



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

QUARTERLY STATEMENT

AS OF JUNE 30, 2021

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 Treasurer Todd Garrett Picken Secretary Akintokunbo Akinbajo Appointed Actuary Vy Quoc Ho

OTHER

Elizabeth Ward Chicares, Chief Financial Officer Michael Robert Fanning, Head of MassMutual U.S. Melvin Timothy Corbett, Chief Investment Officer Adnan Omar Ahmed, Head of MassMutual International Geoffrey James Craddock, Chief Risk Officer Pia Denise Flanagan, Head of Operations, CEO Action for Racial Equity Susan Marie Cicco, Head of Human Resources & Employee Experience Michael James O'Connor, General Counsel Gareth Fielding Ross, Head of Enterprise Technology & Experience

DIRECTORS OR TRUSTEES

Roger William Crandall - Chairman Karen Hall Bechtel Mark Thomas Bertolini Kathleen Ann Corbet - Lead Director James Henry DeGraffenreid, Jr. Isabella Davidov Goren Jeffrey Marc Leiden Laura Jeanne Sen William Taylor Spitz Howard Todd Stitzer

State of Massachusetts SS: County of Hampden

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

Todd Garrett Picken 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, 2021 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 .....	114,073,610,383		114,073,610,383	114,683,944,351
2. Stocks:				
2.1 Preferred stocks .....	494,026,651		494,026,651	470,256,327
2.2 Common stocks .....	25,218,298,254	189,047	25,218,109,207	21,086,999,910
3. Mortgage loans on real estate:				
3.1 First liens .....	27,016,791,393		27,016,791,393	26,078,333,015
3.2 Other than first liens.....				
4. Real estate:				
4.1 Properties occupied by the company (less \$ encumbrances) .....	335,202,467		335,202,467	265,025,127
4.2 Properties held for the production of income (less \$ 950,327,045 encumbrances) .....	71,105,843		71,105,843	97,346,026
4.3 Properties held for sale (less \$ encumbrances) .....	12,856,217		12,856,217	
5. Cash (\$ 705,861,948 ), cash equivalents (\$ 4,765,788,726 ) and short-term investments (\$ 2,370,518,907 ) .....	7,842,169,582		7,842,169,582	5,738,239,031
6. Contract loans (including \$ premium notes) .....	15,627,807,712	136,639	15,627,671,072	15,597,185,099
7. Derivatives .....	17,346,604,104		17,346,604,104	21,076,411,762
8. Other invested assets .....	10,930,087,175	62,588,487	10,867,498,688	9,533,622,734
9. Receivables for securities .....	1,447,646,801		1,447,646,801	1,501,252,903
10. Securities lending reinvested collateral assets .....				
11. Aggregate write-ins for invested assets .....				
12. Subtotals, cash and invested assets (Lines 1 to 11) .....	220,416,206,582	62,914,173	220,353,292,408	216,128,616,284
13. Title plants less \$ charged off (for Title insurers only) .....				
14. Investment income due and accrued .....	3,688,035,316	1,089,586	3,686,945,730	3,859,484,460
15. Premiums and considerations:				
15.1 Uncollected premiums and agents' balances in the course of collection .....	141,960,187	83,268	141,876,919	161,871,466
15.2 Deferred premiums, agents' balances and installments booked but deferred and not yet due (including \$ earned but unbilled premiums) .....	866,764,353		866,764,353	917,323,458
15.3 Accrued retrospective premiums (\$ ) and contracts subject to redetermination (\$ ) .....				
16. Reinsurance:				
16.1 Amounts recoverable from reinsurers .....	68,632,236	1,825,833	66,806,403	67,472,255
16.2 Funds held by or deposited with reinsured companies .....				
16.3 Other amounts receivable under reinsurance contracts .....	78,271,157		78,271,157	254,150,151
17. Amounts receivable relating to uninsured plans .....				
18.1 Current federal and foreign income tax recoverable and interest thereon .....				
18.2 Net deferred tax asset .....	633,855,304		633,855,304	508,589,555
19. Guaranty funds receivable or on deposit .....	11,171,023		11,171,023	11,751,145
20. Electronic data processing equipment and software .....	268,160,765	251,893,687	16,267,078	21,068,444
21. Furniture and equipment, including health care delivery assets (\$ ) .....	45,997,035	45,997,035		
22. Net adjustment in assets and liabilities due to foreign exchange rates .....				
23. Receivables from parent, subsidiaries and affiliates .....	152,272,689		152,272,689	54,499,315
24. Health care (\$ ) and other amounts receivable .....				
25. Aggregate write-ins for other than invested assets .....	3,777,666,459	1,066,077,962	2,711,588,497	2,508,581,328
26. Total assets excluding Separate Accounts, Segregated Accounts and Protected Cell Accounts (Lines 12 to 25) .....	230,148,993,103	1,429,881,544	228,719,111,559	224,493,407,863
27. From Separate Accounts, Segregated Accounts and Protected Cell Accounts .....	77,781,875,929		77,781,875,929	75,965,585,904
28. Total (Lines 26 and 27) .....	307,930,869,032	1,429,881,544	306,500,987,489	300,458,993,767
<b>DETAILS OF WRITE-INS</b>				
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 .....	2,566,828,880		2,566,828,880	2,421,839,515
2502. Fully refundable deposits, prepayments and miscellaneous assets .....	116,251,973	39,700,343	76,551,630	19,008,699
2503. Employee insurance plan advances .....	41,400,966	6,254	41,394,712	41,149,716
2598. Summary of remaining write-ins for Line 25 from overflow page .....	1,053,184,640	1,026,371,365	26,813,275	26,583,398
2599. Totals (Lines 2501 through 2503 plus 2598)(Line 25 above) .....	3,777,666,459	1,066,077,962	2,711,588,497	2,508,581,328

## STATEMENT AS OF JUNE 30, 2021 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 \$ ..... 127,741,970,833 less \$ ..... included in Line 6.3 (including \$ ..... 134,311,318 Modco Reserve) .....	127,741,970,833	121,992,059,903
2. Aggregate reserve for accident and health contracts (including \$ ..... Modco Reserve) .....	3,248,504,548	3,174,986,915
3. Liability for deposit-type contracts (including \$ ..... Modco Reserve) .....	16,152,930,105	14,579,842,257
4. Contract claims:		
4.1 Life .....	592,555,812	655,286,279
4.2 Accident and health .....	29,416,284	26,818,663
5. Policyholders' dividends/refunds to members \$ ..... (689,658) and coupons \$ ..... due and unpaid .....	(689,658)	2,456,410
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) .....	1,753,700,465	1,705,119,894
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 \$ ..... 12,225,462 accident and health premiums .....	60,817,518	35,658,349
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 .....	12,932,405	8,718,381
9.3 Other amounts payable on reinsurance, including \$ ..... 19,878,858 assumed and \$ ..... (3,066,334) ceded .....	16,812,524	89,276,918
9.4 Interest Maintenance Reserve .....	1,529,528,705	2,084,357,421
10. Commissions to agents due or accrued-life and annuity contracts \$ ..... 42,883,266 , accident and health \$ ..... 283,278 and deposit-type contract funds \$ .....	43,166,544	324,181
11. Commissions and expense allowances payable on reinsurance assumed .....	3,299,562	3,502,906
12. General expenses due or accrued .....	1,139,846,959	1,253,249,792
13. Transfers to Separate Accounts due or accrued (net) (including \$ ..... (100,534,859) accrued for expense allowances recognized in reserves, net of reinsured allowances) .....	(114,687,831)	(103,546,435)
14. Taxes, licenses and fees due or accrued, excluding federal income taxes .....	57,695,343	56,442,035
15.1 Current federal and foreign income taxes, including \$ ..... 262,193,481 on realized capital gains (losses) .....	172,133,607	670,233,140
15.2 Net deferred tax liability .....		
16. Unearned investment income .....	457,783,893	213,380,280
17. Amounts withheld or retained by reporting entity as agent or trustee .....	28,588,797	7,520,225
18. Amounts held for agents' account, including \$ ..... agents' credit balances .....	410,060,197	414,032,550
19. Remittances and items not allocated .....	1,443,899,621	803,137,296
20. Net adjustment in assets and liabilities due to foreign exchange rates .....		
21. Liability for benefits for employees and agents if not included above .....	221,991,526	216,512,515
22. Borrowed money \$ ..... 1,119,723,792 and interest thereon \$ .....	1,119,723,792	249,989,854
23. Dividends to stockholders declared and unpaid .....		
24. Miscellaneous liabilities:		
24.01 Asset valuation reserve .....	5,870,727,335	5,205,048,230
24.02 Reinsurance in unauthorized and certified (\$ ..... ) companies .....	129,067	135,677
24.03 Funds held under reinsurance treaties with unauthorized and certified (\$ ..... ) reinsurers .....	6,662,877,713	6,450,994,969
24.04 Payable to parent, subsidiaries and affiliates .....	59,563,310	7,539,161
24.05 Drafts outstanding .....		
24.06 Liability for amounts held under uninsured plans .....		
24.07 Funds held under coinsurance .....	11,465,905,887	11,478,407,953
24.08 Derivatives .....	12,403,183,485	17,348,756,669
24.09 Payable for securities .....	689,714,410	76,943,917
24.10 Payable for securities lending .....		
24.11 Capital notes \$ ..... and interest thereon \$ .....		
25. Aggregate write-ins for liabilities .....	9,745,592,143	11,458,808,225
26. Total liabilities excluding Separate Accounts business (Lines 1 to 25) .....	203,019,674,900	200,165,994,528
27. From Separate Accounts Statement .....	77,781,875,929	75,965,585,904
28. Total liabilities (Lines 26 and 27) .....	280,801,550,829	276,131,580,432
29. Common capital stock .....		
30. Preferred capital stock .....		
31. Aggregate write-ins for other than special surplus funds .....		
32. Surplus notes .....	4,006,247,098	3,772,729,993
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) .....	21,689,939,562	20,551,433,342
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 \$ ..... in Separate Accounts Statement) .....	25,699,436,660	24,327,413,335
38. Totals of Lines 29, 30 and 37 .....	25,699,436,660	24,327,413,335
39. Totals of Lines 28 and 38 (Page 2, Line 28, Col. 3) .....	306,500,987,489	300,458,993,767
<b>DETAILS OF WRITE-INS</b>		
2501. Derivative collateral .....	5,001,919,345	5,550,937,332
2502. Repurchase agreements .....	2,820,044,629	4,007,031,628
2503. Derivative accrued interest .....	1,707,240,381	1,606,535,499
2598. Summary of remaining write-ins for Line 25 from overflow page .....	216,387,788	294,303,766
2599. Totals (Lines 2501 through 2503 plus 2598)(Line 25 above) .....	9,745,592,143	11,458,808,225
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. Miscellaneous .....		
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

