0000							JFIN CLO 2015-II Ltd.	CYM	NIA	Apex Credit Partners LLC	Ownership	85.000	MMLIC		
.0000							JFIN CLO 2016 Ltd.	CYM	NIA	Apex Credit Partners LLC	Ownership	100.000	MMLIC		
.0000							JFIN CLO 2017 Ltd.	CYM	NIA	Apex Credit Partners LLC	Ownership	100.000	MMLIC		
.0000							JFIN CLO 2017-II Ltd.	CYM	NIA	Apex Credit Partners LLC	Ownership	100.000	MMLIC		
.0000							Tomorrow Parent, LLC	DE	NIA	JFIN Parent LLC	Ownership	100.000	MMLIC		
.0000							Custom Ecology Holdco, LLC	DE	NIA	JFIN Parent LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				MM Copper Hill Road LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							MM Direct Private Investments Holding LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							MM Direct Private Investments UK Limited	GBR	DS	MM Direct Private Investments Holding LLC	Ownership	100.000	MMLIC		
.0000							DPI-ACRES Capital LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							MM Investment Holding	CYM	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							MMIH Bond Holdings LLC	DE	DS	MM Investment Holding	Ownership	99.600	MMLIC		
.0000			26-0073611				MassMutual Asset Finance LLC	DE	DS	C.M. Life Insurance Company	Ownership	0.400	MMLIC		
.0000			26-0073611				MassMutual Asset Finance LLC	DE	DS	MM Investment Holding	Ownership	99.600	MMLIC		
.0000			32-0546197				MMAF Equipment Finance LLC 2017-B	DE	DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.0000			82-5335801				MMAF Equipment Finance LLC 2018-A	DE	DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.0000			83-3722640				MMAF Equipment Finance LLC 2019-A	DE	DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.0000							MMAF Equipment Finance LLC 2019-B	DE	DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.0000							MMAF Equipment Finance LLC 2020-A	DE	DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.0000							MMAF Equipment Finance LLC 2020-B	DE	DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.0000							MMAF Equipment Finance LLC 2021-A	DE	DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.0000							MMAF Equipment Finance LLC 2022-A	DE	DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.0000							MMAF Equipment Finance LLC 2022-B	DE	DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.0000							MMAF Equipment Finance LLC 2023-A	DE	DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.0000							Rozier LLC	DE	DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.0000			04-2443240				MML Management Corporation	MA	DS	MM Investment Holding	Ownership	100.000	MMLIC	YES	
.0000			04-3548444				MassMutual International Holding MSC, Inc.	MA	DS	MML Management Corporation	Ownership	100.000	MMLIC		
.0000			04-3341767				MassMutual Holding MSC, Inc.	MA	DS	MML Management Corporation	Ownership	100.000	MMLIC		
.0000							MML CM LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							Blueprint Income LLC	NY	DS	MML CM LLC	Ownership	100.000	MMLIC		
.0000							Flourish Digital Assets LLC	DE	DS	MML CM LLC	Ownership	100.000	MMLIC		
.0000							Flourish Financial LLC	DE	DS	MML CM LLC	Ownership	100.000	MMLIC		
.0000							Flourish Holding Company LLC	DE	DS	MML CM LLC	Ownership	100.000	MMLIC		
.0000							Flourish Insurance Agency LLC	DE	DS	MML CM LLC	Ownership	100.000	MMLIC		
.0000							Flourish Technologies LLC	DE	DS	MML CM LLC	Ownership	100.000	MMLIC		
.0000			04-3356880				MML Distributors LLC	MA	DS	Massachusetts Mutual Life Insurance Company	Ownership	99.000	MMLIC		

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SCHEDULE Y
PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

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Group Code	Group Name	NAIC Company Code	ID Number	Federal RSSD	CIK	Name of Securities Exchange if Publicly Traded (U.S. or International)	Names of Parent, Subsidiaries Or Affiliates	Domiciliary Location	Relationship to Reporting Entity	Directly Controlled by (Name of Entity/Person)	Type of Control (Ownership, Board, Management, Attorney-in-Fact, Influence, Other)	If Control is Ownership Provide Percentage	Ultimate Controlling Entity(ies)/Person(s)	Is an SCA Filing Required? (Yes/No)	*
.0000			04-3356880				MML Distributors LLC	MA	DS	MassMutual Holding LLC	Ownership	1.000	MMLIC		
.0000							MML Investment Advisers, LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			46-3238013				MML Strategic Distributors, LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			06-1563535	2881445			The MassMutual Trust Company, FSB	CT	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC	YES	
.0000			04-1590850				MML Private Placement Investment Company I, LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				MML Private Equity Fund Investor LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				MML Private Equity Fund Investor LLC	DE	NIA	Baring Asset Management Limited	Management		MMLIC		
.0000			04-1590850				MM Private Equity Intercontinental LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			45-2738137				Pioneers Gate LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-2854319	2392316			MassMutual Holding LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC	YES	
.0000			06-1597528				MassMutual Assignment Company	NC	DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000			37-1732913				Fern Street LLC	DE	DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000							Low Carbon Energy Holding	GBR	DS	MassMutual Holding LLC	Ownership	49.000	MMLIC		
.0000							Sleeper Street LLC	DE	DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000							Intermodal Holding II LLC	DE	DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000			46-2252944				Haven Life Insurance Agency, LLC	DE	DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				MassMutual Capital Partners LLC	DE	DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000			46-4255307				Marco Hotel LLC	DE	NIA	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000			45-3623262				HB Naples Golf Owner LLC	DE	NIA	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000			82-4411267				RB Apartments LLC	DE	NIA	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000							MassMutual Ventures Holding LLC	DE	DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000							Athens Fund Management LLC	DE	DS	MassMutual Ventures Holding LLC	Ownership	100.000	MMLIC		
.0000							Crane Venture Partners LLP	GBR	DS	MassMutual Ventures Holding LLC	Ownership	33.000	MMLIC		
.0000							MassMutual Ventures Management LLC	DE	DS	MassMutual Ventures Holding LLC	Ownership	100.000	MMLIC		
.0000							MassMutual Ventures SEA Management Private Limited	DE	DS	MassMutual Ventures Management LLC	Ownership	100.000	MMLIC		
.0000							MMV UK/SEA Limited	GBR	DS	MassMutual Ventures SEA Management Private Limited	Ownership	100.000	MMLIC		
.0000							MassMutual Ventures Southeast Asia I LLC	DE	DS	MassMutual Ventures Holding LLC	Ownership	100.000	MMLIC		
.0000							MassMutual Ventures Southeast Asia II LLC	DE	DS	MassMutual Ventures Holding LLC	Ownership	100.000	MMLIC		
.0000							MassMutual Ventures Southeast Asia III LLC	DE	DS	MassMutual Ventures Holding LLC	Ownership	100.000	MMLIC		
.0000							MMV Digital I LLC	CYM	DS	MassMutual Ventures Southeast Asia III LLC	Ownership	100.000	MMLIC		
.0000							MassMutual Ventures UK LLC	DE	DS	MassMutual Ventures Holding LLC	Ownership	100.000	MMLIC		
.0000			47-1296410				MassMutual Ventures US I LLC	DE	DS	MassMutual Ventures Holding LLC	Ownership	100.000	MMLIC		
.0000							MassMutual Ventures US II LLC	DE	DS	MassMutual Ventures Holding LLC	Ownership	100.000	MMLIC		
.0000							MassMutual Ventures US III LLC	DE	DS	MassMutual Ventures Holding LLC	Ownership	100.000	MMLIC		
.0000							MassMutual Ventures US IV LLC	DE	DS	MassMutual Ventures Holding LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				MM Rothesay Holdco US LLC	DE	DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000							Rothesay Limited	GBR	DS	MM Rothesay Holdco US LLC	Ownership	48.800	MMLIC		
.0000							Rothesay Life Plc	GBR	DS	Rothesay Limited	Ownership	100.000	MMLIC		
.0000							Rothesay MA No.1 Limited	GBR	DS	Rothesay Life PLC	Ownership	100.000	MMLIC		
.0000							Rothesay Mortgages Limited	GBR	DS	Rothesay Limited	Ownership	100.000	MMLIC		

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SCHEDULE Y

PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

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.0000							Rothesay MA No.3 Limited	.GBR	.DS	Rothesay Life PLC	Ownership	100.000	MMLIC		
.0000							Rothesay MA No.4 Limited	.GBR	.DS	Rothesay Life PLC	Ownership	100.000	MMLIC		
.0000							LT Mortgage Finance Limited	.GBR	.DS	Rothesay Life PLC	Ownership	100.000	MMLIC		
.0000							Rothesay Property Partnership 1 LLP	.GBR	.DS	Rothesay Life PLC	Ownership	100.000	MMLIC		
.0000							Rothesay Foundation	.GBR	.DS	Rothesay Limited	Ownership	100.000	MMLIC		
.0000							Rothesay Pensions Management Limited	.GBR	.DS	Rothesay Limited	Ownership	100.000	MMLIC		
.0000							Rothesay Asset Management UK Limited	.GBR	.DS	Rothesay Limited	Ownership	100.000	MMLIC		
.0000							Rothesay Asset Management Australia Pty Ltd	.AUS	.DS	Rothesay Asset Management UK Limited	Ownership	100.000	MMLIC		
.0000							Rothesay Asset Management North America LLC	.DE	.DS	Rothesay Asset Management UK Limited	Ownership	100.000	MMLIC		
.0000							MM Catalyst Fund LLC	.DE	.DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000							MM Catalyst Fund II LLC	.DE	.DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000			47-1466022				LifeScore Labs, LLC	.MA	.DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000			45-4000072				MM Asset Management Holding LLC	.MA	.DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000			51-0504477				Barings LLC	.MA	.DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				MML Investors Services, LLC	.MA	.DS	MassMutual Holding LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				MML Insurance Agency, LLC	.MA	.DS	MML Investors Services, LLC	Ownership	100.000	MMLIC		
.0000			41-2011634				MMLSI Financial Alliances, LLC	.DE	.DS	MML Investors Services, LLC	Ownership	100.000	MMLIC		
.0000			51-0504477				Barings LLC	.DE	.DS	MassMutual Asset Management Holding LLC	Ownership	100.000	MMLIC		
.0000			98-0524271				Baring Asset Management (Asia) Holdings Limited	.HKG	.DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			98-0457465				Baring International Fund Managers (Bermuda) Limited	.BMU	.DS	Baring Asset Management (Asia) Holdings Limited	Ownership	100.000	MMLIC		
.0000			98-0457463				Baring Asset Management (Asia) Limited	.HKG	.DS	Baring Asset Management (Asia) Holdings Limited	Ownership	100.000	MMLIC		
.0000							Baring Asset Management Korea Limited	.KOR	.DS	Baring Asset Management (Asia) Limited	Ownership	100.000	MMLIC		
.0000							Barings Investment Management (Shanghai) Limited	.HKG	.DS	Baring Asset Management (Asia) Limited	Ownership	100.000	MMLIC		
.0000							Barings Overseas Investment Fund Management (Shanghai) Limited	.HKG	.DS	Barings Investment Management (Shanghai) Limited	Ownership	100.000	MMLIC		
.0000			98-0457707				Baring SICE (Taiwan) Limited	.TWN	.DS	Baring Asset Management (Asia) Holdings Limited	Ownership	100.000	MMLIC		
.0000							Barings Singapore Pte. Ltd.	.SGP	.DS	Baring Asset Management (Asia) Holdings Limited	Ownership	100.000	MMLIC		
.0000			98-0236449				Barings Japan Limited	.JPN	.DS	Baring Asset Management (Asia) Holdings Limited	Ownership	100.000	MMLIC		
.0000							Barings Australia Holding Company Pty Ltd	.AUS	.DS	Baring Asset Management (Asia) Holdings Limited	Ownership	100.000	MMLIC		
.0000							Barings Australia Pty Ltd	.AUS	.DS	Barings Australia Holding Company Pty Ltd	Ownership	100.000	MMLIC		
.0000							Barings Australia Real Estate Holdings Pty Ltd	.AUS	.DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			14-0045656				Barings Australia Real Estate Pty Ltd	.AUS	.DS	Barings Australia Real Estate Holdings Pty Ltd	Ownership	100.000	MMLIC		
.0000			98-0457456				Altis Property Partners Holdings Pty Ltd	.AUS	.DS	Barings Australia Real Estate Pty Ltd	Ownership	100.000	MMLIC		
.0000							Altis Asset Management Pty Ltd	.AUS	.DS	Altis Property Partners Holdings Pty Ltd	Ownership	100.000	MMLIC		
.0000							Altis Property Partners Pty Ltd	.AUS	.DS	Altis Property Partners Holdings Pty Ltd	Ownership	100.000	MMLIC		
.0000							Barings Australia Structured Finance Holdings Pty Ltd	.AUS	.DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings Australia Structured Finance Pty Ltd	.AUS	.DS	Barings Australia Structured Finance Holdings Pty Ltd	Ownership	100.000	MMLIC		
.0000							Gryphon Capital Partners Pty Ltd	.AUS	.DS	Barings Australia Structured Finance Pty Ltd	Ownership	100.000	MMLIC		

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SCHEDULE Y
PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

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Group Code	Group Name	NAIC Company Code	ID Number	Federal RSSD	CIK	Name of Securities Exchange if Publicly Traded (U.S. or International)	Names of Parent, Subsidiaries Or Affiliates	Domi-ciliary Location	Relation-ship to Reporting Entity	Directly Controlled by (Name of Entity/Person)	Type of Control (Ownership, Board, Management, Attorney-in-Fact, Influence, Other)	If Control is Ownership Provide Percentage	Ultimate Controlling Entity(ies)/Person(s)	Is an SCA Filing Re-quired? (Yes/No)	*
.0000							Gryphon Capital Management Pty Ltd	.AUS	.DS	Gryphon Capital Partners Pty Ltd	Ownership	100.000	MMLIC		
.0000							Gryphon Capital Investments Pty Ltd	.AUS	.DS	Gryphon Capital Partners Pty Ltd	Ownership	100.000	MMLIC		
.0000			80-0875475				Barings Finance LLC	.DE	.DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							BCF Europe Funding Limited	.IRL	.DS	Barings Finance LLC	Ownership	100.000	MMLIC		
.0000							BCF Senior Funding I LLC	.DE	.DS	Barings Finance LLC	Ownership	100.000	MMLIC		
.0000							BCF Senior Funding I Designated Activity Company	.IRL	.DS	Barings Finance LLC	Ownership	100.000	MMLIC		
.0000							Barings Real Estate Acquisitions LLC	.DE	.DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			04-3238351				Barings Securities LLC	.DE	.DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			98-0437588				Barings Guernsey Limited	.GGY	.DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings Europe Limited	.GBR	.DS	Barings Guernsey Limited	Ownership	100.000	MMLIC		
.0000							Barings Asset Management Spain SL	.ESP	.DS	Barings Europe Limited	Ownership	100.000	MMLIC		
.0000							Barings France SAS	.FRA	.DS	Barings Europe Limited	Ownership	100.000	MMLIC		
.0000							Barings International Fund Managers (Ireland) Limited	.IRL	.DS	Barings Europe Limited	Ownership	100.000	MMLIC		
.0000							Barings GmbH	.DEU	.DS	Barings Europe Limited	Ownership	100.000	MMLIC		
.0000							Barings Italy S.r.l.	.ITA	.DS	Barings Europe Limited	Ownership	100.000	MMLIC		
.0000							Barings Sweden AB	.SWE	.DS	Barings Europe Limited	Ownership	100.000	MMLIC		
.0000							Barings Netherlands B.V.	.NLD	.DS	Barings Europe Limited	Ownership	100.000	MMLIC		
.0000			98-0432153				Barings (U.K.) Limited	.GBR	.DS	Barings Europe Limited	Ownership	100.000	MMLIC		
.0000							Barings Switzerland Sarl	.CHE	.DS	Barings Europe Limited	Ownership	100.000	MMLIC		
.0000			98-0241935				Barings Asset Management Limited	.GBR	.DS	Barings Europe Limited	Ownership	100.000	MMLIC		
.0000							Barings European Direct Lending 1 GP LLP	.GBR	.DS	Barings Asset Management Limited	Ownership	100.000	MMLIC		
.0000			98-0457328				Barings International Investment Limited	.GBR	.DS	Barings Asset Management Limited	Ownership	100.000	MMLIC		
.0000							Barings International Investment Management Holdings	.GBR	.DS	Barings Asset Management Limited	Ownership	100.000	MMLIC		
.0000			98-0457587				Barings International Investment Management Holdings	.GBR	.DS	Barings International Investment Management Holdings	Ownership	100.000	MMLIC		
.0000			98-0457576				Barings Asset Management UK Holdings Limited	.GBR	.DS	Barings International Investment Management Holdings	Ownership	100.000	MMLIC		
.0000			98-0457586				Barings Fund Managers Limited	.GBR	.DS	Barings Asset Management Limited	Ownership	100.000	MMLIC		
.0000							BCGSS 2 GP LLP	.GBR	.DS	Barings Fund Managers Limited	Ownership	100.000	MMLIC		
.0000			98-0457578				Barings Investment Services Limited	.GBR	.DS	Barings Asset Management Limited	Ownership	100.000	MMLIC		
.0000							Barings Core Fund Feeder I GP S.a.r.l.	.LUX	.DS	Barings Asset Management Limited	Ownership	100.000	MMLIC		
.0000							Barings BME GP S.a.r.l.	.GBR	.DS	Barings Asset Management Limited	Ownership	100.000	MMLIC		
.0000							Barings GPC GP S.a.r.l.	.LUX	.DS	Barings Asset Management Limited	Ownership	100.000	MMLIC		
.0000							Barings European Core Property Fund GP Sarl	.GBR	.DS	Barings Asset Management Limited	Ownership	100.000	MMLIC		
.0000							Barings Investment Fund (LUX) GP S.a.r.l.	.LUX	.DS	Barings Asset Management Limited	Ownership	100.000	MMLIC		
.0000							Barings Umbrella Fund (LUX) GP S.a.r.l.	.LUX	.DS	Barings Asset Management Limited	Ownership	100.000	MMLIC		
.0000							GPLF4(S) GP S.a.r.l.	.LUX	.DS	Barings Asset Management Limited	Ownership	100.000	MMLIC		
.0000							PREIF Holdings Limited Partnership	.GBR	.DS	Barings Asset Management Limited	Ownership	100.000	MMLIC		
.0000							BMC Holdings DE LLC	.DE	.DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			04-3238351	3456895			Barings Real Estate Advisers Inc.	.CA	.DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			81-2244465				Chassis Acquisition Holding LLC	.DE	.NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	30.000	MMLIC		
.0000							Massachusetts Mutual Life Insurance Company	.DE	.NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	40.000	MMLIC		
.0000			81-4258759				CRA Aircraft Holding LLC	.DE	.NIA	Barings LLC	Influence		MMLIC		
.0000			81-4258759				CRA Aircraft Holding LLC	.DE	.NIA	Barings LLC	Management		MMLIC		
.0000			83-0560183				Aland Royalty Holdings LP	.DE	.NIA	Barings LLC			MMLIC		
.0000			83-0560183				Aland Royalty Holdings LP	.DE	.NIA	MassMutual Holding LLC	Ownership/Influence	26.700	MMLIC		
.0000			82-2932156				GASL Holdings LLC	.DE	.NIA	MassMutual Holding LLC	Ownership	11.300	MMLIC		
.0000			82-2932156				GASL Holdings LLC	.DE	.NIA	Barings LLC	Board		MMLIC		

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SCHEDULE Y
PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

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Group Code	Group Name	NAIC Company Code	ID Number	Federal RSSD	CIK	Name of Securities Exchange if Publicly Traded (U.S. or International)	Names of Parent, Subsidiaries Or Affiliates	Domi-ciliary Location	Relation-ship to Reporting Entity	Directly Controlled by (Name of Entity/Person)	Type of Control (Ownership, Board, Management, Attorney-in-Fact, Influence, Other)	If Control is Ownership Provide Percentage	Ultimate Controlling Entity(ies)/Person(s)	Is an SCA Filing Re-quired? (Yes/No)	*
.0000			47-3055009				Milestone Acquisition Holding, LLC	DE	NIA	MassMutual Holding LLC Massachusetts Mutual Life Insurance Company	Ownership/Influence	19.800	MLLIC		
.0000			46-5460309				Red Lake Ventures, LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	31.500	MLLIC		
.0000			46-5460309				Red Lake Ventures, LLC	DE	NIA	Barings LLC Massachusetts Mutual Life Insurance Company	Influence		MLLIC		
.0000			81-4065378				Remington L & W Holdings LLC	DE	NIA	Barings LLC	Ownership/Influence	19.900	MLLIC		
.0000			81-4065378				Remington L & W Holdings LLC	DE	NIA	Barings LLC	Influence		MLLIC		
.0000							Teaktree Acquisition, LLC	DE	NIA	MassMutual Holding LLC	Ownership/Influence	14.700	MLLIC		
.0000							Teaktree Acquisition, LLC	DE	NIA	Barings LLC Massachusetts Mutual Life Insurance Company	Influence		MLLIC		
.0000							EIP Holdings I, LLC	DE	NIA	Barings LLC	Ownership/Influence	29.000	MLLIC		
.0000			46-0687392				Validus Holding Company LLC	DE	NIA	Barings LLC	Ownership	40.400	MLLIC		
.0000							VGS Acquisition Holding, LLC	DE	NIA	MassMutual Holding LLC	Ownership/Influence	33.300	MLLIC		
.0000							VGS Acquisition Holding, LLC	DE	NIA	Barings LLC	Management		MLLIC		
.0000							Aland Royalty GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Alaska Future Fund GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							BAI GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							BAI Funds SLP, LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Baring Asset-Based Income Fund (US) GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings CMS Fund GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings Infiniti Fund Management LLC	DE	DS	Barings LLC Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							Barings Hotel Opportunity Venture I GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings Investment Series LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings Emerging Generation Fund GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings Emerging Generation Fund GP II, LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings ERS PE Emerging Manager III GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000			04-1590850				Barings Global Investment Funds (U.S.) Management LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings CLO Investment Partners GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings Core Property Fund GP LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings Direct Lending GP Ltd.	CYM	DS	Barings LLC Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			84-3784245				Barings Emerging Generation Fund LP	DE	DS	Barings LLC	Ownership	42.400	MLLIC		
.0000			84-3784245				Barings Emerging Generation Fund LP	DE	DS	Barings LLC	Management		MLLIC		
.0000							Barings Global Energy Infrastructure Advisors, LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings Centre Street CLO Equity Partnership GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings North American Private Loan Fund Management, LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings North American Private Loan Fund II Management, LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings North American Private Loan Fund III Management, LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings Global Special Situations Credit Fund 4 GP (Delaware) LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings - MM Revolver Fund GP LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings Real Estate European Value Add Fund II Feeder LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							BMT RE Debt Fund GP LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		

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SCHEDULE Y
PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

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Group Code	Group Name	NAIC Company Code	ID Number	Federal RSSD	CIK	Name of Securities Exchange if Publicly Traded (U.S. or International)	Names of Parent, Subsidiaries Or Affiliates	Domiciliary Location	Relationship to Reporting Entity	Directly Controlled by (Name of Entity/Person)	Type of Control (Ownership, Board, Management, Attorney-in-Fact, Influence, Other)	If Control is Ownership Provide Percentage	Ultimate Controlling Entity(ies)/Person(s)	Is an SCA Filing Required? (Yes/No)	*
.0000							Barings Global Real Assets Fund GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings GPSF LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			84-5063008				Barings Small Business Fund LLC	DE	DS	Company	Ownership	33.600	MMLIC		
.0000			84-5063008				Barings Small Business Fund LLC	DE	DS	Barings LLC	Management		MMLIC		
.0000			98-0536233				Benton Street Advisors, Inc.	CYM	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							BHOVI Incentive LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							BIG Real Estate Fund GP LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							BIG Real Estate Incentive I LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							BIG Real Estate Incentive II LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							BRECS VII GP LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							BREDIF GP LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							CREF X GP LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				Great Lakes III GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Lake Jackson LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings Emerging Markets Blended Fund I GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			41-2280126				Mezzco III LLC	DE	DS	Barings LLC	Ownership	99.300	MMLIC		
.0000			80-0920285				Mezzco IV LLC	DE	DS	Barings LLC	Ownership	99.300	MMLIC		
.0000							Mezzco Australia II LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							RECSA-NY GP LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				SBNP SIA II LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							SBNP SIA III LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Amherst Long Term Holdings, LLC	DE	DS	Company	Ownership	24.500	MMLIC		
.0000			04-3313782				MassMutual International LLC	DE	DS	Company	Ownership	100.000	MMLIC	YES	
.0000							MassMutual Solutions LLC	DE	DS	MassMutual International LLC	Ownership	100.000	MMLIC		
.0000							Haven Technologies Asia Limited	HKG	DS	MassMutual Solutions LLC	Ownership	100.000	MMLIC		
.0000							Yunfeng Financial Group Limited	HKG	DS	MassMutual International LLC	Ownership	24.900	MMLIC		
.0000							MassMutual Asia Limited (SPV)	HKG	DS	MassMutual International LLC	Ownership	100.000	MMLIC		
.0000			27-3576835				MassMutual External Benefits Group LLC	DE	DS	Company	Ownership	100.000	MMLIC		
.0000							MMV CTF I GP LLC	DE	DS	Company	Ownership	100.000	MMLIC		
.0000							MassMutual Ventures Climate Technology Fund I LP	DE	DS	MMV CTF I GP LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				100 w. 3rd Street LLC	DE	NIA	Company	Ownership	100.000	MMLIC		
.0000			04-1590850				2160 Grand Manager LLC	DE	NIA	Company	Ownership	95.000	MMLIC		
.0000			82-2432216				300 South Tryon Hotel LLC	DE	NIA	Company	Ownership	100.000	MMLIC		
.0000			04-1590850				300 South Tryon LLC	DE	NIA	Company	Ownership	100.000	MMLIC		
.0000							Almack Mezzanine Fund II Unleveraged LP	GBR	NIA	Company	Ownership/Influence	72.900	MMLIC		
.0000							Barings Affordable Housing Mortgage Fund I LLC	DE	NIA	Company	Ownership	100.000	MMLIC		

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE Y
PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

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.0000							Barings Affordable Housing Mortgage Fund I LLC	DE	NIA	Barings LLC	Management		MMLIC		
.0000			61-1902329				Barings Affordable Housing Mortgage Fund II LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			61-1902329				Barings Affordable Housing Mortgage Fund II LLC	DE	NIA	Barings LLC	Management		MMLIC		
.0000			85-3036663				Barings Affordable Housing Mortgage Fund III LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			85-3036663				Barings Affordable Housing Mortgage Fund III LLC	DE	NIA	Barings LLC	Management		MMLIC		
.0000			36-4868350				Barings Asset-Based Income Fund (US) LP	DE	NIA	MassMutual Holding LLC	Ownership/Influence	11.200	MMLIC		
.0000			36-4868350				Barings Asset-Based Income Fund (US) LP	DE	NIA	C.M. Life Insurance Company	Ownership/Influence	1.100	MMLIC		
.0000			36-4868350				Barings Asset-Based Income Fund (US) LP	DE	NIA	Barings LLC	Management		MMLIC		
.0000							Barings Emerging Markets Corporate Bond Fund	IRL	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	56.000	MMLIC		
.0000							Barings Emerging Markets Corporate Bond Fund	IRL	NIA	Barings LLC	Ownership	17.800	MMLIC		
.0000							Barings European Real Estate Debt Income Fund	LUX	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	65.300	MMLIC		
.0000							Barings European Real Estate Debt Income Fund	LUX	NIA	Barings LLC	Influence		MMLIC		
.0000			98-1206017				Babson Capital Global Special Situation Credit Fund 2	DE	NIA	MassMutual Holding LLC	Ownership/Influence	23.300	MMLIC		
.0000			98-1206017				Babson Capital Global Special Situation Credit Fund 2	DE	NIA	C.M. Life Insurance Company	Ownership		MMLIC		
.0000			98-1206017				Babson Capital Global Special Situation Credit Fund 2	DE	NIA	Barings LLC	Management		MMLIC		
.0000			37-1506417				Barings US High Yield Bond Fund	IRL	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	75.700	MMLIC		
.0000			37-1506417				Babson Capital Loan Strategies Fund, L.P.	DE	NIA	C.M. Life Insurance Company	Ownership	3.800	MMLIC		
.0000			37-1506417				Babson Capital Loan Strategies Fund, L.P.	DE	NIA	Barings LLC	Management		MMLIC		
.0000							Barings US High Yield Bond Fund	IRL	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	58.700	MMLIC		
.0000							Barings US High Yield Bond Fund	IRL	NIA	Barings LLC	Management		MMLIC		
.0000							Babson CLO Ltd. 2015-I	CYM	NIA	Barings LLC	Influence		MMLIC		2
.0000							Babson CLO Ltd. 2015-II	CYM	NIA	Barings LLC	Influence		MMLIC		3
.0000							Babson CLO Ltd. 2016-I	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Babson CLO Ltd. 2016-II	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Barings CLO Ltd. 2017-I	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Barings CLO 2018-III	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Barings CLO 2018-IV	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000			98-1473665				Barings CLO 2019-II	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Barings CLO 2019-III	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Barings CLO 2019-IV	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Barings CLO 2020-I	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Barings CLO 2020-II	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Barings CLO 2020-III	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Barings CLO 2020-IV	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Barings CLO 2021-I	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Barings CLO 2021-II	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							Barings CLO 2021-III	CYM	NIA	Barings LLC	Influence		MMLIC		

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE Y

PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

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.0000			98-1624360				Barings CLO 2022-I	.CYM	NIA	Barings LLC	Influence		MLLIC		
.0000							Barings CLO 2022-II	.CYM	NIA	Barings LLC	Influence		MLLIC		
.0000							Babson Euro CLO 2014-I BV	.NLD	NIA	Barings LLC	Influence		MLLIC		
.0000							Babson Euro CLO 2014-II BV	.NLD	NIA	Barings LLC	Influence		MLLIC		
.0000							Babson Euro CLO 2015-I BV	.NLD	NIA	Barings LLC	Influence		MLLIC		
.0000			36-037260H				Barings Euro CLO 2019-I BV	.IRL	NIA	Barings LLC	Influence		MLLIC		
.0000							Barings Euro CLO 2019-II BV	.IRL	NIA	Barings LLC	Influence		MLLIC		
.0000							Barings Euro CLO 2020-I DAC	.IRL	NIA	Barings LLC	Influence		MLLIC		
.0000			37-15576VH				Barings Euro CLO 2021-I DAC	.IRL	NIA	Barings LLC	Influence		MLLIC		
.0000							Barings Euro CLO 2021-II DAC	.IRL	NIA	Barings LLC	Influence		MLLIC		
.0000							Barings Euro CLO 2021-III DAC	.IRL	NIA	Barings LLC	Influence		MLLIC		
.0000							Barings Euro CLO 2022-I DAC	.IRL	NIA	Barings LLC	Influence		MLLIC		
.0000			81-0841854				Barings CLO Investment Partners LP	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	99.200	MLLIC		
.0000			81-0841854				Barings CLO Investment Partners LP	.DE	NIA	Barings LLC	Management		MLLIC		
.0000			88-3792609				Barings Centre Street CLO Equity Partnership LP	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	26.200	MLLIC		
.0000							Barings Euro Value Add II (BREEVA II)	.LUX	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	30.200	MLLIC		
.0000							Barings Euro Value Add II (BREEVA II)	.LUX	NIA	C.M. Life Insurance Company	Ownership	2.600	MLLIC		
.0000							Barings Euro Value Add II (BREEVA II)	.LUX	NIA	Barings LLC	Management		MLLIC		
.0000							Barings Real Estate European Value Add I SCSp	.GBR	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	42.900	MLLIC		
.0000							Barings Real Estate European Value Add I SCSp	.GBR	NIA	C.M. Life Insurance Company	Ownership	4.800	MLLIC		
.0000							Barings Real Estate European Value Add I SCSp	.GBR	NIA	Barings LLC	Management		MLLIC		
.0000			85-3449260				Barings Real Estate Debt Income Fund LP	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	82.700	MLLIC		
.0000			85-3449260				Barings Real Estate Debt Income Fund LP	.DE	NIA	C.M. Life Insurance Company	Influence		MLLIC		
.0000			85-3449260				Barings Real Estate Debt Income Fund LP	.DE	NIA	Barings LLC	Management		MLLIC		
.0000			82-5330194				Barings Global Em. Markets Equity Fund	.NC	NIA	Barings LLC	Management		MLLIC		
.0000			98-1332384				Barings Global Energy Infrastructure Fund I LP	.CYM	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	99.200	MLLIC		
.0000			98-1332384				Barings Global Energy Infrastructure Fund I LP	.CYM	NIA	Baring Asset Management Limited	Management		MLLIC		
.0000							Barings Global Dividends Champion Fund	.IRL	NIA	Barings LLC	Management		MLLIC		
.0000							Barings LLC	.IRL	NIA	Barings LLC			MLLIC		
.0000			82-3867745				Barings Global Real Assets Fund LP	.DE	NIA	MassMutual Holding LLC	Ownership/Influence	26.900	MLLIC		
.0000							Barings Global Real Assets Fund LP	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	13.900	MLLIC		
.0000			82-3867745				Barings Global Real Assets Fund LP	.DE	NIA	C.M. Life Insurance Company	Ownership	7.000	MLLIC		
.0000			82-3867745				Barings Global Real Assets Fund LP	.DE	NIA	Barings LLC	Management		MLLIC		
.0000							Barings Global Special Situations Credit Fund 3	.IRL	NIA	MassMutual Holding LLC	Ownership/Influence	19.700	MLLIC		
.0000							Barings Global Special Situations Credit 4 Delaware	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	67.500	MLLIC		
.0000							Barings Global Special Situations Credit 4 Delaware	.DE	NIA	C.M. Life Insurance Company	Ownership	3.600	MLLIC		

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE Y
PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Group Code	Group Name	NAIC Company Code	ID Number	Federal RSSD	CIK	Name of Securities Exchange if Publicly Traded (U.S. or International)	Names of Parent, Subsidiaries Or Affiliates	Domi-ciliary Location	Relation-ship to Reporting Entity	Directly Controlled by (Name of Entity/Person)	Type of Control (Ownership, Board, Management, Attorney-in-Fact, Influence, Other)	If Control is Ownership Provide Percentage	Ultimate Controlling Entity(ies)/Person(s)	Is an SCA Filing Re-quired? (Yes/No)	*
.0000							Barings Global Special Situations Credit 4 Delaware	..DE.....	..NIA.....	Barings LLC	Management		MMLIC		
.0000							Barings Global Special Situations Credit 4 LUX	..LUX.....	..NIA.....	Massachusetts Mutual Life Insurance Company	Ownership	13.100	MMLIC		
.0000							Barings Global Special Situations Credit 4 LUX	..LUX.....	..NIA.....	C.M. Life Insurance Company	Ownership	0.700	MMLIC		
.0000							Barings Global Special Situations Credit 4 LUX	..LUX.....	..NIA.....	Barings LLC	Management		MMLIC		
.0000							Barings Global Special Situations Credit Fund 3	..IRL.....	..NIA.....	Barings LLC	Management		MMLIC		
.0000							Barings Global Technology Equity Fund	..IRL.....	..NIA.....	Barings LLC	Ownership/Influence	71.900	MMLIC		
.0000			87-0977058				Barings Hotel Opportunity Venture	..CT.....	..NIA.....	Massachusetts Mutual Life Insurance Company	Ownership/Influence	65.000	MMLIC		
.0000			87-0977058				Barings Hotel Opportunity Venture	..CT.....	..NIA.....	Barings LLC	Management		MMLIC		
.0000			86-3661023				Barings Innovations & Growth Real Estate Fund	..DE.....	..NIA.....	Massachusetts Mutual Life Insurance Company	Ownership	34.000	MMLIC		
.0000			86-3661023				Barings Innovations & Growth Real Estate Fund	..DE.....	..NIA.....	C.M. Life Insurance Company	Ownership	0.400	MMLIC		
.0000							Barings Middle Market CLO 2017-I Ltd & LLC	..CYM.....	..NIA.....	Barings LLC	Influence		MMLIC		
.0000							Barings Middle Market CLO 2018-I	..CYM.....	..NIA.....	Barings LLC	Influence		MMLIC		
.0000							Barings Middle Market CLO 2019-I	..CYM.....	..NIA.....	Barings LLC	Influence		MMLIC		
.0000			98-1612604				Barings Middle Market CLO Ltd 2021-I	..CYM.....	..NIA.....	Barings LLC	Influence		MMLIC		
.0000			38-4010344				Barings North American Private Loan Fund LP	..DE.....	..NIA.....	MassMutual Holding LLC	Ownership/Influence	47.600	MMLIC		
.0000			38-4010344				Barings North American Private Loan Fund LP	..DE.....	..NIA.....	Barings Asset Management Limited	Management		MMLIC		
.0000			98-1332384				Barings RE Credit Strategies VII LP	..DE.....	..NIA.....	Massachusetts Mutual Life Insurance Company	Ownership/Influence	34.000	MMLIC		
.0000			98-1332384				Barings RE Credit Strategies VII LP	..DE.....	..NIA.....	Barings Asset Management Limited	Management		MMLIC		
.0000			98-1567942				Barings Target Yield Infrastructure Debt Fund	..LUX.....	..NIA.....	Massachusetts Mutual Life Insurance Company	Ownership	20.400	MMLIC		
.0000			98-1567942				Barings Target Yield Infrastructure Debt Fund	..LUX.....	..NIA.....	Barings Asset Management Limited	Management		MMLIC		
.0000			87-1262754				Barings Transportation Fund LP	..DE.....	..NIA.....	MassMutual Holding LLC	Ownership/Influence	11.200	MMLIC		
.0000			87-1262754				Barings Transportation Fund LP	..DE.....	..NIA.....	Massachusetts Mutual Life Insurance Company	Ownership	8.200	MMLIC		
.0000							Braemar Energy Ventures I, L.P.	..DE.....	..NIA.....	Massachusetts Mutual Life Insurance Company	Ownership/Influence	79.400	MMLIC		
.0000							Braemar Energy Ventures I, L.P.	..DE.....	..NIA.....	C.M. Life Insurance Company	Ownership	1.300	MMLIC		
.0000							Braemar Energy Ventures I, L.P.	..DE.....	..NIA.....	Barings LLC	Management		MMLIC		
.0000							Barings European Core Property Fund SCSp	..LUX.....	..NIA.....	MassMutual Holding LLC	Ownership/Influence	7.400	MMLIC		
.0000							Barings European Core Property Fund SCSp	..LUX.....	..NIA.....	C.M. Life Insurance Company	Ownership	0.500	MMLIC		
.0000							Barings European Core Property Fund SCSp	..LUX.....	..NIA.....	Barings Real Estate Advisers LLC	Management		MMLIC		
.0000			46-5001122				Barings European Private Loan Fund III A	..LUX.....	..NIA.....	Massachusetts Mutual Life Insurance Company	Ownership	45.200	MMLIC		
.0000			38-4059932				Benchmark 2018-B2 Mortgage Trust	..NY.....	..NIA.....	Barings LLC	Influence		MMLIC		
.0000							Benchmark 2018-B4	..NY.....	..NIA.....	Barings LLC	Influence		MMLIC		
.0000			38-4096530				Benchmark 2018-B8	..NY.....	..NIA.....	Barings LLC	Influence		MMLIC		
.0000			20-5578089				Barings Core Property Fund LP	..DE.....	..NIA.....	MassMutual Holding LLC	Ownership/Influence	23.600	MMLIC		
.0000			20-5578089				Barings Core Property Fund LP	..DE.....	..NIA.....	Barings Real Estate Advisers LLC	Management		MMLIC		
.0000			35-2531693				Cornerstone Permanent Mortgage Fund III LLC	..MA.....	..NIA.....	Massachusetts Mutual Life Insurance Company	Ownership/Influence	100.000	MMLIC		

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE Y

PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Group Code	Group Name	NAIC Company Code	ID Number	Federal RSSD	CIK	Name of Securities Exchange if Publicly Traded (U.S. or International)	Names of Parent, Subsidiaries Or Affiliates	Domiciliary Location	Relationship to Reporting Entity	Directly Controlled by (Name of Entity/Person)	Type of Control (Ownership, Board, Management, Attorney-in-Fact, Influence, Other)	If Control is Ownership Provide Percentage	Ultimate Controlling Entity(ies)/Person(s)	Is an SCA Filing Required? (Yes/No)	*
.0000			61-1793735				Cornerstone Permanent Mortgage Fund IV LLC	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			90-0991195		0001597511		Gateway Mezzanine Partners II LP	..DE	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	34.300	MMLIC		
.0000			90-0991195		0001597511		Gateway Mezzanine Partners II LP	..DE	.....NIA	C.M. Life Insurance Company	Ownership	5.100	MMLIC		
.0000			90-0991195		0001597511		Gateway Mezzanine Partners II LP	..DE	.....NIA	Barings LLC	Management		MMLIC		
.0000			37-1708623				Great Lakes III, L.P.	..DE	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	41.500	MMLIC		
.0000			37-1708623				Great Lakes III, L.P.	..DE	.....NIA	Barings LLC	Management		MMLIC		
.0000							GIA EU Holdings - Emerson JV Sarl	..LUX	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	54.100	MMLIC		
.0000							GIA EU Holdings - Emerson JV Sarl	..LUX	.....NIA	Barings LLC	Management		MMLIC		
.0000			38-4041011				JPMCC Commercial Mortgage Securities Trust 2017-JP7	..NY	.....NIA	Barings LLC	Influence		MMLIC		
.0000			38-4032059				JPMDB Commercial Mortgage Securities Trust 2017-C5	..NY	.....NIA	Barings LLC	Influence		MMLIC		
.0000			04-1590850				Miami Douglas Three MM LLC	..DE	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			87-4021641				MM BIG Peninsula Co-Invest Member LLC	..DE	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	25.600	MMLIC		
.0000			87-4021641				MM BIG Peninsula Co-Invest Member LLC	..DE	.....NIA	C.M. Life Insurance Company	Ownership	0.800	MMLIC		
.0000							MM CM Holding LLC	..DE	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				MM Direct Private Investment Holding	..DE	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			81-3000420				MM Debt Participations LLC	..DE	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	100.000	MMLIC		
.0000			81-3000420				MM Debt Participations LLC	..DE	.....NIA	Barings LLC	Management		MMLIC		
.0000			20-8856877				Somerset Special Opportunities Fund L.P.	..DE	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	40.100	MMLIC		
.0000			20-8856877				Somerset Special Opportunities Fund L.P.	..DE	.....NIA	C.M. Life Insurance Company	Ownership	1.900	MMLIC		
.0000			35-2553915				Ten Fan Pier Boulevard LLC	..DE	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			41-2280127				Tower Square Capital Partners III, L.P.	..DE	.....NIA	Barings LLC	Management		MMLIC		
.0000			41-2280127				Tower Square Capital Partners III, L.P.	..DE	.....NIA	MassMutual Holding LLC	Ownership/Influence	16.800	MMLIC		
.0000			41-2280129				Tower Square Capital Partners IIIA, L.P.	..DE	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	95.000	MMLIC		
.0000			41-2280129				Tower Square Capital Partners IIIA, L.P.	..DE	.....NIA	Barings LLC	Management		MMLIC		
.0000			04-1590850				Trailside MM Member LLC	..DE	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	66.970	MMLIC		
.0000			04-1590850				Trailside MM Member LLC	..DE	.....NIA	C.M. Life Insurance Company	Ownership	7.400	MMLIC		
.0000			04-1590850				Trailside MM Member II LLC	..DE	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	47.100	MMLIC		
.0000			83-1325764				Washington Gateway Two LLC	..DE	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	96.020	MMLIC		
.0000			83-1325764				Washington Gateway Two LLC	..DE	.....NIA	C.M. Life Insurance Company	Ownership	0.100	MMLIC		
.0000			32-0574045				Washington Gateway Three LLC	..DE	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	95.380	MMLIC		
.0000			32-0574045				Washington Gateway Three LLC	..DE	.....NIA	C.M. Life Insurance Company	Ownership	11.400	MMLIC		
.0000			04-1590850				Washington Pine LLC	..DE	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE Y

PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

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Group Code	Group Name	NAIC Company Code	ID Number	Federal RSSD	CIK	Name of Securities Exchange if Publicly Traded (U.S. or International)	Names of Parent, Subsidiaries Or Affiliates	Domiciliary Location	Relationship to Reporting Entity	Directly Controlled by (Name of Entity/Person)	Type of Control (Ownership, Board, Management, Attorney-in-Fact, Influence, Other)	If Control is Ownership Provide Percentage	Ultimate Controlling Entity(ies)/Person(s)	Is an SCA Filing Required? (Yes/No)	*
.0000			88-3861481				West 37th Street Hotel LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	93.800	MMLIC		
.0000			88-3861481				West 37th Street Hotel LLC	DE	NIA	C.M. Life Insurance Company	Ownership	6.300	MMLIC		
.0000							Martello Re Limited	BMU	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	0.300	MMLIC		
.0000							Babson Capital Loan Strategies Master Fund LP								
.0000							Barings China Aggregate Bond Private Securities Investment Fund	CHN	NIA	Barings LLC	Management		MMLIC		
.0000							Barings European Growth Trust Fund	GBR	NIA	Barings LLC	Ownership/Influence	28.600	MMLIC		
.0000			47-3790192				Barings Global High Yield Fund	MA	NIA	Barings LLC	Management		MMLIC		
.0000							CCIC Fund	CHN	NIA	Barings LLC	Ownership/Influence	72.100	MMLIC		
.0000			71-1018134				Great Lakes II LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	10.600	MMLIC		
.0000			71-1018134				Great Lakes II LLC	DE	NIA	C.M. Life Insurance Company	Ownership	0.980	MMLIC		
.0000			04-1590850				Wood Creek Venture Fund LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	40.000	MMLIC		
.0000			13-1935920				MMLIC Debt Participations LLC	DE	NIA	Massachusetts Mutual Ascend	Ownership	100.000	MMLIC		
.0000							Barings California Mortgage Fund IV	CA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							Barings Umbrella Fund LUX SCSp SICAV RAIF	LUX	NIA	Massachusetts Mutual Life Insurance Company	Ownership	50.000	MMLIC		
.0000							Barings Umbrella Fund LUX SCSp SICAV RAIF	LUX	NIA	C.M. Life Insurance Company	Ownership	2.300	MMLIC		
.0000			82-2285211				Calgary Railway Holding LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	90.000	MMLIC		
.0000			82-2285211				Calgary Railway Holding LLC	DE	NIA	C.M. Life Insurance Company	Ownership	10.000	MMLIC		
.0000			82-3307907				Cornbrook PRS Holdings LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			95-4207717				Cornerstone California Mortgage Fund I LLC	CA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			95-4207717				Cornerstone California Mortgage Fund II LLC	CA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			95-4207717				Cornerstone California Mortgage Fund III LLC	CA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			56-2630592				Cornerstone Fort Pierce Development LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	90.000	MMLIC		
.0000			56-2630592				Cornerstone Fort Pierce Development LLC	DE	NIA	C.M. Life Insurance Company	Ownership	5.900	MMLIC		
.0000			45-2632610				Cornerstone Permanent Mortgage Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			45-2632610				Cornerstone Permanent Mortgage Fund	MA	NIA	Barings LLC	Management		MMLIC		
.0000			61-1750537				Cornerstone Permanent Mortgage Fund II	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			61-1750537				Cornerstone Permanent Mortgage Fund II	MA	NIA	Barings LLC	Management		MMLIC		
.0000			61-1793735				Cornerstone Permanent Mortgage Fund IV	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			20-0348173				CREA/PPC Venture LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	28.500	MMLIC		
.0000			82-2783393				Danville Riverwalk Venture, LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	94.400	MMLIC		
.0000			04-1590850				DPI Acres Capital SPV LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE Y
PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