## 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	9,508,197,455	13,002,433,214	10,275,043,994
2. Considerations for supplementary contracts with life contingencies	13,663,425	23,361,340	48,128,890
3. Net investment income	3,950,647,221	3,571,486,695	8,641,485,659
4. Amortization of Interest Maintenance Reserve (IMR)	68,318,154	17,816,456	110,580,552
5. Separate Accounts net gain from operations excluding unrealized gains or losses			
6. Commissions and expense allowances on reinsurance ceded	197,141,647	167,806,174	2,693,100,880
7. Reserve adjustments on reinsurance ceded	(7,439,540)	(8,413,342)	(23,655,168)
8. Miscellaneous Income:			
8.1 Income from fees associated with investment management, administration and contract guarantees from Separate Accounts	148,461,375	196,315,648	405,531,185
8.2 Charges and fees for deposit-type contracts			
8.3 Aggregate write-ins for miscellaneous income	262,924,861	192,975,088	650,513,146
9. Totals (Lines 1 to 8.3)	14,141,914,597	17,163,781,272	22,800,729,137
10. Death benefits	1,208,682,290	1,122,464,269	2,238,051,114
11. Matured endowments (excluding guaranteed annual pure endowments)	5,695,126	7,461,917	16,545,466
12. Annuity benefits	1,107,564,433	1,194,952,558	2,390,934,737
13. Disability benefits and benefits under accident and health contracts	187,377,103	191,402,024	382,243,868
14. Coupons, guaranteed annual pure endowments and similar benefits			
15. Surrender benefits and withdrawals for life contracts	3,030,908,104	9,042,437,509	19,247,330,548
16. Group conversions			
17. Interest and adjustments on contract or deposit-type contract funds	172,771,702	226,970,793	474,210,694
18. Payments on supplementary contracts with life contingencies	11,970,050	10,785,459	21,356,381
19. Increase in aggregate reserves for life and accident and health contracts	5,796,113,516	5,359,525,271	(5,319,239,250)
20. Totals (Lines 10 to 19)	11,521,082,325	17,155,999,800	19,451,433,559
21. Commissions on premiums, annuity considerations, and deposit-type contract funds (direct business only)	538,954,834	507,305,606	1,032,336,037
22. Commissions and expense allowances on reinsurance assumed	30,111,098	30,323,080	58,805,725
23. General insurance expenses and fraternal expenses	1,032,758,460	1,025,896,738	2,394,386,534
24. Insurance taxes, licenses and fees, excluding federal income taxes	180,124,080	127,468,133	275,117,451
25. Increase in loading on deferred and uncollected premiums	35,858,180	(12,071,870)	13,197,693
26. Net transfers to or (from) Separate Accounts net of reinsurance	(696,157,635)	(941,726,734)	(3,646,073,474)
27. Aggregate write-ins for deductions	404,475,710	(322,643,044)	587,266,846
28. Totals (Lines 20 to 27)	13,047,207,050	17,570,551,709	20,166,470,371
29. Net gain from operations before dividends to policyholders and federal income taxes (Line 9 minus Line 28)	1,094,707,547	(406,770,437)	2,634,258,766
30. Dividends to policyholders and refunds to members	815,340,233	806,435,205	1,697,380,641
31. Net gain from operations after dividends to policyholders, refunds to members and before federal income taxes (Line 29 minus Line 30)	279,367,314	(1,213,205,642)	936,878,125
32. Federal and foreign income taxes incurred (excluding tax on capital gains)	116,379,052	(340,049,103)	134,792,230
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)	162,988,262	(873,156,539)	802,085,895
34. Net realized capital gains (losses) (excluding gains (losses) transferred to the IMR) less capital gains tax of \$ (4,283,377) (excluding taxes of \$ (18,738,579) transferred to the IMR)	(618,938,387)	153,269,330	(586,175,280)
35. Net income (Line 33 plus Line 34)	(455,950,125)	(719,887,209)	215,910,615
<b>CAPITAL AND SURPLUS ACCOUNT</b>			
36. Capital and surplus, December 31, prior year	24,327,413,335	18,892,910,171	18,892,910,171
37. Net income (Line 35)	(455,950,125)	(719,887,209)	215,910,615
38. Change in net unrealized capital gains (losses) less capital gains tax of \$ (375,806,929)	2,049,254,663	4,272,483,786	1,421,779,174
39. Change in net unrealized foreign exchange capital gain (loss)	(190,699,053)	(444,875,142)	1,009,504,915
40. Change in net deferred income tax	450,585,323	(120,668,174)	(22,692,987)
41. Change in nonadmitted assets	(4,677,209)	21,682,586	50,501,209
42. Change in liability for reinsurance in unauthorized and certified companies	6,611	(5,542,553)	26,694
43. Change in reserve on account of change in valuation basis, (increase) or decrease		12,700,000	(48,425,000)
44. Change in asset valuation reserve	(665,679,105)	(450,294,417)	(534,863,914)
45. Change in treasury stock			
46. Surplus (contributed to) withdrawn from Separate Accounts during period			
47. Other changes in surplus in Separate Accounts Statement			
48. Change in surplus notes	233,517,105	1,537,080,749	1,537,330,284
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	(44,334,885)	20,677,021	1,805,432,173
54. Net change in capital and surplus for the year (Lines 37 through 53)	1,372,023,324	4,123,356,647	5,434,503,164
55. Capital and surplus, as of statement date (Lines 36 + 54)	25,699,436,659	23,016,266,818	24,327,413,335
<b>DETAILS OF WRITE-INS</b>			
08.301. Miscellaneous income	(58,235,029)	17,430,689	49,271,319
08.302. Change in corporate owned life insurance	162,501,490	(55,575,411)	139,549,407
08.303. Management and administrative fees	93,815,771	145,335,958	304,959,901
08.398. Summary of remaining write-ins for Line 8.3 from overflow page	64,842,629	85,783,852	156,732,519
08.399. Totals (Lines 08.301 through 08.303 plus 08.398) (Line 8.3 above)	262,924,861	192,975,088	650,513,146
2701. Reinsurance ceded adjustment	(44,074,325)	(6,923,874)	1,664,926,416
2702. Ceded income on funds withheld	316,727,634	103,081,015	343,564,217
2703. Change in liability for employee/agent benefit plans	54,622,188	(14,059,125)	50,853,866
2798. Summary of remaining write-ins for Line 27 from overflow page	77,200,214	(404,741,061)	(1,472,077,654)
2799. Totals (Lines 2701 through 2703 plus 2798)(Line 27 above)	404,475,710	(322,643,044)	587,266,846
5301. Reinsurance ceded adjustment	(44,074,325)	(9,590,874)	
5302. Other changes in surplus	(260,560)	30,267,444	32,129,727
5303. Miscellaneous		451	
5398. Summary of remaining write-ins for Line 53 from overflow page			1,773,302,446
5399. Totals (Lines 5301 through 5303 plus 5398)(Line 53 above)	(44,334,885)	20,677,021	1,805,432,173

## STATEMENT AS OF JUNE 30, 2021 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
<b>Cash from Operations</b>			
1. Premiums collected net of reinsurance .....	9,376,610,708	12,952,762,467	16,109,561,276
2. Net investment income .....	4,501,612,912	3,352,237,916	7,281,442,469
3. Miscellaneous income .....	559,717,248	590,676,529	3,641,620,813
4. Total (Lines 1 to 3) .....	14,437,940,868	16,895,676,912	27,032,624,558
5. Benefit and loss related payments .....	5,741,847,678	11,474,198,904	24,242,706,403
6. Net transfers to Separate Accounts, Segregated Accounts and Protected Cell Accounts .....	(669,771,947)	(1,301,866,967)	(4,019,907,451)
7. Commissions, expenses paid and aggregate write-ins for deductions .....	2,477,645,643	1,616,409,633	2,872,667,317
8. Dividends paid to policyholders .....	774,052,298	765,756,961	1,673,553,297
9. Federal and foreign income taxes paid (recovered) net of \$ ..... (316,398,306) tax on capital gains (losses) .....	613,973,014	(118,850,886)	(141,754,982)
10. Total (Lines 5 through 9) .....	8,937,746,686	12,435,647,645	24,627,264,584
11. Net cash from operations (Line 4 minus Line 10) .....	5,500,194,182	4,460,029,267	2,405,359,974
<b>Cash from Investments</b>			
12. Proceeds from investments sold, matured or repaid:			
12.1 Bonds .....	19,684,144,737	10,030,709,678	23,127,707,516
12.2 Stocks .....	184,726,970	450,830,093	554,149,210
12.3 Mortgage loans .....	1,871,242,173	1,637,734,262	4,097,828,233
12.4 Real estate .....			952,949
12.5 Other invested assets .....	195,930,649	743,795,070	1,051,109,632
12.6 Net gains or (losses) on cash, cash equivalents and short-term investments .....	18,976,792	(10,208,852)	(8,170,597)
12.7 Miscellaneous proceeds .....	(788,999,676)	3,134,200,229	2,405,853,395
12.8 Total investment proceeds (Lines 12.1 to 12.7) .....	21,166,021,645	15,987,060,479	31,229,430,338
13. Cost of investments acquired (long-term only):			
13.1 Bonds .....	18,859,606,728	16,674,054,638	38,209,254,973
13.2 Stocks .....	3,887,527,755	135,290,973	2,323,583,342
13.3 Mortgage loans .....	2,793,019,908	1,981,381,884	4,293,148,419
13.4 Real estate .....	107,308,010	31,042,218	120,079,851
13.5 Other invested assets .....	999,336,665	819,274,416	1,847,429,323
13.6 Miscellaneous applications .....	(585,815,860)	(97,170,411)	351,422,238
13.7 Total investments acquired (Lines 13.1 to 13.6) .....	26,060,983,206	19,543,873,718	47,144,918,146
14. Net increase (or decrease) in contract loans and premium notes .....	30,110,201	322,716,392	872,006,901
15. Net cash from investments (Line 12.8 minus Line 13.7 and Line 14) .....	(4,925,071,762)	(3,879,529,632)	(16,787,494,709)
<b>Cash from Financing and Miscellaneous Sources</b>			
16. Cash provided (applied):			
16.1 Surplus notes, capital notes .....		697,116,000	697,116,000
16.2 Capital and paid in surplus, less treasury stock .....			
16.3 Borrowed funds .....	869,737,840	339,792	363,785
16.4 Net deposits on deposit-type contracts and other insurance liabilities .....	1,621,253,040	2,425,139,460	(1,030,569,145)
16.5 Dividends to stockholders .....			
16.6 Other cash provided (applied) .....	(962,182,749)	5,663,970,775	16,660,364,128
17. Net cash from financing and miscellaneous sources (Line 16.1 through Line 16.4 minus Line 16.5 plus Line 16.6) .....	1,528,808,131	8,786,566,027	16,327,274,768
<b>RECONCILIATION OF CASH, CASH EQUIVALENTS AND SHORT-TERM INVESTMENTS</b>			
18. Net change in cash, cash equivalents and short-term investments (Line 11, plus Lines 15 and 17) .....	2,103,930,551	9,367,065,662	1,945,140,033
19. Cash, cash equivalents and short-term investments:			
19.1 Beginning of year .....	5,738,239,031	3,793,098,998	3,793,098,998
19.2 End of period (Line 18 plus Line 19.1) .....	7,842,169,582	13,160,164,660	5,738,239,031

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

20.0001. Bond conversions and refinancing .....	387,560,563	233,638,686	4,922,572,255
20.0002. Premium income recognized for group annuity contracts .....	252,122,481	387,481,218	1,250,093,997
20.0003. Bonds received as consideration for group annuity contracts .....	249,147,716	387,481,218	1,250,093,997
20.0004. Surplus notes issued in exchange for bonds .....	233,056,607	837,205,167	837,205,167
20.0005. Bonds received as consideration for surplus notes .....	233,056,607	837,205,167	837,205,167
20.0006. Change in market value of COLI .....	163,465,126	55,310,439	140,088,455
20.0007. Exchange of mortgage loans for other assets .....	18,380,541		
20.0008. Transfer of mortgage loans to partnerships and LLCs .....	11,266,500		353,344,560
20.0009. Net investment income payment in-kind bonds .....	10,258,406	4,959,329	12,217,692
20.0010. Stock conversion .....	4,228,783	61,713,622	78,887,581

STATEMENT AS OF JUNE 30, 2021 OF THE Massachusetts Mutual Life Insurance Company

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

20.0011. Common stock received as consideration for group annuity contracts .....	2,974,765		
20.0012. Dividend reinvestment .....	355,601	93,790	93,790
20.0013. Premium ceded in exchange for invested assets .....			11,197,128,818
20.0014. Bonds transferred in exchange for premium ceded .....			9,378,808,608
20.0015. Premium income recognized for individual annuity contracts .....			3,720,969,355
20.0016. Bonds received as consideration for individual annuity contracts .....			3,720,041,355
20.0017. Mortgage loans transferred in exchange for premium ceded .....			1,725,451,598
20.0018. Transfer of mortgage loans to other invested assets .....		353,530,860	
20.0019. Preferred stock transferred in exchange for premium ceded .....			92,868,611
20.0020. Assets received in-kind for bond maturity .....		56,730,564	56,730,564
20.0021. Preferred stock received as consideration for individual annuity contracts .....			928,000
20.0022. Stock distribution received for other invested assets .....		406,070	

## 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 .....	5,641,936,170	3,994,721,615	9,193,180,933
3. Ordinary individual annuities .....	1,984,431,548	3,576,323,818	5,872,548,713
4. Credit life (group and individual) .....			
5. Group life insurance .....	71,436,482	63,223,645	112,681,859
6. Group annuities .....	5,316,989,304	7,275,310,077	16,096,920,854
7. A & H - group .....	217,387	214,206	558,705
8. A & H - credit (group and individual) .....			
9. A & H - other .....	383,149,543	379,149,575	764,616,396
10. Aggregate of all other lines of business .....			
11. Subtotal (Lines 1 through 10) .....	13,398,160,433	15,288,942,936	32,040,507,460
12. Fraternal (Fraternal Benefit Societies Only) .....			
13. Subtotal (Lines 11 through 12) .....	13,398,160,433	15,288,942,936	32,040,507,460
14. Deposit-type contracts .....	3,755,161,926	4,025,512,424	7,674,813,749
15. Total (Lines 13 and 14)	17,153,322,359	19,314,455,360	39,715,321,209
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

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### TABLE OF CONTENTS

<b>Note 1 – Summary of Significant Accounting Policies and Going Concern</b>
<b>Note 2 – Accounting Changes and Corrections of Errors</b>
<b>Note 3 – Business Combinations and Goodwill</b>
<b>Note 4 – Discontinued Operations</b>
<b>Note 5 – Investments</b>
<b>Note 6 – Joint Ventures, Partnerships and Limited Liability Companies</b>
<b>Note 7 – Investment Income</b>
<b>Note 8 – Derivative Instruments</b>
<b>Note 9 – Income Taxes</b>
<b>Note 10 – Information Concerning Parent, Subsidiaries and Affiliates</b>
<b>Note 11 – Debt</b>
<b>Note 12 – Retirement Plans, Deferred Compensation, Postemployment Benefits and Compensated Absences and Other Postretirement Benefit Plans</b>
<b>Note 13 – Capital and Surplus, Dividend Restrictions and Quasi-Reorganizations</b>
<b>Note 14 – Liabilities, Contingencies and Assessments</b>
<b>Note 15 – Leases</b>
<b>Note 16 – Information About Financial Instruments With Off-Balance Sheet Risk and Financial Instruments With Concentrations of Credit Risk</b>
<b>Note 17 – Sale, Transfer and Servicing of Financial Assets and Extinguishments of Liabilities</b>
<b>Note 18 – Gain or Loss to the Reporting Entity from Uninsured Plans and the Uninsured Portion of Partially Insured Plans</b>
<b>Note 19 – Direct Premium Written/Produced by Managing General Agents/Third Party Administrators</b>
<b>Note 20 – Fair Value Measurements</b>
<b>Note 21 – Other Items</b>
<b>Note 22 – Events Subsequent</b>
<b>Note 23 – Reinsurance</b>
<b>Note 24 – Retrospectively Rated Contracts and Contracts Subject to Redetermination</b>
<b>Note 25 – Change in Incurred Losses and Loss Adjustment Expenses</b>
<b>Note 26 – Intercompany Pooling Arrangements</b>
<b>Note 27 – Structured Settlements</b>
<b>Note 28 – Health Care Receivables</b>
<b>Note 29 – Participating Policies</b>
<b>Note 30 – Premium Deficiency Reserves</b>
<b>Note 31 – Reserves for Life Contracts and Annuity Contracts</b>
<b>Note 32 – Analysis of Annuity Actuarial Reserves and Deposit Type Liabilities by Withdrawal Characteristics</b>
<b>Note 33 – Analysis of Life Actuarial Reserves by Withdrawal Characteristics</b>
<b>Note 34 – Premium and Annuity Considerations Deferred and Uncollected</b>
<b>Note 35 – Separate Accounts</b>
<b>Note 36 – Loss/Claim Adjustment Expenses</b>



## 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 #	2021	2020
<b>NET INCOME</b>					
(1) State basis (Page 4, Line 35, Columns 1 & 3)	XXX	XXX	XXX	\$ (455,950,125)	\$ 215,910,615
(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	\$ <u>(455,950,125)</u>	\$ <u>215,910,615</u>
<b>SURPLUS</b>					
(5) State basis (Page 3, Line 38, Columns 1 & 2)	XXX	XXX	XXX	\$ 25,699,436,660	\$ 24,327,413,335
(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	\$ <u>25,699,436,660</u>	\$ <u>24,327,413,335</u>

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, 2021, 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
Liabilities for deposit-type contracts	\$ 26,149,000	\$ 26,149,000	\$ (26,149,000)
Policyholders' reserves	(27,309,002)	(27,309,002)	27,309,002
Common stocks - subsidiaries and affiliates	-	(1,500,000)	(1,500,000)
Net deferred income taxes	-	49,330,000	49,330,000
Total	\$ <u>(1,160,002)</u>	\$ <u>46,669,998</u>	

Of the \$46,669,998 increase to surplus for prior years' errors, \$(1,160,002) was recorded as prior period adjustments, net of taxes.

## NOTES TO FINANCIAL STATEMENTS

For the six months ended June 30, 2020, 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	\$ 30,267,444	\$ 30,267,444	\$ (30,267,444)
Total	\$ 30,267,444	\$ 30,267,444	

Of the \$30,267,444 decrease to surplus for prior years' errors, \$30,267,444 was recorded as prior period adjustments, net of taxes.

b. Adoption of new accounting standards:

In July 2020, the NAIC adopted modifications to Statements of Statutory Accounting Principles (SSAP) No. 26R, Bonds, effective January 1, 2021. The modifications apply similar reporting for gains or losses due to a tender offer as previously adopted for calls. The difference between consideration and par is recognized as net investment income, while any difference between book value and par is recognized as realized gain or loss. The modifications did not have a material effect on the Company's financial statements.

In July 2020, the NAIC adopted modifications to SSAP No. 32, Preferred Stock, effective January 1, 2021. The modifications define carrying value of redeemable preferred stock as amortized cost for NAIC 1-3 designations, the lower of amortized cost or fair value for NAIC 4-6 designations, and new fair value measurement for perpetual and mandatorily convertible preferred stock. They clarify when failure to meet certain dividends or redemption payments could trigger an impairment assessment that preferred shares issued by joint ventures are included in the scope of this guidance, and clarifies scope related to sinking fund schedules, mandatory conversions, and various other features. They also clarify fair value would be capped by any currently effective call price. The revisions impacted the Company's current unaffiliated and affiliated perpetual preferred stock investments. The modifications did not have a material effect on the Company's financial statements.

In March 2021, the NAIC adopted modifications to SSAP No. 26R, Bonds, effective January 1, 2021. The modifications expand the called bond disclosures to also include bonds terminated early through a tender offer. The modifications did not have a material effect on the Company's financial statements.

In March 2021, the NAIC adopted modifications to SSAP No. 26R, Bonds, effective January 1, 2021. The modifications clarify that perpetual bonds are within scope. Perpetual bonds shall be reported at fair value regardless of NAIC designation, not to exceed any current effective call price. For perpetual bonds with an effective call option, any applicable premium shall be amortized to the next effective call date. For perpetual bonds purchased at a discount, any applicable discount shall be accreted utilizing the yield-to-worst concept. The modifications did not have a material effect on the Company's financial statements.

In May 2021, the NAIC adopted modifications to SSAP No. 2R, Cash, Cash Equivalents, Drafts and Short-Term Investments, effective May 20, 2021. The modifications clarify that cryptocurrencies do not meet the definition of cash, cash equivalents and short-term investments and therefore should be non-admitted assets if held directly by an insurer. The modifications did not have a material effect on the Company's financial statements.

## NOTES TO FINANCIAL STATEMENTS

**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

(1-4) No change

(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. 2021							
1. With allowance for credit losses	\$ -	\$ -	\$ -	\$ -	31,610,195	\$ -	31,610,195
2. No allowance for credit losses	-	-	-	-	57,725,191	-	57,725,191
3. Total (1+2)	-	-	-	-	89,335,386	-	89,335,386
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. 2020							
1. With allowance for credit losses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
2. No allowance for credit losses	-	-	-	-	-	-	-
3. Total (1+2)	-	-	-	-	-	-	-
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	-	-	-	-	-	-	-

(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. 2021							
1. Average recorded investment	\$ -	\$ -	\$ -	\$ -	55,747,460	\$ -	55,747,460
2. Interest income recognized	-	-	-	-	476,200	-	476,200
3. Recorded investment on nonaccrual status	-	-	-	-	57,725,191	-	57,725,191
4. Amount of interest income recognized using a cash-basis method of accounting	-	-	-	-	476,200	-	476,200
b. 2020							
1. Average recorded investment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-
2. Interest income recognized	-	-	-	-	-	-	-
3. Recorded investment on nonaccrual status	-	-	-	-	-	-	-
4. Amount of interest income recognized using a cash-basis method of accounting	-	-	-	-	-	-	-

(7) Allowance for credit losses - No change

(8) As of June 30, 2021, 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.