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.0000			04-1590850				Euro Real Estate Holdings LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	50.000	MMLIC		
.0000			20-3347091				Fan Pier Development LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	65.000	MMLIC		
.0000			20-3347091				Fan Pier Development LLC	DE	NIA	C.M. Life Insurance Company	Ownership	5.900	MMLIC		
.0000			04-1590850				GIA EU Holdings LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			81-5360103				Landmark Manchester Holdings LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				MM Brookhaven Member LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	95.000	MMLIC		
.0000			04-1590850				MM Kannapolis Industrial Member LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	82.720	MMLIC		
.0000			04-1590850				MM Kannapolis Industrial Member LLC	DE	NIA	Massachusetts Mutual Ascend	Ownership	12.300	MMLIC		
.0000			04-1590850				MM MD1 Station Member LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	47.000	MMLIC		
.0000			04-1590850				MM MD1 Station Member LLC	DE	NIA	C.M. Life Insurance Company	Ownership	3.100	MMLIC		
.0000			04-1590850				MM MD2 Station Member LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	47.000	MMLIC		
.0000			04-1590850				MM MD2 Station Member LLC	DE	NIA	C.M. Life Insurance Company	Ownership	3.100	MMLIC		
.0000			04-1590850				MM East South Crossing Member LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	95.000	MMLIC		
.0000			04-1590850				MM Horizon Savannah Member LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	95.000	MMLIC		
.0000			04-1590850				MM Horizon Savannah Member LLC	DE	NIA	C.M. Life Insurance Company	Ownership	3.700	MMLIC		
.0000			04-1590850				MM National Self-Storage Program Member LLC	DE	NIA	C.M. Life Insurance Company	Ownership	98.000	MMLIC		
.0000			04-1590850				MM 1400 E 4th Street Member LLC	DE	NIA	C.M. Life Insurance Company	Ownership	96.000	MMLIC		
.0000			04-1590850				MassMutual Ventures US IV GP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	99.000	MMLC		
.0000			04-1590850				MassMutual Ventures US IV GP	DE	NIA	Massachusetts Mutual Ascend	Ownership	1.000	MMLC		
.0000			04-1590850				MassMutual Venture US IV LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	99.000	MMLC		
.0000			04-1590850				MMV Climate Technology Fund GP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	99.000	MMLC		
.0000			04-1590850				MMV Climate Technology Fund GP	DE	NIA	Massachusetts Mutual Ascend	Ownership	1.000	MMLC		
.0000			04-1590850				MM Subline Borrower LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLC		
.0000			80-0948028				One Harbor Shore LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	94.990	MMLIC		
.0000			80-0948028				One Harbor Shore LLC	DE	NIA	C.M. Life Insurance Company	Ownership	6.000	MMLIC		
.0000			04-1590850				PACO France Logistics LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							Salomon Brothers Commercial Mortgage Trust 2001-MM	DE	NIA	Barings Real Estate Advisers LLC	Influence		MMLIC		
.0000			81-5273574				Three PW Office Holding LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	95.100	MMLIC		
.0000			82-3250684				Unna, Dortmund Holding LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			45-5401109				Washington Gateway Apartments Venture LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	95.440	MMLIC		
.0000			45-5401109				Washington Gateway Apartments Venture LLC	DE	NIA	C.M. Life Insurance Company	Ownership	4.800	MMLIC		

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE Y

PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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.0000			51-0529328		0000927972	OQ	MassMutual Premier Main Street Fund	..MANIA	Massachusetts Mutual Life Insurance Company	Ownership	..88.700	MMLIC		
.0000			26-3229251		0000927972	OQ	MassMutual Premier Strategic Emerging Markets Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	..26.930	MMLIC		
.0000			04-3512593		0000916053	OQ	MassMutual Select Fundamental Growth Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	..3.820	MMLIC		
.0000			42-1710935		0000916053	OQ	MassMutual Select Mid-Cap Value Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	..30.030	MMLIC		
.0000			02-0769954		0000916053	OQ	MassMutual Select Small Capital Value Equity Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	..0.000	MMLIC		
.0000			04-3584140		0000916053	OQ	MassMutual Select Small Company Value Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	..18.000	MMLIC		
.0000			82-3347422		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2005 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	..5.300	MMLIC		
.0000			82-3355639		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2010 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	..0.000	MMLIC		
.0000			82-3382389		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2015 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	..0.000	MMLIC		
.0000			82-3396442		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2020 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	..0.000	MMLIC		
.0000			82-3417420		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2025 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	..0.000	MMLIC		
.0000			82-3430358		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2030 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	..0.000	MMLIC		
.0000			82-3439837		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2035 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	..0.000	MMLIC		
.0000			82-3451779		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2040 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	..0.000	MMLIC		
.0000			82-3472295		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2045 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	..0.000	MMLIC		
.0000			82-3481715		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2050 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	..0.000	MMLIC		
.0000			82-3502011		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2055 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	..0.000	MMLIC		
.0000			82-3525148		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2060 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	..0.000	MMLIC		
.0000			82-3533944		0000916053	OQ	MassMutual Select T. Rowe Price Retirement Balanced Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	..0.000	MMLIC		
.0000			46-4257056				MML Series International Equity Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	..100.000	MMLIC		
.0000			47-3529636				MML Series II Dynamic Bond Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	..0.000	MMLIC		
.0000			47-3544629				MML Series II Equity Rotation Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	..95.900	MMLIC		
.0000			27-1933389		0000916053	OQ	MassMutual RetireSMART 2035 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	..3.700	MMLIC		
.0000			27-1932769		0000916053	OQ	MassMutual RetireSMART 2045 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	..8.600	MMLIC		
.0000			46-3289207		0000916053	OQ	MassMutual RetireSMART 2055 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	..24.400	MMLIC		
.0000			47-5326235		0000916053	OQ	MassMutual RetireSMART 2060 Fund	..MANIA	Massachusetts Mutual Life Insurance Company	Ownership	..42.700	MMLIC		

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE Y

PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Group Code	Group Name	NAIC Company Code	ID Number	Federal RSSD	CIK	Name of Securities Exchange if Publicly Traded (U.S. or International)	Names of Parent, Subsidiaries Or Affiliates	Domiciliary Location	Relationship to Reporting Entity	Directly Controlled by (Name of Entity/Person)	Type of Control (Ownership, Board, Management, Attorney-in-Fact, Influence, Other)	If Control is Ownership Provide Percentage	Ultimate Controlling Entity(ies)/Person(s)	Is an SCA Filing Required? (Yes/No)	*
.0000			45-1618155		0000916053	Q0	MassMutual 20/80 Allocation Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	100.000	MLLIC		
.0000			45-1618222		0000916053	Q0	MassMutual 80/20 Allocation Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	45.200	MLLIC		
.0000			03-0532464		0000916053	Q0	MassMutual RetireSMART In Retirement Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	2.100	MLLIC		
.0000			45-1618262		0000916053	Q0	MassMutual 40/60 Allocation Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Influence	100.000	MLLIC		
.0000			45-1618046		0000916053	Q0	MassMutual 60/40 Allocation Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			45-1618046		0000916053	Q0	MassMutual ishares 60/40 Allocation Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	72.200	MLLIC		
.0000			04-3212054		0000916053	Q0	MassMutual Balanced Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			04-3556992		0000916053	Q0	MassMutual Blue Chip Growth Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			04-3277549		0000916053	Q0	MassMutual Core Bond Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			04-3539084		0000916053	Q0	MassMutual Disciplined Growth Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			04-3539083		0000916053	Q0	MassMutual Disciplined Value Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			01-0821120		0000916053	Q0	MassMutual Diversified Value Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			04-3512590		0000916053	Q0	MassMutual Equity Opportunities Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			04-3512589		0000916053	Q0	MassMutual Growth Opportunities Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			03-0532475		0000916053	Q0	MassMutual Inflation-Protected and Income Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			04-3512596		0000916053	Q0	MassMutual Mid Cap Growth Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			04-3464165		0000916053	Q0	MassMutual Premier Diversified Bond Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			92-1441036		0000916053	Q0	MassMutual RetireSMART by JPMorgan 2065 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			45-1618222		0000916053	Q0	MassMutual Select 80/20 Allocation Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			04-3584138		0000916053	Q0	MassMutual Select Fundamental Value Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			04-3557000		0000916053	Q0	MassMutual Select Overseas Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			92-1427882		0000916053	Q0	MassMutual Select T Rowe Price Retirement 2065 Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	98.100	MLLIC		
.0000			04-3464205		0000916053	Q0	MassMutual Small Cap Growth Equity Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			04-3424705		0000916053	Q0	MassMutual Small Cap Opportunities Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			02-0769954		0000916053	Q0	MassMutual Small Cap Value Equity Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			26-0099965		0000916053	Q0	MassMutual Strategic Bond Fund	..MA	.....NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

Asterisk	Explanation
1	Massachusetts Mutual Life Insurance Company owns 14.23% of the affiliated debt of Jefferies Finance LLC
2	Debt investors own .5% and includes only Great Lakes III, L.P.
3	Debt investors own .2% and includes only Great Lakes III, L.P.

SUPPLEMENTAL EXHIBITS AND SCHEDULES INTERROGATORIES

The following supplemental reports are required to be filed as part of your statement filing. However, in the event that your company does not transact the type of business for which the special report must be filed, your response of NO to the specific interrogatory will be accepted in lieu of filing a "NONE" report and a bar code will be printed below. If the supplement is required of your company but is not being filed for whatever reason enter SEE EXPLANATION and provide an explanation following the interrogatory questions.

	Response
1. Will the Trusteed Surplus Statement be filed with the state of domicile and the NAIC with this statement?	NO
2. Will the Medicare Part D Coverage Supplement be filed with the state of domicile and the NAIC with this statement?	NO
3. Will the Reasonableness of Assumptions Certification required by Actuarial Guideline XXXV be filed with the state of domicile and electronically with the NAIC?	NO
4. Will the Reasonableness and Consistency of Assumptions Certification required by Actuarial Guideline XXXV be filed with the state of domicile and electronically with the NAIC?	NO
5. Will the Reasonableness of Assumptions Certification for Implied Guaranteed Rate Method required by Actuarial Guideline XXXVI be filed with the state of domicile and electronically with the NAIC?	NO
6. Will the Reasonableness and Consistency of Assumptions Certification required by Actuarial Guideline XXXVI (Updated Average Market Value) be filed with the state of domicile and electronically with the NAIC?	NO
7. Will the Reasonableness and Consistency of Assumptions Certification required by Actuarial Guideline XXXVI (Updated Market Value) be filed with the state of domicile and electronically with the NAIC?	NO
8. Will the Life PBR Statement of Exemption be filed with the state of domicile by July 1st and electronically with the NAIC with the second quarterly filing per the Valuation Manual (by August 15)? (2nd Quarter Only) The response for 1st and 3rd quarters should be N/A. A NO response resulting with a bar code is only appropriate in the 2nd quarter. In the case of an ongoing statement of exemption, enter "SEE EXPLANATION" and provide as an explanation that the company is utilizing an ongoing statement of exemption.	NO

AUGUST FILING

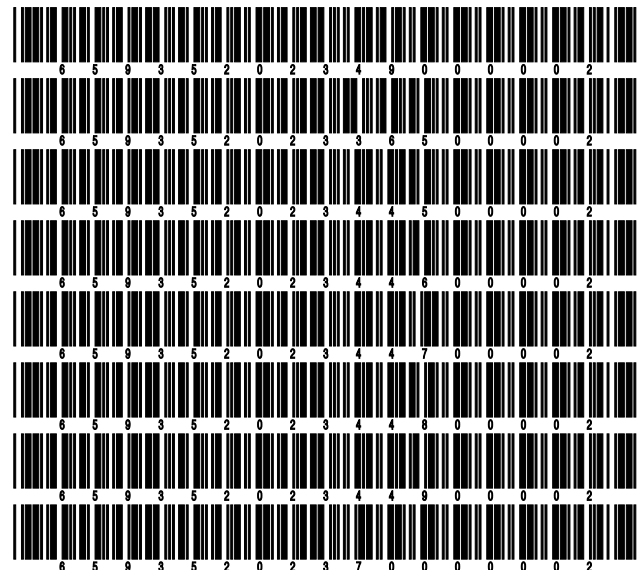
9. Will the regulator-only (non-public) Communication of Internal Control Related Matters Noted in Audit be filed with the state of domicile and electronically with the NAIC (as a regulator-only non-public document) by August 1? The response for 1st and 3rd quarters should be N/A. A NO response resulting with a bar code is only appropriate in the 2nd quarter.	YES
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Explanation:

1. Not required
2. This line of business is not written by the company
3. Not required
4. Not required
5. Not required
6. Not required
7. Not required
8. Not required

Bar Code:

1. Trusteed Surplus Statement [Document Identifier 490]
2. Medicare Part D Coverage Supplement [Document Identifier 365]
3. Reasonableness of Assumptions Certification required by Actuarial Guideline XXXV [Document Identifier 445]
4. Reasonableness and Consistency of Assumptions Certification required by Actuarial Guideline XXXV [Document Identifier 446]
5. Reasonableness of Assumptions Certification for Implied Guaranteed Rate Method required by Actuarial Guideline XXXVI [Document Identifier 447]
6. Reasonableness and Consistency of Assumptions Certification required by Actuarial Guideline XXXVI [Document Identifier 448]
7. Reasonableness and Consistency of Assumptions Certification required by Actuarial Guideline XXXVI (Updated Market Value) [Document Identifier 449]
8. Life PBR Statement of Exemption (2nd Quarter Only) [Document Identifier 700]



STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

OVERFLOW PAGE FOR WRITE-INS

Additional Write-ins for Assets Line 25

	Current Statement Date			4 December 31 Prior Year Net Admitted Assets
	1 Assets	2 Nonadmitted Assets	3 Net Admitted Assets (Cols. 1 - 2)	
2504. Investment in trust	19,979,257		19,979,257	20,001,607
2505. Disallowed interest maintenance reserve	724,768,171	724,768,171		
2506. Pension plan asset	665,174,877	665,174,877		
2507. Cash advances to agents	303,896,732	303,896,732		
2508. Receivable for commissions and expenses on long-term lease	79,096,636	79,096,636		
2509. Intangible assets	37,312,168	37,312,168		
2510. Bills receivable	50,397	50,397		
2597. Summary of remaining write-ins for Line 25 from overflow page	1,830,278,238	1,810,298,982	19,979,257	20,001,607

Additional Write-ins for Liabilities Line 25

	1 Current Statement Date	2 December 31 Prior Year
2504. Funds awaiting escheat and other miscellaneous	128,383,059	68,839,651
2505. Deferred income liability	24,777,932	26,963,691
2597. Summary of remaining write-ins for Line 25 from overflow page	153,160,991	95,803,342

Additional Write-ins for Summary of Operations Line 8.3

	1 Current Year To Date	2 Prior Year To Date	3 Prior Year Ended December 31
08.304. Experience refunds on reinsurance contracts	38,814,687	41,569,157	94,469,978
08.305. Miscellaneous income	(79,295,833)	(50,022,202)	84,818,527
08.397. Summary of remaining write-ins for Line 8.3 from overflow page	(40,481,146)	(8,453,046)	179,288,505

Additional Write-ins for Summary of Operations Line 27

	1 Current Year To Date	2 Prior Year To Date	3 Prior Year Ended December 31
2704. Reinsurance ceded adjustment	(340,465)	(78,725,939)	(86,272,996)
2705. Change in reserves due to reinsurance agreement		2,260,761	20,592,088
2706. Market value adjustment transfer		(478,928)	
2797. Summary of remaining write-ins for Line 27 from overflow page	(340,465)	(76,944,106)	(65,680,909)

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE A - VERIFICATION

Real Estate

	1 Year to Date	2 Prior Year Ended December 31
1. Book/adjusted carrying value, December 31 of prior year	354,748,274	394,897,743
2. Cost of acquired:		
2.1 Actual cost at time of acquisition		
2.2 Additional investment made after acquisition	2,997,090	13,292,853
3. Current year change in encumbrances		
4. Total gain (loss) on disposals		127,364,440
5. Deduct amounts received on disposals		144,453,134
6. Total foreign exchange change in book/adjusted carrying value		
7. Deduct current year's other than temporary impairment recognized		
8. Deduct current year's depreciation	15,634,945	36,353,628
9. Book/adjusted carrying value at the end of current period (Lines 1+2+3+4-5+6-7-8)	342,110,419	354,748,274
10. Deduct total nonadmitted amounts		
11. Statement value at end of current period (Line 9 minus Line 10)	342,110,419	354,748,274

SCHEDULE B - VERIFICATION

Mortgage Loans

	1 Year to Date	2 Prior Year Ended December 31
1. Book value/recorded investment excluding accrued interest, December 31 of prior year	24,971,963,928	26,344,845,562
2. Cost of acquired:		
2.1 Actual cost at time of acquisition	814,872,963	2,296,752,966
2.2 Additional investment made after acquisition	235,490,658	424,032,794
3. Capitalized deferred interest and other	15,621,971	32,386,748
4. Accrual of discount	(487,440)	14,924,106
5. Unrealized valuation increase (decrease)		
6. Total gain (loss) on disposals	(19,189,541)	(36,636,956)
7. Deduct amounts received on disposals	1,450,408,094	3,824,155,926
8. Deduct amortization of premium and mortgage interest points and commitment fees	10,644,623	11,056,884
9. Total foreign exchange change in book value/recorded investment excluding accrued interest	118,836,852	(265,231,166)
10. Deduct current year's other than temporary impairment recognized	12,786,072	3,897,317
11. Book value/recorded investment excluding accrued interest at end of current period (Lines 1+2+3+4+5+6-7-8+9-10)	24,663,270,602	24,971,963,928
12. Total valuation allowance	(35,194,266)	
13. Subtotal (Line 11 plus Line 12)	24,628,076,336	24,971,963,928
14. Deduct total nonadmitted amounts		
15. Statement value at end of current period (Line 13 minus Line 14)	24,628,076,336	24,971,963,928

SCHEDULE BA - VERIFICATION

Other Long-Term Invested Assets

	1 Year to Date	2 Prior Year Ended December 31
1. Book/adjusted carrying value, December 31 of prior year	12,340,402,460	12,601,759,357
2. Cost of acquired:		
2.1 Actual cost at time of acquisition	653,159,458	926,646,083
2.2 Additional investment made after acquisition	1,021,259,804	4,121,215,415
3. Capitalized deferred interest and other		
4. Accrual of discount		
5. Unrealized valuation increase (decrease)	83,348,389	(368,153,834)
6. Total gain (loss) on disposals	(50,378)	31,348,188
7. Deduct amounts received on disposals	828,725,733	4,952,577,885
8. Deduct amortization of premium and depreciation	581,584	1,170,439
9. Total foreign exchange change in book/adjusted carrying value	47,438,738	1,620,012
10. Deduct current year's other than temporary impairment recognized	60,851,449	20,284,437
11. Book/adjusted carrying value at end of current period (Lines 1+2+3+4+5+6-7-8+9-10)	13,255,399,705	12,340,402,460
12. Deduct total nonadmitted amounts	43,190,822	43,994,285
13. Statement value at end of current period (Line 11 minus Line 12)	13,212,208,883	12,296,408,175

SCHEDULE D - VERIFICATION

Bonds and Stocks

	1 Year to Date	2 Prior Year Ended December 31
1. Book/adjusted carrying value of bonds and stocks, December 31 of prior year	163,056,331,820	150,758,481,945
2. Cost of bonds and stocks acquired	15,051,302,040	45,554,452,552
3. Accrual of discount	145,526,987	290,264,109
4. Unrealized valuation increase (decrease)	(98,050,786)	(794,150,078)
5. Total gain (loss) on disposals	(329,105,921)	(403,895,086)
6. Deduct consideration for bonds and stocks disposed of	11,310,368,584	30,376,581,148
7. Deduct amortization of premium	90,639,365	168,675,549
8. Total foreign exchange change in book/adjusted carrying value	513,367,798	(1,394,352,669)
9. Deduct current year's other than temporary impairment recognized	99,960,155	440,227,144
10. Total investment income recognized as a result of prepayment penalties and/or acceleration fees	368,725	31,014,886
11. Book/adjusted carrying value at end of current period (Lines 1+2+3+4+5-6-7+8-9+10)	166,838,772,559	163,056,331,820
12. Deduct total nonadmitted amounts		
13. Statement value at end of current period (Line 11 minus Line 12)	166,838,772,559	163,056,331,820

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE D - PART 1B

Showing the Acquisitions, Dispositions and Non-Trading Activity
During the Current Quarter for all Bonds and Preferred Stock by NAIC Designation

NAIC Designation	1 Book/Adjusted Carrying Value Beginning of Current Quarter	2 Acquisitions During Current Quarter	3 Dispositions During Current Quarter	4 Non-Trading Activity During Current Quarter	5 Book/Adjusted Carrying Value End of First Quarter	6 Book/Adjusted Carrying Value End of Second Quarter	7 Book/Adjusted Carrying Value End of Third Quarter	8 Book/Adjusted Carrying Value December 31 Prior Year
BONDS								
1. NAIC 1 (a)	76,131,438,163	39,415,970,701	35,588,144,955	(980,156,595)	76,131,438,163	78,979,107,314		73,982,473,782
2. NAIC 2 (a)	56,469,091,394	137,585,112,236	139,643,868,328	1,576,511,054	56,469,091,394	55,986,846,355		55,757,939,629
3. NAIC 3 (a)	5,185,438,623	191,384,305	1,252,000,269	120,852,038	5,185,438,623	4,245,674,696		5,496,598,645
4. NAIC 4 (a)	3,051,998,891	415,695,172	200,774,075	(462,210,037)	3,051,998,891	2,804,709,952		2,888,214,591
5. NAIC 5 (a)	2,552,231,212	43,323,573	91,492,187	110,311,141	2,552,231,212	2,614,373,739		2,602,990,396
6. NAIC 6 (a)	300,509,662	6,104,130	74,851,703	85,015,383	300,509,662	316,777,472		436,957,441
7. Total Bonds	143,690,707,945	177,657,590,116	176,851,131,517	450,322,984	143,690,707,945	144,947,489,528		141,165,174,484
PREFERRED STOCK								
8. NAIC 1	198,736,131				198,736,131	198,736,131		198,736,131
9. NAIC 2	89,999,708	306,319		(1,262,223)	89,999,708	89,043,804		71,565,877
10. NAIC 3	25,855,087			(429,400)	25,855,087	25,425,687		148,565,807
11. NAIC 4	5,625,740			1,081,943	5,625,740	6,707,683		5,192,519
12. NAIC 5	13,582,761			(43,042)	13,582,761	13,539,719		12,585,408
13. NAIC 6	34,570,399	2,999,996		3,494,271	34,570,399	41,064,666		14,766,010
14. Total Preferred Stock	368,369,826	3,306,315		2,841,549	368,369,826	374,517,690		451,411,752
15. Total Bonds and Preferred Stock	144,059,077,771	177,660,896,431	176,851,131,517	453,164,533	144,059,077,771	145,322,007,218		141,616,586,236

(a) Book/Adjusted Carrying Value column for the end of the current reporting period includes the following amount of short-term and cash equivalent bonds by NAIC designation:

NAIC 1 \$ 1,725,228,993 ; NAIC 2 \$ 3,129,504,060 ; NAIC 3 \$ 2,025,329 ; NAIC 4 \$; NAIC 5 \$; NAIC 6 \$ 255,403

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SCHEDULE DA - PART 1

Short-Term Investments

	1	2	3	4	5
	Book/Adjusted Carrying Value	Par Value	Actual Cost	Interest Collected Year-to-Date	Paid for Accrued Interest Year-to-Date
7709999999 Totals	1,408,632,177	xxx	1,402,549,227	5,399,273	55,121

SCHEDULE DA - VERIFICATION

Short-Term Investments

	1	2
	Year To Date	Prior Year Ended December 31
1. Book/adjusted carrying value, December 31 of prior year	525,180,990	2,715,450,459
2. Cost of short-term investments acquired	1,719,583,820	1,296,966,809
3. Accrual of discount	12,685,195	3,245,603
4. Unrealized valuation increase (decrease)		
5. Total gain (loss) on disposals	(1,343)	3,129,406
6. Deduct consideration received on disposals	848,816,485	3,493,749,010
7. Deduct amortization of premium		
8. Total foreign exchange change in book/adjusted carrying value		137,723
9. Deduct current year's other than temporary impairment recognized		
10. Book/adjusted carrying value at end of current period (Lines 1+2+3+4+5-6-7+8-9)	1,408,632,177	525,180,990
11. Deduct total nonadmitted amounts		
12. Statement value at end of current period (Line 10 minus Line 11)	1,408,632,177	525,180,990

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART A - VERIFICATION

Options, Caps, Floors, Collars, Swaps and Forwards

1. Book/Adjusted Carrying Value, December 31, prior year (Line 10, prior year)	8,010,881,255
2. Cost Paid/(Consideration Received) on additions	66,006,177
3. Unrealized Valuation increase/(decrease)	(436,781,140)
4. SSAP No. 108 adjustments	
5. Total gain (loss) on termination recognized	(194,307,711)
6. Considerations received/(paid) on terminations	(119,833,834)
7. Amortization	89,189
8. Adjustment to the Book/Adjusted Carrying Value of hedged item	
9. Total foreign exchange change in Book/Adjusted Carrying Value	(394,936,877)
10. Book/Adjusted Carrying Value at End of Current Period (Lines 1+2+3+4+5-6+7+8+9)	7,170,784,726
11. Deduct nonadmitted assets	
12. Statement value at end of current period (Line 10 minus Line 11)	7,170,784,726

SCHEDULE DB - PART B - VERIFICATION

Futures Contracts

1. Book/Adjusted carrying value, December 31 of prior year (Line 6, prior year).....	18,122,637
2. Cumulative cash change (Section 1, Broker Name/Net Cash Deposits Footnote - Cumulative Cash Change column)	
3.1 Add:	
Change in variation margin on open contracts - Highly Effective Hedges	
3.11 Section 1, Column 15, current year to date minus	
3.12 Section 1, Column 15, prior year	
Change in variation margin on open contracts - All Other	
3.13 Section 1, Column 18, current year to date minus	(10,962,117)
3.14 Section 1, Column 18, prior year	18,122,636
	(29,084,753)
	(29,084,753)
3.2 Add:	
Change in adjustment to basis of hedged item	
3.21 Section 1, Column 17, current year to date minus	
3.22 Section 1, Column 17, prior year	
Change in amount recognized	
3.23 Section 1, Column 19, current year to date minus	(10,962,111)
3.24 Section 1, Column 19, prior year plus	18,122,636
3.25 SSAP No. 108 adjustments	(29,084,747)
	(29,084,747)
3.3 Subtotal (Line 3.1 minus Line 3.2)	(6)
4.1 Cumulative variation margin on terminated contracts during the year	(27,307,209)
4.2 Less:	
4.21 Amount used to adjust basis of hedged item	
4.22 Amount recognized	(45,429,844)
4.23 SSAP No. 108 adjustments	(45,429,844)
4.3 Subtotal (Line 4.1 minus Line 4.2)	18,122,635
5. Dispositions gains (losses) on contracts terminated in prior year:	
5.1 Total gain (loss) recognized for terminations in prior year	
5.2 Total gain (loss) adjusted into the hedged item(s) for terminations in prior year	10,962,112
6. Book/Adjusted carrying value at end of current period (Lines 1+2+3.3-4.3-5.1-5.2)	(10,962,117)
7. Deduct total nonadmitted amounts	
8. Statement value at end of current period (Line 6 minus Line 7)	(10,962,117)

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held				
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value
57629*FX4	Evergreen Basket of Long Fixed Rate Corp Inv Grade Equiv Bonds	1	50,000,000	27,019,323	13,912,287	09/05/2023	06/03/2051	SOFR Replacement Swap - CME cleared	19,323	(12,735,390)	42086P-AC-7	Kingsland Ltd-SERIES 18-8A CLASS A	1	27,000,000	26,647,677
57629*FX4	Evergreen Basket of Long Fixed Rate Corp Inv Grade Equiv Bonds	1	12,236,217	11,635,000	11,635,000	09/05/2023	06/03/2051	SOFR Replacement Swap - CME cleared			320808-AD-0	FIRST MARYLAND CAP I-LIMITED GUARANTEE NOTE	2	12,236,217	11,635,000
57629*FX4	Evergreen Basket of Long Fixed Rate Corp Inv Grade Equiv Bonds	1	10,000,000	10,000,000	9,714,940	09/05/2023	06/03/2051	SOFR Replacement Swap - CME cleared			09629L-AE-5	BLUEMOUNTAIN CLO XXIII L-BLUEM 2018-23A B	1	10,000,000	9,714,940
57629*FX4	Evergreen Basket of Long Fixed Rate Corp Inv Grade Equiv Bonds	1	19,092,689	19,092,689	18,308,352	09/05/2023	06/03/2051	SOFR Replacement Swap - CME cleared			03328Y-AG-9	Anchorage Capital CLO Lt-ANCHC 2018-19A C	1	19,092,689	18,308,352
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	264,000,000	7,900,000	(34,724,990)	11/29/2012	11/29/2042	Interest Rate Swap - OTC		(42,624,990)	12499#-MM-8	CCOF Onshore Co-Borrower Revolving Loan	1	7,900,000	7,900,000
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	3,094,496	3,094,496	2,978,771	11/29/2012	11/29/2042	Interest Rate Swap - OTC			83149F-AD-6	SLM Student Loan Trust 2006-6 GILBERT PARK CLO LTD-SERIES 17-1A CLASS A	1	3,094,496	2,978,771
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	22,905,515	22,905,515	22,822,969	11/29/2012	11/29/2042	Interest Rate Swap - OTC			375415-AA-4	COF CLO 2017-14 Ltd-SERIES 17-14A CLASS A1B	1	22,905,515	22,822,969
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	13,100,000	13,100,000	12,801,006	11/29/2012	11/29/2042	Interest Rate Swap - OTC			67097Q-AC-9	Goldentree Loan Opportun-SERIES 2015-11A CLASS BR2	1	13,100,000	12,801,006
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	8,000,000	8,000,000	7,841,016	11/29/2012	11/29/2042	Interest Rate Swap - OTC			38137H-BW-7	Signal Peak CLO 8 Ltd-SPEAK 2020-8A C	1	8,000,000	7,841,016
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	10,074,040	10,074,040	9,559,770	11/29/2012	11/29/2042	Interest Rate Swap - OTC			56845N-AE-0	522 Funding CLO 2019-5 L-MORGN 2021-7A B	1	10,074,040	9,559,770
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	10,000,000	10,000,000	9,591,720	11/29/2012	11/29/2042	Interest Rate Swap - OTC			33833V-AE-5	Anchorage Capital CLO Lt-ANCHC 2018-10A B	1	10,000,000	9,591,720
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	11,050,000	11,050,000	10,857,266	11/29/2012	11/29/2042	Interest Rate Swap - OTC			03331J-AJ-1	Goldentree Loan Opportun-GLD12 2016-12A AJR	1	11,050,000	10,857,266
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	15,000,000	15,000,000	14,746,290	11/29/2012	11/29/2042	Interest Rate Swap - OTC			38137M-AK-3	Apidos CLO-APIID 2018-29A B C1FC Funding 2018-IV Ltd-SERIES 18-4A CLASS A1	1	15,000,000	14,746,290
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	4,500,000	4,500,000	4,308,120	11/29/2012	11/29/2042	Interest Rate Swap - OTC			03767M-AJ-7	ARES CLO Ltd-ARES 2018-49A B Elmwood CLO III Ltd-ELMW3 2019-3A AR	1	4,500,000	4,308,120
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	19,600,000	19,600,000	19,428,872	11/29/2012	11/29/2042	Interest Rate Swap - OTC			17181T-AA-9	Babson CLO Ltd 2015-I-SERIES 2015-1A CLASS DR	1	19,600,000	19,428,872
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	12,000,000	12,000,000	11,712,900	11/29/2012	11/29/2042	Interest Rate Swap - OTC			04017J-AE-1	BABSON CLO LTD 2015-II-SERIES 15-2A CLASS C1R	1	12,000,000	11,712,900
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	60,000,000	60,000,000	59,037,420	11/29/2012	11/29/2042	Interest Rate Swap - OTC			29002H-AL-3	Landmark Equity Partners XVI-D, LLC COP CLO Ltd-SEREIS 18-15A CLASS A3	1	60,000,000	59,037,420
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	1,220,000	1,220,000	1,088,838	11/29/2012	11/29/2042	Interest Rate Swap - OTC			056162-AU-4	Babson CLO Ltd 2015-I-SERIES 2015-1A CLASS DR	2	1,220,000	1,088,838
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	196,970	196,970	189,678	11/29/2012	11/29/2042	Interest Rate Swap - OTC			06759F-AE-6	BABSON CLO LTD 2015-II-SERIES 15-2A CLASS C1R	1	196,970	189,678
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	126,125,000	126,125,000	126,125,000	11/29/2012	11/29/2042	Interest Rate Swap - OTC			515095-MM-6	Landmark Equity Partners XVI-D, LLC COP CLO Ltd-SEREIS 18-15A CLASS A3	1	126,125,000	126,125,000
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	100,000,000	12,000,000	(1,823,597)	12/27/2012	12/27/2042	Interest Rate Swap - OTC		(13,607,045)	67112K-AC-3	Babson CLO Ltd 2015-I-BABSN 2015-1A AR	1	12,000,000	11,783,448
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	12,299,944	12,299,944	12,195,358	12/27/2012	12/27/2042	Interest Rate Swap - OTC			056162-AN-0	Anchorage Capital CLO 3-ANCHC 2014-3RA B	1	12,299,944	12,195,358
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	3,200,000	3,200,000	3,131,885	12/27/2012	12/27/2042	Interest Rate Swap - OTC			03330A-AC-6	TIAA CLO I Ltd-TIA 2016-1A AR	1	3,200,000	3,131,885
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	65,000,000	65,000,000	64,295,465	12/27/2012	12/27/2042	Interest Rate Swap - OTC			87271L-AJ-1	TICP CLO XV Ltd-TICP 2020-15A B HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS B1	1	65,000,000	64,295,465
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	5,900,000	5,900,000	5,799,960	12/27/2012	12/27/2042	Interest Rate Swap - OTC			87250R-AB-0	JPMorgan Chase & Co-SENIOR UNSECURED	1	5,900,000	5,799,960
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	1,928,459	1,928,459	2,038,781	12/27/2012	12/27/2042	Interest Rate Swap - OTC			429827-AR-9	ARES CLO-ARES 2022-66A B WACHOVIA STUDENT LOAN TR-WSLT 2005-1 B	1	1,928,459	2,038,781
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	10,106,728	10,106,728	9,514,893	12/27/2012	12/27/2042	Interest Rate Swap - OTC			46647P-AR-7	ARES CLO-ARES 2022-66A B WACHOVIA STUDENT LOAN TR-WSLT 2005-1 B	1	10,106,728	9,514,893
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	10,000,000	10,000,000	10,019,260	12/27/2012	12/27/2042	Interest Rate Swap - OTC			04019R-AG-6	ARES CLO-ARES 2022-66A B WACHOVIA STUDENT LOAN TR-WSLT 2005-1 B	1	10,000,000	10,019,260
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	100,000,000	6,084,637	(7,856,238)	12/27/2012	12/27/2042	Interest Rate Swap - OTC		(13,607,045)	92977H-AG-3	Wellfleet CLO 2017-1 Ltd-WELF 2017-1A 2R	1	6,084,637	5,750,807
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	20,018,830	20,018,830	19,834,400	12/27/2012	12/27/2042	Interest Rate Swap - OTC			94950G-AN-7	Wellfleet CLO 2017-1 Ltd-WELF 2017-1A 2R	1	20,018,830	19,834,400

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		30,000,000	29,479,500	12/27/2012	12/27/2042	Interest Rate Swap - OTC				83004L-AC-9	610 Funding CLO-SIX10 2021-2RA A1R2	1	30,000,000	29,479,500
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		23,000,000	22,821,658	12/27/2012	12/27/2042	Interest Rate Swap - OTC				06760P-AE-1	Babson CLO Ltd/Cayman Is-BABSN 2018-3A A2	1	23,000,000	22,821,658
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,500,000	9,313,449	12/27/2012	12/27/2042	Interest Rate Swap - OTC				55821A-AE-8	Madison Park Funding Ltd-SERIES 18-28A CLASS B	1	9,500,000	9,313,449
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,700,000	6,599,895	12/27/2012	12/27/2042	Interest Rate Swap - OTC				06760B-AC-6	BABSON CLO LTD-SERIES 17-1A CLASS A2	1	6,700,000	6,599,895
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,250,000	3,086,415	12/27/2012	12/27/2042	Interest Rate Swap - OTC				08759B-AE-8	BETHPAGE PARK CLO LTD-BETHP 2021-1A	1	3,250,000	3,086,415
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,534,604	1,469,763	12/27/2012	12/27/2042	Interest Rate Swap - OTC				784424-AE-3	SLC STUDENT LOAN TRUST 2-SERIES 07-1 CLASS B	1	1,534,604	1,469,763
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,331,091	6,113,667	12/27/2012	12/27/2042	Interest Rate Swap - OTC				62983P-AB-1	Nakilat Inc-SECURED 144A	1	6,331,091	6,113,667
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	100,000,000	6,000,000	(7,704,003)	12/28/2012	12/28/2042	Interest Rate Swap - OTC		(13,594,401)		38138B-AG-5	GoldenTree Loan Managem-GLM 2018-3A B1	1	6,000,000	5,890,398
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,149,420	19,521,780	12/28/2012	12/28/2042	Interest Rate Swap - OTC				58845N-AC-4	Signal Peak CLO 8 Ltd-SPEAK 2020-8A	1	20,149,420	19,521,780
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,750,000	13,350,865	12/28/2012	12/28/2042	Interest Rate Swap - OTC				55954K-AN-5	Magnetite XIX Ltd-SERIES 2017-19A CLASS B1R	1	13,750,000	13,350,865
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		34,745,000	34,186,683	12/28/2012	12/28/2042	Interest Rate Swap - OTC				13876N-AL-7	Canyon CLO 2020-2 Ltd-CANYC 2020-2A	1	34,745,000	34,186,683
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,142,322	13,553,670	12/28/2012	12/28/2042	Interest Rate Swap - OTC				92917N-AJ-7	Yoya CLO 2019-1 Ltd-VOYA 2019-1A AR	1	13,142,322	13,553,670
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,038,775	1,973,880	12/28/2012	12/28/2042	Interest Rate Swap - OTC				64033T-AB-9	INELNET STUDENT LOAN TRUS-SERIES 2015-3A CLASS B	1	2,038,775	1,973,880
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,000,000	2,939,094	12/28/2012	12/28/2042	Interest Rate Swap - OTC				87248K-AS-3	TICP CLO VI 2016-5 LTD-TICP 2016-5A	1	3,000,000	2,939,094
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,000,000	984,471	12/28/2012	12/28/2042	Interest Rate Swap - OTC				94950J-AA-9	Wellfleet CLO Ltd-SERIES 18-1A CLASS A	1	1,000,000	984,471
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,000,000	3,873,152	12/28/2012	12/28/2042	Interest Rate Swap - OTC				40437L-AE-2	HPS LOAN MANAGEMENT 13-2-HLM 13A-18	1	4,000,000	3,873,152
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,060,000	4,787,479	12/28/2012	12/28/2042	Interest Rate Swap - OTC				92917A-AE-6	Voya CLO Ltd-SERIES 18-1A CLASS B	1	5,060,000	4,787,479
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,150,000	3,028,886	12/28/2012	12/28/2042	Interest Rate Swap - OTC				87168G-AG-4	Symphony CLO XXIX Ltd-SYMP 2021-29A	1	3,150,000	3,028,886
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,200,000	3,031,373	12/28/2012	12/28/2042	Interest Rate Swap - OTC				33836J-AG-4	ASSURANT CLO I LTD-MORGN 2017-1A CR	1	3,200,000	3,031,373
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	10,021,860	12/28/2012	12/28/2042	Interest Rate Swap - OTC				617924-AE-5	Morgan Stanley Eaton Van-HISEV 2022-18A B	1	10,000,000	10,021,860
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	100,000,000	29,200,000	15,152,152	12/28/2012	12/28/2042	Interest Rate Swap - OTC		(13,594,401)		94950J-AA-9	Wellfleet CLO Ltd-SERIES 18-1A CLASS A	1	29,200,000	28,746,553
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,556,087	13,467,376	12/28/2012	12/28/2042	Interest Rate Swap - OTC				06759F-AB-2	BABSON CLO LTD 2015-11-SERIES 15-2A	1	13,556,087	13,467,376
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,000,000	19,442,200	12/28/2012	12/28/2042	Interest Rate Swap - OTC				04017T-AE-9	CLASS AR Ares XXXIR CLO Ltd-SERIES 14-31RA	1	20,000,000	19,442,200
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,600,000	1,518,733	12/28/2012	12/28/2042	Interest Rate Swap - OTC				87246M-AW-2	CLASS B TICP CLO VI 2016-2 Ltd-TICP 2016-6A	1	1,600,000	1,518,733
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,200,000	4,021,588	12/28/2012	12/28/2042	Interest Rate Swap - OTC				12551R-AE-8	CIFC Funding 2018-1 Ltd-SERIES 18-1A CLASS C	1	4,200,000	4,021,588
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,100,000	1,079,086	12/28/2012	12/28/2042	Interest Rate Swap - OTC				08179M-AC-3	Benefit Street Partners -BSP 2018-15A A2A	1	1,100,000	1,079,086
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,575,000	7,929,637	12/28/2012	12/28/2042	Interest Rate Swap - OTC				151895-D8-5	CenterPoint Properties T Senior Note Ser	1	8,575,000	7,929,637
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,000,000	9,021,843	12/28/2012	12/28/2042	Interest Rate Swap - OTC				06762Q-AC-1	Babson CLO Ltd/Cayman Is-BABSN LP-3A B	1	9,000,000	9,021,843
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,000,000	13,000,000	12/28/2012	12/28/2042	Interest Rate Swap - OTC				186858-AC-6	Cliffwater Corporate Lending Fund -Senior Secured Revolving Credit Facility	1	13,000,000	13,000,000