## NOTES TO FINANCIAL STATEMENTS

- (2) The following contains loan-backed and structured securities that recognized other-than-temporary impairments (OTTI) classified on the following bases for recognizing OTTI:

(1) Amortized Cost Basis Before OTTI	(2) OTTI Recognized in Loss		(3) Fair Value 1-(2a+2b)
	(2a) Interest	(2b) 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>11,247,256</u>	-	<u>6,172,765</u>	<u>5,074,491</u>	
c. Total first quarter	<u>\$</u>	<u>11,247,256</u>	<u>\$</u>	<u>-</u>	<u>\$</u>	<u>5,074,491</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>11,352,643</u>	-	<u>966,063</u>	<u>10,386,580</u>	
f. Total second quarter	<u>\$</u>	<u>11,352,643</u>	<u>\$</u>	<u>-</u>	<u>\$</u>	<u>10,386,580</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		-	-	-	-	-
i. Total third quarter	<u>\$</u>	<u>-</u>	<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		-	-	-	-	-
l. Total fourth quarter	<u>\$</u>	<u>-</u>	<u>\$</u>	<u>-</u>	<u>\$</u>	<u>-</u>

m. Annual aggregate total

\$ - \$ 7,138,828

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.

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
36828QQJ8	\$ 5,796,000	\$ -	\$ (5,796,000)	\$ -	\$ -	March 31, 2021
05535DCF9	2,560,946	2,505,562	(55,385)	2,505,562	2,647,762	March 31, 2021
61750FAE0	582,728	558,079	(24,649)	558,079	500,569	March 31, 2021
18974BAA7	203,962	193,231	(10,731)	193,231	197,038	March 31, 2021
22540V3F7	124,724	11,082	(113,642)	11,082	3,496	March 31, 2021
92978EAA2	123,119	119,363	(3,756)	119,363	115,107	March 31, 2021
41161PWB5	1,183,481	1,153,338	(30,143)	1,153,338	1,017,022	March 31, 2021
12669GXW6	153,925	20,285	(133,640)	20,285	173,435	March 31, 2021
55274SAM3	38,192	33,418	(4,774)	33,418	84,650	March 31, 2021
86359DME4	480,180	480,133	(45)	480,133	498,095	March 31, 2021
040104TG6	751,483	596,747	(154,736)	596,747	700,223	June 30, 2021
05535DCF9	2,412,525	2,168,139	(244,386)	2,168,139	2,608,461	June 30, 2021
40431KAE0	2,389,667	2,348,253	(41,414)	2,348,253	2,745,165	June 30, 2021
61750FAE0	555,370	534,914	(20,456)	534,914	493,887	June 30, 2021
86359DXD4	394,726	364,961	(29,764)	364,961	369,964	June 30, 2021
05535DAN4	1,386,766	1,038,889	(347,877)	1,038,889	1,141,961	June 30, 2021
45660LYW3	959,375	942,757	(16,618)	942,757	927,049	June 30, 2021
79548KXQ6	121,590	96,975	(24,616)	96,975	97,070	June 30, 2021
92978EAA2	115,502	112,103	(3,399)	112,103	110,484	June 30, 2021
41161PWB5	1,112,829	1,079,360	(33,470)	1,079,360	969,681	June 30, 2021
576433H33	1,119,491	1,071,784	(47,707)	1,071,784	1,074,403	June 30, 2021
55274SAM3	33,318	31,698	(1,620)	31,698	85,553	June 30, 2021
<b>Totals</b>	<u>\$ 22,599,899</u>	<u>\$ 15,461,071</u>	<u>\$ (7,138,828)</u>	<u>\$ 15,461,071</u>	<u>\$ 16,561,075</u>	

## NOTES TO FINANCIAL STATEMENTS

- (4) As of June 30, 2021, 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 follow:
- a. The aggregate amount of unrealized losses:
    1. Less than 12 months \$ (39,605,206)
    2. 12 months or longer \$ (109,058,687)
  - b. The aggregate related fair value of securities with unrealized losses:
    1. Less than 12 months \$ 2,032,869,660
    2. 12 months or longer \$ 1,912,326,590

(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, 2021.

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	-	-

(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	198,412,500	180,392,157	-	-
5. > 1 Month to 3 Months	\$ 1,262,864,938	\$ 2,251,622,815	\$ -	\$ -
6. > 3 Months to 1 Year	\$ 3,009,913,800	\$ 2,119,257,882	\$ -	\$ -
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	-	-	-	-
5. > 1 Month to 3 Months	\$ 331,985,294	\$ 1,553,883,440	\$ -	\$ -
6. > 3 Months to 1 Year	\$ 2,738,467,600	\$ 1,266,342,186	\$ -	\$ -
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, 2021.

(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. BACV Nonadmitted - Subset of	XXX	XXX	XXX	XXX
3. Fair Value	\$ 4,104,194,534	\$ 3,517,965,001	\$ -	\$ -

	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
b. Ending Balance				
1. BACV	\$ 3,070,452,895	\$ 2,820,225,626	\$ -	\$ -
2. BACV Nonadmitted - Subset of	-	-	-	-
3. Fair Value	\$ 3,070,452,895	\$ 2,820,225,626	\$ -	\$ -

## NOTES TO FINANCIAL STATEMENTS

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

ENDING BALANCE		1	2	3	4
		NONE	NAIC 1	NAIC 2	NAIC 3
a.	Bonds - BACV	\$ -	\$ 2,820,225,626	\$ -	\$ -
b.	Bonds - FV	\$ -	\$ 2,820,225,626	\$ -	\$ -
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	\$ -	\$ 2,820,225,626	\$ -	\$ -
q.	Total Assets - FV	\$ -	\$ 2,820,225,626	\$ -	\$ -

ENDING BALANCE		5	6	7	8
		NAIC 4	NAIC 5	NAIC 6	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	-	-	-	-

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

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

## (7) Collateral Received - Secured Borrowing

	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
a. Maximum Amount				
1. Cash	\$ 81,843,000	\$ 72,242,000	\$ -	\$ -
2. Securities (FV)	\$ 3,977,468,678	\$ 3,027,663,434	\$ -	\$ -
b. Ending Balance				
1. Cash	\$ 81,843,000	\$ 72,242,000	\$ -	\$ -
2. Securities (FV)	\$ 3,071,634,071	\$ 2,820,783,213	\$ -	\$ -

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

ENDING BALANCE		1	2	3	4
		NONE	NAIC 1	NAIC 2	NAIC 3
a.	Cash	\$ 72,242,000	\$ -	\$ -	\$ -
b.	Bonds - FV	-	\$ 2,820,783,213	-	-
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)	\$ 72,242,000	\$ 2,820,783,213	\$ -	\$ -

ENDING BALANCE		5	6	7	8
		NAIC 4	NAIC 5	NAIC 6	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)	\$ -	\$ -	\$ -	\$ -

**NOTES TO FINANCIAL STATEMENTS**

## (9) Allocation of Aggregate Collateral by Remaining Contractual Maturity

	FAIR VALUE
a. Overnight and Continuous	\$ -
b. 30 Days or Less	\$ -
c. 31 to 90 Days	\$ -
d. > 90 Days	\$ 2,820,225,626

(10) The company did not have any repurchase agreements where cash collateral received was reinvested as of June 30, 2020.

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

	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
a. Maximum Amount				
1. Cash (Collateral – All)	\$ 81,843,000	\$ 72,242,000	\$ -	\$ -
2. Securities Collateral (FV)	\$ 3,977,468,678	\$ 3,027,663,434	\$ -	\$ -
b. Ending Balance				
1. Cash (Collateral – All)	\$ 81,843,000	\$ 72,242,000	\$ -	\$ -
2. Securities Collateral (FV)	\$ 3,071,634,071	\$ 2,820,783,213	\$ -	\$ -

- 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, 2021.
- 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, 2021.
- 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, 2021.
- 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, 2021.
- 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, 2021.
- 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	117	114	\$959,081,313	\$1,066,119,748	\$979,549,956	\$1,087,886,203
(2) LB&SS - AC	2	3	2,593,088	11,206,673	1,818,626	10,203,119
(3) Preferred Stock - AC	2	5	514,496	12,976,008	518,286	23,345,940
(4) Preferred Stock - FV	3	-	30,705,024	-	30,705,024	-
(5) Total (1+2+3+4)	124	122	\$992,893,921	\$1,090,302,429	\$1,012,591,892	\$1,121,435,262

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, 2021	
	General Account	Separate Account
1. Number of CUSIPS	26	14
2. Aggregate amount of investment income	\$ 14,472,379	\$ 3,677,570

r. Reporting entity's share of cash pool by asset type:

Asset Type	Percent Share
(1) Cash	8 %
(2) Cash equivalents	57 %
(3) Short-term investments	35 %
(4) Total	100 %

**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.

## NOTES TO FINANCIAL STATEMENTS

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 \$1,000,000,000 in dividends to MassMutual for the six months ended June 30, 2021, which were declared in 2020, and declared \$200,000,000 in dividends for the six months ended June 30, 2021. MMHLLC paid \$200,000,000 in dividends for the six months ended June 30, 2020, which were declared in 2019.

MassMutual contributed capital of \$118,494,408 to MMHLLC for the six months ended June 30, 2021 and \$33,903,687 for the six months ended June 30, 2020.

In June 2021, Insurance Road LLC declared \$100,000,000 in dividends to MassMutual for the six months ended June 30, 2021, to be paid in September 2021.

On May 28, 2021, the Company, through a wholly owned subsidiary, Glidepath Holdings Inc, acquired Great American Life Insurance Company and other subsidiaries and affiliated entities (GALIC) for \$3,560,225,000 in cash. GALIC primarily offers traditional fixed and fixed indexed annuity products.

In May 2021, MassMutual entered into an intercompany loan agreement with its indirectly owned subsidiary Fern Street LLC, whereby MassMutual borrowed \$470,000,000 with a rate of 0.2% and a 6-month maturity, for the partial funding of the GALIC acquisition.

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. MassMutual issues commercial paper in the form of Notes in minimum denominations of \$250,000 up to a total aggregation of \$1,000,000,000 with maturity dates up to a maximum of 270 days from the date of issuance. Noninterest bearing Notes are sold at par less a discount representing an interest factor. Interest bearing Notes are sold at par. The Notes are not redeemable or subject to voluntary prepayments by MassMutual. The Notes had a carrying value and face amount of \$650,000,000 as of June 30, 2021 and \$250,000,000 as of December 31, 2020. The additional \$400,000,000 of commercial paper was issued for the partial funding of the GALIC acquisition. Notes issued in 2021 had interest rates ranging from 0.08% to 0.15% with maturity dates ranging from 28 to 183 days. Interest expense for commercial paper was \$291,535 for the six months ended June 30, 2021 and \$1,582,224 for the six months ended June 30, 2020.

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 \$3,892,158,417 as of June 30, 2021.

(2) FHLB Boston capital stock

a. Aggregate totals:

		June 30, 2021		
		1 Total 2+3	2 General Account	3 Separate Account
1.	Current Year:			
	(a) Membership stock - Class A	\$ -	\$ -	-
	(b) Membership stock - Class B	10,000,000	10,000,000	-
	(c) Activity Stock	84,000,000	84,000,000	-
	(d) Excess Stock	2,820,000	2,820,000	-
	(e) Aggregate Total	\$ 96,820,000	\$ 96,820,000	\$ -
	(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	10,000,000	10,000,000	-
	(c) Activity Stock	67,200,000	67,200,000	-
	(d) Excess Stock	3,900,000	3,900,000	-
	(e) Aggregate Total	\$ 81,100,000	\$ 81,100,000	\$ -
	(f) Actual or Estimated Borrowing Capacity as determined by the Insurer	\$ 6,000,000,000	\$ 6,000,000,000	\$ -



## NOTES TO FINANCIAL STATEMENTS

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

Membership Stock	Six Months Ended June 30, 2021					
	1	2	Eligible for Redemption			
	Current Year Total	Not 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		10,000,000		10,000,000		-		-

## (3) Collateral pledged to FHLB:

## a. Amount pledged as of June 30, 2021:

## 1. Current year total general and separate accounts:

	Fair Value	Carrying Value	Aggregate Total Borrowing
Total collateral pledged	\$ 3,555,100,770	\$ 2,589,276,446	\$ 2,107,841,583

## 2. Current year general account:

	Fair Value	Carrying Value	Aggregate Total Borrowing
Total collateral pledged	\$ 3,555,100,770	\$ 2,589,276,446	\$ 2,107,841,583

## 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	\$ 2,603,811,840	\$ 1,904,359,463	\$ 1,685,795,478

## b. Maximum amount pledged for the six months ended June 30, 2021:

## 1. Current year total general and separate accounts:

	Fair Value	Carrying Value	Amount Borrowed at Time of Maximum Collateral
Maximum collateral pledged	\$ 3,758,134,423	\$ 2,708,318,030	\$ 2,111,561,019

## 2. Current year general account:

	Fair Value	Carrying Value	Amount Borrowed at Time of Maximum Collateral
Maximum collateral pledged	\$ 3,758,134,423	\$ 2,708,318,030	\$ 2,111,561,019

## 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	\$ 2,849,293,454	\$ 2,123,611,333	\$ 1,690,030,792

## NOTES TO FINANCIAL STATEMENTS

## (4) Borrowing from FHLB:

## a. Amount:

## 1. Current year:

	June 30, 2021			
	1 Total 2+3	2 General Account	3 Separate Account	4 Funding Agreements Reserves Established
(a) Debt	\$ -	\$ -	\$ -	\$ -
(b) Funding agreements	2,107,841,583	2,107,841,583	-	2,107,841,583
(c) Other	-	-	-	-
(d) Aggregate total	<u>\$ 2,107,841,583</u>	<u>\$ 2,107,841,583</u>	<u>\$ -</u>	<u>\$ 2,107,841,583</u>

## 2. Prior Year-end:

	December 31, 2020			
	1 Total 2+3	2 General Account	3 Separate Account	4 Funding Agreements Reserves Established
(a) Debt	\$ -	\$ -	\$ -	\$ -
(b) Funding agreements	1,685,795,478	1,685,795,478	-	1,685,795,478
(c) Other	-	-	-	-
(d) Aggregate total	<u>\$ 1,685,795,478</u>	<u>\$ 1,685,795,478</u>	<u>\$ -</u>	<u>\$ 1,685,795,478</u>

## b. Maximum Amount:

	Six Months Ended June 30, 2021		
	1 Total 2+3	2 General Account	3 Separate Account
1. Debt	\$ -	\$ -	\$ -
2. Funding	2,111,561,019	2,111,561,019	-
3. Other	-	-	-
4. Aggregate	<u>\$ 2,111,561,019</u>	<u>\$ 2,111,561,019</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

	Six Months Ended June 30,					
	2021	2020	2021	2020	2021	2020
	Pension Benefits		Postretirement Benefits		Special or Contractual Benefits per SSAP No 11	
a. Service cost	\$ 54,913,359	\$ 57,147,184	\$ 5,150,000	\$ 7,450,000	\$ -	\$ -
b. Interest cost	38,583,354	48,777,491	4,650,000	5,700,000	-	-
c. Expected return on plan assets	(91,439,212)	(88,332,600)	-	-	-	-
d. Transition asset or obligation	-	-	-	-	-	-
e. Gains and losses	19,310,708	26,096,634	500,000	1,250,000	-	-
f. Prior service cost or (credit)	-	-	(2,750,000)	(2,750,000)	-	-
h. Total net periodic benefit cost	<u>\$ 21,368,209</u>	<u>\$ 43,688,709</u>	<u>\$ 7,550,000</u>	<u>\$ 11,650,000</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-j) No change

## NOTES TO FINANCIAL STATEMENTS

k. On June 26, 2020, MassMutual executed a drawdown of \$600,000,000 from its pre-capitalized surplus notes (P-Caps) facility and received \$837,205,167 in market value proceeds, and on March 01, 2021, MassMutual executed the remaining capacity of \$200,000,000 from its P-Caps facility and received \$233,056,607 in market value proceeds, at a fixed 5.077% coupon rate, maturing in 2069 and callable beginning in 2049.

On April 16, 2020, MassMutual issued \$700,000,000 of surplus notes at a fixed 3.375% coupon rate maturing in 2050.

The following table summarizes the surplus notes issued and outstanding as of June 30, 2021:

1 Item Number	2 Date Issued	3 Interest Rate	4 Original Issue Amount of Note	5 Is Surplus Note Holder a Related Party (Y/N)	6 Carrying Value of Note Prior Year	7 Carrying Value of Note Current Year*	8 Unapproved Interest And/Or Principal
1	11/15/1993	7.625%	\$ 250,000,000	N	\$ 250,000,000	\$ 250,000,000	\$ 2,382,813
2	03/01/1994	7.500%	100,000,000	N	100,000,000	100,000,000	2,479,167
3	05/12/2003	5.625%	193,184,000	N	192,809,937	192,824,702	1,358,325
4	06/01/2009	8.875%	129,597,000	N	128,561,412	128,589,275	926,529
5	01/17/2012	5.375%	263,369,000	N	262,747,526	262,769,726	1,140,351
6	04/15/2015	4.500%	258,212,000	N	254,019,058	254,065,907	2,420,738
7	03/23/2017	4.900%	475,000,000	N	470,978,008	471,013,654	5,754,097
8	10/11/2019	3.729%	838,475,000	N	581,731,012	584,350,849	6,513,903
9	04/16/2020	3.375%	700,000,000	N	697,164,067	697,212,133	4,921,875
10	06/26/2020	5.077%	600,000,000	N	834,718,973	832,364,245	11,423,250
11	03/01/2021	5.077%	200,000,000	N	-	233,056,607	3,807,749
Total	XXX	XXX	\$ 4,007,837,000	XXX	\$ 3,772,729,993	\$ 4,006,247,098	\$ 43,128,796

\* Total should agree with Page 3, Line 32.

1 Item Number	9 Current Year Interest Expense Recognized	10 Life-To-Date Interest Expense Recognized	11 Current Year Interest Offset Percentage (not including amounts paid to a 3rd party liquidity provider)	12 Current Year Principal Paid	13 Life-To-Date Principal Paid	14 Date of Maturity
1	\$ 9,531,250	\$ 524,218,750	N	\$ -	-	11/15/2023
2	3,750,000	202,500,000	N	-	-	03/01/2024
3	5,433,300	246,850,388	N	-	-	05/15/2033
4	5,750,866	603,260,826	N	-	-	06/01/2039
5	7,078,042	186,814,946	N	-	-	12/01/2041
6	5,809,770	113,239,080	N	-	-	04/15/2065
7	11,637,500	93,617,222	N	-	-	04/01/2077
8	15,633,366	62,296,593	N	-	-	10/15/2070
9	11,812,500	23,559,375	N	-	-	04/15/2050
10	15,231,000	30,462,000	N	-	-	02/15/2069
11	-	-	N	-	-	02/15/2069
Total	\$ 91,667,594	\$ 2,086,819,180	XXX	\$ -	\$ -	XXX

1 Item Number	15 Are Surplus Note Payments Contractually Linked? (Y/N)	16 Surplus Note Payments Subject to Administrative Offsetting Provisions? (Y/N)	17 Were Surplus Note Proceeds Used to Purchase an Asset Directly From the Holder of the Surplus Note? (Y/N)	18 Is Asset Issuer a Related Party (Y/N)	19 Type of Assets Received Upon Issuance
1	Y	N	N	N	Cash
2	Y	N	N	N	Cash
3	Y	N	N	N	Cash
4	Y	N	N	N	Cash
5	Y	N	N	N	Cash
6	Y	N	N	N	Cash
7	Y	N	N	N	Cash
8	Y	N	N	N	Cash
9	Y	N	N	N	Cash
10	Y	N	N	N	Treasury Notes
11	Y	N	N	N	Treasury Notes
Total	XXX	XXX	XXX	XXX	

**NOTES TO FINANCIAL STATEMENTS**

1	20	21	22
Item Number	Principal Amount of Assets Received Upon Issuance	Book/Adjusted Carry Value of Assets	Is Liquidity Source a Related Party to the Surplus note issuer? (Y/N)
1	\$ 250,000,000	\$ -	N
2	99,562,000	-	N
3	192,295,354	-	N
4	127,925,199	-	N
5	262,491,981	-	N
6	253,522,870	-	N
7	470,720,250	-	N
8	608,203,596	-	N
9	697,116,000	-	N
10	837,205,167	-	N
11	233,056,607	-	N
Total	\$ 4,032,099,024	\$ -	XXX

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

All payments of interest and principal are subject to the prior approval of the Division. Anticipated sinking fund payments are due for the notes issued in 1993 and 1994 as follows: \$62,500,000 in 2021, \$87,500,000 in 2022, \$150,000,000 in 2023 and \$50,000,000 in 2024. There are no sinking fund requirements for the notes issued in 2003, 2009, 2012 or 2015. Scheduled interest on the notes issued in 1993 and 2003 is payable on May 15 and November 15 of each year to holders of record on the preceding May 1 or November 1, respectively. Scheduled interest on the note issued in 1994 is payable on March 1 and September 1 of each year to holders of record on the preceding February 15 or August 15, respectively. Scheduled interest on the notes issued in 2009 and 2012 is payable on June 1 and December 1 of each year to holders of record on the preceding May 15 and November 15, respectively. Scheduled interest on the note issued in 2015 is payable on April 15 and October 15 of each year to holders of record on the preceding April 1 and October 1, respectively. Interest expense is not recorded until approval for payment is received from the Division. As of June 30, 2021, the unapproved interest was \$43,128,796. Through June 30, 2021, the Company paid cumulative interest of \$2,086,819,180 on surplus notes. Interest of \$91,667,594 was approved and paid during the six months ended June 30, 2021. Interest of \$156,573,472 was approved and paid during the twelve months ended December 31, 2020.

(l-m) No change

**Note 14 – Liabilities, Contingencies and Assessments**

- a. Contingent commitments - No change
- 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.