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held				
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	100,000,000	20,000,000	5,895,699	12/28/2012	12/28/2042	Interest Rate Swap - OTC	(13,594,401)	09628N-AQ-5	BlueMountain CLO 2015-4 -SERIES 15-4A CLASS A2R	1	20,000,000	19,490,100	
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	12,050,000	12,050,000	11,975,407	12/28/2012	12/28/2042	Interest Rate Swap - OTC		64031D-AB-6	Nelnet Student Loan Tru-SERIES 19-3A CLASS B	1	12,050,000	11,975,407	
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	1,949,016	1,949,016	1,703,833	12/28/2012	12/28/2042	Interest Rate Swap - OTC		63939F-AC-4	Navient Student Loan Tru-SERIES 15-1 CLASS B	1	1,949,016	1,703,833	
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	5,000,000	5,000,000	4,868,880	12/28/2012	12/28/2042	Interest Rate Swap - OTC		12550G-AE-3	CIFC Funding Ltd-CIFC 2018-5A B ..	1	5,000,000	4,868,880	
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	6,750,000	6,750,000	6,561,068	12/28/2012	12/28/2042	Interest Rate Swap - OTC		77341D-AE-7	Rockford Tower CLO 2017--SERIES 17-3A CLASS B	1	6,750,000	6,561,068	
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	3,600,000	3,600,000	3,463,898	12/28/2012	12/28/2042	Interest Rate Swap - OTC		87249C-AE-1	TICP CLO X LTD-SERIES 18-10A CLASS C	1	3,600,000	3,463,898	
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	3,200,000	3,200,000	3,138,525	12/28/2012	12/28/2042	Interest Rate Swap - OTC		48250R-BN-5	KKR CLO 12 Ltd-KKR 12 BR2	1	3,200,000	3,138,525	
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	4,250,000	4,250,000	4,162,344	12/28/2012	12/28/2042	Interest Rate Swap - OTC		75888M-AG-5	Regatta XIV Funding Ltd-SERIES 18-3A CLASS B	1	4,250,000	4,162,344	
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	5,200,000	5,200,000	5,092,558	12/28/2012	12/28/2042	Interest Rate Swap - OTC		41154X-AG-0	Harbor Park CLO, Ltd-HAR-HARB 2018-1A B1	1	5,200,000	5,092,558	
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	38,600,000	38,600,000	37,773,420	12/28/2012	12/28/2042	Interest Rate Swap - OTC		06762L-AM-0	Barings CLO Ltd 2020-I-BABSN 2020-1A AR	1	38,600,000	37,773,420	
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	6,813,534	6,813,534	6,602,145	12/28/2012	12/28/2042	Interest Rate Swap - OTC		032095-AH-4	Amphenol Corp-SENIOR UNSECURED	1	6,813,534	6,602,145	
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	50,000,000	9,550,000	2,562,802	12/28/2012	12/28/2042	Interest Rate Swap - OTC	(6,797,201)	04965F-AG-6	Atrium XV-SERIES 15A CLASS B	1	9,550,000	9,360,003	
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	18,744,705	18,744,705	16,425,410	12/28/2012	12/28/2042	Interest Rate Swap - OTC		66704J-CB-2	NORTHSTAR EDUCATION FINA-SERIES 07-1 CLASS B	1	18,744,705	16,425,410	
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	5,600,000	5,600,000	5,387,285	12/28/2012	12/28/2042	Interest Rate Swap - OTC		64034N-AB-1	NSLT 2019-2A B	1	5,600,000	5,387,285	
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	6,600,000	6,600,000	5,836,158	12/28/2012	12/28/2042	Interest Rate Swap - OTC		63940A-AD-0	NAVIENT STUDENT LOAN TRU-SERIES 17-4A CLASS B	1	6,600,000	5,836,158	
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	6,000,000	6,000,000	5,830,626	12/28/2012	12/28/2042	Interest Rate Swap - OTC		06762L-AN-8	Barings CLO Ltd 2020-I-BABSN 2020-1A BR	1	6,000,000	5,830,626	
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	1,100,000	1,100,000	1,079,086	12/28/2012	12/28/2042	Interest Rate Swap - OTC		08179M-AC-3	Benefit Street Partners -BSP 2018-15A A2A	1	1,100,000	1,079,086	
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	2,500,000	2,500,000	2,450,638	12/28/2012	12/28/2042	Interest Rate Swap - OTC		13876J-AE-2	Canyon Capital CLO Ltd-CANVC 2012-1RA B	1	2,500,000	2,450,638	
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	6,400,000	6,400,000	6,232,365	12/28/2012	12/28/2042	Interest Rate Swap - OTC		77342K-AC-4	Rockford Tower CLO 2018-2 Ltd	1	6,400,000	6,232,365	
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	8,050,000	8,050,000	7,602,251	12/28/2012	12/28/2042	Interest Rate Swap - OTC		06760G-AC-5	Barings CLO Ltd 2018-I-SERIES 18-1A CLASS B	1	8,050,000	7,602,251	
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	50,000,000	10,000,000	3,007,379	12/28/2012	12/28/2042	Interest Rate Swap - OTC	(6,797,201)	24380L-AE-3	DEER CREEK CLO LTD 2017--SERIES 17-1A CLASS B	1	10,000,000	9,804,580	
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	24,500,000	24,500,000	23,981,850	12/28/2012	12/28/2042	Interest Rate Swap - OTC		05683E-AN-2	Bain Capital Credit CLO -BCC 2020-2A AR	1	24,500,000	23,981,850	
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	13,570,000	13,570,000	13,355,553	12/28/2012	12/28/2042	Interest Rate Swap - OTC		48249V-AQ-4	KKR FINANCIAL CLO LTD-SERIES 13-1A CLASS A2R	1	13,570,000	13,355,553	
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	4,000,000	4,000,000	3,901,888	12/28/2012	12/28/2042	Interest Rate Swap - OTC		05874X-AC-3	Ballyrock CDO Ltd-BALLY 2020-14A A2	1	4,000,000	3,901,888	
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	3,400,000	3,400,000	3,245,273	12/28/2012	12/28/2042	Interest Rate Swap - OTC		75009P-AE-7	Rad CLO 12 Ltd-RAD 2021-12A C	1	3,400,000	3,245,273	
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	6,088,465	6,088,465	6,182,442	12/28/2012	12/28/2042	Interest Rate Swap - OTC		46149M-AA-4	Invesco CLO Ltd-INVCO 2021-2A A ..	1	6,088,465	6,182,442	
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	50,000,000	3,900,000	(3,080,123)	12/28/2012	12/28/2042	Interest Rate Swap - OTC	(6,797,201)	69703P-AE-9	Palmer Square CLO 2018-1-PLMRS 2018-1A B	1	3,900,000	3,717,078	
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	10,084,993	10,084,993	9,848,000	12/28/2012	12/28/2042	Interest Rate Swap - OTC		784170-ZZ-8	SFR FTTH SAS Term Loan	2	10,084,993	9,848,000	
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	24,500,000	24,500,000	23,419,305	12/28/2012	12/28/2042	Interest Rate Swap - OTC		06760W-AG-1	Barings Middle Market CL-BMM 2021-1A B	1	24,500,000	23,419,305	
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	9,750,000	9,750,000	9,411,246	12/28/2012	12/28/2042	Interest Rate Swap - OTC		92918Q-AE-0	Voya CLO Ltd-VOYA 2021-1A B	1	9,750,000	9,411,246	

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,100,000	1,079,086	12/28/2012	12/28/2042	Interest Rate Swap - OTC				08179M-AC-3	Benefit Street Partners -BSP 2018-15A A2A	1	1,100,000	1,079,086
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,600,000	4,390,387	12/28/2012	12/28/2042	Interest Rate Swap - OTC				05875H-AE-3	Ballyrock CLO 2018-1 Ltd-SERIES 2018-1A CLASS B	1	4,600,000	4,390,387
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,375,000	6,147,792	12/28/2012	12/28/2042	Interest Rate Swap - OTC				680033-AC-1	Old National Bancorp/IN-SENIOR UNSECURED NOTE	1	6,375,000	6,147,792
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,000,000	5,017,445	12/28/2012	12/28/2042	Interest Rate Swap - OTC				55819F-AE-1	Madison Park Funding Ltd-MDPK 2022-55A B1	1	5,000,000	5,017,445
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		50,000,000	(1,475,220)	12/28/2012	12/28/2042	Interest Rate Swap - OTC		(6,797,201)		12548J-AE-2	CIFC FUNDING LTD-SERIES 17-3A CLASS A2	1	5,400,000	5,321,981
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,900,000	11,632,310	12/28/2012	12/28/2042	Interest Rate Swap - OTC				74988L-AC-8	ALM XIV Ltd-SERIES 14-14A CLASS A2R2	1	11,900,000	11,632,310
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,864,562	5,749,972	12/28/2012	12/28/2042	Interest Rate Swap - OTC				66704J-AJ-7	Northstar Education Fina-REVENUE BONDS	1	5,864,562	5,749,972
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,000,000	7,832,560	12/28/2012	12/28/2042	Interest Rate Swap - OTC				39808P-AN-6	Greywolf CLO V Ltd-GWOLF 2015-1A A2R	1	8,000,000	7,832,560
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,200,000	10,936,778	12/28/2012	12/28/2042	Interest Rate Swap - OTC				08181B-AS-8	Benefit Street Partners -SERIES 16-9A CLASS BR	1	11,200,000	10,936,778
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,000,000	7,732,624	12/28/2012	12/28/2042	Interest Rate Swap - OTC				94951D-AC-7	Wellfleet CLO 2018-3 Ltd-SERIES 18-3A CLASS A1B	1	8,000,000	7,732,624
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,021,210	8,148,633	12/28/2012	12/28/2042	Interest Rate Swap - OTC				05389L-AB-9	Avolon Aerospace Leasing Secured Note B7	1	9,021,210	8,148,633
57629*GG0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		350,000,000	(55,734,961)	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared		126,759		36248M-AJ-6	GT Loan Financing I Ltd -SERIES 2013-1A CLASS AR	1	40,000,000	39,681,240
57629*GG0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		296,235,004	296,235,004	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared				49232#-MM-2	KREOCS LENDING I LLC - Senior Secured Term Facility	1	296,235,004	296,235,004
57629*GG0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		34,829,125	34,524,980	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared				04941Y-AC-3	Atlas Senior Loan Fund X-SERIES 18-11A CLASS A1L	1	34,829,125	34,524,980
57629*GG0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		23,000,000	22,378,816	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared				67332#-AG-8	RRPF Engine Leasing Ltd Senior Secured	2	23,000,000	22,378,816
57629*GG0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,163,105	4,769,475	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared				78443G-AJ-4	SLM STUDENT LOAN TRUST 2-SERIES 06-7 CLASS B	1	5,163,105	4,769,475
57629*GG0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,338,461	14,180,835	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared				25763#-AF-7	Donaldson Co Inc Senior Unsecured Notes	1	15,338,461	14,180,835
57629*GG0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,808,000	13,786,366	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared				392709-A#-8	Green Brick Partners, In Senior Unsecured Notes	1	14,808,000	13,786,366
57629*GG0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		18,000,000	18,000,000	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared				18685#-AC-6	Cliffwater Corporate Lending Fund - Senior Secured Revolving Credit Facility	1	18,000,000	18,000,000
57629*GG0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		225,000,000	270,081,530	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared		81,530	(62,233,283)	88165Z-MM-7	Tetragon Financial Group (Delaware) LLC - Revolver	1	270,000,000	270,000,000
57629*GF2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		165,071,740	165,071,740	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared				32008Z-MM-6	FIRST EAGLE DIRECT LENDING V-B, LLC - Secured Revolving Loan Facility	1	165,071,740	165,071,740
57629*GF2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		122,324,741	122,324,741	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared				91831Z-MM-3	WPC ASSET BACKED OPPORTUNISTIC CREDIT Holdings Fund, L.P - Secured Revolving Loan Facility	1	122,324,741	122,324,741
57629*GF2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		25,000,000	24,677,100	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared				67104L-AF-4	CHA Loan Funding 2013-2 -OHALF 2013-2A BR	1	25,000,000	24,677,100
57629*GF2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,850,000	13,662,180	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared				38137P-AU-4	Goldentree Loan Opportun-SERIES 2015-10A CLASS BR	1	13,850,000	13,662,180
57629*GF2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,800,000	3,612,698	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared				74988L-AJ-3	ALM XIV Ltd-SERIES 14-14A CLASS BR2	1	3,800,000	3,612,698
57629*GE5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		300,000,000	15,108,620	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared		108,620	(81,149,370)	48250W-AJ-4	KKR CLO 14 Ltd-KKR 14 BR	1	15,000,000	14,765,115
57629*GE5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,000,000	4,898,490	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared				87249K-AS-3	TICOP CLO VI 2016-5 LTD-TICOP 2016-5A A2R	1	5,000,000	4,898,490
57629*GE5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,025,798	896,754	09/11/2023	06/10/2051	SOFPR Replacement Swap - CME cleared				63939F-AC-4	Navient Student Loan Tru-SERIES 15-1 CLASS B	1	1,025,798	896,754

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1	2	3	4	5	6	7	8	Derivative Instrument(s) Open			Cash Instrument(s) Held				
Number	Description	NAIC Designation or Other Description	Notional Amount	Book/Adjusted Carrying Value	Fair Value	Effective Date	Maturity Date	9	10	11	12	13	14	15	16
								Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*GE5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		321,080	321,035	09/11/2023	06/10/2051	SOFR Replacement Swap - CME cleared			784480-AD-0	SMB PRIVATE EDUCATION LO-SMB 2015-B A3	1	321,080	321,035
57629*GE5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,350,000	7,731,883	09/11/2023	06/10/2051	SOFR Replacement Swap - CME cleared			97315T-AG-7	THL Credit Wind River 20-WINDR 2017-1A CR	1	8,350,000	7,731,883
57629*GE5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		252,000,000	250,298,496	09/11/2023	06/10/2051	SOFR Replacement Swap - CME cleared			06762W-AA-2	Barings Clo Ltd 2020-III-BABSN 2020-3A A	1	252,000,000	250,298,496
57629*GE5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,475,000	16,293,034	09/11/2023	06/10/2051	SOFR Replacement Swap - CME cleared			06760G-AA-9	Barings CLO Ltd 2018-I-SERIES 18-1A CLASS A1	1	16,475,000	16,293,034
57629*GE5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,112,435	16,252,748	09/11/2023	06/10/2051	SOFR Replacement Swap - CME cleared			13877P-AA-5	Canyon CLO 2021-4 Ltd-CANYC 2021-4A	1	16,112,435	16,252,748
57629*GE5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,200,000	15,785,231	09/11/2023	06/10/2051	SOFR Replacement Swap - CME cleared			06760J-AE-5	Barings CLO Ltd 2018-II-SERIES 2018-2A CLAS A1B	1	16,200,000	15,785,231
57629*GE5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,000,000	15,616,480	09/11/2023	06/10/2051	SOFR Replacement Swap - CME cleared			06760X-AC-8	BARINGS CLO LTD 2018-IV-SERIES 18-4A CLASS A2	1	16,000,000	15,616,480
57629*GE5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,685,500	09/11/2023	06/10/2051	SOFR Replacement Swap - CME cleared			13876L-AL-1	Canyon CLO 2020-1 Ltd-CANYC 2020-1A BR	1	10,000,000	9,685,500
57629*GD7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	250,000,000	8,882,182	(60,510,606)	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared	82,182	(69,175,508)	38137P-AS-9	Goldentree Loan Opportun-SERIES 2015-10A CLASS AJR	1	8,882,182	8,664,902
57629*GD7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		61,876,623	61,876,623	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			96269H-MM-9	X WH REDF2-TSE SELLER, LLC - Term Loan Facility	1	61,876,623	61,876,623
57629*GD7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,500,000	7,234,020	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			55819T-AU-5	Madison Park Funding XX -SERIES 2016-20A CLASS CR	1	7,500,000	7,234,020
57629*GD7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,900,000	13,587,500	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			03328Y-AE-4	Anchorage Capital CLO Lt-ANCHC 2018-1RA B	1	13,900,000	13,587,500
57629*GD7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,474,267	7,036,985	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			64034C-AB-5	Nelnet Student Loan Trus-NSLT 2019-1A B	1	7,474,267	7,036,985
57629*GD7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		53,347,935	52,696,159	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			278300-AJ-7	Eaton Vance CLO 2020-1 L-EATON 2020-1A AR	1	53,347,935	52,696,159
57629*GD7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,350,000	5,171,064	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			36320T-AX-1	Galaxy XXII CLO Ltd-GALXY 2016-22A BRR	1	5,350,000	5,171,064
57629*GD7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		60,020,000	58,965,569	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			03768M-AJ-6	Apidos CLO XXXIII-APID 2020-33A AR	1	60,020,000	58,965,569
57629*GD7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		35,120,675	34,953,388	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			282523-AH-2	1828 CLO Ltd-GUGG4 2016-1A A1S1	1	35,120,675	34,953,388
57629*GD7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,460,500	10,867,662	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			06760Q-AU-3	Barings Middle Market CL-BMM 2017-1A CR	2	12,460,500	10,867,662
57629*GD7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,800,000	11,580,966	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			06762T-AG-6	Babson CLO Ltd/Cayman Islands	2	12,800,000	11,580,966
57629*GD7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,320,987	2,223,029	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			91824X-AE-0	YCP RRL ABS II Ltd-VCRRL 2022-1A B	2	2,320,987	2,223,029
57629*GD7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,400,000	2,162,947	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			05683E-AU-6	Bain Capital Credit CLO -BCC 2020-2A DR	2	2,400,000	2,162,947
57629*GD7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,250,000	2,157,487	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			29002H-AS-8	Elmwood CLO III Ltd-ELMW3 2019-3A DR	2	2,250,000	2,157,487
57629*GD7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,250,000	2,119,896	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			278300-AQ-1	Eaton Vance CLO 2020-1 L-EATON 2020-1A DR	2	2,250,000	2,119,896
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	325,000,000	8,406,892	(82,952,173)	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			05684D-AG-8	Bain Capital Credit CLO-BCC 2020-1A B FLOATING	1	8,406,892	8,079,436
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,000,000	7,623,456	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			83608G-AQ-9	Sound Point CLO II Ltd-SNDPT 2013-1A A2R	1	8,000,000	7,623,456
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,000,000	14,654,490	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			05682V-AC-9	Bain Capital Credit CLO -SERIES 18-2A CLASS A2	1	15,000,000	14,654,490
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,990,000	2,986,002	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			50188Q-AE-1	LGM XIX LTD PARTNERSHIP DEF MEZZ NT CL C	1	2,990,000	2,986,002

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		82,269,092	82,269,092	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				901399-MQ-5	Twinbrook Capital Funding VII DSPV, LLC - Term Loan	1	82,269,092	82,269,092
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		120,294,869	120,294,869	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				69324#-MN-7	PORED LENDING III LLC, PORED LENDING III SPE I LLC and PORED LENDING III OFFSHORE LTD.-Term Loan	1	120,294,869	120,294,869
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,100,000	1,079,086	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				08179M-AC-3	Benefit Street Partners -BSP 2018-15A A2A	1	1,100,000	1,079,086
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,800,000	5,491,191	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				01749B-AC-3	Allegro CLO VI Ltd-ALLEG 2017-2A C	1	5,800,000	5,491,191
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,200,000	3,053,549	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				06762J-AE-3	Babson CLO Ltd/Cayman Is-BABSN 2021-2A C	1	3,200,000	3,053,549
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		32,898,061	27,588,068	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				341081-FR-3	Florida Power & Light Co-SECURED	1	32,898,061	27,588,068
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		22,165,493	22,441,351	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				06761M-AC-1	Barings Middle Market CL-BMM 2018-1A B	1	22,165,493	22,441,351
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,600,000	5,299,000	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				13887W-AN-0	Canyon Capital CLO 2019-CANVC 2019-2A CR	1	5,600,000	5,299,000
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,330,000	5,168,917	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				42086N-AJ-7	Hayfin Kingsland XI Ltd-HAYFN 2019-2A BR	1	5,330,000	5,168,917
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,797,528	4,863,271	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				05684C-AL-9	Bain Capital Credit CLO -BCC 2020-3A A1R	1	4,797,528	4,863,271
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,100,000	4,897,061	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				67098D-AW-3	OHA Credit Funding 4 Ltd-OAKC 2019-4A CR	1	5,100,000	4,897,061
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,953,126	5,769,708	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				82670Q-AG-4	Signal Peak CLO 9 Ltd-SPEAK 2021-9A C	1	5,953,126	5,769,708
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,646,595	4,715,624	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				29002Q-AA-7	Elmwood CLO VII Ltd-ELMW7 2020-4A A	1	4,646,595	4,715,624
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,300,000	4,145,368	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				67707L-AJ-7	Oak Hill Credit Partners	1	4,300,000	4,145,368
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,200,000	3,950,948	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				97314D-AG-3	KVK CLO 2016-1 Ltd-KVK 2016-1A CR2	1	4,200,000	3,950,948
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,300,000	4,049,099	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				05682E-AG-8	Bain Capital Credit CLO -BCC 2021-5A C	1	4,300,000	4,049,099
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,525,000	3,435,187	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				64130T-BC-8	Neuberger Berman CLO XX -NEUB 2015-20A BRR	1	3,525,000	3,435,187
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		40,000,000	40,000,000	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				51509S-MM-6	Landmark Equity Partners XVI-D, LLC	1	40,000,000	40,000,000
57629*GB1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		325,000,000	5,906,947	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared	106,947	(92,159,744)		67570Q-AP-6	OCP CLO 2019-16 Ltd-SERIES 19-16A CLASS CR	1	5,800,000	5,520,718
57629*GB1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,000,000	11,563,080	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				92917J-AE-7	Yoya CLO 2018-2 Ltd-VOYA 2018-2A B1	1	12,000,000	11,563,080
57629*GB1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		80,371,240	80,371,240	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				69324#-MN-9	PORED LENDING III LLC, PORED LENDING III SPE I LLC and PORED LENDING III OFFSHORE LTD.-Term Loan	1	80,371,240	80,371,240
57629*GB1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		60,000,000	58,268,700	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				83614X-AQ-4	Sound Point CLO XXVII Ltd-SNDPT 2020-1A AR	1	60,000,000	58,268,700
57629*GB1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		57,769,727	57,061,538	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				67115L-AA-2	Oak Hill Credit Partners-OAKC 2021-16A A	1	57,769,727	57,061,538
57629*GB1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		54,100,000	53,769,395	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				67104L-AE-7	OHA Loan Funding 2013-2 -OHALF 2013-2A AR	1	54,100,000	53,769,395
57629*GB1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		50,000,000	48,261,900	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				17275G-AA-4	CIRUS-2018-1A A	1	50,000,000	48,261,900
57629*GB1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		50,000,000	47,198,900	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared				25255A-AA-4	DCF 2019-1A A	1	50,000,000	47,198,900

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*GB1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,100,000	12,740,719	09/11/2023	06/11/2051	SOFR Replacement Swap - OIE cleared				67098D-AU-7	OHA Credit Funding 4 Ltd-OAKC 2019-4A BR	1	13,100,000	12,740,719
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	55,000,000	23,500,000	15,491,229	04/09/2013	04/09/2043	Interest Rate Swap - OTC		(7,360,853)		92558V-AC-8	Vibrant CLO Ltd-SERIES 18-9A CLASS A2	1	23,500,000	22,852,082
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,461,165	6,115,841	04/09/2013	04/09/2043	Interest Rate Swap - OTC				78442G-PL-4	SLM STUDENT LOAN TRUST-SERIES 2005-4 CLASS B	1	6,461,165	6,115,841
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,400,000	6,192,736	04/09/2013	04/09/2043	Interest Rate Swap - OTC				01749B-AB-5	Alllegro CLO VI Ltd-ALLEG 2017-2A B	1	6,400,000	6,192,736
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,281,222	3,502,203	04/09/2013	04/09/2043	Interest Rate Swap - OTC				12481X-AS-9	CBAM 2018-6 Ltd-CBAM 2018-6A B1R	1	3,281,222	3,502,203
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,500,000	7,306,080	04/09/2013	04/09/2043	Interest Rate Swap - OTC				77342J-AC-7	Rockford Tower CLO 2018--SERIES 18-1A CLASS B	1	7,500,000	7,306,080
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,900,000	6,758,143	04/09/2013	04/09/2043	Interest Rate Swap - OTC				65023T-AK-8	Newark BSL CLO 1 Ltd-NBCLO 2016-1A A2R	1	6,900,000	6,758,143
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		496,718	486,256	04/09/2013	04/09/2043	Interest Rate Swap - OTC				06759F-AB-8	BABSON CLO LTD 2015-11-SERIES 15-2A CLASS B2R	1	496,718	486,256
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,082,793	11,198,518	04/09/2013	04/09/2043	Interest Rate Swap - OTC				38137W-AQ-8	Goldentree Loan Managem-GLM 2019-6A AR	1	11,082,793	11,198,518
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	60,000,000	25,212,482	16,589,979	04/09/2013	04/09/2043	Interest Rate Swap - OTC		(8,030,021)		784170-ZZ-8	SFR FTTH SAS Term Loan	2	25,212,482	24,620,000
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		18,500,000	17,825,805	04/09/2013	04/09/2043	Interest Rate Swap - OTC				50188G-AX-1	LCM XVIII LP-LCM 18A A2R	1	18,500,000	17,825,805
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,500,000	7,366,020	04/09/2013	04/09/2043	Interest Rate Swap - OTC				33882G-AG-3	Flatiron Clo 17 Ltd-FLAT 2017-1A BR	1	7,500,000	7,366,020
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,700,000	4,491,701	04/09/2013	04/09/2043	Interest Rate Swap - OTC				67707C-AU-2	Oak Hill Credit Partners-OAKC 2014-10RA CR	1	4,700,000	4,491,701
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,000,000	1,963,010	04/09/2013	04/09/2043	Interest Rate Swap - OTC				62848F-AC-6	MYERS PARK CLO LTD-MYERS 2018-1A A2	1	2,000,000	1,963,010
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,647,811	5,654,656	04/09/2013	04/09/2043	Interest Rate Swap - OTC				25654#-AA-0	Dodger Tickets LLC Senior Secured	1	5,647,811	5,654,656
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,000,000	8,024,512	04/09/2013	04/09/2043	Interest Rate Swap - OTC				75009J-AB-7	Rad CLO 17 Ltd-RAD 2022-17A B1	1	8,000,000	8,024,512
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	55,000,000	26,000,000	18,202,041	04/09/2013	04/09/2043	Interest Rate Swap - OTC		(7,376,993)		83609Y-AC-0	Sounds Point CLO IV-R LT-SERIES 13-3RA CLASS A	1	26,000,000	25,579,034
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,772,326	5,250,990	04/09/2013	04/09/2043	Interest Rate Swap - OTC				78442G-QA-7	SLM STUDENT LOAN TRUST-SERIES 2005-6 CLASS B	1	5,772,326	5,250,990
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		39,986,038	40,290,886	04/09/2013	04/09/2043	Interest Rate Swap - OTC				29002G-AB-7	Elmwood CLO IV Ltd-ELMW4 2020-1A A	1	39,986,038	40,290,886
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,000,000	14,625,645	04/09/2013	04/09/2043	Interest Rate Swap - OTC				29001L-AN-1	Elmwood CLO II Ltd-ELMW2 2019-2A BR	1	15,000,000	14,625,645
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,900,000	5,740,765	04/09/2013	04/09/2043	Interest Rate Swap - OTC				40436X-AG-2	HIGHBRIDGE LOAN MANAGEM-SERIES 2014 CLASS BR	1	5,900,000	5,740,765
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	55,000,000	25,900,000	17,828,783	04/09/2013	04/09/2043	Interest Rate Swap - OTC		(7,376,993)		04016V-AC-9	ARES XLVII CLO Ltd-SERIES 18-47A CLASS A2	1	25,900,000	25,205,776
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,873,320	04/09/2013	04/09/2043	Interest Rate Swap - OTC				03329Z-AS-2	ANCHORAGE CAPITAL CLO 20-SERIES 13-1A CLASS A2R	1	10,000,000	9,873,320
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,900,000	10,456,305	04/09/2013	04/09/2043	Interest Rate Swap - OTC				38138D-AS-5	Goldentree Loan Managem-GLM 2019-5A CR	1	10,900,000	10,456,305
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,000,000	4,806,520	04/09/2013	04/09/2043	Interest Rate Swap - OTC				29001L-AQ-4	Elmwood CLO II Ltd-ELMW2 2019-2A CR	1	5,000,000	4,806,520
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,575,000	2,465,537	04/09/2013	04/09/2043	Interest Rate Swap - OTC				08179H-AC-4	Benefit Street Partners -BSP 2017-12A B	1	2,575,000	2,465,537
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,000,000	980,255	04/09/2013	04/09/2043	Interest Rate Swap - OTC				13876J-AE-2	Canyon Capital CLO Ltd-CANYC 2012-1RA B	1	1,000,000	980,255
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,498,163	6,277,683	04/09/2013	04/09/2043	Interest Rate Swap - OTC				512807-AU-2	Lam Research Corp-SENIOR UNSECURED	1	6,498,163	6,277,683
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,000,000	5,017,445	04/09/2013	04/09/2043	Interest Rate Swap - OTC				55819F-AE-1	Madison Park Funding Ltd-MDPK 2022-55A B1	1	5,000,000	5,017,445

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held				
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	55,000,000	2,896,089	(4,358,795)	04/09/2013	04/09/2043	Interest Rate Swap - OTC	(7,285,124)		38137W-AQ-8	Goldentree Loan Managem-GLM 2019-6A AR	1	2,896,089	2,926,329
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	20,812,500	20,923,347	20,923,347	04/09/2013	04/09/2043	Interest Rate Swap - OTC			06763H-AC-0	Babson CLO Ltd/Cayman Is-BABSN 2022-4A B	1	20,812,500	20,923,347
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	12,238,082	12,238,082	12,399,288	04/09/2013	04/09/2043	Interest Rate Swap - OTC			87248K-AJ-3	TICP CLO V 2016-1 Ltd-TICP 2016-5A A1R	1	12,238,082	12,399,288
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	13,523,573	13,330,849	13,330,849	04/09/2013	04/09/2043	Interest Rate Swap - OTC			05875H-AC-7	BALLYROCK CLO 2018-1 LTD-SERIES 2018-1A CLASS A2	1	13,523,573	13,330,849
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	1,000,000	981,505	981,505	04/09/2013	04/09/2043	Interest Rate Swap - OTC			62848F-AC-6	MYERS PARK CLO LTD-MYERS 2018-1A A2	1	1,000,000	981,505
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	5,500,000	5,488,423	5,488,423	04/09/2013	04/09/2043	Interest Rate Swap - OTC			48661N-AE-8	KAYNE CLO-SERIES 19-6A CLASS B1	1	5,500,000	5,488,423
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	6,402,191	6,548,494	6,548,494	04/09/2013	04/09/2043	Interest Rate Swap - OTC			25654#-AB-8	Dodger Tickets LLC Senior Secured MarblePoint CLO XI Ltd-MP11 2017-2A A	1	6,402,191	6,548,494
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	60,000,000	21,302,586	13,022,006	04/09/2013	04/09/2043	Interest Rate Swap - OTC	(7,947,408)		56607F-AA-3	NORTHSTAR EDUCATION FINA-SERIES 04-2 CLASS B	1	21,302,586	20,969,414
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	12,927,432	11,370,916	11,370,916	04/09/2013	04/09/2043	Interest Rate Swap - OTC			66704J-BD-9	NORTHSTAR EDUCATION FINA-SERIES 05-1 CLASS B	1	12,927,432	11,370,916
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	11,316,505	9,996,103	9,996,103	04/09/2013	04/09/2043	Interest Rate Swap - OTC			66704J-BK-3	Wellfleet CLO Ltd-SERIES 18-1A CLASS B	1	11,316,505	9,996,103
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	3,500,000	3,366,237	3,366,237	04/09/2013	04/09/2043	Interest Rate Swap - OTC			94950J-AC-5	Crestline Denali CLO Ltd-SERIES 2018-1A CLASS C	1	3,500,000	3,366,237
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	3,200,000	3,002,710	3,002,710	04/09/2013	04/09/2043	Interest Rate Swap - OTC			22615E-AE-0	MYERS PARK CLO LTD-MYERS 2018-1A A2	1	3,200,000	3,002,710
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	2,000,000	1,963,010	1,963,010	04/09/2013	04/09/2043	Interest Rate Swap - OTC			62848F-AC-6	Highbridge Loan Managem-SERIES 4A-2014 CLASS A2R	1	2,000,000	1,963,010
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	11,900,000	11,623,789	11,623,789	04/09/2013	04/09/2043	Interest Rate Swap - OTC			44330G-AE-3	H.H.I. HULL NO. S856 L.L Guaranteed Notes	1	11,900,000	11,623,789
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	7,687,500	7,350,411	7,350,411	04/09/2013	04/09/2043	Interest Rate Swap - OTC			404250-AA-3	Allegro CLO VII Ltd-ALLEG 2018-1A A	1	7,687,500	7,350,411
57629*GA3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	225,000,000	34,574,011	(29,128,728)	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared	74,011	(63,198,755)	01750C-AA-1	KKR CLO 14 Ltd-KKR 14 AR	1	34,500,000	34,070,027
57629*GA3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	1,000,000	989,541	989,541	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			48250W-AG-0	Carlyle Global Market St-CGMS 2014-2RA A2	1	1,000,000	989,541
57629*GA3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	5,000,000	4,834,170	4,834,170	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			14314L-AE-5	Nelnet Student Loan Trus-NSLT 2020-5A B	1	5,000,000	4,834,170
57629*GA3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	2,500,000	2,043,320	2,043,320	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			64032V-AB-5	VPC SPECIALTY LENDING INVESTMENTS INTERMEDIATE, L.P. - Secured Revolving Loan Facility	1	2,500,000	2,043,320
57629*GA3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	73,995,090	73,995,090	73,995,090	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			91831Z-MM-5	PIONEERS GATE LLC 2021-1 CFCC	1	73,995,090	73,995,090
57629*GA3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	63,324,996	63,089,455	63,089,455	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			72403Z-NS-9	Benefit Street Partners -SERIES 18-14A CLASS A2	1	63,324,996	63,089,455
57629*GA3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	13,400,000	13,058,876	13,058,876	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			08179L-AC-5	OHA Credit Funding 1 LTD-SERIES 18-1A CLASS B	1	13,400,000	13,058,876
57629*GA3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	8,000,000	7,869,184	7,869,184	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			67115W-AG-5	Diameter Capital CLO 1 L-DQLO 2021-1A A2	1	8,000,000	7,869,184
57629*GA3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	7,100,000	6,895,506	6,895,506	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			25255D-AE-0	Mesa Air Group, Inc. Class A Notes	2	7,100,000	6,895,506
57629*GA3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	24,482,221	22,437,307	22,437,307	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			59048#-AA-6	Landmark Equity Partners XVI-D, LLC	1	24,482,221	22,437,307
57629*GA3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	56,000,000	56,000,000	56,000,000	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			515095-MM-6	MADISON PARK FUNDING XXI-MDPK 2018-29A A2	1	56,000,000	56,000,000
57629*FZ9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	250,000,000	14,082,215	(56,076,389)	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared	82,215	(69,832,649)	55820C-AE-5	DRYDEN 64 CLO LTD-DRSLF 2018-64A A	1	14,000,000	13,756,260
57629*FZ9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	22,850,000	22,587,225	22,587,225	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			26251L-AC-8		1	22,850,000	22,587,225

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SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1	2	3	4	5	6	7	8	Derivative Instrument(s) Open			Cash Instrument(s) Held				
Number	Description	NAIC Designation or Other Description	Notional Amount	Book/Adjusted Carrying Value	Fair Value	Effective Date	Maturity Date	9	10	11	12	13	14	15	16
								Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*FZ9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,100,000	12,740,012	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			75884B-AC-2	Regatta X Funding Ltd-SERIES 2017-3A CLASS B	1	13,100,000	12,740,012
57629*FZ9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,700,000	4,527,021	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			04942J-AE-1	Atlas Senior Loan Fund X-ATCLO 2018-10A B	1	4,700,000	4,527,021
57629*FZ9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,000,000	6,527,591	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			94950C-AG-1	Wellfleet CLO Ltd-WELF 2021-1A C	1	7,000,000	6,527,591
57629*FZ9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		173,279,509	173,279,509	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			46142F-AA-6	Invesco CMI Investments MM, LLC - Senior Secured Notes - Term Loan Series 2020-1	2	173,279,509	173,279,509
57629*FZ9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		31,600,000	29,777,312	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			06760W-AE-6	Barings Middle Market CL-BMM 2021-1A A2	1	31,600,000	29,777,312
57629*FZ9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		29,101,511	28,137,296	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			62983P-AA-3	Nakilat Inc-SECURED BOND	1	29,101,511	28,137,296
57629*FZ9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,000,000	11,000,000	09/11/2023	06/11/2051	SOFR Replacement Swap - CME cleared			18685B-AC-6	Cliffwater Corporate Lending Fund - Senior Secured Revolving Credit Facility	1	11,000,000	11,000,000
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	100,000,000	15,013,617	11,472,122	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared	13,617	(3,255,088)	55818R-BA-3	Madison Park Funding XIV-HDPK 2014-14A BRR	1	15,000,000	14,727,210
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,920,000	4,871,149	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			48249V-AS-0	KKR FINANCIAL CLO LTD-SERIES 13-1A CLASS BR	1	4,920,000	4,871,149
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,148,460	16,560,652	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			14316V-AA-3	Carlyle US CLO 2021-10 L-CGMS 2021-10A A	1	16,148,460	16,560,652
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,700,000	13,265,217	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			05682L-AL-1	Bain Capital Credit CLO -BCC 2019-2A BR	1	13,700,000	13,265,217
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,050,000	7,849,040	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			48252R-AQ-7	KKR CLO 24 Ltd-KKR 24 BR	1	8,050,000	7,849,040
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,000,000	6,926,787	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			48250W-AG-0	KKR CLO 14 Ltd-KKR 14 AR	1	7,000,000	6,926,787
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		19,800,000	19,639,838	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			Q3958B-AC-0	GALF Bond Issuer Pty Ltd Gtd Senior Note	1	19,800,000	19,639,838
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,400,000	6,271,520	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			05684K-AN-7	Bain Capital Credit CLO -BCC 2020-4A B	1	6,400,000	6,271,520
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,000,000	2,878,773	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			09630Q-AN-1	BlueMountain CLO XXX Ltd-BLUEM 2020-30A BR	1	3,000,000	2,878,773
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,650,000	1,469,752	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			06760G-AD-3	Barings CLO Ltd 2018-I-SERIES 18-1A CLASS C	2	1,650,000	1,469,752
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,350,000	12,351,877	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			55817H-AE-9	Madison Park Funding Ltd-HDPK 2022-62A B	1	12,350,000	12,351,877
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	100,000,000	18,581,737	17,144,004	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared	13,613	(3,238,018)	346845-AC-4	Fort Benning Family Comm-UNSECURED	1	18,568,124	20,382,022
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		21,644,004	21,581,290	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			55921Q-AA-0	Magna Imperio Systems Co-SECURED	1	21,644,004	21,581,290
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		18,300,000	17,988,479	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			83012Q-AA-2	Sixth Street CLO-SIXST 2021-20A A1	1	18,300,000	17,988,479
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,400,000	9,180,961	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			88434H-AE-3	THL Credit Wind River 20-SERIES 18-2A CLASS A2	1	9,400,000	9,180,961
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,700,000	3,550,487	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			09630Q-AN-1	BlueMountain CLO XXX Ltd-BLUEM 2020-30A BR	1	3,700,000	3,550,487
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,625,000	13,238,091	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			04017E-AE-2	ARES XXX IIR CLO LTD-SERIES 14-32RA CLASS A1B	1	13,625,000	13,238,091
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,976,968	1,906,355	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			00435T-AB-7	ACCESS GROUP INC-SERIES 2015-1 CLASS B	1	1,976,968	1,906,355
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,600,000	5,483,279	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			12563E-AC-7	CIFC Funding 2021-I Ltd-CIFC 2021-1A B	1	5,600,000	5,483,279
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,500,000	5,240,554	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared			48661A-AN-6	KAYNE CLO I Ltd-KAYNE 2018-1A CR	1	5,500,000	5,240,554

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,182,126	2,984,553	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared				91159H-HR-4	US Bancorp-SENIOR UNSECURED	1	3,182,126	2,984,553
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,900,000	6,923,757	09/05/2023	03/05/2034	SOFR Replacement Swap - CME cleared				06762V-AC-0	Barings Loan Partners CL-BABSN 2022-3A B	1	6,900,000	6,923,757
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		125,000,000	56,136,711	08/21/2023	05/19/2034	SOFR Replacement Swap - CME cleared	41,540	(6,773,273)		77342J-AA-1	Rockford Tower CLO 2018--SERIES 18-1A CLASS A	1	56,095,171	55,567,300
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,000,000	6,841,660	08/21/2023	05/19/2034	SOFR Replacement Swap - CME cleared				64130P-AE-3	Neuberger Berman CLO Ltd-NEUB 2018-28A B	1	7,000,000	6,841,660
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,000,000	14,413,005	08/21/2023	05/19/2034	SOFR Replacement Swap - CME cleared				13877E-AE-2	Canyon Capital CLO Ltd-CANVC 2021-1A B	1	15,000,000	14,413,005
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,934,311	7,008,417	08/21/2023	05/19/2034	SOFR Replacement Swap - CME cleared				64132J-AN-5	Neuberger Berman Loan Ad-NEUB 2019-31A AR	1	6,934,311	7,008,417
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,000,000	15,632,304	08/21/2023	05/19/2034	SOFR Replacement Swap - CME cleared				04017Q-AE-5	ARES CLO Ltd-SERIES 18-28RA CLASS B	1	16,000,000	15,632,304
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,750,000	6,538,482	08/21/2023	05/19/2034	SOFR Replacement Swap - CME cleared				087598-AC-2	BETHPAGE PARK CLO LTD-BETHP 2021-1A B	1	6,750,000	6,538,482
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,800,000	2,774,929	08/21/2023	05/19/2034	SOFR Replacement Swap - CME cleared				48661Y-AA-2	Kayne CLO 4 Ltd-SERIES 19-4A CLASS B1	1	2,800,000	2,774,929
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,105,197	10,723,759	08/21/2023	05/19/2034	SOFR Replacement Swap - CME cleared				55922Z-AR-5	Magna International Inc-SR UNSECURED	1	11,105,197	10,723,759
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,381,861	7,429,772	08/21/2023	05/19/2034	SOFR Replacement Swap - CME cleared				87198Q-AE-8	Symphony CLO 35 Ltd-SYMP 2022-35A B1	1	7,381,861	7,429,772
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		85,000,000	23,506,448	08/09/2023	05/09/2034	SOFR Replacement Swap - CME cleared	19,448	(3,854,735)		12551R-AA-6	CIFC Funding 2018-I Ltd-CIFC 2018-1A A	1	23,487,000	23,246,141
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,650,000	5,528,802	08/09/2023	05/09/2034	SOFR Replacement Swap - CME cleared				50184N-AN-2	LOM LTD PARTNERSHIP-SERIES 15A CLASS BR	1	5,650,000	5,528,802
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,601,959	5,580,498	08/09/2023	05/09/2034	SOFR Replacement Swap - CME cleared				04009G-AE-7	ARES L CLO Ltd-SERIES 19-53A CLASS B	1	5,601,959	5,580,498
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,400,000	6,124,646	08/09/2023	05/09/2034	SOFR Replacement Swap - CME cleared				97314D-AE-8	KVK CLO 2016-1 Ltd-KVK 2016-1A BR2	1	6,400,000	6,124,646
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,000,000	19,775,740	08/09/2023	05/09/2034	SOFR Replacement Swap - CME cleared				77342K-AA-8	ROCKFORD TOWER CLO 2018--ROCKT 2018-2A A	1	20,000,000	19,775,740
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,900,000	3,664,740	08/09/2023	05/09/2034	SOFR Replacement Swap - CME cleared				05683L-AG-1	Bain Capital Credit CLO -SERIES 1A CLASS C	1	3,900,000	3,664,740
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,591,701	15,225,303	08/09/2023	05/09/2034	SOFR Replacement Swap - CME cleared				78417Q-ZZ-8	SFR FTTH SAS Term Loan	2	15,591,701	15,225,303
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,000,000	5,017,445	08/09/2023	05/09/2034	SOFR Replacement Swap - CME cleared				55819F-AE-1	Madison Park Funding Ltd-MDPK 2022-55A B1	1	5,000,000	5,017,445
57629*CG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		55,000,000	10,017,743	07/06/2023	10/06/2034	SOFR Replacement Swap - CME cleared	17,743	(3,974,117)		55819B-AN-0	Madison Park Funding XVI-MDPK 2015-18A BR	1	10,000,000	9,830,510
57629*CG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,100,000	19,362,451	07/06/2023	10/06/2034	SOFR Replacement Swap - CME cleared				06760G-AB-7	Barings CLO Ltd 2018-I-SERIES 18-1A CLASS A2	1	20,100,000	19,362,451
57629*CG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		22,972,491	22,873,254	07/06/2023	10/06/2034	SOFR Replacement Swap - CME cleared				77341D-AA-5	Rockford Tower CLO 2017--ROCKT 2017-3A A	1	22,972,491	22,873,254
57629*CG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,100,000	2,963,721	07/06/2023	10/06/2034	SOFR Replacement Swap - CME cleared				04943A-AG-4	ATLAS SENIOR LOAN FUND L-SERIES 17-8A CLASS C	1	3,100,000	2,963,721
57629*CG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,531,311	7,158,339	07/06/2023	10/06/2034	SOFR Replacement Swap - CME cleared				172967-LW-9	Citigroup Inc-SENIOR UNSECURED	1	7,531,311	7,158,339
57629*FY2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		100,000,000	12,272,681	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared	37,223	(28,843,764)		66776M-ZZ-9	ORANGE GROVE ENERGY, L.P DELAYED DRAW TE	2	12,235,458	11,689,253
57629*FY2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,922,760	3,830,577	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				78417Q-ZZ-8	SFR FTTH SAS Term Loan	2	3,922,760	3,830,577
57629*FY2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,250,811	2,134,079	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				429827-AS-7	HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS B2	1	2,250,811	2,134,079
57629*FY2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,200,000	9,916,705	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				00889B-AB-7	Aimco CDO-AIMCO 2021-15A B	1	10,200,000	9,916,705

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*FY2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		19,863,884	19,853,297	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				55818Y-BN-0	Madison Park Funding XVI-MDPK 2015-17A AR2	1	19,863,884	19,853,297
57629*FY2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,500,000	20,057,713	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				449272-AA-1	10G US CLO Ltd-10G 2021-4A A1	1	20,500,000	20,057,713
57629*FY2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		19,384,777	19,559,040	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				75009R-AA-1	Rad CLO 14 Ltd-RAD 2021-14A A	1	19,384,777	19,559,040
57629*FY2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,000,000	19,488,200	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				67707C-AS-7	Oak Hill Credit Partners-OAKC 2014-10RA BR	1	20,000,000	19,488,200
57629*FY2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,700,000	8,359,238	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				33836J-AE-9	ASSURANT CLO I LTD-MORGN 2017-1A BR	1	8,700,000	8,359,238
57629*FY2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,000,000	12,000,000	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				186858-AC-6	Cliffwater Corporate Lending Fund - Senior Secured Revolving Credit Facility	1	12,000,000	12,000,000
57629*GHB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	250,000,000	17,629,556	(53,425,774)	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared	92,966	(70,653,237)		29002H-AN-9	Elmwood CLO III Ltd-ELMW3 2019-3A BR	1	17,536,590	17,227,463
57629*GHB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		49,926,847	49,589,050	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				05682V-AA-3	BAIN CAPITAL CREDIT CLO -SERIES 18-2A CLASS A1	1	49,926,847	49,589,050
57629*GHB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,400,000	12,124,398	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				124166-AE-9	Buttermilk Park CLO Ltd-BMILK 2018-1A B1	1	12,400,000	12,124,398
57629*GHB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,600,000	7,441,852	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				75888K-AC-8	REGATTA VIII FUNDING LTD-SERIES 2017-1A CLASS B	1	7,600,000	7,441,852
57629*GHB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,650,000	5,500,026	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				78108Y-AQ-5	RR 1 LLC-RRAM 2017-1A A2B	1	5,650,000	5,500,026
57629*GHB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,500,000	10,262,564	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				14315L-AC-8	Carlyle Global Market St-SERIES 14-3RA CLASS A1B	1	10,500,000	10,262,564
57629*GHB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,500,000	10,292,930	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				12564D-AC-8	CIFC Funding Ltd-CIFC 2021-3A B	1	10,500,000	10,292,930
57629*GHB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,749,100	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				69701X-AC-8	Palmer Square CLO Ltd-SERIES 2021-2A CLASS B	1	10,000,000	9,749,100
57629*GHB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		31,012,800	28,829,778	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				06760Q-AQ-2	Barings Middle Market CL-BMM 2017-1A A2R	1	31,012,800	28,829,778
57629*GHB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		23,176,201	23,458,296	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				01750W-AC-3	Allegro CLO XIII Ltd-ALLEG 2021-1A A	1	23,176,201	23,458,296
57629*GHB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		23,998,000	21,583,825	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				06760Q-AS-8	Barings Middle Market CL-BMM 2017-1A BR	1	23,998,000	21,583,825
57629*GHB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		23,600,000	22,853,744	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				30259A-AA-0	FDI I Ltd-SERIES 17-3A CLASS A1	1	23,600,000	22,853,744
57629*GHB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,200,000	7,958,075	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				08186P-AN-3	Benefit Street Partners -BSP 2019-18A BR	1	8,200,000	7,958,075
57629*GHB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,000,000	19,689,420	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				94950J-AA-9	Wellfleet CLO Ltd-SERIES 18-1A CLASS A	1	20,000,000	19,689,420
57629*GS4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	250,000,000	170,192,965	99,468,827	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared	92,965	(70,631,173)		46143H-MO-2	Invesco CMI Investments MM, LLC - TERM LN SER 2021-3	1	170,100,000	170,100,000
57629*GS4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,490,000	10,242,614	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				40437L-AG-7	HPS Loan Management 13-2-HLM 13A-18 B	1	10,490,000	10,242,614
57629*GS4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,758,020	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				40436Q-AL-6	HPS Loan Management 9-20-HLM 9A-2016 A1BR	1	10,000,000	9,758,020
57629*GS4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,500,000	7,299,780	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				64132D-AL-2	Neuberger Berman Loan Advisers CLO 32 Ltd	1	7,500,000	7,299,780
57629*GS4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,800,000	4,555,310	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				64131J-AQ-9	Neuberger Berman Loan Advisers CLO 25 Ltd	1	4,800,000	4,555,310
57629*GS4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		17,600,000	17,430,072	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				55955A-AA-4	Magnetite XX Ltd	1	17,600,000	17,430,072
57629*GS4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,000,000	15,747,392	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				85816L-AA-6	Steele Creek Clo 2018-2 Ltd	1	16,000,000	15,747,392

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*GS4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,491,761	10,417,269	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				87289B-AA-2	TCP DLF VIII 2018 CLO, LLC	1	10,491,761	10,417,269
57629*GS4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		29,925,000	28,859,909	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				Q3950E-AJ-5	GAIF Bond Issuer Pty Ltd.	1	29,925,000	28,859,909
57629*GS4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		55,000,000	55,000,000	09/18/2023	06/16/2051	SOFR Replacement Swap - CME cleared				515095-MM-6	Landmark Equity Partners XVII-D, LLC	1	55,000,000	55,000,000
57629*GR6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	250,000,000	16,689,456	(53,159,284)	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared	89,456	(69,292,309)		92915P-AK-1	Voya CLO 2014-1 Ltd-INGIM 2014-1A ABR2	1	16,600,000	16,133,025
57629*GR6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,000,000	4,086,640	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				64032V-AB-5	Nelnet Student Loan Trus-NSLT 2020-5A B	1	5,000,000	4,086,640
57629*GR6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,000,000	12,406,108	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				67332F-AH-6	RRPF Engine Leasing Ltd Senior Secured	2	13,000,000	12,406,108
57629*GR6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,563,020	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				04941Y-AJ-8	Atlas Senior Loan Fund X-ATCLO 2018-11A B	1	10,000,000	9,563,020
57629*GR6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		26,815,000	26,408,780	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				55954Y-AJ-4	Magnetite XXVI Ltd-MAGNE 2020-26A A1R	1	26,815,000	26,408,780
57629*GR6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,900,000	11,521,116	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				40256G-AC-5	Gulf Stream Meridian-GSM 2021-6A A2	1	11,900,000	11,521,116
57629*GR6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		68,313,143	68,313,143	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				50079B-MP-1	KREF Lending VII 2018-4 Term Loan Middle Market Credit Fund II SPV, LLC-Class A-1 Senior Secured Notes (Carlyle BDC Direct Lending)	1	68,313,143	68,313,143
57629*GR6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		59,280,186	59,280,186	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				59576F-MM-5	Wellfleet CLO 2018-3 Ltd-SERIES 18-3A CLASS A2	1	59,280,186	59,280,186
57629*GR6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,500,000	7,214,565	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				94951D-AJ-2	Parliament Funding I LLC-Variable Funding Notes	1	7,500,000	7,214,565
57629*GR6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		40,045,149	40,045,149	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				70163F-AA-0	Anchorage Capital CLO Lt-ANCHC 2018-10A A1A	1	40,045,149	40,045,149
57629*GR6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,000,000	19,876,440	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				03331J-AA-0	Shepherds Flat Funding T Trust A-1-6 Cer	1	20,000,000	19,876,440
57629*GR6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		41,258,068	39,484,241	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				82340*-AB-3	KKR CLO 26 Ltd-KKR 26 AR	1	41,258,068	39,484,241
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	125,000,000	25,047,386	13,578,670	08/04/2023	11/04/2044	SOFR Replacement Swap - CME cleared	47,386	(10,929,580)		48253H-AN-5	Bain Capital Credit CLO -BCC 2017-2A AR2	1	25,000,000	24,508,250
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		55,126,279	54,200,249	08/04/2023	11/04/2044	SOFR Replacement Swap - CME cleared				05683H-AN-5	CATSKILL PARK CLO LTD.-SERIES 17-1A CLASS A2	1	55,126,279	54,200,249
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,980,000	11,853,371	08/04/2023	11/04/2044	SOFR Replacement Swap - CME cleared				149420-AE-1	THL Credit Wind River 20-SERIES 18-2A CLASS A2	1	11,980,000	11,853,371
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,000,000	4,883,490	08/04/2023	11/04/2044	SOFR Replacement Swap - CME cleared				88434H-AE-3	Denali Capital Clo XII L-DEN12 2016-1A A1R	1	5,000,000	4,883,490
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		23,003,576	22,763,832	08/04/2023	11/04/2044	SOFR Replacement Swap - CME cleared				24824T-AQ-3	Highbridge Loan Managem-SERIES 12A-18 CLASS A1B	1	23,003,576	22,763,832
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,250,000	9,956,727	08/04/2023	11/04/2044	SOFR Replacement Swap - CME cleared				44330Q-AB-7	Bank of NT Butterfield &-SUBORDINATED	1	10,250,000	9,956,727
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,200,000	7,699,669	08/04/2023	11/04/2044	SOFR Replacement Swap - CME cleared				06422T-AC-5	Symphony CLO 35 Ltd-SYMP 2022-35A B1	1	9,200,000	7,699,669
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,730,241	3,754,451	08/04/2023	11/04/2044	SOFR Replacement Swap - CME cleared				871980-AE-8	Gridiron Fdg LLC Sr Secd Nt	2	3,730,241	3,754,451
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	250,000,000	36,089,458	(34,322,377)	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared	89,458	(69,314,377)		39808C-AA-3	Carlyle Global Market St-SERIES C17A CLASS A1BR	1	36,000,000	34,992,000
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		25,900,000	25,370,552	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				14307P-AE-5	THL Credit Wind River 20-WINDR 2018-2A B	1	25,900,000	25,370,552
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,600,000	11,285,431	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				88434H-AG-8	OCF CLO 2017-14 Ltd-SERIES 17-14A CLASS A2	1	11,600,000	11,285,431
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,400,000	11,172,023	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				67097Q-AE-5		1	11,400,000	11,172,023

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,500,000	10,634,502	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				64034W-AD-7	Navient Student Loan Tru-NSLT 2019-7A B	1	10,500,000	10,634,502
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,000,000	14,614,080	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				05875M-AQ-5	Ballyrock CLO 2019-2 Ltd-SERIES 19-2A CLASS A2R	1	15,000,000	14,614,080
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		222,856	222,856	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				500798-MQ-9	KREF Lending VII 2018-5 Term Loan	1	222,856	222,856
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		24,000,000	23,704,656	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				92917A-AA-4	VOYA 2018-1A A1	1	24,000,000	23,704,656
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,000,000	4,594,498	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				64034B-AB-7	Nelnet Student Loan Trus-NSLT 2018-5A B	1	5,000,000	4,594,498
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		45,000,000	44,342,145	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				94949J-AA-3	Wellfleet CLO 2018-2 Ltd-WELF 2018-2A A1	1	45,000,000	44,342,145
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,125,000	5,811,817	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				94950C-AE-6	Wellfleet CLO Ltd-WELF 2021-1A B	1	6,125,000	5,811,817
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,790,000	8,616,099	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				55951P-BC-0	Magnetite VII Ltd-MAGNE 2012-7A A2R2	1	8,790,000	8,616,099
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,100,000	10,698,668	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				12481Q-AE-5	Cham 2018-5 Ltd-SERIES 18-5A CLASS B1	1	11,100,000	10,698,668
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,700,000	2,584,340	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				14316W-AE-9	Carlyle Global Market St-CGMS 2021-7A B	1	2,700,000	2,584,340
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		31,316,707	30,342,134	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				Q3534B-AB-5	Australian Gas Networks Senior Note Ser	1	31,316,707	30,342,134
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,072,004	14,395,070	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				61744Y-AP-3	Morgan Stanley-SENIOR UNSECURED ... Landmark Equity Partners XVI-D, LLC	1	15,072,004	14,395,070
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		70,000,000	70,000,000	09/18/2023	06/17/2051	SOFR Replacement Swap - CME cleared				51509S-MM-6	MM Investment Holding Revolver	1	70,000,000	70,000,000
57629*GPO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		250,000,000	178,081,587	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared	81,587	(70,130,395)		57542Z-A7-2	Floating Line	2	178,000,000	158,729,542
57629*GPO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		3,600,000	3,406,331	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				61773K-AE-2	Morgan Stanley Eaton Van-MSEV 2021-1A C	1	3,600,000	3,406,331
57629*GPO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		5,000,000	5,000,000	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				18685B-AC-6	Cliffwater Corporate Lending Fund - Senior Secured Revolving Credit Facility	1	5,000,000	5,000,000
57629*GPO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		25,000,000	25,080,450	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				236057-AA-3	Danby Park CLO Ltd-DANBY 2022-1A A1A	1	25,000,000	25,080,450
57629*GPO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		14,897,941	15,195,892	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				67112R-AS-3	OHA Credit Funding 3 LTD-OAKC 2019-3A AR	1	14,897,941	15,195,892
57629*GPO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		25,000,000	25,121,475	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				69700X-AA-3	Palmer Square CLO 2022-4-PLMRS 2022-4A A1A	1	25,000,000	25,121,475
57629*GNS	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		350,000,000	271,375,296	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared	114,233	(98,306,136)		67098F-MM-7	OHA Credit Solutions Master Fund I SPV, L.P. - Fund I Revolver	1	271,261,063	271,261,063
57629*GNS	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,000,000	4,808,910	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				94950J-AC-5	Wellfleet CLO Ltd-SERIES 18-1A CLASS B	1	5,000,000	4,808,910
57629*GNS	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,150,000	9,807,417	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				48662N-AC-1	KAYNE CLO-KAYNE 2021-11A B	1	10,150,000	9,807,417
57629*GNS	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,400,000	10,240,298	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				67115W-AE-0	OHA Credit Funding 1 LTD-SERIES 18-1A CLASS A2	1	10,400,000	10,240,298
57629*GNS	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		22,000,000	21,713,604	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				26245R-AA-8	Dryden 5B CLO Ltd-DRSLF 2018-5BA A1	1	22,000,000	21,713,604
57629*GNS	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		72,000,000	71,599,392	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				48661W-AA-6	KAYNE CLO-SERIES 19-3A CLASS A	1	72,000,000	71,599,392
57629*GNS	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,629,910	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				55817A-AU-8	Madison Park Funding XXX-MDPK 2018-32A CR	1	10,000,000	9,629,910
57629*GNS	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,750,000	2,605,100	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				04015U-AK-4	Ares XXXVIII CLO Ltd-SERIES 2015-38A CLASS CR	1	2,750,000	2,605,100

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*GN5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		48,000,000	48,000,000	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				515095-MM-6	Landmark Equity Partners XVI-D, LLC	1	48,000,000	48,000,000
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	400,000,000	187,254,436	74,844,640	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared	130,545	(112,279,251)		46143#-MM-4	Invesco CMI Investments MM, LLC - Senior Secured Notes - Term Loan Series 2020-2	2	187,123,891	187,123,891
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		47,605,903	47,605,903	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				901399-MR-3	Twinbrook Capital Funding VIII DSPV, LLC - Term Loan	1	47,605,903	47,605,903
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,000,000	14,590,410	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				77341E-AC-9	Rockford Tower CLO 2020-ROCKT 2020-1A B	1	15,000,000	14,590,410
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,500,000	13,375,490	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				06760B-AE-2	BABSON CLO LTD-SERIES 17-1A CLASS B1	1	13,500,000	13,375,490
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,600,000	9,592,301	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				63941R-AC-4	NAVSL 2019-2A B	1	9,600,000	9,592,301
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,700,000	12,472,276	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				40436X-AE-7	HIGHBRIDGE LOAN MANAGEMEN-SERIES 2014 CLAS A2R	1	12,700,000	12,472,276
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,900,000	13,454,686	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				09628J-AN-1	BlueMountain CLO 2015-3-BLUEM 2015-3A A2R	1	13,900,000	13,454,686
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,400,000	7,233,574	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				55821T-AC-1	Madison Park Funding Ltd-SERIES 18-30A CLASS B	1	7,400,000	7,233,574
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,750,000	12,505,111	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				67706X-AG-8	CHA Credit Partners XIV -OAKC 2017-14A B FLOATING COUP	1	12,750,000	12,505,111
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		28,400,000	27,686,478	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				04017T-AC-3	Ares XXXIR CLO Ltd-SERIES 14-31RA CLASS A2	1	28,400,000	27,686,478
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		65,000,000	65,000,000	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				515095-MM-6	Landmark Equity Partners XVI-D, LLC	1	65,000,000	65,000,000
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,777,000	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				86271P-AE-5	Strata CLO II Ltd-STRTA 2021-1A B	1	10,000,000	9,777,000
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		17,400,000	17,004,620	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				06763B-AC-3	Babson CLO Ltd/Cayman Is-BABSN LP-2A B	1	17,400,000	17,004,620
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		17,400,000	16,726,185	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				06762T-AC-5	Babson CLO Ltd/Cayman Islands	1	17,400,000	16,726,185
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,982,420	14,484,844	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				91824X-AC-4	YCP RRL ABS II Ltd-VCRRL 2022-1A A	1	14,982,420	14,484,844
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,512,602	13,651,482	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				48661C-AA-0	Rad CLO 7 Ltd-RAD 2020-7A A1	1	13,512,602	13,651,482
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,300,000	4,177,166	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				40637L-AC-4	Halsey Point CLO Ltd-SERIES 2021-4A CLASS B	1	4,300,000	4,177,166
57629*GL9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	200,000,000	9,535,266	(46,808,416)	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared	65,266	(56,069,006)		74989H-AE-2	RR 12 Ltd-RRAM 2020-12A A2R2	1	9,470,000	9,260,590
57629*GL9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,350,000	9,098,915	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				87166R-DG-9	SYMP 2019-21A BR	1	9,350,000	9,098,915
57629*GL9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,200,000	8,993,147	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				65357L-AL-9	Niagara Park Clo Ltd-NIAPK 2019-1A BR	1	9,200,000	8,993,147
57629*GL9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,100,000	8,749,495	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				12551J-AQ-9	CIFC Funding 2017-IV Ltd-CIFC 2017-4A BR	1	9,100,000	8,749,495
57629*GL9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,100,000	8,927,209	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				42087D-AC-3	Hayfin US XII Ltd-HAYFN 2020-12A B1	1	9,100,000	8,927,209
57629*GL9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,000,000	8,786,322	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				38138L-AN-8	Goldentree Loan Managemen-SERIES 2020-7A CLASS BR	1	9,000,000	8,786,322
57629*GL9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		74,252,799	75,412,200	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				316502-AA-1	Fidus Re Ltd-UNSECURED	1	74,252,799	75,412,200
57629*GL9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		17,047,687	14,663,675	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				66704J-AY-4	NORTHSTAR EDUCATION FINA-SERIES 2004-1 CLASS B1	1	17,047,687	14,663,675
57629*GL9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		27,000,000	26,745,282	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				75887X-AA-5	Regatta Funding Ltd.-REG11 2018-1A A	1	27,000,000	26,745,282

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*GL9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,900,000	11,739,981	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				449258-AA-0	1CG US CLO 2018-1 LTD-SERIES 2018-1A CLASS A1	1	11,900,000	11,739,981
57629*GL9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,138,852	3,171,790	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				63942N-AC-2	Navient Student Loan Tru-NAVSL 2021-1A B	1	3,138,852	3,171,790
57629*GL9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,200,000	11,001,928	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				17181T-AC-5	CIFC Funding 2018-IV Ltd-SERIES 18-4A CLASS A2	1	11,200,000	11,001,928
57629*GL9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,200,000	15,791,938	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				16409T-AC-3	CHENANGO PARK CLO LTD-SERIES 18-1A CLASS A1B	1	16,200,000	15,791,938
57629*GL9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,891,306	1,846,175	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				05890M-AA-1	BANCO DE CREDITO E INVER-SENIOR UNSECURED	1	1,891,306	1,846,175
57629*GL9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,830,000	13,087,329	09/18/2023	06/18/2051	SOFR Replacement Swap - CME cleared				53636C-AA-2	LiquiGlide Inc-SECURED	1	13,830,000	13,087,329
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	125,000,000	13,638,310	(12,314,471)	08/07/2023	02/05/2045	SOFR Replacement Swap - CME cleared	38,310	(25,695,008)		67690A-AG-6	QHA Credit Funding 9 Ltd-OAKC 2021-9A B	1	13,600,000	13,380,537
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,750,000	12,442,700	08/07/2023	02/05/2045	SOFR Replacement Swap - CME cleared				40436Q-AN-2	HPS Loan Management 9-20-HLM 9A-2016 A2R	1	12,750,000	12,442,700
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		25,000,000	24,806,275	08/07/2023	02/05/2045	SOFR Replacement Swap - CME cleared				872490-AA-8	TICP CLO Ltd-TICP 2018-11A A	1	25,000,000	24,806,275
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,200,000	14,992,961	08/07/2023	02/05/2045	SOFR Replacement Swap - CME cleared				87248K-AL-8	TICP CLO VI 2016-5 Ltd-TICP 2016-5A BR	1	15,200,000	14,992,961
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		30,000,000	29,525,760	08/07/2023	02/05/2045	SOFR Replacement Swap - CME cleared				00119V-AN-9	AGL CLO 6 LTD-AGL 2020-6A AR	1	30,000,000	29,525,760
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,400,000	11,137,048	08/07/2023	02/05/2045	SOFR Replacement Swap - CME cleared				38138D-AQ-9	Goldentree Loan Manage-GLM 2019-5A BR	1	11,400,000	11,137,048
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		18,000,000	18,000,000	08/07/2023	02/05/2045	SOFR Replacement Swap - CME cleared				186858-AC-6	Cliffwater Corporate Lending Fund - Senior Secured Revolving Credit Facility	1	18,000,000	18,000,000
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,117,230	15,336,288	08/07/2023	02/05/2045	SOFR Replacement Swap - CME cleared				74340X-BL-4	Prologis LP-SENIOR UNSECURED	1	16,117,230	15,336,288
57629*GK1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	300,000,000	999,365	(87,500,603)	09/21/2023	06/21/2051	SOFR Replacement Swap - CME cleared	95,351	(88,403,878)		78449F-AC-5	SMB PRIVATE ED LN TR 201-SMB PRIVATE ED LN TR 2016-A NT	1	904,014	903,275
57629*GK1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		292,000,000	292,000,000	09/21/2023	06/21/2051	SOFR Replacement Swap - CME cleared				143088-AA-6	Carlyle Aviation Runway PDP Fund LP - Revolving Promissary Note	1	292,000,000	292,000,000
57629*GK1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		61,000,000	60,660,596	09/21/2023	06/21/2051	SOFR Replacement Swap - CME cleared				48661W-AA-6	KAYNE CLO-SERIES 19-3A CLASS A	1	61,000,000	60,660,596
57629*GK1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,822,960	09/21/2023	06/21/2051	SOFR Replacement Swap - CME cleared				67109Y-AN-4	Oak Hill Credit Partners-SERIES 15-12A CLASS A2R	1	10,000,000	9,822,960
57629*GK1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,200,000	3,978,110	09/21/2023	06/21/2051	SOFR Replacement Swap - CME cleared				08180X-AU-6	Benefit Street Partners -BSP 2015-8A BR	1	4,200,000	3,978,110
57629*GK1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,806,030	09/21/2023	06/21/2051	SOFR Replacement Swap - CME cleared				04965L-AE-8	ATRIUM XIV LLC-ATRM 14A A2A	1	10,000,000	9,806,030
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	200,000,000	529,286	(60,447,709)	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared	66,425	(60,911,589)		MXP001-TT-1	AEROVIAS DE MEXICO SA USD TERM LN TICP CLO XIII Ltd-TICP 2019-13A BR	2	462,861	463,880
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,000,000	7,811,320	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				87250A-AL-5	BlueMountain Fuji US CLO-SERIES 2017-3A CLASS B	1	8,000,000	7,811,320
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,000,000	7,741,784	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				09628F-AE-9	Steele Creek CLO 2016-1 -SERIES 2016-1A CLASS AR	1	8,000,000	7,741,784
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		60,000,000	59,041,440	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				85810Z-AX-4	Steele Creek CLO 2014-1 -SERIES 14-1RA CLASS A	1	60,000,000	59,041,440
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		473,601	468,746	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				85816W-AC-8	TCI-Flatiron CLO 2018-1 -TFLAT 2018-1A BR	1	473,601	468,746
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,806,030	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				04965L-AE-8	ATRIUM XIV LLC-ATRM 14A A2A	1	10,000,000	9,806,030
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,728,170	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				87232A-AN-4	TCI-Flatiron CLO 2018-1 -TFLAT 2018-1A BR	1	10,000,000	9,728,170

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,543,350	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				77342M-AQ-9	Rockford Tower CLO 2019--SERIES 2019-1A CLASS B1R	1	10,000,000	9,543,350
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,607,752	1,709,931	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				429827-AK-4	HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS A10	1	1,607,752	1,709,931
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,259,494	1,280,314	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				429827-AP-3	HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS A14	1	1,259,494	1,280,314
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,177,754	1,192,147	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				429827-AB-4	HIGHER EDUCATION FUNDING-SERIES 2004-1 CLASS A2	1	1,177,754	1,192,147
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		949,826	949,008	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				83715A-AJ-8	SOUTH CAROLINA STUDENT L-SR UNSECURED	1	949,826	949,008
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,787,194	1,691,686	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				64033Q-AC-3	MELNET STUDENT LOAN TRUS-SERIES 2015-2A CLASS B	1	1,787,194	1,691,686
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		619,822	615,783	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				709163-GJ-2	PENNSYLVANIA ST HGR EDU -SERIES 2006 CL B	1	619,822	615,783
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		588,697	543,721	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				17284L-AB-0	CIT EDUCATION LOAN TRUST-SERIES 2007-1 CLASS B	1	588,697	543,721
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,275,000	7,953,417	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				056162-AS-9	Babson CLO Ltd 2015-I-BABSN 2015-IA CR	1	8,275,000	7,953,417
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		22,590,561	21,553,998	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				230000-AB-7	CULLEN/FROST CAP TR II-SUBORDINATED NOTE	2	22,590,561	21,553,998
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,000,000	12,676,638	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				75887X-AC-1	Regatta Funding Ltd.-REG11 2018-1A B	1	13,000,000	12,676,638
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,000,000	3,868,592	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				41154X-AL-9	Harbor Park CLO, Ltd-HARB 2018-1A C	1	4,000,000	3,868,592
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,915,573	7,030,352	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				73052V-AC-9	Point Au Roche Park CLO -PARPK 2021-1A B1	1	6,915,573	7,030,352
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,761,191	6,885,263	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				27829P-AL-0	Eaton Vance CLO 2020-2 L-EATON 2020-2A AR	1	6,761,191	6,885,263
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,000,000	6,751,661	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				13887W-AL-4	Canyon Capital CLO 2019--CANVC 2019-2A BR	1	7,000,000	6,751,661
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,000,000	5,669,742	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				92919D-AE-8	Voya CLO Ltd-VOYA 2021-3A C	1	6,000,000	5,669,742
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,404,302	5,441,205	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				64132D-AJ-7	Neuberger Berman Loan Ad-NEUB 2019-32A AR	1	5,404,302	5,441,205
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,800,000	5,496,834	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				06762T-AE-1	Babson CLO Ltd/Cayman Islands HPS Loan Management 14-2-HLM 14A-19 BR	1	5,800,000	5,496,834
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,600,000	5,309,814	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				40437W-AS-7	Sound Point CLO Ltd-SNDPT 2021-4A C	1	5,600,000	5,309,814
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,600,000	5,205,144	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				83616A-AL-3	Madison Park Funding XLV-MDPK 2020-46A CR	1	5,600,000	5,205,144
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,460,000	3,321,285	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				55822A-AQ-0	GoldenTree Loan Managem-GLM 2021-10A C	1	3,460,000	3,321,285
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,450,000	3,307,246	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				38138T-AG-6	Landmark Equity Partners XVI-D, LLC	1	3,450,000	3,307,246
57629*GIW5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		37,000,000	37,000,000	09/22/2023	06/22/2051	SOFR Replacement Swap - CME cleared				515095-MM-6		1	37,000,000	37,000,000
57629*GV7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		300,000,000	1,965,087	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared		118,119	(88,013,839)	MXP001-TT-1	AEROVIAS DE MEXICO SA USD TERM LN SIB PRIVATE ED LN TR 2015-C LN BCK	2	1,846,968	1,851,032
57629*GV7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		179,238	179,286	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				78448R-AD-8	NT CL A-3	1	179,238	179,286
57629*GV7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,600,000	11,382,349	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				08179C-AQ-4	Benefit Street Partners -BSP 2017-11A A2R FLOATING	1	11,600,000	11,382,349
57629*GV7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,063,761	1,043,561	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				00432C-CW-9	ACCESS GROUP INC-SERIES 2005-B CLASS A3	1	1,063,761	1,043,561
57629*GV7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,919,358	8,853,332	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				28148W-AC-7	EDUCATIONAL FUNDING OF T-SERIES 2011-1 CLASS B	1	8,919,358	8,853,332

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*GV7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		314,831,717	302,510,060	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				03113F-MM-3	AMF Levered II, LLC - Revolver	1	314,831,717	302,510,060
57629*GV7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,721,282	1,645,716	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				38021F-AB-7	GOAL CAPITAL FUNDING TRU-SERIES 2015-1 CLASS B	3	1,721,282	1,645,716
57629*GV7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,296,705	1,167,912	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				78442G-GM-2	SLM STUDENT LOAN TRUST 2003-4 LN BKD CTF CL B	2	1,296,705	1,167,912
57629*GV7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,437,986	1,379,367	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				28090A-AB-5	EDUCATIONAL SERVICES OF -2014-4 SERIES B	1	1,437,986	1,379,367
57629*GV7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,200,000	7,059,888	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				03767M-AE-8	Apidos CLO-SERIES 18-29A CLASS A1B	1	7,200,000	7,059,888
57629*GV7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,800,000	8,512,830	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				39729R-AC-2	Greenwood Park CLO Ltd-SERIES 18-1A CLASS B	1	8,800,000	8,512,830
57629*GV7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,500,000	10,292,678	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				13876J-AE-2	Canyon Capital CLO Ltd-CANVC 2012-1RA B	1	10,500,000	10,292,678
57629*GV7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,184,274	7,129,172	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				03768R-AG-1	Apidos CLO Series 19-32A-APID 2019-32A B1	1	7,184,274	7,129,172
57629*GV7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		23,698,021	24,001,507	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				06761K-AL-5	Barings CLO Ltd 2019-III-BABSN 2019-3A A1R	1	23,698,021	24,001,507
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	200,000,000	7,728,745	(51,325,980)	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared	78,745	(58,658,255)		281397-AP-4	EDUCATION LOAN ASSET-BAC-SERIES 2003-2 CLASS 2A1	1	7,650,000	7,332,275
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,817,327	8,836,730	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				MXP001-TT-1	AEROVIAS DE MEXICO SA USD TERM LN	2	8,817,327	8,836,730
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,350,000	4,169,333	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				281397-AB-5	EDUCATION LOAN ASSET-BAC-SERIES 2003-1 CLASS A2	1	4,350,000	4,169,333
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,650,000	2,321,344	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				64031Q-CK-5	NELNET STUDENT LOAN TRUS-SERIES 2005-4 CLASS A4R1	2	2,650,000	2,321,344
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,950,000	2,827,479	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				281397-AQ-2	EDUCATION LOAN ASSET-BAC-SERIES 2003-2 CLASS 2A2	1	2,950,000	2,827,479
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		676,257	672,790	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				38021E-AA-2	GOAL CAPITAL FUNDING TR 2010-1 STUDENT LN BKD NT	1	676,257	672,790
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,715,040	2,627,937	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				64031Q-CM-1	NelNet Student Loan Trus-SERIES 2005-4 CLASS A4R2	2	2,715,040	2,627,937
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,746,677	9,145,639	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				83149E-AG-2	SLM STUDENT LN TR 2006-5-NOTE CL B	1	9,746,677	9,145,639
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,900,000	13,480,387	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				26251L-AE-4	Dryden 64 CLO Ltd-DRSLF 2018-64A B	1	13,900,000	13,480,387
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		28,000,000	25,478,656	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				64033E-AB-2	NSLT 2013-2A B	1	28,000,000	25,478,656
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		22,275,000	22,204,965	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				66704J-AF-5	Northstar Education Fina-REVENUE BONDS	1	22,275,000	22,204,965
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,604,902	9,646,718	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				78442G-KP-0	SLM Student Loan Trust 2-SLMA 2003-14 B	1	10,604,902	9,646,718
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,600,000	12,361,418	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				64034X-AB-9	NelNet Student Loan Trus-NSLT 2021-1A B	1	13,600,000	12,361,418
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,100,000	9,241,797	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				64034G-AB-6	NelNet Student Loan Trus-NSLT 2020-1A B	1	10,100,000	9,241,797
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,602,273	6,425,875	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				64031C-AB-8	NELNET STUDENT LOAN TRUS-SERIES 2012-2A CLASS B	1	6,602,273	6,425,875
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,005,095	1,856,742	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				78442G-PS-9	SLM STUDENT LOAN TRUST-SERIES 2005-5 CLASS B	1	2,005,095	1,856,742
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,275,000	16,099,295	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				04623T-AA-3	ASSURANT CLO I LTD-ASRNT 2018-1A A	1	16,275,000	16,099,295
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,100,000	12,789,478	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				67707B-AB-6	QHA Credit Partners XV L-SERIES 17-15A CLASS B	1	13,100,000	12,789,478
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,350,000	7,148,831	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				12551R-AC-2	CIFC Funding 2018-I Ltd-SERIES 18-1A CLASS B	1	7,350,000	7,148,831

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,000,000	12,590,643	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				21623P-AC-1	COOK PARK CLO LTD-COOK 2018-1A A2	1	13,000,000	12,590,643
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,923,564	3,964,738	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				63942N-AC-2	Navient Student Loan Tru-NAVSL 2021-1A B	1	3,923,564	3,964,738
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,400,000	8,241,811	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				48252Y-AE-9	KKR CLO 23 Ltd-KKR 23 B	1	8,400,000	8,241,811
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		26,948,000	26,948,000	09/28/2023	06/28/2051	SOFR Replacement Swap - CME cleared				67098#-MM-7	QHA Credit Solutions Master Fund I SPV, L.P. - Fund I Revolver	1	26,948,000	26,948,000
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	125,000,000	10,950,301	(9,307,881)	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared	32,801	(20,249,405)		MXP001-TT-1	AEROVIAS DE MEXICO SA USD TERM LN SOUTH CAROLINA STUDENT L-SERIES	2	10,917,500	10,941,524
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,737,849	12,302,520	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				83715R-AG-7	2014-1 CLASS B	1	12,737,849	12,302,520
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,642,686	3,361,037	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				784420-AE-1	SLC STUDENT LOAN TRUST-SERIES 2005-1 CLASS B	1	3,642,686	3,361,037
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,750,859	2,572,153	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				78442G-OT-6	SLM STUDENT LOAN TRUST-SERIES 2005-8 CLASS B	1	2,750,859	2,572,153
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		19,300,000	18,803,758	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				15033E-AC-2	Cedar Funding IX CLO Ltd-SERIES 18-9A CLASS A2	1	19,300,000	18,803,758
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,645,000	2,440,872	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				63938E-AE-4	NAVIENT STUDENT LOAN TRU-SERIES 2014-1 CLASS B	1	2,645,000	2,440,872
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,481,825	1,198,724	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				64031A-AJ-5	NELNET STUDENT LOAN TRUS-SERIES 2006-3 CLASS B	1	1,481,825	1,198,724
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,447,291	4,157,236	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				63939L-AC-1	NAVIENT STUDENT LOAN TRU-SERIES 2015-3 CLASS B	1	4,447,291	4,157,236
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,380,878	3,327,351	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				64033J-AB-1	NELNET STUDENT LOAN TRUS-SERIES 2014-1A CLASS B	1	3,380,878	3,327,351
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,658,786	1,536,212	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				194266-AE-2	COLLEGE LOAN CORPORATION-SERIES 2005-2 CLASS B	1	1,658,786	1,536,212
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,241,216	3,067,043	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				64033N-AB-2	NELNET STUDENT LOAN TRUS-SERIES 2014-5A CLASS B	1	3,241,216	3,067,043
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,399,523	1,312,835	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				78442G-LJ-3	SLM STUDENT LOAN TRUST-SERIES 2004-3 CLASS B	1	1,399,523	1,312,835
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,250,000	3,122,194	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				64032A-AB-1	NELNET STUDENT LOAN TRUS-SERIES 2012-1A CLASS B	1	3,250,000	3,122,194
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,024,276	2,909,742	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				64033L-AD-2	NELNET STUDENT LOAN TRUS-SERIES 2014-2A CLASS B	1	3,024,276	2,909,742
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,240,000	3,002,670	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				64033K-AB-8	NELNET STUDENT LOAN TRUS-SERIES 2014-3A CLASS B	1	3,240,000	3,002,670
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,750,000	14,412,771	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				03767M-AG-3	Apidos CLO-SERIES 18-29A CLASS A2	1	14,750,000	14,412,771
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,500,000	4,363,344	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				55952Y-AT-4	Magnetite VIII Ltd-MAGNE 2014-8A CR2	1	4,500,000	4,363,344
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,700,000	6,466,740	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				04015U-AJ-7	Ares XXXVIII CLO Ltd-SERIES 15-38A CLASS BR	1	6,700,000	6,466,740
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,000,000	2,942,367	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				48250R-BN-5	KKR CLO 12 Ltd-KKR 12 BR	1	3,000,000	2,942,367
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,250,000	13,973,479	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				67112K-AB-5	OP CLO Ltd-SERIES 18-15A CLASS A2	1	14,250,000	13,973,479
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,822,500	12,598,106	09/06/2023	12/06/2046	SOFR Replacement Swap - CME cleared				043671-AA-4	Aseko Inc-FIRST LIEN	1	12,822,500	12,598,106
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	250,000,000	17,710,070	(28,050,115)	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared	60,765	(45,290,229)		29364N-AS-7	ENERGY MISSISSIPPI INC-SECURED NOTE	1	17,649,305	17,240,114
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,815,000	9,209,022	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				05684L-AG-0	Bain Capital Credit CLO-BCC 2021-1A C	1	9,815,000	9,209,022
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		32,592,549	31,553,517	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				75972Y-AA-9	RENAISSANCE FINANCE-SR UNSECURED	1	32,592,549	31,553,517

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,500,000	9,225,374	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				33882G-AJ-7	Flatiron Clo 17 Ltd-FLAT 2017-1A CR	1	9,500,000	9,225,374
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,200,000	3,002,710	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				22615E-AE-0	Crestline Denali CLO Ltd-SERIES 2018-1A CLASS C	1	3,200,000	3,002,710
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,000,000	7,745,568	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				67104L-AG-2	OHA Loan Funding 2013-2 -OHAF 2013-2A CR	1	8,000,000	7,745,568
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,000,000	13,869,716	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				39862E-AB-0	GRIPPEN PARK CLO LTD-SERIES 17-1A CLASS B	1	14,000,000	13,869,716
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		28,212,967	28,586,454	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				06761T-AE-2	Barings Middle Market Cl-BMM 2019-1A A2	1	28,212,967	28,586,454
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		23,600,000	23,077,968	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				542798-AC-7	Long Point Park CLO Ltd-LNGPT 2017-1A A1B	1	23,600,000	23,077,968
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,400,000	5,173,848	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				64130H-AQ-4	Neuberger Berman Loan Ad-SERIES 2017-24A CLASS CR	1	5,400,000	5,173,848
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,418,936	6,239,903	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				00206R-GL-0	AT&T Inc-SENIOR UNSECURED	2	6,418,936	6,239,903
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,067,151	15,734,860	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				00928Q-AQ-4	AIRCATTLE LTD-SENIOR UNSECURED	2	16,067,151	15,734,860
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,491,682	5,957,119	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				29365T-AF-1	Entergy Texas Inc-SECURED	1	6,491,682	5,957,119
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,855,894	11,113,713	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				90933J-AA-9	United Airlines 2016-2 C-UNTD AIR 16-2 B	3	11,855,894	11,113,713
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,788,147	9,945,389	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				05682L-AJ-6	Bain Capital Credit CLO -BCC 2019-2A AR	1	9,788,147	9,945,389
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		24,792,283	25,373,809	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				64135D-AA-3	Neuberger Berman Loan Ad-NEUB 2022-47A A	1	24,792,283	25,373,809
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		18,884,665	19,043,092	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				96467K-AA-7	Whitebox CLO Ltd-WBOX 2023-4A A1	1	18,884,665	19,043,092
57629*DMO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,400,000	5,418,592	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				06762V-AC-0	Barings Loan Partners CL-BABSN 2022-3A B	1	5,400,000	5,418,592
57629*DL2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	250,000,000	1,589,424	(43,530,604)	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared	60,698	(44,989,831)		031162-CJ-7	AMGEN INC-SENIOR UNSECURED	2	1,528,726	1,459,227
57629*DL2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		175,198	172,387	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				445658-CD-7	JB HUNT TRANSPRT SVCS-SENIOR UNSECURED NOTE	2	175,198	172,387
57629*DL2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		21,776,939	21,199,804	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				456866-AM-4	INGERSOLL-RAND CO-DEBENTURE Kingsland Ltd-SERIES 18-8A CLASS A	2	21,776,939	21,199,804
57629*DL2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		184,900,000	182,487,240	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				42086P-AC-7	Ballyrock CLO 2019-2 Ltd-SERIES 19-2A CLASS BR	1	184,900,000	182,487,240
57629*DL2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		5,900,000	5,675,776	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				05875M-AS-1	VALLEY NATIONAL BANCORP-SUBORDINATED NOTE	1	5,900,000	5,675,776
57629*DL2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		6,469,028	6,405,457	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				919794-AB-3	Arrow Electronics Inc-DEBENTURE	2	6,469,028	6,405,457
57629*DL2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		13,770,828	14,175,712	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				042735-AK-6	Sixth Street CLO-SIXST 2021-20A C	1	13,770,828	14,175,712
57629*DL2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		3,000,000	2,861,283	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				83012Q-AE-4	Barings Middle Market CL-BMM 2018-1A C	2	3,000,000	2,861,283
57629*DL2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		11,708,254	11,383,744	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				06761M-AD-9	Barings Middle Market CL-BMM 2021-1A C	2	11,708,254	11,383,744
57629*DL2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		12,200,000	11,052,358	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				06760W-AJ-5	Barings Middle Market CL-BMM 2021-1A C	2	12,200,000	11,052,358
57629*DL2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		1,725,000	1,609,696	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				04018X-AJ-8	ARES CLO-ARES 2021-ALFA D	2	1,725,000	1,609,696
57629*DP3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	250,000,000	1,082,179	(43,971,732)	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared	60,663	(44,829,618)		04352E-AA-3	Ascension Health-SENIOR UNSECURED	1	1,021,516	857,886
57629*DP3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		5,176,120	4,939,560	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				195869-AP-7	COLONIAL PIPELINE CO-SR UNSECURED	1	5,176,120	4,939,560

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*DP3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		47,859,771	44,793,809	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				254709-AM-0	DISCOVER FINANCIAL SVS-SENIOR UNSECURED	2	47,859,771	44,793,809
57629*DP3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		2,500,000	2,403,548	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				50189P-AN-2	LOM LTD PARTNERSHIP-SERIES 25A CLASS C2	1	2,500,000	2,403,548
57629*DP3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		35,720,842	29,945,461	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				06762X-AA-0	Barings Clo Ltd 2020-III-BABSN 2020-3A B	2	35,720,842	29,945,461
57629*DP3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		73,500,000	72,325,764	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				858102-AX-4	Steele Creek CLO 2016-1-SERIES 2016-1A CLASS AR	1	73,500,000	72,325,764
57629*DP3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		47,151,272	40,666,814	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				341081-FG-7	FLORIDA POWER & LIGHT CO-SECURED BOND	1	47,151,272	40,666,814
57629*DP3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		8,800,000	8,554,075	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				05683L-AC-0	Bain Capital Credit CLO -BCC 2018-1A A2	1	8,800,000	8,554,075
57629*DP3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		11,655,304	10,906,521	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				224044-CG-0	COX COMMUNICATIONS INC-SENIOR UNSECURED	2	11,655,304	10,906,521
57629*DP3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		14,207,377	13,796,875	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				709599-AZ-7	Penske Truck Leasing Co -SENIOR UNSECURED	2	14,207,377	13,796,875
57629*DP3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		20,387,393	19,526,242	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				98389B-AV-2	Xcel Energy Inc-SENIOR UNSECURED	2	20,387,393	19,526,242
57629*DP3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		33,000,000	33,000,000	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				18685B-AC-6	Babson CLO Ltd 2013-I-SERIES 2013-IS CLASS BR	1	33,000,000	33,000,000
57629*DN8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	250,000,000	16,971,843	(29,627,762)	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared	60,743	(45,190,096)		00774M-AB-1	AERCAP IRELAND CAPITAL D-SENIOR UNSECURED	2	16,911,100	15,562,334
57629*DN8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		18,435,437	17,932,579	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				378272-AL-2	GLENDORE FUNDING LLC-SR UNSECURED	2	18,435,437	17,932,579
57629*DN8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		50,439,446	35,250,349	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				191216-CY-4	Coca-Cola Co/The-SENIOR UNSECURED	1	50,439,446	35,250,349
57629*DN8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		16,435,231	14,553,808	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				09778P-AA-3	Bon Secours Mercy Health-SECURED	1	16,435,231	14,553,808
57629*DN8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		8,893,197	8,424,805	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				67103H-AF-4	O'REILLY AUTOMOTIVE INC-SENIOR UNSECURED	2	8,893,197	8,424,805
57629*DN8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		9,355,097	9,142,894	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				806851-AG-6	SCHLUMBERGER HLDGS CORP-SR UNSECURED	2	9,355,097	9,142,894
57629*DN8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		14,090,282	11,515,928	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				23338V-AE-6	DTE Electric Co-SECURED	1	14,090,282	11,515,928
57629*DN8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		70,723,282	61,953,010	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				458140-AK-6	INTEL CORP-SENIOR UNSECURED NOTE	1	70,723,282	61,953,010
57629*DN8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		23,297,283	21,984,585	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				11271L-AC-6	Brookfield Finance Inc-SENIOR UNSECURED	1	23,297,283	21,984,585
57629*DN8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		18,385,197	16,262,640	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				40728T-AA-1	HAMILTON COLLEGE-UNSECURED	1	18,385,197	16,262,640
57629*DN8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		18,705,371	17,972,677	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				75625Q-AE-9	Reckitt Benckiser Treasu-SENIOR UNSECURED	1	18,705,371	17,972,677
57629*DN8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		15,500,000	12,993,944	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				06762X-AA-0	Barings Clo Ltd 2020-III-BABSN 2020-3A B	2	15,500,000	12,993,944
57629*DN8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		34,000,000	34,000,000	09/15/2023	09/15/2047	SOFR Replacement Swap - CME cleared				515095-MM-6	Landmark Equity Partners XVI-D, LLC	1	34,000,000	34,000,000
Need to File with the NAIC	Sovereign Bond of Mexico	2Z	20,000,000	25,743,218	25,285,220	12/20/2022	06/20/2028	5 Yr Credit Default Swap	(274,484)	(39,959)		912810-FP-8	US TREAS N/B-BOND	1	26,017,702	25,325,179
Need to File with the NAIC	Sovereign Bond of India	2Z	40,000,000	35,685,759	30,568,011	12/20/2022	06/20/2028	5 Yr Credit Default Swap	(294,886)	226,761		912810-RV-2	US TREASURY N/B-UNSECURED	1	35,980,645	30,341,250
Need to File with the NAIC	Sovereign Bond of India	2Z		14,897,276	12,378,516	12/20/2022	06/20/2028	5 Yr Credit Default Swap				912810-RU-4	US TREASURY N/B-UNSECURED	1	14,897,276	12,378,516
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	197,639,266	56,788,250	28,922,005	07/29/2022	08/01/2023	TRS Bond Index		(28,734,911)		539830-AH-9	Lockheed Martin Corp-SENIOR UNSECURED NOTE	1	56,788,250	57,656,916
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,820,133	13,167,830	07/29/2022	08/01/2023	TRS Bond Index				52107Q-AJ-4	Lazard Group LLC-SENIOR UNSECURED	2	13,820,133	13,167,830