In connection with the May 24, 2019 sale of Oppenheimer Acquisition Corp. (OAC) to Invesco, Invesco has identified an accounting matter related to four Master Limited Partnership funds managed by a subsidiary of OAC prior to the sale that Invesco has stated may result in an indemnification claim against MassMutual under the terms of the acquisition agreement. Under the terms of the agreement, MassMutual may be liable to Invesco under the acquisition agreement for a portion of any actual losses incurred by Invesco in excess of \$173,000,000 and up to a cap of \$575,000,000. There are currently considerable uncertainties as to the nature, scope and amount of the potential losses for which Invesco may seek indemnity. In addition to the \$173,000,000 deductible, it is uncertain whether the indemnification obligations set forth in the acquisition agreement would apply to this situation and MassMutual believes it has a number of defenses available that may mitigate its exposure to any losses claimed by Invesco should such obligations apply. However, the outcome of any indemnification dispute (including any resulting litigation), should Invesco assert such a claim, and its potential impact on MassMutual's financial position cannot be foreseen with certainty at this time.

**NOTES TO FINANCIAL STATEMENTS**

**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 2021 or 2020.
  - (3) No change
  - (4) The Company did not have interests that continue to be held by a transferor in securitized financial assets in 2021 or 2020.
  - (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, 2021 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, 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.

## NOTES TO FINANCIAL STATEMENTS

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, 2021			Net Asset Value	
	Level 1	Level 2	Level 3	(NAV)	Total
<b>Financial assets:</b>					
<b>Bonds:</b>					
Special revenue	\$ -	\$ 1,786,557	\$ -	\$ -	\$ 1,786,557
Industrial and miscellaneous	110,211,452	205,872,042	136,803,373	-	452,886,867
Preferred stocks	5,058,000	-	17,336,665	-	22,394,665
Common stock - subsidiaries and affiliates	156,422,225	-	260,187,737	-	416,609,962
Common stock - unaffiliated	806,011,703	-	563,317,634	-	1,369,329,337
<b>Derivatives:</b>					
Interest rate swaps	-	16,154,307,366	-	-	16,154,307,366
Options	8,481,000	341,652,646	-	-	350,133,646
Currency swaps	-	570,979,686	-	-	570,979,686
Forward contracts	-	149,113,467	-	-	149,113,467
Credit default swaps	-	526,328	-	-	526,328
Financial futures	121,864,505	-	-	-	121,864,505
Separate account assets	53,289,216,987	22,527,404,901	1,965,254,039	-	77,781,875,927
Total financial assets carried at fair value	\$ 54,497,265,872	\$ 39,951,642,993	\$ 2,942,899,448	\$ -	\$ 97,391,808,313
<b>Financial liabilities:</b>					
Interest rate swaps	\$ -	\$ 11,931,645,105	\$ -	\$ -	\$ 11,931,645,105
Currency swaps	-	452,948,954	-	-	452,948,954
Forward contracts	-	9,437,237	-	-	9,437,237
Credit default swaps	-	526,328	-	-	526,328
Financial futures	8,402,372	-	-	-	8,402,372
Total financial liabilities carried at fair value	\$ 8,402,372	\$ 12,394,557,624	\$ -	\$ -	\$ 12,402,959,996

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, 2021, 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.

## NOTES TO FINANCIAL STATEMENTS

December 31, 2020

	December 31, 2020				Total
	Level 1	Level 2	Level 3	Net Asset Value (NAV)	
Financial assets:					
Bonds:					
Special revenue	\$ -	\$ 1,737,732	\$ -	\$ -	\$ 1,737,73
Industrial and miscellaneous	109,647,889	220,495,017	112,271,674	-	442,414,58
Preferred stocks	-	-	18,459,995	-	18,459,99
Common stock - subsidiaries and affiliates	174,082,420	-	186,455,490	-	360,537,91
Common stock - unaffiliated	780,341,178	-	411,934,164	-	1,192,275,34
Derivatives:					
Interest rate swaps	-	20,081,615,245	-	-	20,081,615,24
Options	64,248,621	347,003,631	-	-	411,252,25
Currency swaps	-	517,010,255	-	-	517,010,25
Forward contracts	-	61,493,112	-	-	61,493,11
Credit default swaps	-	874,008	-	-	874,00
Financial futures	4,986,092	-	-	-	4,986,09
Separate account assets	51,280,265,899	22,851,413,939	1,833,906,064	-	75,965,585,90
Total financial assets carried at fair value	\$ 52,413,572,099	\$ 44,081,642,939	\$ 2,563,027,387	\$ -	\$ 99,058,242,42

## Financial liabilities:

## Derivatives:

Interest rate swaps	\$ -	\$ 16,133,753,161	\$ -	\$ -	\$ 16,133,753,16
Options	8,390,200	-	-	-	8,390,20
Currency swaps	-	863,969,652	-	-	863,969,65
Forward contracts	-	278,715,228	-	-	278,715,22
Credit default swaps	-	874,008	-	-	874,00
Financial futures	62,809,430	-	-	-	62,809,43
Total financial liabilities carried at fair value	\$ 71,199,630	\$ 17,277,312,049	\$ -	\$ -	\$ 17,348,511,67

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

	Balance as of 03/31/2021	Transfers <sup>(1)</sup> In	Transfers <sup>(1)</sup> Out	Gains (Losses) in Net Income	Gains (Losses) in Surplus	Purchases	Issuances	Sales	Settlements	Balance as of 6/30/2021
Financial assets:										
Bonds:										
Industrial and miscellaneous	\$ 100,785,596	\$ 44,673,295	\$ -	\$ (13,032,828)	\$ 7,314,648	\$ 946,251	\$ 936,591	\$ (4,779,954)	\$ (40,226)	\$ 136,803,373
Preferred stock	15,429,593	-	-	-	1,588,360	318,712	-	-	-	17,336,665
Common stock - subsidiaries and affiliates	225,242,235	7	-	-	(65,915,420)	-	119,540,575	(17,723,531)	(956,129)	260,187,737
Common stock - unaffiliated	496,811,018	-	-	(1,690,993)	48,245,152	21,105,544	224	(815,295)	(338,016)	563,317,634
Derivatives:										
Options	29,732,991	-	(23,958,707)	-	3,976,975	-	-	(9,751,259)	-	-
Separate account assets	1,842,560,261	-	-	20,640,601	-	113,651,992	-	(11,598,815)	-	1,965,254,039
Total financial assets	\$ 2,710,561,694	\$ 44,673,302	\$ (23,958,707)	\$ 5,916,780	\$ (4,790,285)	\$ 136,022,499	\$ 120,477,390	\$ (44,668,854)	\$ (1,334,371)	\$ 2,942,899,448

	Balance as of 01/01/2020	Transfers <sup>(1)</sup> In	Transfers <sup>(1)</sup> Out	Gains (Losses) in Net Income	Gains (Losses) in Surplus	Purchases	Issuances	Sales	Settlements	Balance as of 12/31/2020
Financial assets:										
Bonds:										
Industrial and miscellaneous	\$ 110,728,451	\$ 33,090,610	\$ (28,026,870)	\$ (1,589,789)	\$ (14,691,555)	\$ 4,207,826	\$ 11,002,631	\$ -	\$ (2,449,630)	\$ 112,271,674
Preferred Stock	12,738,793	8,801,990	-	-	(12,060,420)	7,233,916	1,745,716	-	-	18,459,995
Common stock - subsidiaries and affiliates	119,810,156	-	(1,464,670)	-	16,706,248	40,478,272	14,750,000	-	(3,824,516)	186,455,491
Common stock - unaffiliated	267,976,515	1,423,659	-	17,874,402	17,995,711	118,334,500	30,421,432	(6,339,575)	(35,752,480)	411,934,164
Separate account assets	966,991,734	-	-	49,491,835	405,442	836,057,101	-	(18,846,429)	(193,620)	1,833,906,063
Total financial assets	\$ 1,478,245,649	\$ 43,316,259	\$ (29,491,540)	\$ 65,776,448	\$ 8,355,426	\$ 1,006,311,616	\$ 57,919,779	\$ (25,186,004)	\$ (42,220,246)	\$ 2,563,027,387

<sup>(1)</sup>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.

(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

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**NOTES TO FINANCIAL STATEMENTS**

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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".



## NOTES TO FINANCIAL STATEMENTS

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

	June 30, 2021					Net	Not
	Aggregate	Admitted				Asset	Practicable
	Fair Value	Assets	Level 1	Level 2	Level 3	Value	(Carrying
						(NAV)	Value)
<b>Financial assets:</b>							
<b>Bonds:</b>							
U. S. government and agencies	\$ 4,407,253,058	\$ 3,748,702,589	-	\$ 4,407,116,954	\$ 136,104	-	-
All other governments	1,862,016,572	1,690,461,555	-	1,765,586,746	96,429,826	-	-
States, territories and possessions	427,922,453	360,049,983	-	427,922,453	-	-	-
Political subdivisions	492,940,812	427,104,711	-	492,940,812	-	-	-
Special revenue	5,843,396,448	4,936,212,515	-	5,833,641,330	9,755,118	-	-
Industrial and miscellaneous	103,696,569,401	96,456,206,848	110,211,452	54,524,204,630	49,062,153,319	-	-
Parent, subsidiaries and affiliates	6,532,738,822	6,454,872,182	-	-	6,532,738,822	-	-
Preferred stocks	581,946,334	494,026,651	5,058,000	-	576,888,334	-	-
<b>Common stocks - subsidiaries</b>							
and affiliates <sup>(1)</sup>	416,609,962	416,609,962	156,422,225	-	260,187,737	-	-
Common stocks - unaffiliated	1,369,329,337	1,369,329,337	806,011,703	-	563,317,634	-	-
Mortgage loans - commercial	23,380,504,105	22,373,822,437	-	-	23,380,504,105	-	-
Mortgage loans - residential	4,710,137,065	4,642,968,957	-	-	4,710,137,065	-	-
<b>Cash, cash equivalents and</b>							
short-term investments	7,843,000,000	7,843,000,000	601,292,318	7,241,707,682	-	-	-
<b>Derivatives:</b>							
Interest rate swaps	17,266,316,447	16,154,307,366	-	17,266,316,447	-	-	-
Options	350,133,646	350,133,646	8,481,000	341,652,646	-	-	-
Currency swaps	570,979,686	570,979,686	-	570,979,686	-	-	-
Forward contracts	149,113,467	149,113,467	-	149,113,467	-	-	-
Credit default swaps	526,328	205,435	-	526,328	-	-	-
Financial futures	121,864,505	121,864,505	121,864,505	-	-	-	-
Separate account assets	77,781,875,927	77,781,875,927	53,289,216,987	22,527,404,901	1,965,254,039	-	-
<b>Financial liabilities:</b>							
Repurchase agreements	2,820,225,626	2,820,225,626	-	2,820,225,626	-	-	-
Commercial paper	1,120,246,000	1,120,246,000	-	1,120,246,000	-	-	-
Guaranteed interest contracts	13,147,259,788	13,031,064,108	-	-	13,147,259,788	-	-
<b>Group annuity contracts and</b>							
other deposits	1,733,997,765	1,658,526,105	-	-	1,733,997,765	-	-
Individual annuity contracts	13,093,802,467	10,583,159,484	-	-	13,093,802,467	-	-
Supplementary contracts	1,133,881,134	1,132,606,290	-	-	1,133,881,134	-	-
<b>Derivatives:</b>							
Interest rate swaps	12,860,235,000	11,931,645,105	-	12,860,235,000	-	-	-
Currency swaps	452,948,954	452,948,954	-	452,948,954	-	-	-
Forward contracts	9,437,237	9,437,237	-	9,437,237	-	-	-
Credit default swaps	807,199	749,817	-	807,199	-	-	-
Financial futures	8,402,372	8,402,372	8,402,372	-	-	-	-

<sup>(1)</sup>Common stocks - subsidiaries and affiliates do not include unconsolidated subsidiaries, which had a statutory carrying value of \$23,432,169,908.