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,359,065	13,625,185	07/29/2022	08/01/2023	TRS Bond Index				767201-AD-8	RIO TINTO FIN USA LTD-SENIOR UNSECURED NOTE	1	13,359,065	13,625,185
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,740,403	1,570,506	07/29/2022	08/01/2023	TRS Bond Index				12189L-AW-1	BURLINGTON NORTH SANTA FE-SENIOR UNSECURED	1	1,740,403	1,570,506
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,564,506	14,374,765	07/29/2022	08/01/2023	TRS Bond Index				03076C-AH-9	Ameriprise Financial Inc-SENIOR UNSECURED	1	15,564,506	14,374,765
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,474,848	11,632,947	07/29/2022	08/01/2023	TRS Bond Index				92928Q-AE-8	WEA Finance LLC-SENIOR UNSECURED	2	13,474,848	11,632,947
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,500,000	13,365,270	07/29/2022	08/01/2023	TRS Bond Index				03329A-AE-5	Anchorage Capital CLO Lt-SERIES 2014-SRA CLASS B	1	13,500,000	13,365,270
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,691,180	07/29/2022	08/01/2023	TRS Bond Index				87246M-AU-6	TICP CLO VI 2016-2 Ltd-TICP 2016-6A BR2	1	10,000,000	9,691,180
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,631,430	07/29/2022	08/01/2023	TRS Bond Index				12563Y-AC-3	CIFC Funding 2021-II-CIFC 2021-2A B	1	10,000,000	9,631,430
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		250,000	249,448	07/29/2022	08/01/2023	TRS Bond Index				12189L-AQ-4	Burlington Northern Sant-SENIOR UNSECURED	1	250,000	249,448
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		25,610,254	25,531,948	07/29/2022	08/01/2023	TRS Bond Index				448814-EJ-8	HYDRO-QUEBEC-NOTE	1	25,610,254	25,531,948
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		60,000,000	59,925,060	07/29/2022	08/01/2023	TRS Bond Index				67332F-AJ-5	RRPF Engine Leasing Ltd Senior Secured	2	60,000,000	59,925,060
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,500,000	12,217,888	07/29/2022	08/01/2023	TRS Bond Index				67115L-AC-8	Oak Hill Credit Partners-OAKC 2021-16A B	1	12,500,000	12,217,888
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,800,000	10,399,126	07/29/2022	08/01/2023	TRS Bond Index				94949J-AC-9	Wellfleet CLO 2018-2 Ltd-WELF 2018-2A A2	1	10,800,000	10,399,126
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,700,000	8,440,723	07/29/2022	08/01/2023	TRS Bond Index				03330Y-AE-0	Anchorage Capital CLO 20-ANCHC 2021-20A B	1	8,700,000	8,440,723
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,700,000	8,477,071	07/29/2022	08/01/2023	TRS Bond Index				69700G-AL-6	Palmer Square CLO 2019-1-PLMRS 2019-1A A2R	1	8,700,000	8,477,071
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,500,000	7,216,418	07/29/2022	08/01/2023	TRS Bond Index				67112C-AN-7	OZLM XIX Ltd-OZLM 2017-19A A2AR .. Flatiron CLO 19 Ltd-FLAT 2019-1A BR	1	7,500,000	7,216,418
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,500,000	6,331,241	07/29/2022	08/01/2023	TRS Bond Index				33883J-AQ-4	Bain Capital Credit CLO -BCC 2020-3A BR	1	6,500,000	6,331,241
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,100,000	5,853,847	07/29/2022	08/01/2023	TRS Bond Index				05684C-AQ-8	Highbridge Loan Managem-HLM 2021-16A C	1	6,100,000	5,853,847
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,000,000	5,653,734	07/29/2022	08/01/2023	TRS Bond Index				40440X-AE-1	Peace Park CLO Ltd-PCEPK 2021-1A C	1	6,000,000	5,653,734
57629*HF1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,850,000	3,662,728	07/29/2022	08/01/2023	TRS Bond Index				70470M-AJ-4	Palmer Square CLO 2014-1-SERIES 2014-1A CLASS A2PR	1	3,850,000	3,662,728
57629*ERB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	150,000,000	9,926,823	(21,362,830)	08/30/2023	08/30/2034	SOFR Replacement Swap - OME cleared		26,823	(31,057,781)	69688X-AU-5	EDUCATIONAL SERVICES OF -SERIES	1	9,900,000	9,694,951
57629*ERB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		2,229,161	2,278,619	08/30/2023	08/30/2034	SOFR Replacement Swap - OME cleared				281378-AB-5	2015-1 CLASS B	1	2,229,161	2,278,619
57629*ERB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		2,348,527	2,186,673	08/30/2023	08/30/2034	SOFR Replacement Swap - OME cleared				28137T-AB-9	EDUCATIONAL SERVICES OF -SERIES 2014-2 CLASS B	1	2,348,527	2,186,673
57629*ERB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		778,921	624,510	08/30/2023	08/30/2034	SOFR Replacement Swap - OME cleared				19458L-BD-1	COLLEGIATE FUNDING SERVI-SERIES 2005-A CLASS B	1	778,921	624,510
57629*ERB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		16,243,256	16,147,247	08/30/2023	08/30/2034	SOFR Replacement Swap - OME cleared				03666H-AA-9	Antares Holdings LP-SENIOR UNSECURED	2	16,243,256	16,147,247
57629*ERB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		15,000,000	15,000,000	08/30/2023	08/30/2034	SOFR Replacement Swap - OME cleared				186858-AC-6	Cliffwater Corporate Lending Fund - Senior Secured Revolving Credit Facility	1	15,000,000	15,000,000
57629*ERB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		12,312,156	11,499,681	08/30/2023	08/30/2034	SOFR Replacement Swap - OME cleared				708686-BY-4	Pennsylvania Electric Co-SENIOR UNSECURED	2	12,312,156	11,499,681
57629*ERB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		24,079,849	23,245,521	08/30/2023	08/30/2034	SOFR Replacement Swap - OME cleared				806851-AK-7	Schlumberger Holdings Co-SENIOR UNSECURED	2	24,079,849	23,245,521
57629*ERB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		28,114,386	27,242,283	08/30/2023	08/30/2034	SOFR Replacement Swap - OME cleared				10510K-AC-1	BRAMBLES USA INC-SR UNSECURED	2	28,114,386	27,242,283
57629*ERB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		32,305,092	28,724,468	08/30/2023	08/30/2034	SOFR Replacement Swap - OME cleared				438516-BB-1	HONEYWELL INTERNATIONAL - SENIOR UNSECURED NOTE	1	32,305,092	28,724,468

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1	2	3	4	5	6	7	8	Derivative Instrument(s) Open			Cash Instrument(s) Held				
Number	Description	NAIC Designation or Other Description	Notional Amount	Book/Adjusted Carrying Value	Fair Value	Effective Date	Maturity Date	9	10	11	12	13	14	15	16
								Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*ERB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	24,797,129	22,297,550	22,297,550	08/30/2023	08/30/2034	SOFR Replacement Swap - CME cleared			438516-AT-3	HONEYWELL INTERNATIONAL -SENIOR NOTE	1	24,797,129	22,297,550
57629*ER8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	15,450,000	15,320,668	15,320,668	08/30/2023	08/30/2034	SOFR Replacement Swap - CME cleared			03328Y-AA-2	ANCHORAGE CAPITAL CLO 1--ANCHC 2018-1RA A1	1	15,450,000	15,320,668
57629*ERB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	10,141,515	9,957,705	9,957,705	08/30/2023	08/30/2034	SOFR Replacement Swap - CME cleared			06761T-AJ-1	Barings Middle Market CI-BMM 2019-1A C	2	10,141,515	9,957,705
57629*ER8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	2,700,000	2,530,807	2,530,807	08/30/2023	08/30/2034	SOFR Replacement Swap - CME cleared			12555Q-AW-6	CIFC Funding 2020-I Ltd-CIFC 2020-1A DR	2	2,700,000	2,530,807
57629*ERB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	2,700,000	2,540,268	2,540,268	08/30/2023	08/30/2034	SOFR Replacement Swap - CME cleared			06762J-AG-8	Babson CLO Ltd/Cayman Is-BABSN 2021-2A D	2	2,700,000	2,540,268
57629*EY3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	200,000,000	19,770,113	(40,413,624)	08/30/2023	08/30/2039	SOFR Replacement Swap - CME cleared	41,264	(53,630,308)	693304-AY-3	PECO Energy Co-SECURED	1	19,728,849	13,216,684
57629*EY3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	16,040,995	15,447,358	15,447,358	08/30/2023	08/30/2039	SOFR Replacement Swap - CME cleared			579780-AN-7	MCCORMICK & CO INC/MID-SENIOR UNSECURED	2	16,040,995	15,447,358
57629*EY3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	14,809,049	13,356,228	13,356,228	08/30/2023	08/30/2039	SOFR Replacement Swap - CME cleared			90932K-AA-7	United Airlines 2019-2 C-UNTD AIR 19-2 B FIXED	3	14,809,049	13,356,228
57629*EY3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	14,334,889	13,663,450	13,663,450	08/30/2023	08/30/2039	SOFR Replacement Swap - CME cleared			22822V-AE-1	CROWN CASTLE INTL CORP-SENIOR UNSECURED	2	14,334,889	13,663,450
57629*EY3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	26,541,410	24,506,450	24,506,450	08/30/2023	08/30/2039	SOFR Replacement Swap - CME cleared			05369A-AA-9	Aviation Capital Group L-SENIOR UNSECURED	2	26,541,410	24,506,450
57629*EY3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	45,350,000	43,716,130	43,716,130	08/30/2023	08/30/2039	SOFR Replacement Swap - CME cleared			592688-B8-3	Mettler-Toledo Internati Senior Note Ser	2	45,350,000	43,716,130
57629*EY3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	10,000,000	9,894,510	9,894,510	08/30/2023	08/30/2039	SOFR Replacement Swap - CME cleared			290015-AN-6	Elmwood CLO I Ltd-ELMM1 2019-1A BR	1	10,000,000	9,894,510
57629*EY3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	7,850,000	7,760,636	7,760,636	08/30/2023	08/30/2039	SOFR Replacement Swap - CME cleared			48661Q-AE-1	Kayne CLO 9 Ltd-SERIES 20-9A CLASS B1	1	7,850,000	7,760,636
57629*EY3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	15,000,000	14,711,445	14,711,445	08/30/2023	08/30/2039	SOFR Replacement Swap - CME cleared			04019L-AL-8	ARES LI CLO Ltd-ARES 2019-51A A1R	1	15,000,000	14,711,445
57629*EY3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	15,000,000	14,690,520	14,690,520	08/30/2023	08/30/2039	SOFR Replacement Swap - CME cleared			17180W-AC-9	CIFC Funding 2018-II Ltd-CIFC 2018-2A A2	1	15,000,000	14,690,520
57629*EY3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	11,750,000	11,530,240	11,530,240	08/30/2023	08/30/2039	SOFR Replacement Swap - CME cleared			55821A-AC-2	Madison Park Funding Ltd-SERIES 18-28A CLASS A2	1	11,750,000	11,530,240
57629*EY3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	35,500,000	29,760,324	29,760,324	08/30/2023	08/30/2039	SOFR Replacement Swap - CME cleared			06762X-AA-0	Barings Clo Ltd 2020-III-BABSN 2020-3A B	2	35,500,000	29,760,324
57629*EY3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	21,000,000	21,000,000	21,000,000	08/30/2023	08/30/2039	SOFR Replacement Swap - CME cleared			186858-AC-6	Cliffwater Corporate Lending Fund - Senior Secured Revolving Credit Facility	1	21,000,000	21,000,000
57629*EU1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	200,000,000	1,448,639	(66,661,493)	08/30/2023	08/30/2049	SOFR Replacement Swap - CME cleared	53,546	(68,013,346)	984851-AF-2	Yara International ASA-SENIOR UNSECURED	2	1,395,093	1,351,853
57629*EU1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	30,171,751	29,193,268	29,193,268	08/30/2023	08/30/2049	SOFR Replacement Swap - CME cleared			28176E-AD-0	Edwards Lifesciences Cor-SENIOR UNSECURED	2	30,171,751	29,193,268
57629*EU1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	36,971,550	35,182,922	35,182,922	08/30/2023	08/30/2049	SOFR Replacement Swap - CME cleared			361448-BC-6	GATX Corp-SENIOR UNSECURED	2	36,971,550	35,182,922
57629*EU1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	17,706,392	16,968,599	16,968,599	08/30/2023	08/30/2049	SOFR Replacement Swap - CME cleared			120568-AX-8	BUNGE LTD FINANCE CORP-SENIOR UNSECURED	2	17,706,392	16,968,599
57629*EU1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	18,176,931	16,891,534	16,891,534	08/30/2023	08/30/2049	SOFR Replacement Swap - CME cleared			00908P-AC-1	Air Canada 2017-1 Class -SECURED	2	18,176,931	16,891,534
57629*EU1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	5,204,078	5,084,428	5,084,428	08/30/2023	08/30/2049	SOFR Replacement Swap - CME cleared			171340-AN-2	CHURCH & DWIGHT CO INC-SENIOR UNSECURED	2	5,204,078	5,084,428
57629*EU1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	45,202,445	36,943,764	36,943,764	08/30/2023	08/30/2049	SOFR Replacement Swap - CME cleared			23338V-AE-6	DTE Electric Co-SECURED	1	45,202,445	36,943,764
57629*EU1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	131,999,996	117,709,548	117,709,548	08/30/2023	08/30/2049	SOFR Replacement Swap - CME cleared			57542Z-A9-8	MM Investment Holding Revolver Fixed Line	2	131,999,996	117,709,548
57629*FB2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	306,000,000	75,102,910	(29,046,620)	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared	102,910	(101,803,370)	30290Y-AC-5	FS Global Credit Opportu-FS GLOBAL CREDIT	1	75,000,000	72,756,750

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*FB2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,465,954	10,124,135	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				801060-AD-6	Sanofi-SENIOR UNSECURED	1	10,465,954	10,124,135
57629*FB2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,045,603	6,559,554	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				00108W-AH-3	AEP Texas Inc-SENIOR UNSECURED	2	7,045,603	6,559,554
57629*FB2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,500,000	12,925,441	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				892331-AD-1	Toyota Motor Corp-SENIOR UNSECURED	1	13,500,000	12,925,441
57629*FB2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,699,062	20,001,374	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				79466L-AF-1	salesforce.com Inc-SENIOR UNSECURED	1	20,699,062	20,001,374
57629*FB2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,022,091	7,660,521	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				369550-BC-1	General Dynamics Corp-SENIOR UNSECURED	1	8,022,091	7,660,521
57629*FB2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		23,857,845	22,347,734	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				892330-AC-5	Toyota Industries Corp-SENIOR UNSECURED	1	23,857,845	22,347,734
57629*FB2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		35,000,000	34,579,860	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				50188G-AT-0	LCM XVIII LP-LCM 18A A1R	1	35,000,000	34,579,860
57629*FB2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		44,074,211	43,683,890	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				13876J-AC-6	Canyon Capital CLO Ltd-CANVC 2012-1RA A	1	44,074,211	43,683,890
57629*FB2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,301,605	2,269,364	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				313747-AU-1	Federal Realty Investmen-SENIOR UNSECURED	2	2,301,605	2,269,364
57629*FB2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		99,999,997	89,173,900	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				57542Z-A9-8	MM Investment Holding Revolver Fixed Line	2	99,999,997	89,173,900
57629*ES6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	255,000,000	141,085,541	41,839,361	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared	85,545	(83,895,838)		57542Z-A9-8	MM Investment Holding Revolver Fixed Line	2	140,999,996	125,735,199
57629*ES6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,957,757	7,501,027	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				06406R-AF-4	Bank of New York Mellon -SENIOR UNSECURED	1	7,957,757	7,501,027
57629*ES6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,489,852	11,504,843	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				90932P-AA-6	United Airlines 2014-1 C-SECURED NOTE	2	11,489,852	11,504,843
57629*ES6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,847,795	12,257,043	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				606822-AV-6	Mitsubishi UFJ Financial-SENIOR UNSECURED	1	12,847,795	12,257,043
57629*ES6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,800,000	6,424,628	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				631005-BH-7	Narragansett Electric Co-SENIOR UNSECURED	1	6,800,000	6,424,628
57629*ES6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,340,832	2,280,444	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				532457-AZ-1	Eli Lilly & Co-SENIOR UNSECURED	1	2,340,832	2,280,444
57629*ES6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,101,584	11,695,991	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				09062X-AF-0	BIOGEN INC-SR UNSECURED	2	12,101,584	11,695,991
57629*ES6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,093,268	2,926,954	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				46625H-JY-7	JPMorgan Chase & Co-SUBORDINATED NOTE	1	3,093,268	2,926,954
57629*ES6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,717,216	2,623,233	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				452308-AX-7	Illinois Tool Works Inc-SENIOR UNSECURED	1	2,717,216	2,623,233
57629*ES6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,633,425	6,981,523	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				313747-AY-3	Federal Realty Investmen-SENIOR UNSECURED	2	7,633,425	6,981,523
57629*ES6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,550,271	7,550,694	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				477143-AJ-0	JetBlue 2019-1 Class A P-JETBLUE 19-1 A	2	8,550,271	7,550,694
57629*ES6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,195,404	5,890,335	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				670346-AP-0	Nucor Corp-SENIOR UNSECURED	1	6,195,404	5,890,335
57629*ES6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,975,409	1,857,003	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				78442G-RY-4	SLM STUDENT LOAN TRUST-SERIES 2006-2 CLASS B	1	1,975,409	1,857,003
57629*ES6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		100,000,000	99,089,200	09/05/2023	09/03/2049	SOFR Replacement Swap - CME cleared				420860-AA-9	Kingsland VI Ltd-KING 2013-6A AR	1	100,000,000	99,089,200
57629*EB3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	250,000,000	100,742,700	62,378,036	07/10/2023	01/08/2032	SOFR Replacement Swap - CME cleared	69,647	(37,263,018)		85816W-AC-8	Steele Creek CLO 2014-1 -SERIES 14-1RA CLASS A	1	100,673,053	99,641,054
57629*EB3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		96,277,477	95,066,653	07/10/2023	01/08/2032	SOFR Replacement Swap - CME cleared				125550-AN-6	CIFC Funding 2020-I Ltd-CIFC 2020-1A A1R	1	96,277,477	95,066,653
57629*EB3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,601,889	14,501,559	07/10/2023	01/08/2032	SOFR Replacement Swap - CME cleared				74988L-AA-2	ALM XIV Ltd-SERIES 14-14A CLASS A1R2	1	14,601,889	14,501,559
57629*EB3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,500,000	15,411,201	07/10/2023	01/08/2032	SOFR Replacement Swap - CME cleared				12550A-AT-3	CIFC Funding 2014-V Ltd-CIFC 2014-5A A1R2	1	15,500,000	15,411,201

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SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*EB3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,000,000	14,592,210	07/10/2023	01/08/2032	SOFR Replacement Swap - CME cleared				88432U-AC-0	Wind River CLO Ltd-SERIES 18-3A CLASS A2	1	15,000,000	14,592,210
57629*EB3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,900,000	11,553,079	07/10/2023	01/08/2032	SOFR Replacement Swap - CME cleared				00190Y-BF-1	Ares XXVII CLO Ltd-ARES 2013-2A BR2	1	11,900,000	11,553,079
57629*EB3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		24,870,290	24,783,250	07/10/2023	01/08/2032	SOFR Replacement Swap - CME cleared				05875H-AA-1	Ballyrock CLO 2018-1 Ltd	1	24,870,290	24,783,250
57629*EB3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,826,086	9,826,086	07/10/2023	01/08/2032	SOFR Replacement Swap - CME cleared				186858-AC-6	Cliffwater Corporate Lending Fund - Senior Secured Revolving Credit Facility	1	9,826,086	9,826,086
57629*EW7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	200,000,000	127,955,290	91,925,075	07/10/2023	01/08/2035	SOFR Replacement Swap - CME cleared	55,290	(35,974,925)		12499#-MM-8	CCOF Onshore Co-Borrower Revolving Loan	1	127,900,000	127,900,000
57629*EW7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		19,150,612	17,458,762	07/10/2023	01/08/2035	SOFR Replacement Swap - CME cleared				61744Y-AK-4	Morgan Stanley-SENIOR UNSECURED Diameter Capital CLO 4 L-DQLO 2022-4A A1	1	19,150,612	17,458,762
57629*EW7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		49,752,178	50,043,800	07/10/2023	01/08/2035	SOFR Replacement Swap - CME cleared				25255N-AA-6	Barings CLO Ltd 2019-III-BABSN	1	49,752,178	50,043,800
57629*EW7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,695,746	14,883,945	07/10/2023	01/08/2035	SOFR Replacement Swap - CME cleared				06761K-AL-5	2019-3A A1R	1	14,695,746	14,883,945
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	400,000,000	74,905,248	(49,257,899)	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared	135,248	(121,622,399)		A3158#-AC-3	Hofer Financial Services Senior Note Ser	1	74,770,000	72,364,500
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		79,100,000	74,117,175	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared				87278*-AD-4	TPF Equity REIT Operatin Gtd Senior Note	1	79,100,000	74,117,175
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		57,050,000	56,264,250	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared				Q0458*-AB-5	AquaSure Finance Pty Ltd Gtd Senior Secu	1	57,050,000	56,264,250
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		59,800,000	54,618,151	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared				G5147*-AD-8	Johnson Matthey PLC Senior Note Ser	1	59,800,000	54,618,151
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		62,900,000	62,076,954	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared				786584-A#-9	Safran Senior Note Ser	2	62,900,000	62,076,954
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		62,800,000	60,318,960	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared				Q0832*-AD-8	Australia Pacific Airpor Gtd Senior Note	2	62,800,000	60,318,960
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,500,000	7,123,613	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared				Q3330A-AE-2	Anchorage Capital CLO 3--ANCHC 2014-3RA C	1	7,500,000	7,123,613
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,750,000	6,542,336	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared				00119Y-AC-7	AGL CLO Ltd-AGL 2021-10A B	1	6,750,000	6,542,336
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,025,000	11,697,740	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared				06762J-AC-7	Babson CLO Ltd/Cayman Is-BABSN 2021-2A B	1	12,025,000	11,697,740
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,900,000	11,574,761	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared				64133V-AC-1	Neuberger Berman CLO Ltd-NEUB 2021-44A B	1	11,900,000	11,574,761
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,100,000	5,865,113	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared				05682E-AE-3	Bain Capital Credit CLO -BCC 2021-5A B	1	6,100,000	5,865,113
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,581,247	14,740,260	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared				00119Y-AA-1	AGL CLO 10 Ltd-AGL 2021-10A A	1	14,581,247	14,740,260
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,000,000	13,331,724	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared				Q3330P-AA-7	ANCHORAGE CREDIT FUNDING-SERIES 18-5A CLASS A	1	14,000,000	13,331,724
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,100,000	12,640,518	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared				75009P-AC-1	Rad CLO 12 Ltd-RAD 2021-12A B	1	13,100,000	12,640,518
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	10,023,890	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared				08179P-AE-2	Benefit Street Partners -BSP 2022-27A B1	1	10,000,000	10,023,890
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,625,000	6,475,699	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared				48250E-AS-4	KKR CLO 30 Ltd-KKR 30A BR	1	6,625,000	6,475,699
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		43,000,000	43,000,000	08/11/2023	02/11/2050	SOFR Replacement Swap - CME cleared				515095-MM-6	Landmark Equity Partners XVI-D, LLC	1	43,000,000	43,000,000
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	185,000,000	23,793,659	(34,292,852)	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared	57,201	(58,425,973)		06761M-AB-3	Barings Middle Market CL-BMM 2018-1A A2	1	23,736,458	24,133,121
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,500,000	5,362,022	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				55820B-AL-1	Madison Park Funding XLV-MDPK 2020-45A BR	1	5,500,000	5,362,022

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,000,000	14,704,980	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				38137Y-AS-0	Goldentree Loan Managem-GLM 2019-4A BR	1	15,000,000	14,704,980
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,500,000	11,220,136	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				282523-AM-1	1828 CLO Ltd-GUGG4 2016-1A A1JR .. CARLYLE US CLO 2018-3 LT-CGMS 2018-3A A1B	1	11,500,000	11,220,136
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,000,000	7,830,600	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				14317R-AC-3	Oak Hill Credit Partners-OAKC 2020-5A B	1	8,000,000	7,830,600
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,700,000	7,563,502	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				67113G-AG-2	Neuberger Berman CLO XIV-NEUB 2013-14A BR2	1	7,700,000	7,563,502
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,200,000	8,982,604	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				64129J-BG-4	Eaton Vance CLO 2018-1 L-EATON	1	9,200,000	8,982,604
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,000,000	7,833,352	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				27831B-AE-3	2018-1A B	1	8,000,000	7,833,352
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,700,000	14,310,671	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				55821L-AC-8	Madison Park Funding XXX-MDPK 2021-39A B	1	14,700,000	14,310,671
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,842,458	12,698,943	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				553205-AC-9	MP CLO III LTD-MP3 2013-1A AR	1	12,842,458	12,698,943
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,500,000	9,158,988	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				88432U-AE-6	Wind River CLO Ltd-SERIES 18-3A CLASS B	1	9,500,000	9,158,988
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,160,879	3,115,834	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				05875H-AC-7	BALLYROCK CLO 2018-1 LTD-SERIES 2018-1A CLASS A2	1	3,160,879	3,115,834
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,950,000	9,720,792	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				03328T-BG-8	Anchorage Capital CLO 7 -ANCHC 2015-7A BR2 FLOATING	1	9,950,000	9,720,792
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,000,000	7,857,888	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				74979V-AE-3	RR Ltd-RRAM 2018-5A A2	1	8,000,000	7,857,888
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,000,000	19,359,040	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				74980P-AC-7	ALM Ltd/KY-SERIES 21-14A CLASS A2	1	20,000,000	19,359,040
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,700,000	7,257,935	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				97314H-AC-3	Wind River CLO Ltd-WINDR 2021-1A B1	1	7,700,000	7,257,935
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,458,000	11,311,757	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				55820C-AG-0	Madison Park Funding XXI-MDPK 2018-29A B	1	11,458,000	11,311,757
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,877,890	3,876,952	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				50188Q-AL-5	LCM XVIII LP-LCM 19A BR	1	3,877,890	3,876,952
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,000,000	6,926,409	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				36248M-AL-1	GT Loan Financing I Ltd -SERIES 2013-1A CLASS BR	1	7,000,000	6,926,409
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,100,000	9,567,205	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				83615P-AC-1	Sound Point Clo XXXI Ltd-SNDPT 2021-3A B	1	10,100,000	9,567,205
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,135,000	13,666,510	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				151895-D*-7	CenterPoint Properties T Senior Note Ser	1	14,135,000	13,666,510
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,000,000	12,785,415	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				74986B-BB-6	RREEF America REIT II, I Senior Unsecured Notes	1	15,000,000	12,785,415
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,000,000	16,000,000	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				18685E-AC-6	Cliffwater Corporate Lending Fund - Senior Secured Revolving Credit Facility	1	16,000,000	16,000,000
57629*FC0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	215,000,000	50,316,575	(17,871,810)	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared	66,526	(68,121,859)		50079B-MS-5	KREF Lending VII LLC - Term Loan Series 2019-7	1	50,250,049	50,250,049
57629*FC0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		24,300,000	23,866,415	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				70470M-AC-9	Peace Park CLO Ltd-PCEPK 2021-1A A	1	24,300,000	23,866,415
57629*FC0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		22,000,000	21,067,684	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				97315T-AE-2	THL Credit Wind River 20-WINDR 2017-1A BR	1	22,000,000	21,067,684
57629*FC0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		35,943,434	35,900,115	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				87246M-AS-1	TICP CLO VI 2016-2 Ltd-TICP 2016-6A AR2	1	35,943,434	35,900,115
57629*FC0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		21,000,000	20,585,796	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				55821C-AC-8	Atrium IX-ATRM 9A BR2	1	21,000,000	20,585,796
57629*FC0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		24,000,000	23,628,528	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				38137Y-AQ-4	Goldentree Loan Managem-SERIES 19-4A CLASS AJR	1	24,000,000	23,628,528

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*FC0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,900,000	8,803,533	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				87271L-AJ-1	TIAA CLO I Ltd-TIA 2016-1A AR	1	8,900,000	8,803,533
57629*FC0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		27,000,000	26,774,415	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				33883G-AA-5	Flatiron CLO 18 Ltd-FLAT 2018-1A A	1	27,000,000	26,774,415
57629*FC0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,100,000	7,994,303	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				42086P-AC-7	Kingsland Ltd-SERIES 18-8A CLASS A	1	8,100,000	7,994,303
57629*FC0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		19,927,603	20,376,924	08/21/2023	02/20/2050	SOFR Replacement Swap - CME cleared				60040#-AB-8	Millennium Pipeline Comp Senior Secured	1	19,927,603	20,376,924
57629*EV9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	250,000,000	51,593,536	(35,859,345)	08/25/2023	02/25/2050	SOFR Replacement Swap - CME cleared	93,536	(84,085,902)		G5791#-AA-9	Manchester United Football Club, Ltd Senior Secu	1	51,500,000	48,226,557
57629*EV9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		189,999,995	169,430,410	08/25/2023	02/25/2050	SOFR Replacement Swap - CME cleared				57542Z-A9-8	MM Investment Holding Revolver Fixed Line	2	189,999,995	169,430,410
57629*EV9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		39,500,000	36,158,221	08/25/2023	02/25/2050	SOFR Replacement Swap - CME cleared				Q8396#-AK-7	Victoria Power Networks Gtd Senior Note	1	39,500,000	36,158,221
57629*EV9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		24,238,127	23,511,483	08/25/2023	02/25/2050	SOFR Replacement Swap - CME cleared				04351L-AA-8	Ascension Health-UNSECURED BOND	1	24,238,127	23,511,483
57629*EV9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		26,401,563	25,217,374	08/25/2023	02/25/2050	SOFR Replacement Swap - CME cleared				46247#-AA-2	Iowa Interstate Railroad Senior Secured	1	26,401,563	25,217,374
57629*EZO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	250,000,000	37,993,421	(48,116,039)	08/25/2023	02/25/2050	SOFR Replacement Swap - CME cleared	93,421	(83,571,224)		Q3920#-AL-3	Fonterra Co-operative Gr Senior Unsecured Notes	1	37,900,000	35,455,185
57629*EZO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		30,200,000	30,152,495	08/25/2023	02/25/2050	SOFR Replacement Swap - CME cleared				23325P-A*-5	DNP Select Income Fund I Senior Secured	1	30,200,000	30,152,495
57629*EZO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		36,150,000	37,397,320	08/25/2023	02/25/2050	SOFR Replacement Swap - CME cleared				Q3535#-AD-8	Envestra Victoria Pty Lt Senior Secured	1	36,150,000	37,397,320
57629*EZO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		39,000,000	36,648,534	08/25/2023	02/25/2050	SOFR Replacement Swap - CME cleared				74986#-AV-3	PRREF AMERICA REIT II INC SR UNSECD NT SER D	1	39,000,000	36,648,534
57629*EZO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		38,250,000	35,655,579	08/25/2023	02/25/2050	SOFR Replacement Swap - CME cleared				Q3920#-AG-4	Fonterra Co-operative Gr Senior Note	1	38,250,000	35,655,579
57629*EZO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		31,037,159	26,363,586	08/25/2023	02/25/2050	SOFR Replacement Swap - CME cleared				873050-OM-1	TTX CO-SENIOR UNSECURED	1	31,037,159	26,363,586
57629*EZO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		736,011	705,794	08/25/2023	02/25/2050	SOFR Replacement Swap - CME cleared				483268-BW-5	KEYCORP STUDENT LOAN TRU-SERIES 2004-A CLASS 1B	1	736,011	705,794
57629*EZO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,900,000	7,648,148	08/25/2023	02/25/2050	SOFR Replacement Swap - CME cleared				92916Q-AC-6	VOYA CLO 2017-4 LTD-SERIES 17-4A CLASS B	1	7,900,000	7,648,148
57629*EZO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,050,000	6,739,899	08/25/2023	02/25/2050	SOFR Replacement Swap - CME cleared				04016P-AN-8	Ares XLIII CLO Ltd-SERIES 2017-43A CLASS CR	1	7,050,000	6,739,899
57629*EZO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,000,000	6,871,347	08/25/2023	02/25/2050	SOFR Replacement Swap - CME cleared				14315R-AE-1	Carlyle Global Market St-SERIES 18-4A CLASS A2	1	7,000,000	6,871,347
57629*EZO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		45,500,000	42,816,592	08/25/2023	02/25/2050	SOFR Replacement Swap - CME cleared				27889#-AM-1	ECOM Atlantic Inc - Guaranteed Series A Senior Note	1	45,500,000	42,816,592
57629*FDB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	250,000,000	38,997,452	(53,822,703)	08/29/2023	02/26/2050	SOFR Replacement Swap - CME cleared	97,452	(88,528,077)		Q6235#-AN-2	Mirvac Group Finance Ltd Senior Note	1	38,900,000	34,705,374
57629*FDB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		31,950,000	30,190,801	08/29/2023	02/26/2050	SOFR Replacement Swap - CME cleared				74979U-AA-3	RS 2018 Private, LLC Senior Secured	1	31,950,000	30,190,801
57629*FDB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		35,600,000	35,009,040	08/29/2023	02/26/2050	SOFR Replacement Swap - CME cleared				05565E-G8-8	BMW U.S. Capital LLC Gtd Senior Note	1	35,600,000	35,009,040
57629*FDB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		38,150,000	34,355,525	08/29/2023	02/26/2050	SOFR Replacement Swap - CME cleared				Q3189#-AC-3	DEXUS Funds Management L Senior Note Ser	1	38,150,000	34,355,525
57629*FDB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		60,000,000	60,000,000	08/29/2023	02/26/2050	SOFR Replacement Swap - CME cleared				515095-MM-6	Landmark Equity Partners XVI-D, LLC	1	60,000,000	60,000,000
57629*FDB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		31,100,000	29,052,656	08/29/2023	02/26/2050	SOFR Replacement Swap - CME cleared				74264*-AC-0	PRISA LHC Senior Note Ser	1	31,100,000	29,052,656
57629*FDB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,000,000	15,623,504	08/29/2023	02/26/2050	SOFR Replacement Swap - CME cleared				65023P-AQ-3	Newark BSL CLO 2 Ltd-NBCLO 2017-1A A2R	1	16,000,000	15,623,504
57629*FDB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,850,000	9,664,396	08/29/2023	02/26/2050	SOFR Replacement Swap - CME cleared				48254H-AC-8	KKR CLO 32 Ltd-KKR 32A B	1	9,850,000	9,664,396

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*FD8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,300,000	8,131,767	08/29/2023	02/26/2050	SOFR Replacement Swap - CME cleared				290020-AC-3	Elmwood CLO VII Ltd-ELMW7 2020-4A B	1	8,300,000	8,131,767
57629*FD8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,125,000	4,912,200	08/29/2023	02/26/2050	SOFR Replacement Swap - CME cleared				05683H-AS-4	Bain Capital Credit CLO -BCC 2017-2A CR2	1	5,125,000	4,912,200
57629*FD8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,100,000	5,037,943	08/29/2023	02/26/2050	SOFR Replacement Swap - CME cleared				06760B-AJ-1	BABSON CLO LTD-SERIES 17-1A CLASS C	1	5,100,000	5,037,943
57629*FD8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		39,500,000	38,247,534	08/29/2023	02/26/2050	SOFR Replacement Swap - CME cleared				62037*-AA-4	Chanel Limited Senior Note Series A	1	39,500,000	38,247,534
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	250,000,000	50,082,245	(60,887,629)	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared	82,245	(109,961,579)		143133-AA-4	CGMS 2021-6A A1	1	50,000,000	49,073,950
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		50,000,000	49,227,400	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				82670Q-AA-7	Signal Peak CLO 9 Ltd-SPEAK 2021-9A A1	1	50,000,000	49,227,400
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,100,000	12,884,073	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				03766G-AQ-5	Apidos CLO XXVI-APID 2017-26A A2R	1	13,100,000	12,884,073
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		60,552,659	59,743,699	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				25255D-AA-8	Diameter Capital CLO 1 L-DQLO 2021-1A A1A	1	60,552,659	59,743,699
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,600,000	13,049,826	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				97316L-AC-2	THL Credit Wind River 20-WINDR 2017-3A BR	1	13,600,000	13,049,826
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,525,000	11,241,554	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				48252U-AJ-6	KKR CLO 25 Ltd-SERIES 25 CLASS BR	1	11,525,000	11,241,554
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,000,000	10,616,474	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				06759J-AS-7	Barings CLO Ltd 2019-I-SERIES 2019-1A CLASS BR	1	11,000,000	10,616,474
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,200,000	9,002,080	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				39809G-AC-9	GREYWOLF CLO VI Ltd-GWOLF 2018-1A A2	1	9,200,000	9,002,080
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,650,000	8,413,033	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				67400F-AE-1	QAKTREE CLO 2018-1 LTD SR SEC2 NT CL A-2	1	8,650,000	8,413,033
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,171,510	8,223,540	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				124166-AA-7	Buttermilk Park CLO Ltd-BMILK 2018-1A A1	1	8,171,510	8,223,540
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,000,000	10,664,038	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				13875M-AC-0	Canyon CLO 2021-3 Ltd-CANYC 2021-3A B	1	11,000,000	10,664,038
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,200,000	7,058,398	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				06759M-AE-1	Babson CLO Ltd 2016-I-BABSN 2016-1A A2R	1	7,200,000	7,058,398
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,900,000	6,757,563	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				67110U-AN-9	QHA Loan Funding 2016-1 -QHAF 2016-1A B1R	1	6,900,000	6,757,563
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,700,000	6,551,220	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				87249C-AC-5	TICP CLO X LTD-SERIES 18-10A CLASS B	1	6,700,000	6,551,220
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		25,000,000	25,000,000	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				12499#-MM-8	CCOF Onshore Co-Borrower Revolving Loan	1	25,000,000	25,000,000
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,040,734	6,137,498	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				87250R-AA-2	TICP CLO XV Ltd-TICP 2020-15A A .. Elmwood CLO IV Ltd-ELMW4 2020-1A B	1	6,040,734	6,137,498
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,800,000	5,675,636	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				29002G-AC-5	Rockford Tower CLO 2017-2 Ltd	1	5,800,000	5,675,636
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,750,000	5,656,436	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				77340G-AL-5	LCM 26 Ltd-SERIES 26A CLASS C	1	5,750,000	5,656,436
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,650,000	5,323,357	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				50200F-AG-4	LCM 26 Ltd-SERIES 26A CLASS C	1	5,650,000	5,323,357
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,250,000	5,193,773	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				12555X-AG-6	CIFC Funding Ltd-CIFC 2019-6A C .. TOM Direct Lending Structured Solutions 2019 LLC - Class A Note	1	5,250,000	5,193,773
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,236,842	14,219,758	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				87241F-AA-0	PRISA LHC, LLC Senior Note Series C	1	14,236,842	14,219,758
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		21,500,000	19,677,080	09/15/2023	06/15/2050	SOFR Replacement Swap - CME cleared				74264*-AE-6	Caterpillar Inc-SENIOR UNSECURED	1	21,500,000	19,677,080
57629*FE6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	300,000,000	56,543,813	(88,764,744)	09/29/2023	06/29/2050	SOFR Replacement Swap - CME cleared	100,469	(133,073,532)		149123-CJ-8	UnitedHealth Group Inc-SENIOR UNSECURED	1	56,443,344	44,308,788
57629*FE6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		50,515,126	34,904,341	09/29/2023	06/29/2050	SOFR Replacement Swap - CME cleared				91324P-EA-6	UnitedHealth Group Inc-SENIOR UNSECURED	1	50,515,126	34,904,341

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*FE6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		46,540,855	33,623,304	09/29/2023	06/29/2050	SOFR Replacement Swap - CME cleared				143499-AB-7	Carnegie Institution of UNSECURED	1	46,540,855	33,623,304
57629*FE6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		44,770,918	35,348,786	09/29/2023	06/29/2050	SOFR Replacement Swap - CME cleared				355611-AA-2	Fred Hutchinson Cancer R-UNSECURED	1	44,770,918	35,348,786
57629*FE6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,894,327	10,820,746	09/29/2023	06/29/2050	SOFR Replacement Swap - CME cleared				29157T-AD-8	Emory University-UNSECURED	1	12,894,327	10,820,746
57629*FE6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		86,000,000	86,000,000	09/29/2023	06/29/2050	SOFR Replacement Swap - CME cleared				515095-MM-6	Landmark Equity Partners XVI-D, LLC	1	86,000,000	86,000,000
57629*FE6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,700,000	6,462,706	09/29/2023	06/29/2050	SOFR Replacement Swap - CME cleared				14315D-AC-6	Carlyle Global Market St-CGMS 2021-3SA A2	1	6,700,000	6,462,706
57629*FE6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		25,904,032	17,970,702	09/29/2023	06/29/2050	SOFR Replacement Swap - CME cleared				26442T-AH-0	Duke University-UNSECURED	1	25,904,032	17,970,702
57629*FE6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		25,637,453	18,472,998	09/29/2023	06/29/2050	SOFR Replacement Swap - CME cleared				06654D-AC-1	Banner Health-UNSECURED	1	25,637,453	18,472,998
57629*FE6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,750,000	11,383,330	09/29/2023	06/29/2050	SOFR Replacement Swap - CME cleared				50200F-AE-9	LOM 26 Ltd-SERIES 26A CLASS B	1	11,750,000	11,383,330
57629*FE6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,600,000	11,396,524	09/29/2023	06/29/2050	SOFR Replacement Swap - CME cleared				64130H-AN-1	Neuberger Berman Loan Ad-NEUB 2017-24A BR FLOATING	1	11,600,000	11,396,524
57629*FE6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,325,000	10,037,748	09/29/2023	06/29/2050	SOFR Replacement Swap - CME cleared				05683E-AQ-5	Bain Capital Credit CLO -BCC 2020-2A BR	1	10,325,000	10,037,748
57629*FE6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		41,823,662	38,249,453	09/29/2023	06/29/2050	SOFR Replacement Swap - CME cleared				44919*-AC-2	1 595 Express, LLC Senior Secured CSLB Holdings, Inc. Gtd Senior Note	1	41,823,662	38,249,453
57629*HD6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	124,464,783	16,600,000	(448,514)	07/13/2022	07/13/2023	TRS Bond Index		(16,322,164)		12656*-AD-4	CSLB Holdings, Inc. Gtd Senior Note	1	16,600,000	15,873,650
57629*HD6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,500,000	16,349,421	07/13/2022	07/13/2023	TRS Bond Index				12656*-AC-6	CSLB Holdings, Inc. Gtd Senior Note	1	16,500,000	16,349,421
57629*HD6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,500,000	15,670,776	07/13/2022	07/13/2023	TRS Bond Index				09194@-AC-1	Transpower New Zealand L Senior Note Ser	1	16,500,000	15,670,776
57629*HD6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,450,000	15,865,943	07/13/2022	07/13/2023	TRS Bond Index				674003-A*-9	Oaktree Capital Managemen Senior Note Ser	1	16,450,000	15,865,943
57629*HD6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,155,000	7,491,061	07/13/2022	07/13/2023	TRS Bond Index				02379*-AA-7	American Airlines Group Senior Secured Notes Class A	1	8,155,000	7,491,061
57629*HD6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		37,500,000	33,743,715	07/13/2022	07/13/2023	TRS Bond Index				91412N-AK-6	University of Chicago/Th-UNSECURED BOND	1	37,500,000	33,743,715
57629*HD6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,250,000	13,805,543	07/13/2022	07/13/2023	TRS Bond Index				486606-K#-2	KAYNE ANDERSON MLP INVT CO-SR UNSECC SER KK	1	14,250,000	13,805,543
57629*HD6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,000,000	14,812,155	07/13/2022	07/13/2023	TRS Bond Index				05616B-A*-1	BABSON CAPITAL PARTN INWS TR-SR CONV NT	2	15,000,000	14,812,155
57629*HD6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,500,000	12,193,079	07/13/2022	07/13/2023	TRS Bond Index				74170*-AN-9	Prime Property Fund LLC Senior Note Ser	1	13,500,000	12,193,079
57629*HD6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,900,000	10,912,978	07/13/2022	07/13/2023	TRS Bond Index				73020*-AK-9	PNG Companies LLC Senior Secured Austin Powder Holdings C Senior Note Ser	1	11,900,000	10,912,978
57629*HD6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,730,000	13,220,713	07/13/2022	07/13/2023	TRS Bond Index				05237*-AH-7	Oaktree Capital Managemen Senior Note Ser	2	13,730,000	13,220,713
57629*HD6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,325,000	13,383,418	07/13/2022	07/13/2023	TRS Bond Index				674003-A#-7	Oaktree Capital Managemen Senior Note Ser	1	14,325,000	13,383,418
57629*HD6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,175,000	7,011,970	07/13/2022	07/13/2023	TRS Bond Index				033291-AN-5	Anchorage Capital Clo 13-ANHC 2019-13A B1R	1	7,175,000	7,011,970
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		200,000,000	23,074,170	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared		74,170	(82,768,187)	41242*-AY-8	Hardwood Funding LLC Senior Secured	1	23,000,000	21,101,396
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		22,190,000	20,314,235	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				Q7795#-AA-0	QIC Finance (Shopping Ce Gtd Senior Note	1	22,190,000	20,314,235
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,700,000	7,478,933	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				949723-AC-4	Wellman Park CLO Ltd-SERIES 21-1A CLASS B	1	7,700,000	7,478,933
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,694,924	8,005,086	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				02376*-AA-0	American Airlines Group Senior Secured	1	8,694,924	8,005,086
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		21,600,000	20,954,290	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				05237*-AF-1	Austin Powder Holdings C Senior Note Ser	2	21,600,000	20,954,290