## NOTES TO FINANCIAL STATEMENTS

December 31, 2020

	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	\$ 5,351,481,986	\$ 4,437,978,459	\$ -	\$ 5,351,314,765	\$ 167,221	\$ -	\$ -
All other governments	2,121,468,986	1,847,182,971	-	2,034,115,382	87,353,604	-	-
States, territories and possessions	498,167,235	424,423,367	-	498,167,235	-	-	-
Political subdivisions	506,883,735	431,274,479	-	506,883,735	-	-	-
Special revenue	7,257,048,724	6,241,194,972	-	7,246,988,330	10,060,394	-	-
Industrial and miscellaneous	103,560,451,963	94,990,056,159	109,647,889	57,948,053,197	45,502,750,877	-	-
Parent, subsidiaries and affiliates	6,408,646,484	6,311,833,945	-	-	6,408,646,484	-	-
Preferred stocks	516,444,688	470,256,327	548,386	-	515,896,302	-	-
Common stock - subsidiaries and affiliates <sup>(1)</sup>	360,537,910	360,537,910	174,082,420	-	186,455,490	-	-
Common stock - unaffiliated	1,192,275,342	1,192,275,342	780,341,178	-	411,934,164	-	-
Mortgage loans - commercial	23,149,887,738	22,215,882,948	-	-	23,149,887,738	-	-
Mortgage loans - residential	3,885,048,634	3,862,450,067	-	-	3,885,048,634	-	-
Cash, cash equivalents and short-term investments	5,738,239,031	5,738,239,031	272,277,771	5,465,961,260	-	-	-
Derivatives:							
Interest rate swaps	22,591,275,428	20,081,615,245	-	22,591,275,428	-	-	-
Options	411,252,252	411,252,252	64,248,621	347,003,631	-	-	-
Currency swaps	517,010,255	517,010,255	-	517,010,255	-	-	-
Forward contracts	61,493,112	61,493,112	-	61,493,112	-	-	-
Credit default swaps	1,981,119	54,804	-	1,981,119	-	-	-
Financial futures	4,986,092	4,986,092	4,986,092	-	-	-	-
Separate account assets	75,965,585,902	75,965,585,902	51,280,265,899	22,851,413,939	1,833,906,064	-	-
Financial liabilities:							
Repurchase agreements	4,006,040,410	4,006,040,410	-	4,006,040,410	-	-	-
Commercial paper	249,989,854	249,989,854	-	249,989,854	-	-	-
Guaranteed investment contracts	11,807,079,270	11,463,626,661	-	-	11,807,079,270	-	-
Group annuity contracts and other deposits	1,892,408,874	1,735,624,138	-	-	1,892,408,874	-	-
Individual annuity contracts	12,473,365,512	9,764,165,642	-	-	12,473,365,512	-	-
Supplementary contracts	1,130,042,029	1,128,903,768	-	-	1,130,042,029	-	-
Derivatives:							
Interest rate swaps	16,842,698,715	16,133,753,161	-	16,842,698,715	-	-	-
Options	8,390,200	8,390,200	8,390,200	-	-	-	-
Currency swaps	863,969,652	863,969,652	-	863,969,652	-	-	-
Forward contracts	278,715,228	278,715,228	-	278,715,228	-	-	-
Credit default swaps	974,183	1,118,997	-	974,183	-	-	-
Financial futures	62,809,430	62,809,430	62,809,430	-	-	-	-

<sup>(1)</sup>Common stocks - subsidiaries and affiliates do not include unconsolidated subsidiaries, which had statutory carrying values of \$19,534,186,658.

d. As of June 30, 2021, and December 31, 2020, 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 2020 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.

**NOTES TO FINANCIAL STATEMENTS****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 spread of the coronavirus, causing increased cases of COVID-19, around the world in 2020 has caused significant volatility in U.S. and international markets. There is significant uncertainty around the breadth and duration of business disruptions related to COVID-19, as well as its impact on the U.S. and international economies. At this time, the Company is not able to reliably estimate the length and severity of the COVID-19 public health crises and, as such, cannot quantify its impact on the financial results, liquidity and capital resources and its operations in future periods.

**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 politics 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.

- 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:	June 30, 2021			Six Months Ended June 30, 2021
	Actual Cost	Carrying Value	Fair Value	OTTI
a. Residential mortgage-backed securities	\$ 287,703,124	\$ 316,907,665	\$ 343,036,864	\$ 631,958
b. Commercial mortgage-backed securities	-	-	-	-
c. Collateralized debt obligations	-	-	-	-
d. Structured securities	-	-	-	-
e. Equity investments in SCAs *	\$ 12,393,374	\$ 14,363,256	\$ 15,474,071	\$ 97,320
f. Other assets	-	-	-	-
g. Total	<u>\$ 300,096,498</u>	<u>\$ 331,270,921</u>	<u>\$ 358,510,935</u>	<u>\$ 729,278</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.

Alt-A:	December 31, 2020			Year Ended December 31, 2020
	Actual Cost	Carrying Value	Fair Value	OTTI
a. Residential mortgage-backed securities	\$ 262,056,682	\$ 292,017,548	\$ 318,963,049	\$ 733,360
b. Commercial mortgage-backed securities	-	-	-	-
c. Collateralized debt obligations	-	-	-	-
d. Structured securities	-	-	-	-
e. Equity investments in SCAs *	13,964,682	16,122,513	17,177,674	59,717
f. Other assets	-	-	-	-
g. Total	<u>\$ 276,021,364</u>	<u>\$ 308,140,061</u>	<u>\$ 336,140,723</u>	<u>\$ 793,077</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.

(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 12, 2021, 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 16, 2021, MassMutual issued a \$600,000,000 funding agreement with a 1.20% fixed rate and a 5-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 2021 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**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
- 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
- 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  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
- 3.3 If the response to 3.2 is yes, provide a brief description of those changes.  
GALIC acquisition
- 3.4 Is the reporting entity publicly traded or a member of a publicly traded group? ..... Yes  No
- 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   
If yes, complete and file the merger history data file with the NAIC.
- 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 Name of Entity	2 NAIC Company Code	3 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  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?
- 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
- 6.6 Have all of the recommendations within the latest financial examination report been complied with? ..... Yes  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
- 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
- 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  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 Affiliate Name	2 Location (City, State)	3 FRB	4 OCC	5 FDIC	6 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	Enfield, CT				YES
MML Investors Services, LLC	Springfield, MA				YES
MML Strategic Distributors, LLC	Springfield, MA				YES
The MassMutual Trust Company, OCC	Enfield, 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).
- 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: ..... \$ 1,794,248,767
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 .....	\$ 6,311,833,947	\$ 6,454,872,182
14.22 Preferred Stock .....	\$ .....	\$ .....
14.23 Common Stock .....	\$ 19,571,821,118	\$ 23,834,042,527
14.24 Short-Term Investments .....	\$ .....	\$ .....
14.25 Mortgage Loans on Real Estate .....	\$ .....	\$ .....
14.26 All Other .....	\$ 5,396,362,729	\$ 6,488,952,834
14.27 Total Investment in Parent, Subsidiaries and Affiliates (Subtotal Lines 14.21 to 14.26) .....	\$ 31,280,017,794	\$ 36,777,867,543
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, 2021 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 .....
JP Morgan Chase Bank N.A. ....	1 Chase Manhattan Plaza, 19th Floor, New York, NY 10005 .....
Northern Trust .....	50 South LaSalle Street, Chicago, IL 60603 .....
State Street Global Services .....	801 Pennsylvania Avenue, Kansas City, MO 64105 .....
Citibank, N.A. ....	2 Park Street Sydney, NSW 2000 .....

- 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
Carlyle Aviation Group Capital Markets LLC .....	U .....
Invesco Investment Management Company .....	U .....
Barings LLC .....	A .....
Franklin Advisers, Inc. ....	U .....
Tortoise Capital Advisors, L.L.C. ....	U .....
PIMCO- Pacific Investment Management Company LLC .....	U .....
IFM Investors Pty Ltd .....	U .....
Ashmore Investment Management Limited .....	U .....
Jefferies Finance LLC .....	A .....
20 Gates Management, LLC .....	U .....
Apollo Insurance Solutions Group LP .....	U .....
Great-West Capital Management LLC .....	U .....
Fractal Investments LLC .....	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
168456 .....	Carlyle Aviation Group Capital Markets LLC .....	R6ZXX5P01NP6HXY1S07 .....	SEC .....	NO .....
110363 .....	Invesco Investment Management Company .....	R6ZXX5P01NP6HXY1S07 .....	SEC .....	DS .....
106006 .....	Barings LLC .....	R6ZXX5P01NP6HXY1S07 .....	SEC .....	DS .....
104517 .....	Franklin Advisers, Inc. ....	R6ZXX5P01NP6HXY1S07 .....	SEC .....	NO .....
123711 .....	Tortoise Capital Advisors, L.L.C. ....	R6ZXX5P01NP6HXY1S07 .....	SEC .....	NO .....
104559 .....	PIMCO- Pacific Investment Management Company LLC .....	R6ZXX5P01NP6HXY1S07 .....	SEC .....	NO .....
162754 .....	IFM Investors Pty Ltd .....	R6ZXX5P01NP6HXY1S07 .....	SEC .....	NO .....
185402 .....	Ashmore Investment Management Limited .....	R6ZXX5P01NP6HXY1S07 .....	SEC .....	NO .....
162264 .....	Jefferies Finance LLC .....	R6ZXX5P01NP6HXY1S07 .....	SEC .....	DS .....
155480 .....	20 Gates Management, LLC .....	R6ZXX5P01NP6HXY1S07 .....	SEC .....	NO .....
143161 .....	Apollo Insurance Solutions Group LP .....	R6ZXX5P01NP6HXY1S07 .....	SEC .....	NO .....
107272 .....	Great-West Capital Management LLC .....	R6ZXX5P01NP6HXY1S07 .....	SEC .....	NO .....
311767 .....	Fractal Investments LLC .....	R6ZXX5P01NP6HXY1S07 .....	SEC .....	NO .....

**STATEMENT AS OF JUNE 30, 2021 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 6/30/2021, 46 issues for 40 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 \$525,953,858 or 0.38% 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 ..... \$ ..... 4,642,968,957  
    1.13 Commercial Mortgages ..... \$ ..... 22,373,822,437  
    1.14 Total Mortgages in Good Standing ..... \$ ..... 27,016,791,394
- 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 ..... \$ .....  
    1.44 Total Mortgages in Process of Foreclosure ..... \$ .....
- 1.5 Total Mortgage Loans (Lines 1.14 + 1.21 + 1.34 + 1.44) (Page 2, Column 3, Lines 3.1 + 3.2) ..... \$ ..... 27,016,791,394
- 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
.....	.....