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		18,600,000	17,762,219	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				G2044#-BA-2	Compass Group PLC Senior Note Ser WINGS Aviation 62696 USD Tranche A-1 Ln	1	18,600,000	17,762,219
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,236,091	13,885,426	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				929287-ZZ-6	CSLB Holdings, Inc. Gtd Senior Note	1	15,236,091	13,885,426
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,400,000	18,683,156	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				12656*-AK-8	YORKSHIRE WTR SERV BRADFORD-GTD SR SEC CL A	1	20,400,000	18,683,156
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		21,100,000	20,851,252	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				G9850#-AC-7	LOM LTD PARTNERSHIP-SERIES 15A CLASS CR	1	21,100,000	20,851,252
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,950,000	8,637,654	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				50184N-AP-7	Cargill Inc-SENIOR UNSECURED	1	8,950,000	8,637,654
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		28,014,931	23,212,019	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				141781-BJ-2	Goldentree Loan Manage-GLM 2017-1A B1R2	1	28,014,931	23,212,019
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,500,000	8,221,506	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				38136F-BJ-1	Voya CLO 2018-4 Ltd-SERIES 18-4A CLASS BR	1	8,500,000	8,221,506
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,550,000	7,279,212	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				92917W-AY-4	Bain Capital Credit CLO-BCC 2021-2A B	1	7,550,000	7,279,212
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,850,000	13,402,160	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				05684R-AE-2	KKR CLO 36 Ltd-KKR 36A B	1	13,850,000	13,402,160
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,700,000	13,279,506	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				48255A-AC-2	Benefit Street Partners -BSP 2019-17A BR	1	13,700,000	13,279,506
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,500,000	5,390,468	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				08182B-AN-8	Prime Property Fund LLC Senior Note Series U	1	5,500,000	5,390,468
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		17,900,000	15,777,740	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				74170*-AW-9	Landmark Equity Partners XVI-D, LLC	1	17,900,000	15,777,740
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		22,000,000	22,000,000	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				515095-MM-6	Prime Property Fund LLC Senior Note Ser	1	22,000,000	22,000,000
57629*FLO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	200,000,000	18,824,142	(64,641,549)	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared	74,142	(82,646,724)		74170*-AC-3	Major League Baseball Tr Series 44 Term Note	1	18,750,000	18,005,175
57629*FLO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,100,000	19,217,329	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				56081#-CA-6	Compass Group PLC Senior Note Ser Hardwood Funding LLC Senior Note Ser	1	20,100,000	19,217,329
57629*FLO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,450,000	20,326,482	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				G2044#-AY-1	GI Manager L.P. Senior Secured Notes	1	20,450,000	20,326,482
57629*FLO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		18,700,000	17,389,392	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				41242*-AU-6	Hardwood Funding LLC Senior Secured Notes	1	18,700,000	17,389,392
57629*FLO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		19,315,000	18,377,044	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				36198*-AA-4	Hardwood Funding LLC Senior Secured Notes	1	19,315,000	18,377,044
57629*FLO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		17,700,000	16,747,457	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				41242*-AX-0	Oncor Electric Delivery SR SECD NT SER B	1	17,700,000	16,747,457
57629*FLO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,900,000	15,182,846	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				68233J-A#-3	WAL-MART STORES INC-SENIOR NOTE	1	15,900,000	15,182,846
57629*FLO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		78,293,697	83,563,345	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				931142-CS-0	Golub Capital Partners C-GOCAP 2015-26A A2R	1	78,293,697	83,563,345
57629*FLO	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		27,700,000	27,053,399	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				38176D-AJ-8	AEP Transmission Company Senior Note Ser	1	27,700,000	27,053,399
57629*FM8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	200,000,000	24,074,194	(59,857,185)	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared	74,194	(82,872,297)		00114*-AR-4	Howard De Walden Estates Gtd Senior Note	1	24,000,000	23,015,112
57629*FM8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		25,700,000	25,002,117	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				G4622#-AB-5	Associated British Foods Senior Note Ser	1	25,700,000	25,002,117
57629*FM8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		24,750,000	24,268,910	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				G0646#-AN-9	Mars, Inc. Senior Note Ser	1	24,750,000	24,268,910
57629*FM8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		23,900,000	22,283,046	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				57169*-AU-1	Mirvac Group Finance Ltd Gtd Senior Note	1	23,900,000	22,283,046
57629*FM8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		21,750,000	21,084,233	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				Q6235#-AF-9	Donaldson Co Inc Senior Note Ser	1	21,750,000	21,084,233
57629*FM8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,150,000	19,732,411	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				25763#-AE-0		1	20,150,000	19,732,411

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*FM8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		135,999,996	121,276,504	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				57542Z-A9-8	MM Investment Holding Revolver Fixed Line	2	135,999,996	121,276,504
57629*FM8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,000,000	12,864,033	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				48250W-A0-0	KKR CLO 14 Ltd-KKR 14 AR	1	13,000,000	12,864,033
57629*FN6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		150,000,000	(54,202,286)	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared	55,580	(61,867,918)		74170*-AR-0	Prime Property Fund LLC Senior Note Ser	1	8,500,000	7,665,632
57629*FN6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,200,000	9,163,862	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				61108#-AF-5	British Land Company PLC Senior Note Ser	1	9,200,000	9,163,862
57629*FN6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,500,000	7,884,600	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				41242*-BF-8	Hardwood Funding LLC Senior Secured	1	8,500,000	7,884,600
57629*FN6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,200,000	7,870,081	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				479142-E8-6	Johnson Matthey PLC Series A Senior Notes	1	8,200,000	7,870,081
57629*FN6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,850,001	3,792,020	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				838515-F8-8	South Jersey Gas Co. Medium Term Not	1	3,850,001	3,792,020
57629*FN6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,386,855	7,008,662	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				184692-B#-7	Clearbridge Energy MLP Fd Inc-Senior Secured	1	7,386,855	7,008,662
57629*FN6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,725,488	4,236,155	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				05389L-AK-9	Avolon Aerospace Leasing Secured Note B7	1	4,725,488	4,236,155
57629*FN6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,375,055	5,323,395	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				C1466#-AA-6	OPR Leasing Ltd Senior Secured	2	5,375,055	5,323,395
57629*FN6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,950,000	6,809,033	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				92203#-AR-9	Vanguard Group, Inc. Senior Notes Series D	1	6,950,000	6,809,033
57629*FN6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,450,000	4,184,348	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				04018E-AE-1	Ares LIX CLO Ltd-ARES 2021-59A C1	1	4,450,000	4,184,348
57629*FN6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,419,379	3,977,512	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				05389L-AH-6	Avolon Aerospace Leasing Secured Note B7	1	4,419,379	3,977,512
57629*FN6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		93,305,982	81,431,036	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				055451-AV-0	BHP Billiton Finance USA-SR UNSECURED	1	93,305,982	81,431,036
57629*FN6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		28,509,720	27,181,139	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				90226#-AA-3	2014 REPLACEMENT PWR STATUTORY TR SR SEC ND	1	28,509,720	27,181,139
57629*FP1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		150,000,000	(49,656,294)	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared	55,501	(61,516,544)		78403D-AR-1	SBA Tower Trust-ASSET BACKED	1	13,864,000	11,860,250
57629*FP1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,700,000	6,597,892	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				749868-AN-1	PREEF America REIT II, I Senior Note Ser	1	6,700,000	6,597,892
57629*FP1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,284,640	3,857,735	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				05389L-AA-1	Avolon Aerospace Leasing Secured Note A3	1	4,284,640	3,857,735
57629*FP1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,440,000	6,224,208	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				74170*-AD-1	Prime Property Fund LLC Senior Note Ser	1	6,440,000	6,224,208
57629*FP1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,269,205	3,841,431	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				05389L-AD-5	Avolon Aerospace Leasing Secured Note A3	1	4,269,205	3,841,431
57629*FP1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,291,496	4,840,671	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				05400F-AE-1	Avolon Aerospace Funding Senior Secured	1	5,291,496	4,840,671
57629*FP1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,275,873	4,839,289	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				05400F-AG-6	Avolon Aerospace Funding Senior Secured	1	5,275,873	4,839,289
57629*FP1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,500,805	6,317,313	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				184692-B*-1	Clearbridge Energy MLP Fd Inc-Senior Secured	1	6,500,805	6,317,313
57629*FP1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,929,603	4,511,804	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				05400F-AC-5	Avolon Aerospace Funding Senior Secured	1	4,929,603	4,511,804
57629*FP1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,200,000	5,537,433	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				393154-L8-6	Green Mountain Power Cor First Mtg Bond	1	5,200,000	5,537,433
57629*FP1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		36,647,147	30,241,026	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				45866F-AH-7	Intercontinental Exchange-SENIOR UNSECURED	1	36,647,147	30,241,026
57629*FP1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,000,000	19,692,120	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				55819D-AE-6	Madison Park Funding XXX-MDPK 2018-31A A2A	1	20,000,000	19,692,120
57629*FP1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		106,999,997	95,416,073	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				57542Z-A9-8	MM Investment Holding Revolver Fixed Line	2	106,999,997	95,416,073

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1	2	3	4	5	6	7	8	Derivative Instrument(s) Open			Cash Instrument(s) Held				
Number	Description	NAIC Designation or Other Description	Notional Amount	Book/Adjusted Carrying Value	Fair Value	Effective Date	Maturity Date	9	10	11	12	13	14	15	16
								Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	150,000,000	6,555,510	(55,108,379)	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared	55,510	(61,555,586)	90312*-AC-8	UNR Gas, Inc. Gtd Senior Note	1	6,500,000	6,447,207
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,830,503	3,798,385	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			63080#-AA-5	NARA Caves Lease Trust Lease Backed Ce	1	3,830,503	3,798,385
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,400,000	5,098,199	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			479142-E#-4	Johnson Matthey PLC Series B Senior Notes	1	5,400,000	5,098,199
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,084,273	3,725,225	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			05400F-AA-9	Avolon Aerospace Funding Senior Secured	1	4,084,273	3,725,225
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		419,773	414,355	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			05577#-AN-0	BTMU Capital Corp. Equipment Note	1	419,773	414,355
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		18,986,029	19,344,534	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			06761T-AG-7	Barings Middle Market CI-BMM 2019-1A B	1	18,986,029	19,344,534
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,066,449	4,204,961	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			589331-AD-9	MERCK SHARP & DOHME CORP-DEBENTURE	1	4,066,449	4,204,961
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		929,154	890,435	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			05348E-AW-9	AVALONBAY COMMUNITIES IN-SR UNSECURED	1	929,154	890,435
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,500,000	4,098,578	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			74264*-AD-8	PRISA LHC LLC-SENIOR NOTE SER B	1	4,500,000	4,098,578
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,145,615	4,721,896	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			89236T-DR-3	Toyota Motor Credit Corp-SENIOR UNSECURED	1	5,145,615	4,721,896
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,870,527	3,709,238	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			18468P-A#-7	Clearbridge Energy MLP Op Fd Inc-Senior Secured	1	3,870,527	3,709,238
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,891,120	10,619,548	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			74980X-AC-0	ALM Ltd/KY-RRAM 2021-15A A2	1	10,891,120	10,619,548
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,767,648	3,605,055	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			18468Q-A#-5	Clearbridge Energy MLP Fd Inc-Senior Secured	1	3,767,648	3,605,055
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,250,000	8,666,020	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			64131T-AS-3	Neuberger Berman CLO XVI-SERIES 2017 CALSS 16SA	1	9,250,000	8,666,020
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		752,043	750,000	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			84519#-AF-1	Southwest Power Pool, In Senior Note Ser	1	752,043	750,000
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		50,000,000	49,220,700	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			03329F-AN-4	Anchorage Capital CLO 15-ANCHC 2020-15A AR	1	50,000,000	49,220,700
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		21,000,000	20,499,843	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			97316D-AA-4	Wind River CLO Ltd-WINDR 2021-3A A	1	21,000,000	20,499,843
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,425,000	6,251,416	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			08180X-AQ-5	Benefit Street Partners -BSP 2015-8A A1BR	1	6,425,000	6,251,416
57629*F09	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,450,000	2,336,092	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared			04018X-AG-4	ARES CLO-ARES 2021-ALFA C	1	2,450,000	2,336,092
57629*FT3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	300,000,000	25,087,633	(115,634,304)	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared	116,110	(142,559,374)	244199-AW-5	Deere & Co-BOND	1	24,971,523	26,925,070
57629*FT3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		21,465,000	37,203,705	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared			ZZ2066-36-8	AUST & NZ BANKING GROUP-SUBORDINATED NOTE	1	21,465,000	37,203,705
57629*FT3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		41,829,862	41,888,931	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared			873050-CB-5	TTX CO-UNSECURED NOTE	1	41,829,862	41,888,931
57629*FT3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		36,103,664	35,777,302	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared			594918-CB-8	MICROSOFT CORP-SENIOR UNSECURED	1	36,103,664	35,777,302
57629*FT3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		137,343,949	137,343,949	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared			50079#-MW-6	KREF Lending VII LLC - Term Loan Series 2022-11	1	137,343,949	137,343,949
57629*FT3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		50,375,000	50,375,000	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared			69324Z-MQ-1	PORED II HOLDING I LLC, PORED II HOLDING I OFFSHORE LP and PORED II HOLDCO ARGUS S.A R.L., -Term Loan Series 2022-4	1	50,375,000	50,375,000
57629*FT3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		69,519,000	68,711,745	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared			46655H-AB-9	JCP Direct Lending CLO 2-JCPDL 2022-11 A	1	69,519,000	68,711,745
57629*FT3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		64,000,000	59,723,840	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared			18685#-AA-0	Cliffwater Corporate Len Senior Secured Notes	1	64,000,000	59,723,840

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*FT3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,000,000	11,000,000	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared				515095-1M-6	Landmark Equity Partners XVI-D, LLC	1	11,000,000	11,000,000
57629*FU0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	150,000,000	13,855,478	(58,761,223)	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared	58,170	(71,789,623)		662325-B8-7	North Shore Gas Co. First Mtg Bond	1	13,797,308	13,028,400
57629*FU0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,300,000	12,795,744	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared				G1108H-AG-3	British Land Company PLC Senior Note Ser	1	13,300,000	12,795,744
57629*FU0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,400,000	11,510,064	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared				720186-F*-1	Piedmont Natural Gas Co. Senior Note Ser	2	12,400,000	11,510,064
57629*FU0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,600,000	11,059,162	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared				41242*-AT-9	Hardwood Funding LLC Senior Note Ser	1	11,600,000	11,059,162
57629*FU0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,042,308	11,004,444	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared				48661E-C8-5	Kayne Anderson Midstream SER H SR UNSECD NT	1	11,042,308	11,004,444
57629*FU0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,534,615	9,982,918	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared				48661E-C8-3	Kayne Anderson Midstream SER I SR UNSECD NT	1	10,534,615	9,982,918
57629*FU0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,250,000	10,572,986	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared				151515-XX-6	Bridge Investment Group Senior Secured Notes	1	11,250,000	10,572,986
57629*FU0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,925,000	9,277,999	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared				74170*-AE-9	Prime Property Fund LLC Senior Note Ser	1	9,925,000	9,277,999
57629*FU0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,639,430	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared				57169*-AT-4	Mars, Inc. Senior Note Ser	1	10,000,000	9,639,430
57629*FU0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,600,000	8,431,388	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared				05237*-AG-9	Austin Powder Holdings C Senior Note Ser	2	8,600,000	8,431,388
57629*FU0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		105,999,997	94,524,334	07/14/2023	07/14/2050	SOFR Replacement Swap - CME cleared				575422-A9-8	MM Investment Holding Revolver Fixed Line	2	105,999,997	94,524,334
57629*FK2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	250,000,000	119,424,380	16,044,982	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared	92,673	(103,286,715)		117028-AA-4	Brunswick Asset Financing LLC - Term A Loan	1	119,331,707	119,331,707
57629*FK2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		61,000,000	61,000,000	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				515095-1M-6	Landmark Equity Partners XVI-D, LLC	1	61,000,000	61,000,000
57629*FK2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		30,000,000	27,389,490	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				576292-YY-6	Barings Corporate Invest Convertible Not	1	30,000,000	27,389,490
57629*FK2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		26,500,000	25,331,933	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				68233J-A*-5	Oncor Electric Delivery & Senior Secured	1	26,500,000	25,331,933
57629*FK2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,200,000	12,028,210	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				Q1297#-AK-4	CSL Finance Pty Ltd Gtd Senior Note	1	13,200,000	12,028,210
57629*FK2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		41,507,541	41,843,748	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				20030N-AM-3	Comcast Corp-NOTE	1	41,507,541	41,843,748
57629*FK2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,045,000	1,995,155	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				056162-AQ-3	Babson CLO Ltd 2015-I-BABSN 2015-IA BR	1	2,045,000	1,995,155
57629*FK2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		18,900,000	16,920,168	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				03464A-A*-1	Angel Oak Financial Stra Senior Note Series A	1	18,900,000	16,920,168
57629*FK2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,376,000	15,499,245	09/05/2023	09/02/2050	SOFR Replacement Swap - CME cleared				05707#-AA-9	Baird Financial Corporat Senior Secured Notes	1	16,376,000	15,499,245
57629*HL8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	200,000,000	263,072,172	171,920,025	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared	72,180	(62,607,332)		575422-A9-8	MM Investment Holding Revolver Fixed Line	2	262,999,992	234,527,357
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	150,000,000	6,704,251	(41,021,891)	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared	54,251	(47,491,357)		55954Y-AL-9	Magnetite XXVI Ltd-MAGNE 2020-26A BR	1	6,650,000	6,469,466
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,550,000	6,248,418	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				00190Y-BH-7	Ares XXVII CLO Ltd-ARES 2013-2A CR2	1	6,550,000	6,248,418
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,400,000	6,157,946	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				278300-AN-8	Eaton Vance CLO 2020-1 L-EATON 2020-1A CR	1	6,400,000	6,157,946
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,400,000	6,171,968	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				143133-AG-1	CGMS 2021-6A C	1	6,400,000	6,171,968
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,400,000	6,103,469	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				87168B-AG-5	SYMP 2021-28A C-SYMP 2021-28A C	1	6,400,000	6,103,469
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,400,000	6,163,034	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				12565E-AE-1	CIFC Funding Ltd-CIFC 2021-5A C	1	6,400,000	6,163,034

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,400,000	5,980,998	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				97316J-AG-8	THL Credit Wind River 20-WINDR 2019-1A CR	1	6,400,000	5,980,998
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,400,000	6,008,685	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				05685A-AJ-7	Bain Capital Credit CLO-BCC 2021-4A	1	6,400,000	6,008,685
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,400,000	6,105,107	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				38136N-AU-0	Goldentree Loan Manage-GLM 2020-8A CR	1	6,400,000	6,105,107
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,100,000	5,821,803	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				00900L-AS-3	AIMCO CLO Series 2015-A- AIMCO 2015-AA CR2	1	6,100,000	5,821,803
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,050,000	5,871,023	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				05685A-AG-3	Bain Capital Credit CLO-BCC 2021-4A B	1	6,050,000	5,871,023
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,050,000	5,884,902	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				00119V-AQ-2	AGL CLO 6 LTD-AGL 2020-6A BR	1	6,050,000	5,884,902
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,700,000	5,522,274	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				13887T-AN-7	Canyon Capital CLO 2019-CANVC 2019-1A BR	1	5,700,000	5,522,274
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,650,000	5,476,381	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				670881-AP-6	OCF CLO 2020-19 Ltd-OCF 2020-19A BR	1	5,650,000	5,476,381
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,625,000	5,447,604	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				03766G-AS-1	Apidos CLO XXVI-APID 2017-26A BR	1	5,625,000	5,447,604
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,300,000	5,169,048	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				48253U-AC-0	KKR-SERIES 34A CLASS B	1	5,300,000	5,169,048
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,300,000	5,101,022	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				09627F-AQ-3	BlueMountain CLO XXV Ltd-BLUEM 2019-25A BR	1	5,300,000	5,101,022
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,150,000	4,918,044	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				95023A-AC-4	Wellfleet CLO Ltd-WELF 2021-2A B	1	5,150,000	4,918,044
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,125,000	4,877,601	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				14317Y-AG-9	Carlyle Global Market St-SERIES 21-5A CLASS C	1	5,125,000	4,877,601
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,650,000	4,557,200	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				48661A-AL-0	KAYNE CLO I Ltd-KAYNE 2018-1A BR	1	4,650,000	4,557,200
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,600,000	4,399,744	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				29002V-AE-8	ELM10 2021-3A C-ELM10 2021-3A C	1	4,600,000	4,399,744
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,600,000	4,498,547	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				67110N-AP-0	OHA Credit Partners XIII-OAKC 2016-13A BR	1	4,600,000	4,498,547
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,500,000	4,282,655	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				73052V-AG-0	Point Au Roche Park CLO -PARPK 2021-1A C	1	4,500,000	4,282,655
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,500,000	4,194,522	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				83615P-AE-7	Sound Point Clo XXXI Ltd-SNDPT 2021-3A C	1	4,500,000	4,194,522
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,500,000	4,334,004	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				29002H-AQ-2	Elmwood CLO III Ltd-ELMW3 2019-3A CR	1	4,500,000	4,334,004
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,500,000	4,333,676	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				33835N-AE-1	ASSURANT CLO LTD-MORGN 2018-3A CR	1	4,500,000	4,333,676
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,500,000	4,228,317	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				97316D-AG-1	Wind River CLO Ltd-WINDR 2021-3A C	1	4,500,000	4,228,317
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,400,000	4,189,055	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				48255A-AE-8	KKR CLO 36 Ltd-KKR 36A C	1	4,400,000	4,189,055
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,300,000	4,123,304	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				12555Q-AU-0	CIFC Funding 2020-I Ltd-CIFC 2020-1A CR	1	4,300,000	4,123,304
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,943,934	8,015,874	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				48253W-AA-0	KKR CLO 28 LTD-KKR 28A	1	7,943,934	8,015,874
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,000,000	4,808,910	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				94950J-AC-5	Wellfleet CLO Ltd-SERIES 18-1A CLASS B	1	5,000,000	4,808,910
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		25,000,000	20,369,400	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				88675B-AB-3	Tiger Global Management Senior Note Series B	1	25,000,000	20,369,400
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,000,000	16,000,000	07/10/2023	07/08/2051	SOFR Replacement Swap - CME cleared				18685E-AC-6	Cliffwater Corporate Lending Fund - Senior Secured Revolving Credit Facility	1	16,000,000	16,000,000

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SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held				
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	350,000,000	48,614,386	(65,547,355)	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared	108,591	(113,826,741)	14316W-AA-7	Carlyle Global Market St-CGMS 2021-7A A1	1	48,505,795	48,279,386
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		48,500,000	47,777,496	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			12547L-AL-2	CIFC Funding 2020-II Ltd-CIFC 2020-2A AR	1	48,500,000	47,777,496
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		45,100,000	44,354,723	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			05876L-AA-1	Ballyrock CDO Ltd-BALLY 2021-17A A1A	1	45,100,000	44,354,723
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,700,000	13,312,509	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			87168B-AE-0	SYMP-SYMP 2021-28A B	1	13,700,000	13,312,509
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,700,000	13,158,398	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			97316D-AC-0	Wind River CLO Ltd-WINDR 2021-3A B1	1	13,700,000	13,158,398
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,200,000	8,931,664	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			13876G-AL-2	Canyon Capital CLO 2017-CANVC 2017-1A BR	1	9,200,000	8,931,664
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,200,000	9,006,285	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			03330N-AK-0	Anchorage Capital Clo 11-ANCHC 2019-11A BR	1	9,200,000	9,006,285
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,200,000	8,975,925	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			03328W-AU-2	Anchorage Capital CLO 9-ANCHC 2016-9A BR2	1	9,200,000	8,975,925
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,200,000	8,949,861	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			14316W-AC-3	Carlyle Global Market St-CGMS 2021-7A A2	1	9,200,000	8,949,861
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,200,000	8,919,225	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			12547L-AQ-1	CIFC Funding 2020-II Ltd-CIFC 2020-2A BR	1	9,200,000	8,919,225
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,200,000	8,902,840	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			04018X-AE-9	ARES CLO-ARES 2021-ALFA B	1	9,200,000	8,902,840
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,200,000	8,877,936	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			25255L-AC-6	Diameter Capital Clo 2 L-DCLO 2021-2A A2	1	9,200,000	8,877,936
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,200,000	8,944,433	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			12555Q-AS-5	CIFC Funding 2020-I Ltd-CIFC 2020-1A BR	1	9,200,000	8,944,433
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,200,000	8,913,898	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			48253H-AQ-8	KKR CLO 26 Ltd-KKR 26 BR	1	9,200,000	8,913,898
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,100,000	8,817,290	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			86271P-AG-0	Strata CLO II Ltd-STRTA 2021-1A C	1	9,100,000	8,817,290
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,725,000	8,471,574	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			38136N-AS-5	Goldentree Loan Managem-GLM 2020-8A BR	1	8,725,000	8,471,574
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,928,817	16,858,373	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			13876N-AN-3	Canyon CLO 2020-2 Ltd-CANVC 2020-2A BR	1	16,928,817	16,858,373
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,800,000	7,603,276	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			143133-AE-6	CGMS 2021-6A B-CGMS 2021-6A B	1	7,800,000	7,603,276
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,375,000	7,162,777	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			13877P-AC-1	CANVC-2021-4A B	1	7,375,000	7,162,777
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,300,000	6,908,333	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			13875M-AE-6	Canyon CLO 2021-3 Ltd-CANVC 2021-3A C	1	7,300,000	6,908,333
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,300,000	7,151,051	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			12551J-AN-6	CIFC Funding 2017-IV Ltd-CIFC 2017-4A A2R	1	7,300,000	7,151,051
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,200,000	6,890,544	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			97315V-AE-7	Wind River CLO Ltd-WINDR 2021-2A B	1	7,200,000	6,890,544
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,100,000	6,912,368	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			04019L-AN-4	ARES LI CLO Ltd-ARES 2019-51A BR	1	7,100,000	6,912,368
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,040,000	6,760,547	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			03328W-AW-8	Anchorage Capital CLO 9-ANCHC 2016-9A CR2	1	7,040,000	6,760,547
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,000,000	6,766,053	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			61773K-AC-6	Morgan Stanley Eaton Van-MSEV 2021-1A B	1	7,000,000	6,766,053
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,000,000	6,838,594	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			00901A-AL-1	AIMCO CLO 10 Ltd-AIMCO 2019-10A BR	1	7,000,000	6,838,594
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,800,000	6,666,917	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			03762Y-AH-0	Apidos Clo XXV-APID 2016-25A A2R	1	6,800,000	6,666,917
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,750,000	6,480,439	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared			50204A-AE-6	LCM LP-LCM 32A B	1	6,750,000	6,480,439

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Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,000,000	14,667,930	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared				48251M-AS-5	KKR CLO 15 Ltd-KKR 15 A2R	1	15,000,000	14,667,930
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,000,000	14,708,565	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared				55952Y-AR-8	Magnetite VIII Ltd-MAGNE 2014-8A BR2	1	15,000,000	14,708,565
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,500,000	9,290,003	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared				48252W-AC-7	KKR CLO LTD 22-SERIES 22A CLASS B Stonehenge OH Rural Fund II LLC	1	9,500,000	9,290,003
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,884,136	8,006,092	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared				86209*-AA-6	Series 2021B-1	1	8,884,136	8,006,092
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,223,938	7,287,094	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared				86208*-AA-3	Stonehenge Cap Fund Conn VI Series 2021B-1	1	8,223,938	7,287,094
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,666,667	6,694,667	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared				87289B-AB-0	TOP DLF VIII 2018 CLO, LLC - Class A-2 Secured Floating Rate Note	1	6,666,667	6,694,667
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,063,868	5,542,988	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared				46655H-AH-6	JCP Direct Lending CLO 2-JCPDL 2022-11 D	2	6,063,868	5,542,988
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,547,901	4,245,779	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared				46655H-AF-0	JCP Direct Lending CLO 2-JCPDL 2022-11 C	1	4,547,901	4,245,779
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,390,224	7,917,418	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared				46655H-AD-5	JCP Direct Lending CLO 2-JCPDL 2022-11 B	1	8,390,224	7,917,418
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,775,211	1,675,162	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared				86208B-AA-5	Stonehenge Capital Fund South Carolina IV, LLC Senior Structured Notes	1	1,775,211	1,675,162
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,666,667	2,721,067	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared				87289B-AD-6	TOP DLF VIII 2018 CLO, LLC - Class B Secured Floating Rate Note	1	2,666,667	2,721,067
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,222,223	2,240,890	07/10/2023	07/09/2051	SOFR Replacement Swap - CME cleared				87289B-AE-4	TOP DLF VIII 2018 CLO, LLC - Class C Secured Floating Rate Note	1	2,222,223	2,240,890
57629*HM6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2		200,000,000	268,054,070	07/12/2023	07/12/2051	SOFR Replacement Swap - CME cleared	54,078	(67,479,875)		57542Z-A9-8	MM Investment Holding Revolver Fixed Line	2	267,999,992	238,986,052
57629*HB0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		350,000,000	50,121,250	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared	121,250	(121,232,689)		83615P-AA-5	Sound Point Clo XXXI Ltd-SNDPT 2021-3A A	1	50,000,000	48,657,650
57629*HB0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		50,000,000	48,814,650	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				95023A-AA-8	Wellfleet CLO Ltd-WELF 2021-2A A1	1	50,000,000	48,814,650
57629*HB0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		50,000,000	49,112,150	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				69702E-AA-3	Palmer Square CLO Ltd-PLMRS 2021-4A A	1	50,000,000	49,112,150
57629*HB0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		50,000,000	48,745,450	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				03328J-AA-5	Anchorage Capital CLO 19-ANHC 2021-19A A	1	50,000,000	48,745,450
57629*HB0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		50,000,000	49,016,950	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				42088A-AA-2	Hayfin US XII Ltd-HAYFN 2021-14A A1	1	50,000,000	49,016,950
57629*HB0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		60,016,176	59,316,424	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				87168B-AC-4	SYMP-SYMP 2021-28A A	1	60,016,176	59,316,424
57629*HB0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		50,000,000	49,122,950	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				67110N-AM-7	OHA Credit Partners XIII-OAKC 2016-13A AR	1	50,000,000	49,122,950
57629*HB0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,312,500	13,870,673	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				70470M-AE-5	Peace Park CLO Ltd-PCEPK 2021-1A B1	1	14,312,500	13,870,673
57629*HB0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,090,000	13,721,969	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				55822A-AN-7	Madison Park Funding XLV-HDPK 2020-46A B1R	1	14,090,000	13,721,969
57629*HB0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,714,130	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				13876R-AE-4	Canyon CLO 2020-3 Ltd-CANVC 2020-3A B	1	10,000,000	9,714,130
57629*HB0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,766,980	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				69703P-AC-3	Palmer Square CLO 2018-1-PLMRS 2018-1A A2	1	10,000,000	9,766,980
57629*HB0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,654,760	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				13876X-AG-6	Canyon Capital CLO Ltd-CANVC 2021-2A B1	1	10,000,000	9,654,760
57629*HB0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,000,000	3,906,064	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				94949R-AW-7	Wellfleet CLO 2016-1 Ltd-WELF 2016-1A CR	1	4,000,000	3,906,064
57629*HB0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,904,845	3,920,676	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				25255L-AA-0	Diameter Capital Clo 2 L-DCL0 2021-2A A1	1	3,904,845	3,920,676

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SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*H0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,050,000	3,933,425	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				00120B-AE-0	AGL CLO Ltd-AGL 2021-12A B	1	4,050,000	3,933,425
57629*H0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,885,000	3,708,532	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				83012K-AE-7	SIXST-SERIES 2021-19A CLASS C	1	3,885,000	3,708,532
57629*H0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,750,000	3,658,849	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				74980Q-AE-1	ALM Ltd/KY-BRAM 2021-17A A2	1	3,750,000	3,658,849
57629*H0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,550,000	3,487,286	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				26251B-AN-6	Dryden XXVIII Senior Loa-DRSLF 2013-28A A2LR	1	3,550,000	3,487,286
57629*H0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,600,000	3,476,142	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				67110N-AT-2	QHA Credit Partners XIII-OAKC 2016-13A CR	1	3,600,000	3,476,142
57629*H0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,600,000	3,407,332	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				92918Q-AG-5	Voya CLO Ltd-VOYA 2021-1A C	1	3,600,000	3,407,332
57629*H0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,525,000	3,307,472	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				94950A-AS-9	Wellfleet CLO 2020-2 Ltd-WELF 2020-2A CR	1	3,525,000	3,307,472
57629*H0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,500,000	3,336,739	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				55821L-AE-4	Madison Park Funding XXX-MDPK 2021-39A C	1	3,500,000	3,336,739
57629*H0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,500,000	3,306,408	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				13876N-AS-2	Canyon CLO 2020-2 Ltd-CANYC 2020-2A CR	1	3,500,000	3,306,408
57629*H0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,000,000	2,852,082	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				05684A-AU-3	Bain Capital Credit Clo -BCC 2019-4A CR	1	3,000,000	2,852,082
57629*H0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,800,000	2,691,063	07/21/2023	07/21/2051	SOFR Replacement Swap - CME cleared				27829P-AS-5	Eaton Vance CLO 2020-2 L-EATON 2020-2A CR	1	2,800,000	2,691,063
57629*H4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	200,000,000	267,053,104	171,577,074	08/09/2023	08/09/2051	SOFR Replacement Swap - CME cleared	53,112	(66,517,239)	57542Z-A9-8	MM Investment Holding Revolver Fixed Line	2	266,999,992	238,094,313	
57629*H9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	300,000,000	400,079,628	257,053,356	08/09/2023	08/09/2051	SOFR Replacement Swap - CME cleared	79,639	(99,642,244)	57542Z-A9-8	MM Investment Holding Revolver Fixed Line	2	399,999,989	356,695,600	
57629*H9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	250,000,000	331,076,702	215,025,618	08/10/2023	08/10/2051	SOFR Replacement Swap - CME cleared	76,711	(80,139,991)	57542Z-A9-8	MM Investment Holding Revolver Fixed Line	2	330,999,991	295,165,609	
57629*H7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	200,000,000	265,061,345	172,270,098	08/10/2023	08/10/2051	SOFR Replacement Swap - CME cleared	61,353	(64,040,737)	57542Z-A9-8	MM Investment Holding Revolver Fixed Line	2	264,999,992	236,310,835	
57629*HJ	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	300,000,000	396,092,065	256,853,772	08/10/2023	08/10/2051	SOFR Replacement Swap - CME cleared	92,076	(96,274,872)	57542Z-A9-8	MM Investment Holding Revolver Fixed Line	2	395,999,989	353,128,644	
57629*H0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2	250,000,000	332,076,864	215,160,266	08/10/2023	08/10/2051	SOFR Replacement Swap - CME cleared	76,873	(80,897,082)	57542Z-A9-8	MM Investment Holding Revolver Fixed Line	2	331,999,991	296,057,348	
57629*LG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	200,000,000	20,371,479	(47,187,641)	08/23/2023	08/23/2051	SOFR Replacement Swap - CME cleared	52,401	(67,506,719)	482480-MM-7	KKR Eagle Asset Term Loan A PORED II HOLDING I LLC, PORED II HOLDING I OFFSHORE LP and PORED II HOLDCO ARGUS S.A R.L., -Term Loan Series 2022-3	1	20,319,078	20,319,078	
57629*LG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		41,325,000	41,325,000	08/23/2023	08/23/2051	SOFR Replacement Swap - CME cleared				69324Z-MN-3	PORED II HOLDING I LLC, PORED II HOLDING I OFFSHORE LP and PORED II HOLDCO ARGUS S.A R.L., -Term Loan Series 2022-1	1	41,325,000	41,325,000
57629*LG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		39,246,047	39,246,047	08/23/2023	08/23/2051	SOFR Replacement Swap - CME cleared				69324Z-MN-5	TOW Direct Lending Structured Solutions 2019 LLC - Class B Note	2	39,246,047	39,246,047
57629*LG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		23,728,070	23,775,526	08/23/2023	08/23/2051	SOFR Replacement Swap - CME cleared				87241F-AB-8	NXT Capital Structured Note I, LLC - Class A Secured Float Rate Revolving Loan	1	23,728,070	23,775,526
57629*LG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		26,990,789	26,990,789	08/23/2023	08/23/2051	SOFR Replacement Swap - CME cleared				67080B-MM-6	PARTNERS GROUP PRIVATE EQUITY II, LLC - Senior Secured Revolving Facility	1	26,990,789	26,990,789
57629*LG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,000,000	12,000,000	08/23/2023	08/23/2051	SOFR Replacement Swap - CME cleared				70212Z-MM-8	TREZ CAPITAL MANHATTAN BRIDGE LP - Secured Term Loan Facility - Series 2022-3	1	12,000,000	12,000,000
57629*LG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		42,267,279	42,267,279	08/23/2023	08/23/2051	SOFR Replacement Swap - CME cleared				89532Z-MN-9	Crown Castle Towers LLC-SECURED	1	42,267,279	42,267,279
57629*LG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		27,798,283	25,906,017	08/23/2023	08/23/2051	SOFR Replacement Swap - CME cleared				22822R-BH-2		1	27,798,283	25,906,017

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1	2	3	4	5	6	7	8	Derivative Instrument(s) Open			Cash Instrument(s) Held				
Number	Description	NAIC Designation or Other Description	Notional Amount	Book/Adjusted Carrying Value	Fair Value	Effective Date	Maturity Date	9	10	11	12	13	14	15	16
								Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*LG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,020,297	10,020,297	08/23/2023	08/23/2051	SOFR Replacement Swap - CME cleared			55379Z-MM-8	M360 MM Series LLC - Series 2022-1 Secured Secure Notes	1	10,020,297	10,020,297
57629*LG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,730,241	3,754,451	08/23/2023	08/23/2051	SOFR Replacement Swap - CME cleared			871980-AE-8	Symphony CLO 35 Ltd-SYMP 2022-35A B1	1	3,730,241	3,754,451
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		204,377,590	25,000,000	11/23/2022	05/23/2024	TRS Bond Index		3,457,635	00108Z-MM-2	AG CAPITAL FUNDING, LLC - Revolving Senior Secured Term Loan Facility	1	25,000,000	25,000,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		45,948,000	45,948,000	11/23/2022	05/23/2024	TRS Bond Index			14314Z-MM-3	CARLYLE SECURED LENDING III SPV, - Senior Secured Loan	1	45,948,000	45,948,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		65,036,037	65,036,037	11/23/2022	05/23/2024	TRS Bond Index			46143#-MY-0	Invesco CMI Investments MM, LLC - Senior Secured Notes - Term Loan Series 2022-10	2	65,036,037	65,036,037
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		68,150,000	68,150,000	11/23/2022	05/23/2024	TRS Bond Index			68324Z-MS-2	PCRED II HOLDING I LLC, PCRED II HOLDING I OFFSHORE LP and PCRED II HOLDCO ARGUS S.A R.L., -Term Loan Series 2022-7	1	68,150,000	68,150,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		9,746,687	9,839,330	11/23/2022	05/23/2024	TRS Bond Index			00140L-AG-9	Aimco CLO 12 Ltd-AIMCO 2020-12A AR	1	9,746,687	9,839,330
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		269,184,783	12,091,094	12/13/2022	06/13/2024	TRS Bond Index		(12,578,989)	12625Z-MP-4	CRE II LENDER SUB I, LLC - Term Loan Series 2022-2	1	24,670,083	24,670,083
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		240,581,252	240,581,252	12/13/2022	06/13/2024	TRS Bond Index			901399-MY-8	Twin Brook Capital Funding XIII WSPV, LLC	1	240,581,252	240,581,252
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		9,560,313	9,717,960	12/13/2022	06/13/2024	TRS Bond Index			460988-AA-6	Invesco CLO 2022-1 Ltd-INVCO 2022-1A A	1	9,560,313	9,717,960
57629*HR5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		308,812,500	(5,549,200)	10/24/2022	11/28/2048	Currency Swap	(40,241,700)	(23,581,104)	G1819#-AB-6	Canal & River Trust Senior Note Ser	1	34,692,500	17,487,743
57629*HR5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,361,459	7,970,610	10/24/2022	11/28/2048	Currency Swap			G8302*-AE-9	University of Stirling Senior Note Ser	1	13,361,459	7,970,610
57629*HR5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		66,111,210	38,004,221	10/24/2022	11/28/2048	Currency Swap			G6892#-AA-5	Paradigm Homes Charitabl Senior Secured	1	66,111,210	38,004,221
57629*HR5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		40,912,520	26,144,300	10/24/2022	11/28/2048	Currency Swap			G6892#-AB-3	Paradigm Homes Charitabl Senior Secured	1	40,912,520	26,144,300
57629*HR5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		36,479,970	19,208,924	10/24/2022	11/28/2048	Currency Swap			G8308*-AA-1	University of Lancaster Senior Note Ser	1	36,479,970	19,208,924
57629*HR5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,494,084	7,604,277	10/24/2022	11/28/2048	Currency Swap			G8309#-AA-6	University of Durham Senior Unsecured Notes	1	13,494,084	7,604,277
57629*HR5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		89,274,107	52,945,952	10/24/2022	11/28/2048	Currency Swap			G8288#-AB-1	University of East Angli Senior Unsecured Notes	1	89,274,107	52,945,952
57629*HR5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		36,984,716	25,430,480	10/24/2022	11/28/2048	Currency Swap			G1870*-AB-4	Cambridge Housing Societ Senior Secured Notes Series B	2	36,984,716	25,430,480
57629*HR5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		28,399,050	18,986,839	10/24/2022	11/28/2048	Currency Swap			G1870*-AA-6	Cambridge Housing Societ Senior Secured Notes Series A	2	28,399,050	18,986,839
57629*HT1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		258,992,600	(2,729,896)	10/26/2022	08/15/2052	Currency Swap	(32,712,440)	(6,528,890)	G2269#-AA-9	College of Corpus Christ Senior Notes	1	6,269,000	3,798,994
57629*HT1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		18,054,720	10,941,103	10/26/2022	08/15/2052	Currency Swap			G5879#-AA-6	The Master, The Fellows Senior Notes	1	18,054,720	10,941,103
57629*HT1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		62,360,000	35,129,540	10/26/2022	08/15/2052	Currency Swap			G6428#-AM-2	Network Homes Ltd Senior Secured Note	1	62,360,000	35,129,540
57629*HT1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,174,000	6,954,228	10/26/2022	08/15/2052	Currency Swap			G2034#-AB-1	Duchy of Lancaster Senior Note Series A	2	12,174,000	6,954,228
57629*HT1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		181,230,000	91,195,274	10/26/2022	08/15/2052	Currency Swap			550044-CC-3	LORD MAYOR & CITIZENS CITY WESTMINSTER GBP TERM LN ISSUED AUG 2019	1	181,230,000	91,195,274
57629*HS3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		213,608,440	52,745,974	10/26/2022	10/12/2033	Currency Swap	(22,657,080)	(16,831,956)	Q0538E-ZZ-0	Aroundtown SA Senior Unsecured Notes	2	88,292,250	69,577,930
57629*HS3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		17,825,500	13,550,765	10/26/2022	10/12/2033	Currency Swap			G7996#-AE-0	Segro plc Senior Note Series B	1	17,825,500	13,550,765
57629*HS3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		150,743,738	99,001,715	10/26/2022	10/12/2033	Currency Swap			G1847#-AB-0	Capital Investors Europe PBI Limited - Series B Senior Note	1	150,743,738	99,001,715
57629*HUB	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		108,755,400	21,076,138	10/27/2022	11/27/2043	Currency Swap	(11,919,440)	(3,183,571)	G5560*-AB-0	London School Of Economi Senior Note Ser	1	40,096,250	24,259,709

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SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*HU8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,901,931	5,336,906	10/27/2022	11/27/2043	Currency Swap				G18198-AA-8	Canal & River Trust Senior Note Ser	1	9,901,931	5,336,906
57629*HU8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		26,722,918	16,483,573	10/27/2022	11/27/2043	Currency Swap				G9302*-AD-1	University of Stirling Senior Note Ser	1	26,722,918	16,483,573
57629*HU8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		51,726,799	29,456,723	10/27/2022	11/27/2043	Currency Swap				G4R1JX-AY-7	Heathrow Funding Limited Senior Secured Notes Class A	2	51,726,799	29,456,723
57629*HV6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		61,752,000	59,702,211	10/27/2022	02/22/2050	Currency Swap	(5,939,600)	(1,904,617)		B1401#-AE-7	Brussels Airport Company Senior Secured Notes	2	65,641,811	42,718,801
57629*HI4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	207,703,020	(9,336,166)	(6,431,389)	10/27/2022	12/19/2028	Currency Swap	(20,046,460)	(14,929,299)		G5264#-AW-9	Kingspan Securities 2017 Gtd Senior Note	2	10,710,294	8,497,910
57629*HI4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		30,961,245	25,148,721	10/27/2022	12/19/2028	Currency Swap				N5084B-AB-7	Koole Terminals Subholdr Senior Secured	2	30,961,245	25,148,721
57629*HI4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		28,651,287	25,178,321	10/27/2022	12/19/2028	Currency Swap				399452-ZZ-7	Groupe Holder S.A.S. Bank Loan	2	28,651,287	25,178,321
57629*HI4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		95,498,699	78,656,490	10/27/2022	12/19/2028	Currency Swap				F8494#-AB-2	Sodiaal International S. Senior Unsecured Notes	2	95,498,699	78,656,490
57629*HI4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		31,295,584	26,470,300	10/27/2022	12/19/2028	Currency Swap				62973*-ZZ-9	NSI N V EURO LN FAC	2	31,295,584	26,470,300
57629*HI4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		15,491,022	13,221,963	10/27/2022	12/19/2028	Currency Swap				479142-E*-8	Johnson Matthey PLC Senior Note Series C	1	15,491,022	13,221,963
57629*HI4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		26,298,821	22,448,500	10/27/2022	12/19/2028	Currency Swap				N2319B-AD-7	Corbion N.V. Senior Subordinated Debt	2	26,298,821	22,448,500
57629*HX2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	241,672,900	(13,916,742)	(5,340,232)	10/27/2022	09/12/2030	Currency Swap	(26,253,220)	(13,835,393)		G1744#-AT-5	Cadogan Estates Ltd Gtd Senior Note	2	12,336,478	8,495,161
57629*HX2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		26,843,327	19,657,577	10/27/2022	09/12/2030	Currency Swap				G5304*-AA-3	Knowsley Housing Trust Senior Secured	2	26,843,327	19,657,577
57629*HX2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		97,096,668	67,585,444	10/27/2022	09/12/2030	Currency Swap				G7496*-AC-3	RIT Capital Partners plc Senior Note Ser	2	97,096,668	67,585,444
57629*HX2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		29,282,183	21,600,713	10/27/2022	09/12/2030	Currency Swap				G8302#-AC-9	University of West Londo Senior Secured	2	29,282,183	21,600,713
57629*HX2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		7,044,764	5,256,438	10/27/2022	09/12/2030	Currency Swap				G7737#-AC-8	SGN MidCo Limited Gtd Senior Secu	2	7,044,764	5,256,438
57629*HX2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		10,132,789	7,638,367	10/27/2022	09/12/2030	Currency Swap				G2685B-AH-2	Great Portland Estates Senior Note Ser	2	10,132,789	7,638,367
57629*HX2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		57,451,943	47,302,324	10/27/2022	09/12/2030	Currency Swap				G9720#-AA-7	Wireless Infrastructure Senior Secured Notes	2	57,451,943	47,302,324
57629*HX2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		44,851,832	35,255,135	10/27/2022	09/12/2030	Currency Swap				756570-ZZ-3	Red Funnel Ferry Senior Term Loa	2	44,851,832	35,255,135
57629*HY0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	337,502,600	(1,503,009)	15,470,345	10/28/2022	10/26/2041	Currency Swap	(31,515,720)	(3,387,925)		G9302B-AB-3	University of Edinburgh Senior Note Ser	1	30,012,711	18,858,270
57629*HY0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		30,260,527	19,194,084	10/28/2022	10/26/2041	Currency Swap				G1128*-AC-2	BIRMINGHAM ARPT FIN PLC SR NT	2	30,260,527	19,194,084
57629*HY0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		39,273,784	21,424,384	10/28/2022	10/26/2041	Currency Swap				G7896*-AA-3	Scottish Oriental Smaller Senior Unsecured Notes	1	39,273,784	21,424,384
57629*HY0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		42,496,175	29,762,895	10/28/2022	10/26/2041	Currency Swap				G2493#-AA-7	Crail Meters Limited - Term Loan	2	42,496,175	29,762,895
57629*HY0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		12,890,935	7,494,949	10/28/2022	10/26/2041	Currency Swap				G9000#-AG-5	Tottenham Hotspur Stadiu Gtd Senior Secured Note Series C	2	12,890,935	7,494,949
57629*HY0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		98,997,907	49,515,088	10/28/2022	10/26/2041	Currency Swap				G0892#-AB-6	Bazalgette Tunnel Limite Senior Secured Notes	2	98,997,907	49,515,088
57629*HY0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		130,912,614	70,750,193	10/28/2022	10/26/2041	Currency Swap				G9160B-AB-4	UK Power Networks Servis Senior Unsecured Notes	2	130,912,614	70,750,193
57629*HZ7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1	174,033,900	16,683,444	19,540,445	10/28/2022	12/02/2040	Currency Swap	(16,578,940)	(2,083,262)		G5304*-AC-9	Knowsley Housing Trust Senior Secured	2	33,262,384	21,623,707
57629*HZ7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		64,570,002	36,680,091	10/28/2022	12/02/2040	Currency Swap				G5258#-AB-3	King's College, London Senior Note Ser	1	64,570,002	36,680,091
57629*HZ7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,695,321	8,557,036	10/28/2022	12/02/2040	Currency Swap				G7228#-AB-6	PRES & SCHOLARS ST MARY MAGDALEN SR NT SER B	1	14,695,321	8,557,036
57629*HZ7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		19,604,697	12,779,004	10/28/2022	12/02/2040	Currency Swap				G8853B-AC-0	Oxford Brookes Universit Senior Note Ser	2	19,604,697	12,779,004

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SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1	2	3	4	5	6	7	8	Derivative Instrument(s) Open			Cash Instrument(s) Held				
Number	Description	NAIC Designation or Other Description	Notional Amount	Book/Adjusted Carrying Value	Fair Value	Effective Date	Maturity Date	9	10	11	12	13	14	15	16
								Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*HZ7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,895,352	7,749,313	10/28/2022	12/02/2040	Currency Swap			G9000#-AB-6	Tottenham Hotspur Limite Senior Secured Note Series B	2	11,895,352	7,749,313
57629*HZ7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		61,945,642	34,222,883	10/28/2022	12/02/2040	Currency Swap			G7895*-AH-9	Scottish Mortgage Invest Senior Unsecured Notes	1	61,945,642	34,222,883
57629*JA0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	294,033,600	(10,375,869)	(4,801,049)	10/27/2022	06/27/2029	Currency Swap	(24,444,460)	(17,242,240)	G294A#-AH-2	Dyson Finance Limited Gtd Senior Note	1	14,068,591	12,441,191
57629*JA0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		17,485,595	15,422,755	10/27/2022	06/27/2029	Currency Swap			B1401#-AB-3	Brussels Airport Company Senior Secured	2	17,485,595	15,422,755
57629*JA0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		25,573,803	21,683,119	10/27/2022	06/27/2029	Currency Swap			48021P-A#-7	Jones Lang LaSalle Finan Gtd Senior Note	2	25,573,803	21,683,119
57629*JA0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		44,963,577	38,977,414	10/27/2022	06/27/2029	Currency Swap			09146#-ZZ-8	Van Oord NV - EUR Term Loan	2	44,963,577	38,977,414
57629*JA0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		132,676,739	117,971,083	10/27/2022	06/27/2029	Currency Swap			F2977#-AA-3	Elis S.A. Senior Note Series A	2	132,676,739	117,971,083
57629*JA0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		66,705,141	55,525,986	10/27/2022	06/27/2029	Currency Swap			F8568#-AF-6	Sonepar S.A. Senior Note Series C Bidcorp Foodservice Inte Senior	2	66,705,141	55,525,986
57629*JA0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		18,498,892	16,089,954	10/27/2022	06/27/2029	Currency Swap			G1267*-AB-5	Plymouth Community Homes Senior Unsecured Notes	2	18,498,892	16,089,954
57629*JB8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1	144,459,719	6,977,203	13,180,042	10/28/2022	09/27/2042	Currency Swap	(13,489,532)	(1,327,054)	G7137#-AC-4	Secured University of Glasgow Senior Note	1	20,466,735	14,507,096
57629*JB8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		48,613,866	28,323,985	10/28/2022	09/27/2042	Currency Swap			G9303#-AC-8	University of Birmingham Senior Ser	1	48,613,866	28,323,985
57629*JB8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		29,409,100	17,371,873	10/28/2022	09/27/2042	Currency Swap			G9304*-AA-5	University of Keele Senior Note Ser	1	29,409,100	17,371,873
57629*JB8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		26,197,365	17,205,699	10/28/2022	09/27/2042	Currency Swap			G8306#-AB-7	South East Water Limited Gtd Senior Secured Note Series 2	2	16,961,375	10,476,878
57629*JB8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		16,961,375	10,476,878	10/28/2022	09/27/2042	Currency Swap			G8279#-AB-4	Last Mile Infrastructure Senior Secured Notes	2	16,961,375	10,476,878
57629*JB8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,536,595	7,828,955	10/28/2022	09/27/2042	Currency Swap			G5383*-AD-1	Howard De Walden Estates Senior Unsecured Notes Series B	2	12,536,595	7,828,955
57629*JD4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1	116,031,600	(487,670)	3,948,075	10/31/2022	03/31/2034	Currency Swap	(11,382,720)	(3,150,226)	G4622#-AP-4	Bromford Housing Group L Senior Secured Notes	1	10,895,050	7,098,301
57629*JD4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		51,341,111	34,331,285	10/31/2022	03/31/2034	Currency Swap			G1608#-AA-1	Metropolitan Housing Tru Senior Secured Notes	1	51,341,111	34,331,285
57629*JD4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		60,309,234	42,376,088	10/31/2022	03/31/2034	Currency Swap			G6043#-AF-2	Transmission Finance DAC Senior Secured	2	60,309,234	42,376,088
57629*JC6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	123,989,250	60,511,334	51,235,436	10/31/2022	06/28/2039	Currency Swap	(11,721,490)	(8,042,471)	G9006#-AD-8	Molkerei Alois Muller GM Senior Note Series M	2	72,232,824	59,277,907
57629*JC6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		9,117,673	6,481,394	10/31/2022	06/28/2039	Currency Swap			D5472#-AQ-3	Rheinkalk Holding GmbH Senior Note Series A-2034	2	9,117,673	6,481,394
57629*JC6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		54,727,343	43,865,080	10/31/2022	06/28/2039	Currency Swap			D7002#-AB-3	'Knowsley Housing Trust Senior Secured	2	54,727,343	43,865,080
57629*JE2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	166,457,590	10,355,825	16,243,585	10/31/2022	12/02/2035	Currency Swap	(16,487,502)	(2,392,354)	G5304*-AB-1	Bankers Investment Trust Senior Note	2	26,843,327	18,635,939
57629*JE2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		64,833,928	41,245,083	10/31/2022	12/02/2035	Currency Swap			G0746*-AA-0	NT SER A	1	64,833,928	41,245,083
57629*JE2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		14,695,321	9,192,169	10/31/2022	12/02/2035	Currency Swap			G7228#-AA-8	OXFORD BROOKES UNIVERSIT SENIOR NOTE SER	1	14,695,321	9,192,169
57629*JE2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		19,604,697	13,437,281	10/31/2022	12/02/2035	Currency Swap			G6853#-AB-2	Tottenham Hotspur Limite Senior Secured Note Series A	2	19,604,697	13,437,281
57629*JE2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		5,947,676	4,295,715	10/31/2022	12/02/2035	Currency Swap			G9000#-AA-8	ESPUG Finance Limited Senior Secured Notes	2	5,947,676	4,295,715
57629*JE2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		31,459,957	20,804,802	10/31/2022	12/02/2035	Currency Swap			G3122#-AD-0	Great Portland Estates P Senior Unsecured Notes	2	31,459,957	20,804,802
57629*JE2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		32,149,893	21,005,421	10/31/2022	12/02/2035	Currency Swap			G2685#-AL-3	AVI Global Trust PLC - Senior Note Series A GBP	2	32,149,893	21,005,421
57629*JF9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1	173,400,000	19,198,633	21,952,804	11/01/2022	12/14/2036	Currency Swap	(17,340,000)	(3,761,440)	G1512#-AA-8	University of Stirling Senior Note Ser	1	36,538,633	25,714,244
57629*JF9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		22,017,723	15,398,466	11/01/2022	12/14/2036	Currency Swap			G8302*-AB-5	University of Stirling Senior Note Ser	1	22,017,723	15,398,466

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1	2	3	4	5	6	7	8	Derivative Instrument(s) Open			Cash Instrument(s) Held				
Number	Description	NAIC Designation or Other Description	Notional Amount	Book/Adjusted Carrying Value	Fair Value	Effective Date	Maturity Date	9	10	11	12	13	14	15	16
								Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*JF9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,081,386	12,717,166	11/01/2022	12/14/2036	Currency Swap			G4622#-AM-1	Howard De Walden Estates Gtd Senior Note	1	20,081,386	12,717,166
57629*JF9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		33,057,281	24,374,935	11/01/2022	12/14/2036	Currency Swap			G4410*-AB-5	Heriot Watt University Senior Unsecured	2	33,057,281	24,374,935
57629*JF9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,445,467	4,028,628	11/01/2022	12/14/2036	Currency Swap			G9000#-AF-7	Tottenham Hotspur Stadium Gtd Senior Secured Note Series B	2	6,445,467	4,028,628
57629*JF9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		17,702,744	12,543,206	11/01/2022	12/14/2036	Currency Swap			G4569#-AB-0	Hightown Housing Association Limited	1	17,702,744	12,543,206
57629*JF9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		58,967,855	40,840,590	11/01/2022	12/14/2036	Currency Swap			G4378*-AL-3	Heathrow Airport Limited Senior Secured Notes	2	58,967,855	40,840,590
57629*JG7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		191,094,020	(1,116,983)	11/01/2022	07/14/2032	Currency Swap	(18,422,400)	(14,070,306)	G1591#-BJ-0	Britvic PLC Senior Notes Series 0	2	17,305,417	13,400,253
57629*JG7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		34,024,485	25,563,212	11/01/2022	07/14/2032	Currency Swap			D5472#-AP-5	Molkerei Alois Muller GM Senior Note Series L	2	34,024,485	25,563,212
57629*JG7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		37,790,660	29,687,631	11/01/2022	07/14/2032	Currency Swap			F3152*-AJ-3	Ermewa Holding SAS Senior Secured Notes	2	37,790,660	29,687,631
57629*JG7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		16,307,836	12,921,386	11/01/2022	07/14/2032	Currency Swap			G2687*-AB-5	Dawsongroup plc Senior Note Series B	2	16,307,836	12,921,386
57629*JG7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		31,494,343	28,171,097	11/01/2022	07/14/2032	Currency Swap			N7660#-AY-3	SHV Holdings NV Guaranteed Notes	2	31,494,343	28,171,097
57629*JG7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		30,743,847	26,127,567	11/01/2022	07/14/2032	Currency Swap			479142-F#-3	Johnson Matthey PLC Senior Notes Sustainability-Linked Series A	1	30,743,847	26,127,567
57629*JG7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		14,806,844	14,429,340	11/01/2022	07/14/2032	Currency Swap			F4832#-AC-0	Secured Notes Groupe Holder S.A.S. Senior	2	14,806,844	14,429,340
57629*JG7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		19,781,700	20,780,133	11/01/2022	07/14/2032	Currency Swap			243435-B#-4	Dechra Pharmaceuticals P Senior Unsecured Notes	2	19,781,700	20,780,133
57629*JH5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	128,662,800	4,982,076	9,681,630	11/01/2022	10/06/2032	Currency Swap	(12,866,280)	(4,843,667)	G6774*-AD-6	Origin Housing Limited Senior Secured	1	17,848,356	14,525,297
57629*JH5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		61,921,860	46,286,899	11/01/2022	10/06/2032	Currency Swap			G0892#-AA-8	Bazalgette Tunnel Limite Senior Secured	2	61,921,860	46,286,899
57629*JH5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		33,182,500	24,814,320	11/01/2022	10/06/2032	Currency Swap			G3122#-AB-4	ESPUG Finance Limited Gtd Senior Secu	2	33,182,500	24,814,320
57629*JH5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		12,122,000	9,499,615	11/01/2022	10/06/2032	Currency Swap			G6970*-AX-4	Peel Ports PP Finance Lt Senior Secured Notes	2	12,122,000	9,499,615
57629*JH5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		17,812,080	17,794,745	11/01/2022	10/06/2032	Currency Swap			G2283#-AG-8	Colombo BidCo Limited Senior Secured Notes	2	17,812,080	17,794,745
57629*JJ1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		310,627,067	(12,811,294)	11/01/2022	10/06/2037	Currency Swap	(30,178,264)	(6,275,129)	G5676#-AA-9	Lowland Investment Compa Senior Note	1	17,366,970	12,446,306
57629*JJ1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		138,275,892	106,004,388	11/01/2022	10/06/2037	Currency Swap			G7304#-AD-9	Quadgas Midco Limited Fixed Rate Guar	2	138,275,892	106,004,388
57629*JJ1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		21,512,234	16,500,180	11/01/2022	10/06/2037	Currency Swap			G7137#-AB-6	Plymouth Community Homes Senior Secured	1	21,512,234	16,500,180
57629*JJ1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		27,535,600	19,201,724	11/01/2022	10/06/2037	Currency Swap			G9306#-AA-9	University of Keele Senior Note Ser	1	27,535,600	19,201,724
57629*JJ1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		61,921,860	46,385,713	11/01/2022	10/06/2037	Currency Swap			G3620#-AA-1	ForCapital Limited Senior Secured ESPUG Finance Limited Gtd Senior	2	61,921,860	46,385,713
57629*JJ1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		33,182,500	22,512,470	11/01/2022	10/06/2037	Currency Swap			G3122#-AC-2	Secu	2	33,182,500	22,512,470
57629*JJ1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		13,177,000	8,852,739	11/01/2022	10/06/2037	Currency Swap			G5383*-AC-3	Last Mile Infrastructure Senior Secured Notes	2	13,177,000	8,852,739
57629*JJ1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		4,815,081	2,731,953	11/01/2022	10/06/2037	Currency Swap			G2711*-AA-7	Curro Places Ltd. Senior Secured Notes	1	4,815,081	2,731,953
57629*JK8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1	160,260,800	2,693,754	11,451,369	11/02/2022	11/24/2051	Currency Swap	(17,254,560)	(108,878)	G8303#-AB-0	University of Glasgow Senior Note Ser	1	19,948,314	11,560,247
57629*JK8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		72,001,938	32,836,597	11/02/2022	11/24/2051	Currency Swap			G9312*-AB-3	Vale of Aylesbury Housin Senior Secured Notes	1	72,001,938	32,836,597
57629*JK8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,643,851	1,655,654	11/02/2022	11/24/2051	Currency Swap			G6260#-AB-7	MORhones plc Senior Secured Notes	2	2,643,851	1,655,654
57629*JK8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,365,869	5,407,083	11/02/2022	11/24/2051	Currency Swap			G5744#-AA-7	Magna Housing Limited Senior Secured Notes	1	11,365,869	5,407,083

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1	2	3	4	5	6	7	8	Derivative Instrument(s) Open			Cash Instrument(s) Held				
Number	Description	NAIC Designation or Other Description	Notional Amount	Book/Adjusted Carrying Value	Fair Value	Effective Date	Maturity Date	9	10	11	12	13	14	15	16
								Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*JK8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		39,801,069	17,770,162	11/02/2022	11/24/2051	Currency Swap			G5695*-AA-0	The MDS Estates Limited Senior Unsecured Notes	1	39,801,069	17,770,162
57629*JK8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		31,014,416	15,144,926	11/02/2022	11/24/2051	Currency Swap			G5695*-AD-4	The MDS Estates Limited Senior Note Series D	1	31,014,416	15,144,926
57629*JK8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		123,358	69,990	11/02/2022	11/24/2051	Currency Swap			G2711*-AA-7	Curo Places Ltd. Senior Secured Notes	1	123,358	69,990
57629*JL6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		90,275,000	24,885,559	11/02/2022	11/17/2050	Currency Swap	(9,545,600)	(121,473)	G2034#-AA-3	Duchy of Lancaster Senior Unsecured Notes	2	34,431,159	15,274,660
57629*JL6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		64,033,679	26,816,461	11/02/2022	11/17/2050	Currency Swap			G6659#-AB-9	Northumberland Estates L Senior Unsecured Notes	1	64,033,679	26,816,461
57629*KM2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		56,197,920	33,621,821	11/02/2022	12/15/2035	Currency Swap	(5,816,320)	(4,506,015)	A8689#-AC-3	TIWAG-Tiroler Wasserkrft Senior Note	1	39,438,141	33,155,645
57629*KM2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		21,594,663	16,123,161	11/02/2022	12/15/2035	Currency Swap			F3152*-AK-0	Ernema Holding SAS Senior Secured Notes	2	21,594,663	16,123,161
57629*JN2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		73,143,945	21,734,747	11/02/2022	06/08/2036	Currency Swap	(7,594,665)	(5,675,581)	G1512#-AB-6	AVI Global Trust PLC - Senior Note Series B EUR	1	29,329,412	24,914,176
57629*JN2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		28,699,142	17,944,079	11/02/2022	06/08/2036	Currency Swap			F1000#-AC-2	Akiem Holding SAS Green Senior Notes Series A	2	28,699,142	17,944,079
57629*JN2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		26,439,973	16,061,647	11/02/2022	06/08/2036	Currency Swap			G1847#-AC-8	Capital Investors Europe PBI Limited - Series C Senior Note	1	26,439,973	16,061,647
57629*KL4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		34,573,000	19,214,319	11/02/2022	11/01/2037	Currency Swap	(3,640,000)	(2,851,211)	G1512#-AC-4	British Empire Securitie Senior Unsecure Notes	1	22,854,319	17,190,641
57629*KL4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		16,195,997	11,737,301	11/02/2022	11/01/2037	Currency Swap			F3152*-AL-8	Ernema Holding SAS Senior Secured Notes	2	16,195,997	11,737,301
57629*KK6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		139,919,000	26,669,394	11/03/2022	11/14/2034	Currency Swap	(15,470,520)	(4,326,623)	G2479#-AB-3	Coventry University Senior Note Ser	1	42,139,914	29,616,205
57629*KK6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		12,105,611	8,841,678	11/03/2022	11/14/2034	Currency Swap			G4622#-AN-9	Howard De Walden Estates Senior Unsecured Notes Series A	1	12,105,611	8,841,678
57629*KK6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		20,663,643	15,969,677	11/03/2022	11/14/2034	Currency Swap			G6750*-AF-9	1887 Company Ltd Senior Secured Note Series F	2	20,663,643	15,969,677
57629*KK6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		9,772,779	6,997,483	11/03/2022	11/14/2034	Currency Swap			G4622#-AS-8	Howard De Walden Estates Senior Unsecured Notes Series E	1	9,772,779	6,997,483
57629*KK6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		60,728,554	43,031,158	11/03/2022	11/14/2034	Currency Swap			G6300#-AB-9	Moto Investments Limited Senior Secured Notes	2	60,728,554	43,031,158
57629*KK6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		11,532,869	8,607,703	11/03/2022	11/14/2034	Currency Swap			G6970*-AY-2	Peel Ports PP Finance Lt Senior Secured Notes	2	11,532,869	8,607,703
57629*KJ9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		278,348,060	(8,140,055)	11/02/2022	11/30/2031	Currency Swap	(29,430,360)	(21,422,884)	X2145*-AD-8	Elenia Verkko Oyj Gtd Senior Note	2	21,290,305	17,760,819
57629*KJ9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		42,034,642	29,694,453	11/02/2022	11/30/2031	Currency Swap			03063#-AD-6	Americold Realty Trust Senior Unsecured Notes	2	42,034,642	29,694,453
57629*KJ9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		23,776,497	16,929,292	11/02/2022	11/30/2031	Currency Swap			D5472#-AL-4	Molkerei Alois Muller GM Senior Unsecured Notes	2	23,776,497	16,929,292
57629*KJ9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		37,477,316	28,904,242	11/02/2022	11/30/2031	Currency Swap			F8494#-AC-0	Sodiaal International S. Senior Unsecured Notes	2	37,477,316	28,904,242
57629*KJ9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		31,157,944	21,898,286	11/02/2022	11/30/2031	Currency Swap			L8367#-AG-8	Shurgard Self Storage S. Senior Unsecured Notes	2	31,157,944	21,898,286
57629*KJ9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		55,517,081	44,516,683	11/02/2022	11/30/2031	Currency Swap			F9768#-AB-9	Vilmorin & Cie SA Senior Unsecured Notes	2	55,517,081	44,516,683
57629*KJ9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		88,370,282	70,255,776	11/02/2022	11/30/2031	Currency Swap			F2000#-AA-6	C2 Developpement Senior Unsecured Notes	2	88,370,282	70,255,776
57629*KJ9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		25,212,897	19,161,292	11/02/2022	11/30/2031	Currency Swap			F9731#-AJ-6	Vicat SA Senior Unsecured Notes	2	25,212,897	19,161,292
57629*KH3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		250,562,150	18,001,248	11/03/2022	12/22/2031	Currency Swap	(27,218,870)	(9,011,876)	G4133#-AA-1	Grosvenor Limited Senior Note Ser	2	37,594,801	27,013,124
57629*KH3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		13,549,798	10,286,984	11/03/2022	12/22/2031	Currency Swap			G7178*-AD-6	Porterbrook Rail Finance Senior Secured	2	13,549,798	10,286,984
57629*KH3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		11,295,780	8,173,467	11/03/2022	12/22/2031	Currency Swap			G4622#-AL-3	Howard De Walden Estates Gtd Senior Note	1	11,295,780	8,173,467
57629*KH3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		34,041,361	26,091,569	11/03/2022	12/22/2031	Currency Swap			G8279#-AA-6	South East Water Limited Gtd Senior Secured Note Series 1	2	34,041,361	26,091,569

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1	2	3	4	5	6	7	8	Derivative Instrument(s) Open			Cash Instrument(s) Held				
Number	Description	NAIC Designation or Other Description	Notional Amount	Book/Adjusted Carrying Value	Fair Value	Effective Date	Maturity Date	9	10	11	12	13	14	15	16
								Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
57629*KH3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		30,294,948	23,370,916	11/03/2022	12/22/2031	Currency Swap			L0808#-AC-1	Beacon Finco S.a.r.l Senior Secured Note Series B	2	30,294,948	23,370,916
57629*KH3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		21,178,921	15,280,239	11/03/2022	12/22/2031	Currency Swap			G1151#-AB-0	Bellway Plc Senior Note Series B TP REIT Propco 2 Limited Senior	2	21,178,921	15,280,239
57629*KH3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		57,311,925	38,891,286	11/03/2022	12/22/2031	Currency Swap			G8655#-AA-8	Secured Notes Bredon Group Plc Senior Note	1	57,311,925	38,891,286
57629*KH3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		20,523,349	14,375,793	11/03/2022	12/22/2031	Currency Swap			G1320*-AB-0	Series B SOUTH STAFFORDSHIRE PLC GBP FAC A LN - ISSUED DEC 2021	2	20,523,349	14,375,793
57629*KH3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		36,979,836	27,355,164	11/03/2022	12/22/2031	Currency Swap			781837-YY-9	DP World Ltd-SENIOR UNSECURED ERMEDIA HLDG SECD SR INITIAL PP NTS	2	36,979,836	27,355,164
57629*KH3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		32,555,070	29,327,720	11/03/2022	12/22/2031	Currency Swap				Lineage Treasury Europe Senior Unsecured Notes Series D	2	32,555,070	29,327,720
57629*KG5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	234,948,546	43,965,542	39,844,923	11/04/2022	12/11/2031	Currency Swap	(24,973,252)	(18,119,796)	F3152*-AG-9	Futbol Club Barcelona Senior Secured Note Series B1 (Amortizing)	2	68,938,794	57,964,719
57629*KG5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		138,514,126	97,917,752	11/04/2022	12/11/2031	Currency Swap			N5269#-AB-4	Futbol Club Barcelona Senior Secured Note Series B1 (Amortizing)	2	138,514,126	97,917,752
57629*KG5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		29,038,329	24,811,126	11/04/2022	12/11/2031	Currency Swap			E5444#-AF-1	Futbol Club Barcelona Senior Secured Note Series B2 (Bullet)	2	29,038,329	24,811,126
57629*KG5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		33,186,640	26,825,799	11/04/2022	12/11/2031	Currency Swap			E5444#-AG-9	Sirona Dental Services G Senior Note Ser	2	33,186,640	26,825,799
57629*KF7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	197,737,711	(15,163,765)	(10,491,103)	11/04/2022	12/07/2029	Currency Swap	(20,907,249)	(15,336,469)	24906#-C#-4	Unicore SA Senior Note Ser	2	5,743,484	4,845,366
57629*KF7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		17,230,452	14,536,098	11/04/2022	12/07/2029	Currency Swap			D8286#-AD-2	Laurent-Perrier Group Senior Unsecure	2	17,230,452	14,536,098
57629*KF7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		63,355,248	51,692,510	11/04/2022	12/07/2029	Currency Swap			B9550#-AB-7	Unicore SA Senior Note Series B Akiem Holding SAS Senior Secured Notes (Bullet)	2	63,355,248	51,692,510
57629*KF7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		13,029,091	11,163,550	11/04/2022	12/07/2029	Currency Swap			F5662#-AA-6	Electrocomponents plc Senior Notes Series C	2	13,029,091	11,163,550
57629*KF7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		37,574,341	32,576,944	11/04/2022	12/07/2029	Currency Swap			B9550#-AD-3	Getec Infra NL BV Term Fac	2	37,574,341	32,576,944
57629*KF7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		19,479,246	15,930,786	11/04/2022	12/07/2029	Currency Swap			F1000#-AB-4	GETEC INFRA NLBV-2021 EUR Fixed Incremental Term Loan	2	19,479,246	15,930,786
57629*KF7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		5,490,128	4,649,785	11/04/2022	12/07/2029	Currency Swap			285295-B#-7	Netflix Inc-SENIOR UNSECURED Mettler-Toledo Internati Senior Note	2	5,490,128	4,649,785
57629*KF7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		43,749,059	37,306,413	11/04/2022	12/07/2029	Currency Swap			N3527#-AA-7	Elenia Verkkö Oyj Gtd Senior Note Envol Investments Limite Senior Secured Notes	2	43,749,059	37,306,413
57629*KF7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		15,637,246	12,392,091	11/04/2022	12/07/2029	Currency Swap			D3002#-AA-4	MacqPisto SAS Senior Term Loan Irish Residential Proper Senior Secured Notes	2	15,637,246	12,392,091
57629*KF7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		1,477,903	1,406,059	11/04/2022	12/07/2029	Currency Swap			U74079-AP-6	FIL Limited Senior Unsecured Notes	2	1,477,903	1,406,059
57629*KE0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		292,527,085	11,078,069	11/04/2022	08/19/2030	Currency Swap	(31,027,845)	(23,847,376)	592688-B#-1	Dyson Finance Limited Guaranteed Series A Senior Notes	2	42,105,914	34,216,435
57629*KE0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		69,158,204	61,308,238	11/04/2022	08/19/2030	Currency Swap			X2145*-AC-0	Safran Group Senior Unsecured Notes	2	69,158,204	61,308,238
57629*KE0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		34,090,176	28,310,073	11/04/2022	08/19/2030	Currency Swap			G3076*-AE-6	University of Edinburgh Senior Note Ser	2	34,090,176	28,310,073
57629*KE0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		36,296,928	30,187,368	11/04/2022	08/19/2030	Currency Swap			556069-ZZ-8	University of Edinburgh Senior Note Ser	2	36,296,928	30,187,368
57629*KE0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		27,326,971	21,477,979	11/04/2022	08/19/2030	Currency Swap			G4940#-AA-4	University of Edinburgh Senior Note Ser	2	27,326,971	21,477,979
57629*KE0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		15,556,418	12,872,016	11/04/2022	08/19/2030	Currency Swap			G3301*-AB-9	University of Edinburgh Senior Note Ser	2	15,556,418	12,872,016
57629*KE0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		46,605,859	44,171,998	11/04/2022	08/19/2030	Currency Swap			G294A#-AK-5	University of Edinburgh Senior Note Ser	1	46,605,859	44,171,998
57629*KE0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		55,085,423	46,884,939	11/04/2022	08/19/2030	Currency Swap			F7754#-AC-7	University of Edinburgh Senior Note Ser	2	55,085,423	46,884,939
57629*KD2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		58,747,500	5,499,396	11/07/2022	04/05/2046	Currency Swap	(8,011,500)	(2,542,570)	G8302#-AC-1	University of Edinburgh Senior Note Ser	1	13,232,858	8,041,966

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*KD2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		57,675,683	35,724,810	11/07/2022	04/05/2046	Currency Swap				X3204#-AB-4	Gibraltar Capital Assets Senior Secured	2	57,675,683	35,724,810
57629* KC4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	159,348,640	(4,151,378)	(2,101,742)	11/07/2022	11/29/2030	Currency Swap	(18,396,400)	(14,642,119)		F5662#-AB-4	Laurent-Perrier Group Senior Unsecured Notes	2	14,245,022	12,540,377
57629* KC4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		174,630,111	140,201,420	11/07/2022	11/29/2030	Currency Swap				F3806Z-MM-5	FFP SA Senior Unsecured Notes	1	174,630,111	140,201,420
57629*KB6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		41,179,875	9,016,736	11/07/2022	12/08/2045	Currency Swap	(5,678,585)	(2,161,696)		G7228#-AC-4	PRES & SCHOLARS ST MARY MAGDALEN SR NT SER C	1	14,695,321	8,182,313
57629*KB6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		38,340,618	22,413,555	11/07/2022	12/08/2045	Currency Swap				G2867#-AA-5	Dunedin Income Growth In Senior Secured	1	38,340,618	22,413,555
57629*KA8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	174,986,912	6,657,102	10,726,652	11/07/2022	12/31/2029	Currency Swap	(23,952,165)	(12,193,348)		G0566*-AC-3	Argiva PP Financing plc Gtd Senior Secu	2	30,609,267	22,920,000
57629*KA8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		19,207,192	13,008,613	11/07/2022	12/31/2029	Currency Swap				G1745*-AM-3	BUJK Infrastructure Issuer PLC - Senior Note Series B	2	19,207,192	13,008,613
57629*KA8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		49,536,121	32,801,202	11/07/2022	12/31/2029	Currency Swap				G0176#-AA-7	ALLIANCE TR PLC	1	49,536,121	32,801,202
57629*KA8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		4,454,387	4,493,698	11/07/2022	12/31/2029	Currency Swap				G0566*-AD-1	Argiva Financing No 1 Li Gtd Senior FI R	2	4,454,387	4,493,698
57629*KA8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		25,617,924	21,841,694	11/07/2022	12/31/2029	Currency Swap				G8472#-AE-1	STERIS Corporation Senior Note Ser	2	25,617,924	21,841,694
57629*KA8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		20,906,744	17,573,058	11/07/2022	12/31/2029	Currency Swap				G6750*-AE-2	'1887 Company Ltd Senior Secured Note Series E	2	20,906,744	17,573,058
57629*KA8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		25,627,590	20,501,999	11/07/2022	12/31/2029	Currency Swap				L0808#-AB-3	Beacon Finco S.a.r.l Senior Secured Note Series A	2	25,627,590	20,501,999
57629*KA8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		57,820,705	41,101,067	11/07/2022	12/31/2029	Currency Swap				781837-ZZ-5	SOUTH STAFFORDSHIRE PLC GBP FAC B LN - ISSUED DEC 2021	2	57,820,705	41,101,067
57629*JZ5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		34,605,300	30,277,368	11/07/2022	12/11/2033	Currency Swap	(4,814,300)	(2,367,373)		G6774*-AC-8	Origin Finance 2 plc Senior Secured	1	35,091,668	25,617,866
57629*JZ5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		6,646,003	4,714,222	11/07/2022	12/11/2033	Currency Swap				G7737#-AD-6	SGN MidCo Limited Gtd Senior Secu	2	6,646,003	4,714,222
57629*JZ5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		4,433,095	3,207,313	11/07/2022	12/11/2033	Currency Swap				G1591#-BF-8	Britvic PLC Senior Notes Se	2	4,433,095	3,207,313
57629*JY8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		61,834,505	17,862,795	11/07/2022	08/14/2029	Currency Swap	(3,632,704)	(3,610,258)		Q7794#-AF-0	QPH Finance Co. Pty. Ltd Gtd Senior Secu	2	21,495,499	15,485,609
57629*JY8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		31,415,500	27,650,251	11/07/2022	08/14/2029	Currency Swap				Q8458*-AA-0	Servco Australia Pty Ltd Senior Note Ser	2	31,415,500	27,650,251
57629*JY8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		24,181,920	19,426,230	11/07/2022	08/14/2029	Currency Swap				Q2600#-AD-2	Coates Group Pty Ltd Senior Note Series 2022-D (AUD)	2	24,181,920	19,426,230
57629*JX0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		48,513,122	69,197,256	11/07/2022	11/15/2049	Currency Swap	(1,105,468)	(2,838,596)		J3891#-AC-6	Lilly Japan Financing Go Senior Note Series C	1	70,302,724	40,594,226
57629*JW2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		65,036,160	38,257,920	11/08/2022	07/17/2034	Currency Swap	(2,177,280)	(637,923)		Q0846#-AA-4	Australian Laboratory Se Senior Unsecured Notes	2	40,435,200	31,401,604
57629*JW2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		31,091,040	22,599,117	11/08/2022	07/17/2034	Currency Swap				Q2600#-AF-7	Coates Group Pty Ltd Senior Note Series 2022-F (AUD)	2	31,091,040	22,599,117
57629*JV4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		64,370,000	67,332,480	11/08/2022	06/25/2031	Currency Swap	(2,310,000)	(1,324,467)		74726M-A*-0	Qantas Airways Limited Senior Secured Notes	2	69,642,480	52,170,320
57629*JU6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		64,738,386	82,459,210	11/09/2022	05/11/2032	Currency Swap	(742,614)	123,110		L2289#-AB-7	DH Japan Finance SA Senior Note Ser	2	83,201,824	61,789,480
57629*JT9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,044,000	21,264,413	11/09/2022	10/14/2040	Currency Swap	(1,792,000)	(1,059,705)		A5791*-AA-9	QBB Produktion GmbH Senior Unsecured Notes	1	23,056,413	14,049,190
57629*JS1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		46,466,369	23,546,484	11/09/2022	06/04/2038	Currency Swap	(4,899,914)	(995,409)		G7895*-AE-6	Scottish Mortgage Invest Senior Note Ser	1	28,446,398	17,618,401
57629*JS1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		22,613,961	17,548,452	11/09/2022	06/04/2038	Currency Swap				G6260#-AA-9	MORhomes plc Senior Secured Notes	2	22,613,961	17,548,452
57629*JR3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		39,645,360	45,961,200	11/09/2022	06/15/2041	Currency Swap	(1,162,800)	393,607		Q8609*-AD-0	WestConnex Finance Compa Senior Secured Notes	2	47,124,000	28,735,375
57629*JO5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		52,181,884	55,207,591	11/09/2022	11/30/2027	Currency Swap	(5,427,496)	(2,649,312)		G2735*-AA-9	Great Rolling Stock Co PLC/The	2	60,635,087	49,500,630
57629*JO5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		4,173,444	4,273,770	11/09/2022	11/30/2027	Currency Swap				00N066-FW-1	Newcastle Estate A2	2	4,173,444	4,273,770

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SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held				
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value
57629*JP7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	329,572,593	(20,638,137)	(4,530,453)	11/10/2022	12/11/2028	Currency Swap	(33,271,138)	(13,771,347)	G6774*-AB-0	Origin Finance 2 plc Senior Secured	1	12,633,001	9,240,894
57629*JP7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		57,363,676	44,071,219	11/10/2022	12/11/2028	Currency Swap			G1745*-AJ-0	BUUK Infrastructure Issuer PLC - Senior Note Series H	2	57,363,676	44,071,219
57629*JP7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		31,490,734	25,381,890	11/10/2022	12/11/2028	Currency Swap			G7178*-AB-0	Porterbrook Rail Finance Senior Secured	2	31,490,734	25,381,890
57629*JP7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		2,153,218	1,728,269	11/10/2022	12/11/2028	Currency Swap			G1591#-BC-5	Britvic PLC Senior Notes Se	2	2,153,218	1,728,269
57629*JP7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		11,906,027	9,420,778	11/10/2022	12/11/2028	Currency Swap			G2685#-AG-4	Great Portland Estates Senior Note Ser	2	11,906,027	9,420,778
57629*JP7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		8,215,756	6,532,937	11/10/2022	12/11/2028	Currency Swap			G4133#-AE-3	Grosvenor Limited Senior Notes Series A	2	8,215,756	6,532,937
57629*JP7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		66,947,702	53,808,016	11/10/2022	12/11/2028	Currency Swap			G9075*-AA-2	Tritax Big Box REIT plc Senior Note Series A	2	66,947,702	53,808,016
57629*JP7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		13,236,826	10,209,551	11/10/2022	12/11/2028	Currency Swap			G1151#-AA-2	Bellway Plc Senior Note Series A	2	13,236,826	10,209,551
57629*JP7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		42,525,288	31,822,463	11/10/2022	12/11/2028	Currency Swap			B1000#-AA-0	Aedifica SA Senior Unsecured Notes	2	42,525,288	31,822,463
57629*JP7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		58,206,640	53,653,239	11/10/2022	12/11/2028	Currency Swap			Z2982*-AA-4	Cubitt Global LLC Senior Secured Notes	1	58,206,640	53,653,239
57629*JP7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		57,060,204	53,591,176	11/10/2022	12/11/2028	Currency Swap			Z2982*-AB-2	Cubitt Global LLC Senior Secured Notes Series 6	1	57,060,204	53,591,176
57629*KP5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	296,292,208	14,873,956	23,550,463	11/10/2022	10/31/2034	Currency Swap	(30,165,787)	(8,744,580)	G2686#-AB-4	Great Rolling Stock Comp Senior Secured	2	45,039,743	32,295,043
57629*KP5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		55,413,937	46,042,936	11/10/2022	10/31/2034	Currency Swap			00183F-AA-3	Anno 2017 Joint Holding Senior Secured	2	55,413,937	46,042,936
57629*KP5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		223,718	202,349	11/10/2022	10/31/2034	Currency Swap			E6732#-AA-3	ITEMOSA 3.40%	2	223,718	202,349
57629*KP5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		13,243,272	10,725,972	11/10/2022	10/31/2034	Currency Swap			G2854#-AA-0	Dudgeon Offshore Wind Lt Senior Secured Notes	1	13,243,272	10,725,972
57629*KP5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		57,945,443	45,103,948	11/10/2022	10/31/2034	Currency Swap			X2313#-AA-6	Eruca Investments Limite Senior Secured Notes	2	57,945,443	45,103,948
57629*KP5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		27,326,044	20,885,944	11/10/2022	10/31/2034	Currency Swap			L0808#-AG-2	Beacon Finco S.a.r.l Senior Secured Note Series F	2	27,326,044	20,885,944
57629*KP5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		122,629,252	87,424,019	11/10/2022	10/31/2034	Currency Swap			G6954#-AD-4	Peabody Trust Senior Secured Notes	1	122,629,252	87,424,019
57629*KP5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		35,733,626	27,537,908	11/10/2022	10/31/2034	Currency Swap			G3646#-AB-9	Forth Ports Finance plc Senior Secured	2	35,733,626	27,537,908
57629*KNO	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	299,999,655	(8,558,524)	1,763,669	11/14/2022	12/12/2027	Currency Swap	(34,367,565)	(17,193,954)	G3461#-AA-5	VIVID Housing Limited	1	25,809,041	18,957,623
57629*KNO	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		43,910,840	31,133,580	11/14/2022	12/12/2027	Currency Swap			G6462*-AA-9	Newton Housing Trust Senior Secured	1	43,910,840	31,133,580
57629*KNO	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		7,289,625	5,317,500	11/14/2022	12/12/2027	Currency Swap			G294A#-AC-3	Dyson Finance Limited Senior Note Ser	1	7,289,625	5,317,500
57629*KNO	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		26,353,965	19,930,654	11/14/2022	12/12/2027	Currency Swap			G9302#-AB-1	University of West Londo Senior Secured	2	26,353,965	19,930,654
57629*KNO	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		90,024,647	72,895,880	11/14/2022	12/12/2027	Currency Swap			G8056*-AB-5	Severn Trent Water Limit Senior Note Ser	2	90,024,647	72,895,880
57629*KNO	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		19,863,439	17,135,651	11/14/2022	12/12/2027	Currency Swap			G6970*-AJ-5	Peel Ports PP Finance Lt Senior Secured	2	19,863,439	17,135,651
57629*KNO	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		23,991,792	20,338,230	11/14/2022	12/12/2027	Currency Swap			G9766#-AE-4	Workspace Group plc Senior Note Ser	2	23,991,792	20,338,230
57629*KNO	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		111,546,681	94,930,804	11/14/2022	12/12/2027	Currency Swap			G36012-AA-5	National Express Group P Senior Note Series A	2	111,546,681	94,930,804
57629*LF6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	224,801,721	8,969,006	14,262,657	11/14/2022	07/31/2039	Currency Swap	(26,966,703)	(9,242,172)	G9288#-AA-1	University of Brighton Senior Secured	2	935,935,709	23,504,829
57629*LF6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		18,034,070	15,607,491	11/14/2022	07/31/2039	Currency Swap			G3087#-AA-7	EQUITIX SOLAR FINCO 4 LTD GBP TERM LN	2	18,034,070	15,607,491
57629*LF6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		79,290,716	66,213,819	11/14/2022	07/31/2039	Currency Swap			G8408#-AA-8	St. James's Oncology Sr Note	1	79,290,716	66,213,819

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*LF6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		29,146,686	23,635,880	11/14/2022	07/31/2039	Currency Swap				302500-ZZ-9	FCC Energy Limited Senior Secured GIP III Jupiter LTD Senior Secured	2	29,146,686	23,635,880
57629*LF6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		42,517,512	35,616,085	11/14/2022	07/31/2039	Currency Swap				G3426#-AB-5	Notes BIIF Bidco Limited Senior Secured	2	42,517,512	35,616,085
57629*LF6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		41,973,830	32,123,824	11/14/2022	07/31/2039	Currency Swap				G1093*-AC-3	Notes Last Mile Infrastructure Senior Secured Notes (Delayed Tranche)	2	41,973,830	32,123,824
57629*LF6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		8,727,428	6,446,985	11/14/2022	07/31/2039	Currency Swap				G5383*-AA-7	Notes Curo Places Ltd. Senior Secured	2	8,727,428	6,446,985
57629*LF6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		6,239,280	3,499,522	11/14/2022	07/31/2039	Currency Swap				G2711*-AB-5	Notes Shurgard Luxembourg Sarl Gtd Senior	1	6,239,280	3,499,522
57629*LE9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	159,288,575	(1,169,967)	1,031,299	11/14/2022	10/30/2027	Currency Swap	(14,362,215)	(10,803,002)		L8367#-AE-3	Note Dyson Finance Limited Gtd Senior	2	13,192,248	11,834,301
57629*LE9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		22,701,591	20,767,976	11/14/2022	10/30/2027	Currency Swap				G294A#-AG-4	Note Jones Lang LaSalle Finan Gtd Senior	1	22,701,591	20,767,976
57629*LE9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		13,171,057	11,552,893	11/14/2022	10/30/2027	Currency Swap				48021P-A*-9	Note Segro Plc Senior Unsecured	2	13,171,057	11,552,893
57629*LE9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		64,001,757	53,288,498	11/14/2022	10/30/2027	Currency Swap				G7996#-AA-8	Budapest Airport Zrt. Tranche 2	1	64,001,757	53,288,498
57629*LE9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		14,010,723	12,320,464	11/14/2022	10/30/2027	Currency Swap				X0827*-AA-3	Origo Airport Hungary Krt. Tranche 2	2	14,010,723	12,320,464
57629*LE9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		21,440,941	18,854,298	11/14/2022	10/30/2027	Currency Swap				X0032*-AA-4	Origo Bidcorp Foodservice Inte Senior	2	21,440,941	18,854,298
57629*LE9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		4,352,680	3,908,054	11/14/2022	10/30/2027	Currency Swap				G1267*-AA-7	Unsecured Notes ASR Media and Sponsorshi Senior	2	4,352,680	3,908,054
57629*LE9	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		21,971,873	25,613,094	11/14/2022	10/30/2027	Currency Swap				T0149#-AA-7	Secured Notes Network Homes Limited Senior	2	21,971,873	25,613,094
57629*LD1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1	53,114,700	50,988,155	37,592,585	11/07/2022	01/15/2049	Currency Swap	(6,650,500)	(1,598,925)		G6428#-AD-2	Secured Notes Rock Rail Southwestern p Senior	1	57,638,655	39,191,510
57629*LC3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	152,804,597	76,603,023	66,783,237	11/15/2022	12/31/2047	Currency Swap	(13,610,550)	604,450		G7612#-AA-2	Secured Enfinium Holding Limited Senior	2	90,213,573	66,178,787
57629*LC3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		70,902,414	42,259,997	11/15/2022	12/31/2047	Currency Swap				G2018*-AA-7	Secured Notes Akiem Holding SAS Green Senior	2	70,902,414	42,259,997
57629*LB5	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	23,217,790	24,951,106	15,227,385	11/16/2022	04/13/2041	Currency Swap	(1,293,120)	(600,181)		F1000#-AD-0	Notes Series B Henderson International Senior	2	26,244,226	15,827,566
57629*LA7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1	26,465,280	26,595,875	18,322,254	11/16/2022	04/30/2044	Currency Swap	(1,484,800)	(552,139)		G4460*-AB-4	Unsecured Notes Via Solutions Nord GmbH Senior	1	28,080,675	18,874,393
57629*KZ3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	238,182,803	16,158,308	16,151,994	11/16/2022	08/31/2043	Currency Swap	(13,071,288)	(8,879,442)		D8T8A2-AA-3	Secured DirectRoute (Tuam) Limit Senior	1	29,229,596	25,031,436
57629*KZ3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		27,082,827	22,629,207	11/16/2022	08/31/2043	Currency Swap				25461C-AA-0	Secured Gorey To Ennisorthy M11 Senior	2	27,082,827	22,629,207
57629*KZ3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		44,554,453	37,327,960	11/16/2022	08/31/2043	Currency Swap				382879-AA-2	Secured	2	44,554,453	37,327,960
57629*KZ3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		21,745,504	19,668,411	11/16/2022	08/31/2043	Currency Swap				E6732#-AA-3	ITEMOSA 3.40% P/F Eystur-og Sandoyartu Senior	2	21,745,504	19,668,411
57629*KZ3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		67,156,404	64,738,192	11/16/2022	08/31/2043	Currency Swap				K7784*-AA-3	Secured	1	67,156,404	64,738,192
57629*KZ3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		44,119,421	33,498,286	11/16/2022	08/31/2043	Currency Swap				B7000#-AB-5	Puratos NV Senior Note Series B	2	44,119,421	33,498,286
57629*KZ3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		5,355,588	4,984,604	11/16/2022	08/31/2043	Currency Swap				U74079-AR-2	Netflix Inc-SENIOR UNSECURED	2	5,355,588	4,984,604
57629*KY6	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	123,383,920	143,607,397	113,620,134	11/16/2022	06/30/2050	Currency Swap	(6,758,640)	(2,494,270)		G2044*-AA-5	Secured Channel Link Enterprises Senior	2	150,366,037	116,114,404
57629*KX8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	150,220,554	36,817,171	31,604,347	11/16/2022	12/31/2027	Currency Swap	(8,397,242)	(6,368,517)		B8550#-AA-9	Unicore SA Senior Note Ser	2	45,214,413	37,972,864
57629*KX8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		98,580,147	83,539,951	11/16/2022	12/31/2027	Currency Swap				372460-D#-1	Secured Genuine Parts Company Senior Note	2	98,580,147	83,539,951
57629*KX8	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		21,764,530	18,831,704	11/16/2022	12/31/2027	Currency Swap				031100-N*-7	T AMETEK, Inc. Senior Secured Series	2	21,764,530	18,831,704
57629*KI0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2	152,175,310	58,663,427	56,764,234	11/17/2022	06/27/2026	Currency Swap	(9,083,550)	(7,065,254)		G2037*-AE-6	Chanel Ltd EURO SR NT SER A	1	67,746,977	63,829,488

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*KI0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		39,463,727	36,017,250	11/17/2022	06/27/2026	Currency Swap				K2162@-AG-1	Danish Crown A/S Senior Unsecured Note	2	39,463,727	36,017,250
57629*KI0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		16,243,087	14,807,192	11/17/2022	06/27/2026	Currency Swap				227047-A@-6	Croda International plc Senior Note Ser	2	16,243,087	14,807,192
57629*KI0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		16,187,148	13,223,264	11/17/2022	06/27/2026	Currency Swap				G5264#-AV-1	Kingspan Securities 2017 Gtd Senior Note	2	16,187,148	13,223,264
57629*KI0	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		21,418,360	19,128,089	11/17/2022	06/27/2026	Currency Swap				G0488*-AA-2	Atlantica Yield Plc Senior Secured Notes	2	21,418,360	19,128,089
57629*KV2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		259,433,524	15,544,400	11/18/2022	11/30/2026	Currency Swap	(13,052,788)	(9,696,733)			TanQuid GmbH & Co. KG Senior Secured	1	27,589,440	25,241,133
57629*KV2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		38,480,130	34,816,505	11/18/2022	11/30/2026	Currency Swap				031100-H@-2	AMETEK, Inc. Senior Note	2	38,480,130	34,816,505
57629*KV2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		43,211,840	40,450,431	11/18/2022	11/30/2026	Currency Swap				G5264#-AS-8	Kingspan Group PLC Gtd Senior Note	2	43,211,840	40,450,431
57629*KV2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		38,781,250	36,298,688	11/18/2022	11/30/2026	Currency Swap				83379Z-MM-0	Sodiaal International S. Senior Note	2	38,781,250	36,298,688
57629*KV2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		11,380,720	10,375,909	11/18/2022	11/30/2026	Currency Swap				B9550@-AC-5	Umicore SA Senior Note Series A ...	2	11,380,720	10,375,909
57629*KV2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		9,436,780	8,501,123	11/18/2022	11/30/2026	Currency Swap				285295-B*-1	Electrocomponents plc Senior Notes Series A	2	9,436,780	8,501,123
57629*KV2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		83,898,000	74,828,069	11/18/2022	11/30/2026	Currency Swap				D2R140-ZZ-2	GLOBAL TIP FIN B V EUR FAC B LN ...	2	83,898,000	74,828,069
57629*KV2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		20,104,494	20,000,000	11/18/2022	11/30/2026	Currency Swap				81809#-MM-6	17 Capital Fund 5 Partners Fund Borrower Limited - Term Loan Facility	1	20,104,494	20,000,000
57629*KU4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		85,151,655	(2,084,237)	11/18/2022	12/16/2026	Currency Swap	(5,831,325)	(2,520,879)		G2479@-AB-5	Covent Garden Group Holdings Limited Senior Note Series B	1	3,747,088	2,719,996
57629*KU4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		12,336,478	8,995,604	11/18/2022	12/16/2026	Currency Swap				G1744#-AS-7	Cadogan Estates Ltd Gtd Senior Note	2	12,336,478	8,995,604
57629*KU4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		14,049,521	11,238,199	11/18/2022	12/16/2026	Currency Swap				40637C-C*-9	HALMA PLC GBP SER G SR NT	2	14,049,521	11,238,199
57629*KU4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		29,858,018	25,914,757	11/18/2022	12/16/2026	Currency Swap				227047-B*-7	Croda International plc Senior Note Ser	2	29,858,018	25,914,757
57629*KU4	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		32,104,606	28,079,862	11/18/2022	12/16/2026	Currency Swap				G2479@-AC-3	Covent Garden Group Hold Senior Note Ser	1	32,104,606	28,079,862
57629*KI7	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		50,040,690	51,412,370	11/21/2022	12/04/2044	Currency Swap	97,370	844,238		Q0832*-AK-2	Australian Pacific Airpo Gtd Senior Secured Note Series 2019D	2	51,315,000	31,014,001
57629*K9S	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		46,391,010	48,518,531	11/22/2022	07/07/2030	Currency Swap	331,562	468,739		Q8749#-AN-5	Westrac Pty Ltd Senior Unsecured Notes	2	48,186,969	40,909,411
57629*KR1	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,696,148	15,869,814	11/22/2022	03/15/2052	Currency Swap	13,212	896,183		Q8059@-AC-7	Registry Finance Pty Ltd Gtd Senior Secured Note Series C	1	15,856,602	10,146,520
57629*KQ3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		255,229,822	76,281,560	11/22/2022	10/31/2049	Currency Swap	(17,914,633)	8,985,408		G2451*-AA-1	Cottsway Housing Associa Senior Secured Notes	1	94,196,193	56,011,895
57629*KQ3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		83,002,974	45,493,785	11/22/2022	10/31/2049	Currency Swap				G2711*-AC-3	Curo Places Ltd. Senior Secured Note Series C	1	83,002,974	45,493,785
57629*KQ3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		60,376,142	45,610,966	11/22/2022	10/31/2049	Currency Swap				G3029@-AA-0	Eastlands Arena Limited Senior Secured Notes	2	60,376,142	45,610,966
57629*KQ3	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		20,840,108	15,964,288	11/22/2022	10/31/2049	Currency Swap				G1128*-AA-6	BIRMINGHAM ARPT FIN PLC-SER A SR NOTE GBP	2	20,840,108	15,964,288
57629*LH2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		94,480,000	27,851,826	11/23/2022	09/17/2050	Currency Swap	(7,248,000)	3,759,046		G8143#-AB-4	Two Rivers Housing Senior Secured Note Series B	2	52,022,542	24,092,780
57629*LH2	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		49,392,873	24,092,780	11/23/2022	09/17/2050	Currency Swap				G8143#-AA-6	Two Rivers Housing Senior Secured Notes	2	49,392,873	24,092,780
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		17,724,000	15,852,000	11/23/2022	11/01/2052	Currency Swap	(1,350,000)	847,470		G7150*-AA-4	Plus Dane Housing Limite Senior Secured Notes	1	17,202,000	10,353,901
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		9,477,037	10,000,000	11/23/2022	11/01/2052	Currency Swap				68324Z-MQ-6	PCRED II HOLDING I LLC, PCRED II HOLDING I OFFSHORE LP and PCRED II HOLDCO ARGUS S.A R.L., -Term Loan Series 2022-2	1	9,477,037	10,000,000

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held				
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	268,753,262	23,895,892	33,069,050	11/23/2022	06/30/2046	Currency Swap	(20,641,816)	4,395,745	G9288@-AC-9	University of East Angli Senior Secured	1	44,537,708	28,673,305
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		51,768,613	36,831,306	11/23/2022	06/30/2046	Currency Swap			G7611*-AA-7	Rock Rail East Anglia pl Senior Secured	2	51,768,613	36,831,306
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		35,444,514	25,034,778	11/23/2022	06/30/2046	Currency Swap			G6853@-AE-6	Oxford Brookes Universit Senior Note Series E	2	35,444,514	25,034,778
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		102,752,626	61,048,308	11/23/2022	06/30/2046	Currency Swap			G2564*-AA-5	Cross London Trains Limi Senior Secured Notes	2	102,752,626	61,048,308
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		58,397,305	36,883,471	11/23/2022	06/30/2046	Currency Swap			G9369*-AA-7	Viridor Energy Group Lim Senior Secured Note	2	58,397,305	36,883,471
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		863,509	489,933	11/23/2022	06/30/2046	Currency Swap			G2711*-AA-7	Curo Places Ltd. Senior Secured Notes	1	863,509	489,933
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	53,370,000	49,677,083	36,456,067	11/25/2022	01/15/2050	Currency Swap	(3,852,000)	1,282,935	G9000#-AD-2	Tottenham Hotspur Limite Senior Secured Note Series D	2	53,529,083	35,173,132
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1Z	13,285,912	14,353,351	10,091,355	11/25/2022	03/15/2047	Currency Swap	(68,092)	490,323	Q8059@-AB-9	Registry Finance Pty Ltd Gtd Senior Secured Note Series B	1	14,421,443	9,601,032
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	514,618,744	(15,877,079)	(8,284,643)	11/25/2022	12/31/2038	Currency Swap	(32,310,823)	(23,441,996)	B0R0HP-XX-8	Alpha Trains Finance S.A Term Loan	2	16,433,744	15,157,353
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		12,065,978	10,999,886	11/25/2022	12/31/2038	Currency Swap				VELA ENERGY FINANCE SA-SECURED	2	12,065,978	10,999,886
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		14,517,421	13,247,946	11/25/2022	12/31/2038	Currency Swap			9991DM-TP-6	ITEPESA 3.34%	2	14,517,421	13,247,946
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		14,709,865	12,317,991	11/25/2022	12/31/2038	Currency Swap				Sonmedix Espana Finance -SENIOR UNSECURED	2	14,709,865	12,317,991
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		30,463,834	27,260,773	11/25/2022	12/31/2038	Currency Swap			K8808*-AA-3	SIKUKI NUJK HARBOUR A/S SR SEC0 NT	1	30,463,834	27,260,773
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		73,020,563	55,246,175	11/25/2022	12/31/2038	Currency Swap			G7605#-AD-5	Roadster Finance DAC Senior Secured Notes	2	73,020,563	55,246,175
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		2,534,366	2,175,553	11/25/2022	12/31/2038	Currency Swap				Sonmedix Espana Finance -SENIOR UNSECURED	2	2,534,366	2,175,553
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		47,506,956	37,332,262	11/25/2022	12/31/2038	Currency Swap			F1000#-AA-6	Akiem Holding SAS Senior Secured Notes (Amortizing)	2	47,506,956	37,332,262
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		31,389,412	25,284,562	11/25/2022	12/31/2038	Currency Swap			067325-ZZ-6	Linia Nou Tram Dos S.A. EUR Term Loan	2	31,389,412	25,284,562
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		37,916,800	37,149,783	11/25/2022	12/31/2038	Currency Swap				Bothwell Spain SA-SECURED	2	37,916,800	37,149,783
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		30,962,411	26,629,910	11/25/2022	12/31/2038	Currency Swap				Eliantus Finco Duo, S.A. 2.20 31/12/2038	2	30,962,411	26,629,910
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		22,099,671	18,729,095	11/25/2022	12/31/2038	Currency Swap			L05270-ZZ-6	BEIP S.a.r.l - EUR Term Loan	2	22,099,671	18,729,095
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		33,007,978	26,355,575	11/25/2022	12/31/2038	Currency Swap			E6168#-AA-4	Hypesol Solar Inversione Senior Secured Notes	1	33,007,978	26,355,575
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		47,889,206	32,481,018	11/25/2022	12/31/2038	Currency Swap				Renovables Atlasol SA-SECURED	2	47,889,206	32,481,018
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		27,571,543	24,137,321	11/25/2022	12/31/2038	Currency Swap			F2839H-AA-8	Dunkerque LNG Holding SA Senior Secured Notes	2	27,571,543	24,137,321
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		35,224,000	32,678,000	11/25/2022	12/31/2038	Currency Swap			F2000@-AB-4	C2 Developpement Senior Unsecured Notes	2	35,224,000	32,678,000
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		28,396,145	27,564,683	11/25/2022	12/31/2038	Currency Swap			L05270-YY-0	BEIP S.a.r.l - 2022 EUR Fixed Senior Term Loan	2	28,396,145	27,564,683
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		6,233,578	5,459,411	11/25/2022	12/31/2038	Currency Swap			T06552-YY-2	Autostrada Wielkopolska Senior Secured	1	6,233,578	5,459,411
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	69,616,475	69,101,760	59,708,344	11/25/2022	12/31/2036	Currency Swap	(759,715)	151,985	66815P-AB-6	Northwestern Hydro Acqui Senior Secured Notes	2	69,861,475	59,556,359
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1Z	11,580,492	15,348,336	10,170,002	11/25/2022	11/15/2034	Currency Swap	283,467	15,161	J3891#-AB-8	Lilly Japan Financing Go Senior Note Series B	1	15,064,869	10,154,841
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	29,864,118	29,757,696	24,949,496	11/29/2022	11/25/2030	Currency Swap	(307,882)	34,342	C3298@-AC-4	ALS Canada Limited Senior Unsecured Notes	2	30,065,578	24,915,154

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held				
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	10,311,589	12,259,381	10,235,813	11/29/2022	01/07/2032	Currency Swap	(97,751)	33,789	763169-D8-5	Richardson International Senior Secured Debentures Series 2021-2 (CAD)	2	12,357,132	10,202,024
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1Z	77,746,500	77,483,248	38,207,719	11/30/2022	11/24/2056	Currency Swap	(4,907,500)	3,158,107	G5695*-AB-8	The MDS Estates Limited Senior Unsecured Notes	1	82,390,748	35,049,612
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	180,457,857	(4,987,059)	(3,039,005)	12/07/2022	06/30/2032	Currency Swap	(7,255,451)	(5,337,183)	R6236T-YY-0	Norspan LNG AS Fixed Rate Loan	1	2,269,392	2,298,178
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		38,708,169	35,178,012	12/07/2022	06/30/2032	Currency Swap			F1068#-AG-2	Bonduelle SCA Gtd Senior Note	2	38,708,169	35,178,012
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		38,045,000	34,193,414	12/07/2022	06/30/2032	Currency Swap			K8553*-AA-0	Scandlines ApS Senior Secured Club Atletico de Madrid Euro Fac A Ln	2	38,045,000	34,193,414
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		82,959,167	69,508,636	12/07/2022	06/30/2032	Currency Swap			189471-ZZ-1	Sisu Industrial Energy Solutions Oy	2	82,959,167	69,508,636
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		6,906,805	7,116,536	12/07/2022	06/30/2032	Currency Swap			X7760Y-AB-6	Club Atletico de Madrid - 2022 EUR Fixed Senior Term Loan	2	6,906,805	7,116,536
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		10,077,326	8,191,280	12/07/2022	06/30/2032	Currency Swap			189471-YY-5	AUTOSTRADA WIELKOPOLSKA TERM LOAN	2	10,077,326	8,191,280
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		6,658,806	5,625,750	12/07/2022	06/30/2032	Currency Swap			T06552-ZZ-8	DENTSPLY SIRONA Inc. Senior Note Ser	1	6,658,806	5,625,750
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	48,089,172	44,972,532	45,088,771	12/08/2022	08/15/2028	Currency Swap	(2,538,108)	(2,407,060)	24906P-B*-9	DENTSPLY SIRONA Inc. Senior Note Ser	2	47,510,640	47,495,831
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	21,552,182	20,155,542	20,774,899	12/08/2022	08/15/2026	Currency Swap	(1,135,098)	(1,040,554)	24906P-A*-0	Keyera Partnership Gtd Senior Note	2	21,290,640	21,815,453
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	16,711,867	18,062,477	15,587,714	12/09/2022	09/20/2027	Currency Swap	(486,173)	(373,405)	C4931*-BC-6	GPC Asia Pacific Holding Senior Unsecured Notes	2	18,548,650	15,961,119
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	43,621,500	45,310,800	40,729,400	12/09/2022	06/30/2026	Currency Swap	279,500	402,160	Q3973*-AB-5	IMI PLC Senior Note	2	45,031,300	40,327,240
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	156,371,780	24,606,460	25,304,797	12/09/2022	12/19/2025	Currency Swap	(5,869,700)	(4,390,074)	G4691#-AD-7	Sonepar S.A. Senior Note Ser	2	30,476,160	29,694,871
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		26,139,440	23,948,452	12/09/2022	12/19/2025	Currency Swap			F8568#-AE-9	Shurgard Luxembourg Sarl Gtd Senior Note	2	26,139,440	23,948,452
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		13,111,020	12,119,236	12/09/2022	12/19/2025	Currency Swap			L8367#-AD-5	SHV NEDERLAND BV EURO TERM LN	2	13,111,020	12,119,236
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		65,869,790	65,007,865	12/09/2022	12/19/2025	Currency Swap			N7660Z-TT-0	Johnson Matthey PLC Senior Note Series A	2	65,869,790	65,007,865
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		25,673,600	23,016,467	12/09/2022	12/19/2025	Currency Swap			479142-D8-7	Coates Group Pty Ltd Senior Note Series 2022-E (AUD)	1	25,673,600	23,016,467
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	3,985,450	4,297,560	3,243,604	12/12/2022	01/12/2032	Currency Swap	51,330	48,639	Q2600#-AE-0	Vartan Gas AB - 12 Year Fixed Rate	2	4,246,230	3,194,965
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	16,574,646	20,222,322	15,085,717	12/12/2022	09/30/2033	Currency Swap	653,646	904,893	W9792#-AB-0	Vartan Gas AB - 10 Year Fixed Rate	2	19,568,676	14,180,824
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	5Z	29,639,898	20,759,574	15,857,543	12/12/2022	12/17/2031	Currency Swap	1,190,898	1,533,479	W9792#-AA-2	SISU Industrial Energy Solutions OY-SEK Fixed Term Loan	2	19,568,676	14,324,064
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	5Z		14,823,111	11,246,347	12/12/2022	12/17/2031	Currency Swap			X7552#-AA-7	Braker Corporation Senior Unsecured Notes	5	14,823,111	11,246,347
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	36,170,441	32,716,191	33,389,874	12/13/2022	12/11/2029	Currency Swap	(1,492,679)	(1,531,484)	116794-B#-6	Keyera Corp Senior Note Ser	2	34,208,870	34,921,358
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	56,021,899	16,281,313	15,762,824	12/13/2022	11/17/2026	Currency Swap	(1,536,794)	(970,179)	C4931*-BA-0	FA MGT Limited Partnersh Senior Secured	2	17,818,107	16,733,003
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		39,041,704	37,361,164	12/13/2022	11/17/2026	Currency Swap			C3346#-AA-8	CSL Finance Pty Ltd-GTD SENIOR NOTE SERIES B CHF	2	39,041,704	37,361,164
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1Z	51,446,945	47,448,545	50,193,377	12/13/2022	10/08/2025	Currency Swap	(2,197,855)	(2,129,508)	Q1297#-AJ-7	Copenhagen Airports A/S-SENIOR NOTE	1	49,646,400	52,322,885
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	42,388,280	43,552,820	40,400,082	12/14/2022	08/27/2025	Currency Swap	(1,386,480)	(1,138,227)	K3752#-AH-1	Dyson Finance Limited Gtd Senior Note	2	44,939,300	41,538,309
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	1Z	15,496,055	20,051,021	14,929,569	12/14/2022	03/15/2027	Currency Swap	831,596	415,026	G294A#-AD-1	Argiva Broadcast Parent Limited - GBP Subordinated Term Loan	1	19,219,425	14,514,543
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	24,566,000	21,793,175	24,928,285	12/14/2022	05/02/2025	Currency Swap	(866,000)	(376,555)	104974-ZZ-6		3	22,659,175	25,304,840

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions							
1	2	3	4	5	6	7	8	Derivative Instrument(s) Open			Cash Instrument(s) Held				
Number	Description	NAIC Designation or Other Description	Notional Amount	Book/Adjusted Carrying Value	Fair Value	Effective Date	Maturity Date	9	10	11	12	13	14	15	16
								Description	Book/Adjusted Carrying Value	Fair Value	CUSIP	Description	NAIC Designation or Other Description	Book/Adjusted Carrying Value	Fair Value
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		493,434	279,962	12/14/2022	05/02/2025	Currency Swap			G2711*-AA-7	Curro Places Ltd. Senior Secured Notes	1	493,434	279,962
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		9,477,037	10,000,000	12/14/2022	05/02/2025	Currency Swap			69324Z-MQ-6	PCRED II HOLDING I LLC, PCRED II HOLDING I OFFSHORE LP and PCRED II HOLDCO ARGUS S.A R.L.,-Term Loan Series 2022-2	1	9,477,037	10,000,000
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z	100,581,390	28,054,792	23,186,234	12/14/2022	08/28/2025	Currency Swap	(3,562,650)	(1,087,107)	G6750*-AC-6	1887 CO LTD GBP SER C SR SECN NT	2	31,617,442	24,273,341
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		25,222,104	19,487,746	12/14/2022	08/28/2025	Currency Swap			G294A*-AA-7	Dyson Finance Limited Senior Note Ser	1	25,222,104	19,487,746
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		24,011,390	18,707,339	12/14/2022	08/28/2025	Currency Swap			G9302*-AA-3	University of West Londo Senior Secured	2	24,011,390	18,707,339
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		18,937,804	16,059,955	12/14/2022	08/28/2025	Currency Swap			G1696*-BK-1	Bunzl Finance plc-GTD SENIOR NOTE SERIES C -GBP	2	18,937,804	16,059,955
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		14,267,344	14,123,196	12/14/2022	08/28/2025	Currency Swap			G3301*-AA-1	FIL Limited Senior Unsecured Notes	2	14,267,344	14,123,196
Awaiting PPN	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		20,000,000	22,437,981	01/31/2023	01/31/2033	Currency Swap	(1,836,000)	(1,775,939)	G8356*-AA-4	Spirax-Sarco Engineering Senior Unsecure	2	26,273,981	23,945,536
57629*LUJ	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		18,445,000	14,386,831	06/27/2023	06/27/2030	Currency Swap	(661,500)	(651,326)	877409-A#-9	Taylor Wimpey PLC Senior Notes	2	14,447,930	15,038,157
57629*LUJ	Evergreen basket of USD Fixed Rate ABS Bank Loans and Corporate Bonds	2		15,879,230	11,821,088	06/27/2023	06/27/2030	Currency Swap			Z03502-21-3	Perusahaan Listrik Negar-SENIOR UNSECURED	2	15,879,230	11,821,088
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		82,552,141	39,135,374	02/24/2023	02/26/2025	TRS Bond Index			48661C-AA-0	Rad CLO 7 Ltd-RAD 2020-7A A1	1	39,135,374	39,537,600
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		29,652,709	29,514,300	02/24/2023	02/26/2025	TRS Bond Index			14316W-AA-7	Carlyle Global Market St-CGMS 2021-7A A1	1	29,652,709	29,514,300
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		24,916,116	25,077,000	02/24/2023	02/26/2025	TRS Bond Index			40639G-AA-7	Halseypoint Clo 6 Ltd-HLSY 2022-6A A1	1	24,916,116	25,077,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		13,310,000	13,283,231	02/22/2024	02/22/2034	Currency Swap	(677,600)	682,476	912810-QK-7	US TREASURY N/B-BOND	1	13,960,831	14,903,907
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		2,097,333	1,559,367	04/04/2023	03/05/2038	Currency Swap	(1,518,000)	73,168	G6260*-AA-9	MORhones plc Senior Secured Notes Espai Barca FT - Senior Unsecured	2	3,077,367	2,388,039
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		38,045,000	37,457,841	05/31/2023	06/30/2043	Currency Swap	(65,659)	(2,150,963)	E5000*-AB-0	Note Series A2	2	37,523,500	40,682,821
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		27,175,000	26,634,500	05/31/2023	06/30/2047	Currency Swap	(168,000)	(2,249,924)	E5000*-AC-8	Espai Barca FT - Senior Unsecured Note Series A3	2	26,802,500	30,863,466
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		52,420,800	50,601,720	02/08/2023	10/01/2052	Currency Swap	(968,220)	(2,399,160)	09778P-A*-6	Bon Secours Mercy Health Senior Secured Notes	1	51,569,940	53,503,700
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		5,026,123	5,000,000	02/08/2023	10/01/2052	Currency Swap			81809*-MN-6	17 Capital Fund 5 Partners Fund Borrower Limited - Term Loan Facility	1	5,026,123	5,000,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		30,085,000	29,110,000	02/08/2023	02/01/2053	Currency Swap	(1,705,000)	197,990	G7150*-AB-2	Plus Dane Housing Limite Senior Secured Notes (Delayed Tranche)	1	30,815,000	17,342,430
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		17,952,000	17,787,100	05/22/2023	05/22/2033	Currency Swap	(608,600)	(1,055,546)	G9006*-AM-8	Transmission Finance DAC Senior Secured Notes	2	18,395,700	18,782,176
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		36,630,000	37,158,000	03/31/2023	03/31/2033	Currency Swap		211,220	G9720*-AA-9	Wireless Infrastructure Senior Secured Notes	2	37,158,000	34,987,782
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		69,201,121	74,548,353	03/21/2023	03/27/2026	Currency Forward	(489,628)	(964,776)	912810-QK-7	US TREASURY N/B-BOND	1	70,734,877	75,513,129
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		218,538,925	4,756,128	04/25/2023	04/25/2024	TRS Bond Index		(4,771,404)	57174B-AZ-5	Marsh & McLennan Cos Inc-SR UNSECURED	2	4,756,128	4,594,977
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		10,550,000	10,313,364	04/25/2023	04/25/2024	TRS Bond Index			74983A-AC-7	RR 19 Ltd-RRAM 2021-19A A2	1	10,550,000	10,313,364
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		17,417,140	16,831,087	04/25/2023	04/25/2024	TRS Bond Index			52107Q-AG-0	LAZARD GROUP LLC-SENIOR UNSECURED	2	17,417,140	16,831,087
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		8,518,774	8,273,334	04/25/2023	04/25/2024	TRS Bond Index			780082-AD-5	Royal Bank of Canada-SUBORDINATED	1	8,518,774	8,273,334
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		18,904,980	18,556,838	04/25/2023	04/25/2024	TRS Bond Index			00830Y-AB-7	Africa Finance Corp-SENIOR UNSECURED	1	18,904,980	18,556,838
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		16,652,095	15,652,184	04/25/2023	04/25/2024	TRS Bond Index			74340X-BH-3	Prologis LP-SENIOR UNSECURED	1	16,652,095	15,652,184

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SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions									
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held						
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value		
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		14,000,000	13,477,968	04/25/2023	04/25/2024	TRS Bond Index				67592R-AC-7	Wells Fargo-OCT53 2021-1A B	1		14,000,000	13,477,968
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		28,734,248	26,938,928	04/25/2023	04/25/2024	TRS Bond Index				911312-AJ-5	UNITED PARCEL SERVICE IN-SENIOR UNSECURED NOTE	1		28,734,248	26,938,928
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		7,500,000	6,411,300	04/25/2023	04/25/2024	TRS Bond Index				06654D-AB-3	Banner Health-UNSECURED BANK OF AMERICA CORP-SENIOR UNSECURED	1		7,500,000	6,411,300
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		2,888,057	2,841,737	04/25/2023	04/25/2024	TRS Bond Index				06051G-GA-1	MM Investment Holding Revolver	1		2,888,057	2,841,737
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		136,412,335	121,644,199	04/25/2023	04/25/2024	TRS Bond Index				57542Z-A7-2	Floating Line	2		136,412,335	121,644,199
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		15,000,000	14,574,045	04/25/2023	04/25/2024	TRS Bond Index				67102Q-AZ-1	OHA Credit Partners VII -SERIES 2012-7A CLASS BR3	1		15,000,000	14,574,045
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		67,152,873	75,000,000	04/26/2023	04/26/2024	TRS Bond Index		(2,293,266)		46143H-MY-0	Invesco CMI Investments MM, LLC - Senior Secured Notes - Term Loan Series 2022-10	2		75,000,000	75,000,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		207,031,250	215,000,000	06/08/2023	06/11/2025	TRS Bond Index		121,146		57542Z-A7-2	MM Investment Holding Revolver	2		215,000,000	191,723,885
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		18,018,000	18,048,500	06/20/2023	06/20/2030	Currency Swap	7,400	(418,900)		L3551F-AN-0	Ferrero International SA Gtd Senior Note Series B	2		18,041,100	17,670,367
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		40,404,000	39,951,500	06/20/2023	06/20/2033	Currency Swap	(504,300)	(1,123,092)		L3551F-AQ-3	Ferrero International SA Gtd Senior Note Series D	2		40,455,800	41,073,405
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		18,690,000	18,798,000	05/10/2023	05/12/2030	Currency Swap	(120,000)	73,030		L3009F-AA-6	Ergea Group S.A r.L. Guaranteed Secured Senior Notes Series A	2		18,918,000	18,918,986
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		25,563,500	25,308,650	05/16/2023	05/16/2033	Currency Swap	(384,000)	79,332			Ciconia Investments Limi Senior Secured Notes	2		25,692,650	24,808,908
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		25,165,372	46,539,403	12/27/2023	12/29/2030	Currency Swap	3,300	(454,773)		912810-QK-7	US TREASURY N/B-BOND	1		46,536,103	49,679,690
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		250,000,000	260,000,000	04/10/2023	04/10/2053	Interest Rate Swap - SOFR CME cleared		(14,890,919)		18685E-AC-6	Cliffwater Corporate Lending Fund - Senior Secured Revolving Credit Facility	1		260,000,000	260,000,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		200,000,000	193,274,495	04/10/2023	04/10/2053	Interest Rate Swap - SOFR CME cleared		(11,725,505)		901399-MY-8	Twin Brook Capital Funding XIII WSPV, LLC	1		205,000,000	205,000,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		190,000,000	26,967,786	04/10/2023	04/10/2053	Interest Rate Swap - SOFR CME cleared		(11,708,409)		87271L-AJ-1	TIAA CLO I Ltd-TIA 2016-1A AR	1		39,100,000	38,676,195
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		58,000,000	58,000,000	04/10/2023	04/10/2053	Interest Rate Swap - SOFR CME cleared				14308E-AA-6	Carlyle Aviation Runway PDP Fund LP - Revolving Promissary Note	1		58,000,000	58,000,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		64,000,000	64,000,000	04/10/2023	04/10/2053	Interest Rate Swap - SOFR CME cleared				67080B-MM-6	NXT Capital Structured Note I, LLC - Class A Secured Float Rate Revolving Loan	1		64,000,000	64,000,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		31,000,000	31,000,000	04/10/2023	04/10/2053	Interest Rate Swap - SOFR CME cleared				89532Z-MN-9	TREZ CAPITAL MANHATTAN BRIDGE LP - Secured Term Loan Facility - Series 2022-3	1		31,000,000	31,000,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		100,000,000	45,762,787	04/10/2023	04/10/2053	Interest Rate Swap - SOFR CME cleared		(6,237,213)		67099E-MM-7	OHA Credit Solutions Master Fund I SPV, L.P. - Fund I Revolver	1		52,000,000	52,000,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		52,123,702	55,000,000	04/10/2023	04/10/2053	Interest Rate Swap - SOFR CME cleared				68324Z-MQ-6	HOLDING I OFFSHORE LP and PORED II HOLDING I OFFSHORE LP and PORED II HOLDCO ARGUS S.A R.L.,-Term Loan Series 2022-2	1		52,123,702	55,000,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2Z		150,000,000	154,999,996	04/10/2023	04/10/2053	Interest Rate Swap - SOFR CME cleared		(9,313,692)		57542Z-A9-8	MM Investment Holding Revolver	2		154,999,996	138,219,545
57629*DM0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,668,343)	03/15/2023	09/15/2023	Short-dated LIBOR Swap - CME cleared		(1,668,343)							
57629*DL2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2			(1,664,593)	03/15/2023	09/15/2023	Short-dated LIBOR Swap - CME cleared		(1,664,593)							
57629*DP3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2			(1,662,592)	03/15/2023	09/15/2023	Short-dated LIBOR Swap - CME cleared		(1,662,592)							
57629*DN8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2			(1,667,093)	03/15/2023	09/15/2023	Short-dated LIBOR Swap - CME cleared		(1,667,093)							
57629*ERB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2			(999,713)	02/28/2023	08/30/2023	Short-dated LIBOR Swap - CME cleared		(999,713)							

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*EY3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2			(1,318,278)	02/28/2023	08/30/2023	Short-dated LIBOR Swap - CME cleared		(1,318,278)						
57629*EU1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2			(1,310,304)	02/28/2023	08/30/2023	Short-dated LIBOR Swap - CME cleared		(1,310,304)						
57629*FB2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(2,215,139)	03/03/2023	09/03/2023	Short-dated LIBOR Swap - CME cleared		(2,215,139)						
57629*ES6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,836,340)	03/03/2023	09/03/2023	Short-dated LIBOR Swap - CME cleared		(1,836,340)						
57629*EB3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(211,153)	01/09/2023	07/08/2023	Short-dated LIBOR Swap - CME cleared		(211,153)						
57629*EW7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(166,226)	01/09/2023	07/08/2023	Short-dated LIBOR Swap - CME cleared		(166,226)						
57629*FA4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,638,294)	02/13/2023	08/11/2023	Short-dated LIBOR Swap - CME cleared		(1,638,294)						
57629*EJ6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(969,506)	02/21/2023	08/20/2023	Short-dated LIBOR Swap - CME cleared		(969,506)						
57629*FC0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,128,467)	02/21/2023	08/20/2023	Short-dated LIBOR Swap - CME cleared		(1,128,467)						
57629*EV9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,462,344)	02/27/2023	08/25/2023	Short-dated LIBOR Swap - CME cleared		(1,462,344)						
57629*EZ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,457,962)	02/27/2023	08/25/2023	Short-dated LIBOR Swap - CME cleared		(1,457,962)						
57629*FDB	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,620,405)	02/27/2023	08/26/2023	Short-dated LIBOR Swap - CME cleared		(1,620,405)						
57629*FF3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(2,405,866)	12/15/2022	09/15/2023	Short-dated LIBOR Swap - CME cleared		(2,405,866)						
57629*FE6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(3,421,058)	12/29/2022	09/29/2023	Short-dated LIBOR Swap - CME cleared		(3,421,058)						
57629*FT3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(476,393)	01/17/2023	07/14/2023	Short-dated LIBOR Swap - CME cleared		(476,393)						
57629*FU0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(239,225)	01/17/2023	07/14/2023	Short-dated LIBOR Swap - CME cleared		(239,225)						
57629*FJ5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,606,551)	03/02/2023	09/02/2023	Short-dated LIBOR Swap - CME cleared		(1,606,551)						
57629*FK2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(2,006,459)	03/02/2023	09/02/2023	Short-dated LIBOR Swap - CME cleared		(2,006,459)						
57629*FL0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,605,340)	03/02/2023	09/02/2023	Short-dated LIBOR Swap - CME cleared		(1,605,340)						
57629*FIM8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,607,588)	03/02/2023	09/02/2023	Short-dated LIBOR Swap - CME cleared		(1,607,588)						
57629*FN6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,202,838)	03/02/2023	09/02/2023	Short-dated LIBOR Swap - CME cleared		(1,202,838)						
57629*FP1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,199,337)	03/02/2023	09/02/2023	Short-dated LIBOR Swap - CME cleared		(1,199,337)						
57629*FQ9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,199,726)	03/02/2023	09/02/2023	Short-dated LIBOR Swap - CME cleared		(1,199,726)						
57629*FX4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(317,625)	12/05/2022	09/03/2023	Short-dated LIBOR Swap - CME cleared		(317,625)						
57629*GG0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(2,520,800)	12/12/2022	09/10/2023	Short-dated LIBOR Swap - CME cleared		(2,520,800)						
57629*GG0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,630,227)	12/12/2022	09/10/2023	Short-dated LIBOR Swap - CME cleared		(1,630,227)						
57629*GE5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(2,153,779)	12/12/2022	09/10/2023	Short-dated LIBOR Swap - CME cleared		(2,153,779)						
57629*GD7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,811,666)	12/12/2022	09/11/2023	Short-dated LIBOR Swap - CME cleared		(1,811,666)						
57629*GC9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(2,367,150)	12/12/2022	09/11/2023	Short-dated LIBOR Swap - CME cleared		(2,367,150)						
57629*GB1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(2,379,403)	12/12/2022	09/11/2023	Short-dated LIBOR Swap - CME cleared		(2,379,403)						

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*GA3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,640,717)	12/12/2022	09/11/2023	Short-dated LIBOR Swap - CME cleared		(1,640,717)						
57629*FZ9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,818,803)	12/12/2022	09/11/2023	Short-dated LIBOR Swap - CME cleared		(1,818,803)						
57629*FY2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(801,803)	12/16/2022	09/16/2023	Short-dated LIBOR Swap - CME cleared		(801,803)						
57629*GH8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,987,103)	12/16/2022	09/16/2023	Short-dated LIBOR Swap - CME cleared		(1,987,103)						
57629*GS4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,986,839)	12/16/2022	09/16/2023	Short-dated LIBOR Swap - CME cleared		(1,986,839)						
57629*GR6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,972,750)	12/19/2022	09/17/2023	Short-dated LIBOR Swap - CME cleared		(1,972,750)						
57629*G08	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,973,014)	12/19/2022	09/17/2023	Short-dated LIBOR Swap - CME cleared		(1,973,014)						
57629*GN5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(2,777,364)	12/19/2022	09/18/2023	Short-dated LIBOR Swap - CME cleared		(2,777,364)						
57629*GM7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(3,173,286)	12/19/2022	09/18/2023	Short-dated LIBOR Swap - CME cleared		(3,173,286)						
57629*GL9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,585,799)	12/19/2022	09/18/2023	Short-dated LIBOR Swap - CME cleared		(1,585,799)						
57629*GP0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2			(1,982,776)	12/19/2022	09/18/2023	Short-dated LIBOR Swap - CME cleared		(1,982,776)						
57629*GK1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(2,524,584)	12/21/2022	09/21/2023	Short-dated LIBOR Swap - CME cleared		(2,524,584)						
57629*GI5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,731,147)	12/22/2022	09/22/2023	Short-dated LIBOR Swap - CME cleared		(1,731,147)						
57629*GV7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(2,739,900)	12/28/2022	09/28/2023	Short-dated LIBOR Swap - CME cleared		(2,739,900)						
57629*GU9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,826,361)	12/28/2022	09/28/2023	Short-dated LIBOR Swap - CME cleared		(1,826,361)						
57629*HL8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2			(171,643)	01/09/2023	07/08/2023	Short-dated LIBOR Swap - CME cleared		(171,643)						
57629*H07	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(129,461)	01/09/2023	07/08/2023	Short-dated LIBOR Swap - CME cleared		(129,461)						
57629*HC8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(306,178)	01/09/2023	07/09/2023	Short-dated LIBOR Swap - CME cleared		(306,178)						
57629*HI6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2			(217,126)	01/12/2023	07/12/2023	Short-dated LIBOR Swap - CME cleared		(217,126)						
57629*HB0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(713,567)	01/23/2023	07/21/2023	Short-dated LIBOR Swap - CME cleared		(713,567)						
57629*HN4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2			(803,389)	02/09/2023	08/09/2023	Short-dated LIBOR Swap - CME cleared		(803,389)						
57629*HP9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2			(1,204,313)	02/09/2023	08/09/2023	Short-dated LIBOR Swap - CME cleared		(1,204,313)						
57629*HG9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2			(1,015,642)	02/10/2023	08/10/2023	Short-dated LIBOR Swap - CME cleared		(1,015,642)						
57629*HH7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2			(812,092)	02/10/2023	08/10/2023	Short-dated LIBOR Swap - CME cleared		(812,092)						
57629*HJ3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2			(1,219,403)	02/10/2023	08/10/2023	Short-dated LIBOR Swap - CME cleared		(1,219,403)						
57629*HK0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	2			(1,020,123)	02/10/2023	08/10/2023	Short-dated LIBOR Swap - CME cleared		(1,020,123)						
57629*LG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(1,118,574)	02/23/2023	08/23/2023	Short-dated LIBOR Swap - CME cleared		(1,118,574)						
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(404,803)	03/06/2023	09/05/2023	Short-dated LIBOR Swap - CME cleared		(404,803)						
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(404,457)	03/06/2023	09/05/2023	Short-dated LIBOR Swap - CME cleared		(404,457)						
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(394,258)	11/21/2022	08/19/2023	Short-dated LIBOR Swap - CME cleared		(394,258)						

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STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

Replication (Synthetic Asset) Transactions Open as of Current Statement Date

Replication (Synthetic Asset) Transactions								Components of the Replication (Synthetic Asset) Transactions								
1 Number	2 Description	3 NAIC Designation or Other Description	4 Notional Amount	5 Book/Adjusted Carrying Value	6 Fair Value	7 Effective Date	8 Maturity Date	Derivative Instrument(s) Open			Cash Instrument(s) Held					
								9 Description	10 Book/Adjusted Carrying Value	11 Fair Value	12 CUSIP	13 Description	14 NAIC Designation or Other Description	15 Book/Adjusted Carrying Value	16 Fair Value	
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(193,026)	11/09/2022	08/09/2023	Short-dated LIBOR Swap - CME cleared		(193,026)						
57629*CG4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(16,532)	04/06/2023	07/06/2023	Short-dated LIBOR Swap - CME cleared		(16,532)						
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(398,004)	02/06/2023	08/05/2023	Short-dated LIBOR Swap - CME cleared		(398,004)						
57629*DE8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(690,242)	12/06/2022	09/06/2023	Short-dated LIBOR Swap - CME cleared		(690,242)						
57629*CS8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1			(274,298)	11/04/2022	08/04/2023	Short-dated LIBOR Swap - CME cleared		(274,298)						
999999999 - Totals				36,459,698,659	27,761,881,464	XXX	XXX	XXX	(978,736,889)	(5,532,678,067)	XXX	XXX	XXX	37,438,435,548	33,294,559,531	

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 2

Replication (Synthetic Asset) Transactions Open

	First Quarter		Second Quarter		Third Quarter		Fourth Quarter		Year To Date	
	1 Number of Positions	2 Total Replication (Synthetic Asset) Transactions Statement Value	3 Number of Positions	4 Total Replication (Synthetic Asset) Transactions Statement Value	5 Number of Positions	6 Total Replication (Synthetic Asset) Transactions Statement Value	7 Number of Positions	8 Total Replication (Synthetic Asset) Transactions Statement Value	9 Number of Positions	10 Total Replication (Synthetic Asset) Transactions Statement Value
1. Beginning Inventory	187	31,264,152,520	200	31,676,404,864					187	31,264,152,520
2. Add: Opened or Acquired Transactions.....	15	488,526,396	153	17,311,563,920					168	17,800,090,316
3. Add: Increases in Replication (Synthetic Asset) Transactions Statement Value.....	XXX		XXX		XXX		XXX		XXX	
4. Less: Closed or Disposed of Transactions.....	2	60,000,000	77	17,828,651,751					79	17,888,651,751
5. Less: Positions Disposed of for Failing Effectiveness Criteria.....										
6. Less: Decreases in Replication (Synthetic Asset) Transactions Statement Value	XXX	16,274,052	XXX	32,904,053	XXX		XXX		XXX	49,178,105
7. Ending Inventory	200	31,676,404,864	276	31,126,412,980					276	31,126,412,980

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - VERIFICATION

Verification of Book/Adjusted Carrying Value, Fair Value and Potential Exposure of all Open Derivative Contracts

	Book/Adjusted Carrying Value Check
1. Part A, Section 1, Column 14.....	7,170,784,726
2. Part B, Section 1, Column 15 plus Part B, Section 1 Footnote - Total Ending Cash Balance.....	.....
3. Total (Line 1 plus Line 2)	7,170,784,726
4. Part D, Section 1, Column 6	20,781,317,506
5. Part D, Section 1, Column 7	(13,621,494,897)
6. Total (Line 3 minus Line 4 minus Line 5)	10,962,116
	Fair Value Check
7. Part A, Section 1, Column 16	2,612,694,834
8. Part B, Section 1, Column 13	(10,962,111)
9. Total (Line 7 plus Line 8)	2,601,732,723
10. Part D, Section 1, Column 9	20,807,729,172
11. Part D, Section 1, Column 10	(18,205,996,447)
12. Total (Line 9 minus Line 10 minus Line 11)	(2)
	Potential Exposure Check
13. Part A, Section 1, Column 21	5,579,166,939
14. Part B, Section 1, Column 20	63,913,452
15. Part D, Section 1, Column 12	5,643,080,392
16. Total (Line 13 plus Line 14 minus Line 15)	(1)

STATEMENT AS OF JUNE 30, 2023 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE E - PART 2 - VERIFICATION

(Cash Equivalents)

	1	2
	Year To Date	Prior Year Ended December 31
1. Book/adjusted carrying value, December 31 of prior year	4,623,151,857	1,774,108,873
2. Cost of cash equivalents acquired	130,482,532,448	208,610,013,923
3. Accrual of discount	125,844,015	
4. Unrealized valuation increase (decrease)	8,223,574	46,497,527
5. Total gain (loss) on disposals	(11,838,029)	(4,778,566)
6. Deduct consideration received on disposals	131,399,266,153	205,808,809,317
7. Deduct amortization of premium		
8. Total foreign exchange change in book/adjusted carrying value		6,119,417
9. Deduct current year's other than temporary impairment recognized		
10. Book/adjusted carrying value at end of current period (Lines 1+2+3+4+5-6-7+8-9)	3,828,647,712	4,623,151,857
11. Deduct total nonadmitted amounts		
12. Statement value at end of current period (Line 10 minus Line 11)	3,828,647,712	4,623,151,857