**SCHEDULE S - CEDED REINSURANCE**

Showing All New Reinsurance Treaties - Current Year to Date

1 NAIC Company Code	2 ID Number	3 Effective Date	4 Name of Reinsurer	5 Domiciliary Jurisdiction	6 Type of Reinsurance Ceded	7 Type of Business Ceded	8 Type of Reinsurer	9 Certified Reinsurer Rating (1 through 6)	10 Effective Date of Certified Reinsurer Rating
82627	06-0839705	06/30/2020	Swiss Re Life & Health America (SR5)	MO	YRT/G	OL	Authorized		



# 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>
<b>MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY</b>	04-1590850	65935	Massachusetts
<b>Direct &amp; Indirect Owned Subsidiaries:</b>			
C.M. Life Insurance Company	06-1041383	93432	Connecticut
MML Bay State Life Insurance Company	43-0581430	70416	Connecticut
CML Mezzanine Investor III, LLC	06-1041383		Delaware
CML Special Situations Investor 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 I II LLC	None		Delaware
MM/Barings Multifamily TEBS 2020 LLC	None		Delaware
New Haven Holdco LLC	04-1590850		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
MSP-SC, LLC	04-1590850		Delaware
Insurance Road LLC	04-1590850		Delaware
MassMutual Trad Private Equity LLC	04-1590850		Delaware
MassMutual Private Equity Funds LLC	04-1590850		Delaware
MassMutual Private Equity Funds Subsidiary 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
Jefferies Finance LLC	27-0105644		Delaware
APEX Credit Partners LLC	None		Delaware
Jefferies Credit Partners LLC	None		Delaware
Jefferies Credit Management LLC	None		Delaware
Jefferies Private Credit GP LLC	None		Maryland
Jefferies Private Credit Fund LP	None		Delaware
Jefferies Private Credit BDC Inc.	None		Delaware
JFIN GP Adviser 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>
JFIN Fund III LLC	None		Delaware
JFIN Fund VI LLC	None		Delaware
JFIN Asset Management LLC	None		Delaware
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
JFIN Revolver Holdings LLC	None		Delaware
JFIN Revolver Holdings II 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 High Yield Investments LLC	None		Delaware
JFIN LC Fund 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 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-III Ltd.	None		Delaware
JFIN Revolver Fund, L.P.	None		Delaware
JFIN Revolver Funding 2021 Ltd.	None		Delaware
Apex Credit CLO 2015-II Ltd.*	None		Cayman Islands
Apex Credit CLO 2016 Ltd.	None		Cayman Islands
Apex Credit CLO 2017 Ltd.	None		Cayman Islands
Apex Credit CLO 2017-II Ltd.	None		Cayman Islands
Glidepath Holdings Inc.	86-2294635		Delaware
Great American Life Insurance Company	13-1935920	63312	Ohio
AAG Insurance Agency, LLC	31-1422717		Kentucky

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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>
Annuity Investors Life Insurance Company	31-1021738	93661	Ohio
Great American Advisors, 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
MM Investment Holding	None		Cayman Islands
MassMutual Asset Finance LLC*	26-0073611		Delaware
MMAF Equipment Finance LLC 2013-A	90-1005837		Delaware
MMAF Equipment Finance LLC 2014-A	36-4785301		Delaware
MMAF Equipment Finance LLC 2015-A	38-3969560		Delaware
MMAF Equipment Finance LLC 2016-A	32-0489588		Delaware
MMAF Equipment Finance LLC 2017-A	35-2590691		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 2021-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 Technologies LLC	None		Delaware
MML Distributors LLC*	04-3356880		Massachusetts
MML Investment Advisers, LLC	None		Delaware
MML Strategic Distributors, LLC	46-3238013		Delaware
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
Sleeper Street LLC	None		Delaware
Haven Life Insurance Agency, LLC	46-2252944		Delaware
MassMutual Assignment Company	06-1597528		North Carolina

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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 Capital Partners LLC	04-1590850		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
MassMutual Ventures Southeast Asia I LLC	None		Delaware
MassMutual Ventures Southeast Asia II LLC	None		Delaware
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
Open Alternatives LLC	None		Delaware
MM Catalyst Fund LLC	None		Delaware
MM Rothesay Holdco US LLC	04-1590850		Delaware
Rothesay Limited	None		United Kingdom
Rothesay Life Plc	None		United Kingdom
Rothesay Assurance Limited	None		United Kingdom
Rothesay MA No.1 Limited	None		United Kingdom
Rothesay MA No.2 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 US 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
Barings 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

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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 Singapore Pte. Ltd.	None		Singapore
Barings Japan Limited	98-0236449		Japan
Barings Australia Holding Company Pty Ltd	None		Australia
Barings Australia Pty Ltd	98-0457456		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
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
Barings Italy S.r.l.	None		Italy
Barings Sweden AB	None		Sweden
Barings Finland Oy	None		Finland
Barings Netherlands B.V.	None		Netherlands
Barings Real Estate UK Holdings Limited	None		Delaware
BREAE AIFM LLP	None		United Kingdom
Barings Real Estate Advisers (Continental Europe) Limited	98-0654401		United Kingdom
Barings Real Estate Advisers Europe LLP	98-0654388		United Kingdom
Barings Real Estate Advisers Europe Finance LLP	98-0654412		United Kingdom
Barings Real Estate GmbH	98-1194368		Germany
Baring Asset Management Limited	98-0241935		United Kingdom
Barings European Direct Lending 1 GP LLP	None		United Kingdom
Barings Global Advisors Limited	98-1012393		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 Asset Management GmbH	98-0465031		Germany
Baring International Fund Managers (Ireland) Limited	98-0524272		Ireland
Baring Asset Management Switzerland Sàrl	None		Switzerland
Baring France SAS	98-0497550		France
Baring Fund Managers Limited	98-0457586		United Kingdom
BCGSS 2 GP LLP	None		United Kingdom
Baring Pension Trustees Limited	98-0457574		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 S.à.r.l.	None		United Kingdom

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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 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
Almack Holding Partnership GP Limited	None		United Kingdom
Almack Mezzanine Fund Limited	None		United Kingdom
Barings (U.K.) Limited	98-0432153		United Kingdom
Newpoint Real Estate Capital	None		Delaware
Barings Real Estate Advisers Inc.	04-3238351		California
Chassis Acquisition Holding LLC	81-2244465		Delaware
CRA Aircraft Holding LLC*	81-4258759		Delaware
Aland Royalty Holdings LP	None		Delaware
Intermodal Holding II LLC	46-2344300		Delaware
Milestone Acquisition Holding, LLC.	47-3055009		Delaware
Novation Companies, Inc.	None		Maryland
Red Lake Ventures, LLC	46-5460309		Delaware
Remington L & W Holdings LLC*	81-4065378		Connecticut
Tamiami Citrus, LLC	None		Delaware
Teaktree Acquisition, LLC	None		Delaware
Techquity, LP	None		Delaware
Validus Holding Company LLC	46-0687392		Delaware
Validus Pharmaceuticals LLC	None		Delaware
VGS Acquisition Holding, LLC	None		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
Barings Alternative Investments SLP, LLC	None		Delaware
Baring Asset-Based Income Fund (US) GP, LLC	None		Delaware
Barings Investment Series LLC	None		Delaware
Barings Capital Investment LLC	None		Maryland
Barings Emerging Generation Fund GP, LLC	None		Delaware
Barings Global Investment Funds (U.S.) Management LLC	04-1590850		Delaware
Barings ABIF SLP, LLC	None		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 Global Real Assets Fund GP, LLC	None		Delaware
Barings GPSF	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 North American Private Loan Fund Management, LLC	None		Delaware
Barings North American Private Loan Fund Management II, LLC	None		Delaware
Barings Private Credit Corporation	None		Maryland
Barings Small Business Fund LLC	84-5063008		Delaware
Benton Street Advisors, Inc.	98-0536233		Cayman Islands
BRECS VII GP LLC	None		Delaware
CCM Fund I REIT Manager LLC	None		Delaware
CEMF I GP LLC	None		Delaware
CHY Venture GP LLC	None		Delaware
CREF X GP LLC	None		Delaware
Great Lakes III GP, LLC	04-1590850		Delaware
Lake Jackson LLC	None		Delaware
Loan Strategies Management LLC	04-1590850		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
Somerset Special Opportunities Management LLC	04-1590850		Delaware
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
MML Mezzanine Investor II, LLC	04-1590850		Delaware
MML Mezzanine Investor III, LLC	04-1590850		Delaware
MassMutual External Benefits Group LLC	27-3576835		Delaware
<b>Other Affiliates &amp; Funds:</b>			
100 w. 3 <sup>rd</sup> 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 Asset-Based Income Fund (US) LP	36-4868350		Delaware
Barings Emerging Markets Corporate Bond Fund	None		Ireland

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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 European Real Estate Debt Income Fund	None		Luxembourg
Babson Capital Global Special Situation Credit Fund 2*	98-1206017		Delaware
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. 2013-I	None		Cayman Islands
Babson CLO Ltd. 2014-I	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 2021-1	ZJX0JI.99999.SL.136		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
Babson Euro CLO 2016-I BV	None		Netherlands
Barings Euro CLO 2019-I	36037260H		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 Global Em. Markets Equity Fund	82-5330194		North Carolina
Barings Global Energy Infrastructure Fund I LP	98-1332384		Cayman Islands
Barings Global Inv. Grade Strat Fund	None		Ireland
Barings Global Private Loan Fund	None		Luxembourg
Barings Global Real Assets Fund LP	82-3867745		Delaware
Barings Global Special Situations Credit Fund 3	None		Ireland
Barings Global Special Situations Credit 4 Delaware*	85-1465973		Delaware
Barings Global Special Situations Credit 4 LUX*	98-1570693		Luxembourg
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

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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 North American Private Loan Fund LP	38-4010344		Delaware
Barings RE Credit Strategies VII LP	98-1332384		Delaware
Barings CLO Investment Partners LP	81-0841854		Delaware
Barings Euro Value Add II (BREEVA II)*	K15Q2K.99999.SL.442		Luxembourg
Barings Real Estate European Value Add I SCSp*	None		United Kingdom
Barings Real Estate Debt Income Fund LP*	85-3449260		Delaware
Braemar Energy Ventures I, L.P. *	None		Delaware
Barings European Core Property Fund SCSp	None		Luxembourg
Benchmark 2018-B2 Mortgage Trust	38-4059932		New York
Benchmark 2018-B4	None		New York
Benchmark 2018-B8	38-4096530		New York
Braselton Point LLC	04-1590850		Delaware
Barings Core Property Fund LP	20-5578089		Delaware
Cornerstone Real Estate Fund VIII LP	27-0547156		Delaware
Cornerstone Real Estate Fund X LP	46-5432619		Delaware
Cornerstone Permanent Mortgage Fund III LLC	35-2531693		Massachusetts
Cornerstone Permanent Mortgage Fund IV LLC	61-1793735		Massachusetts
GASL Holdings, LLC	82-2932156		Delaware
Gateway Mezzanine Partners II LP*	90-0991195		Delaware
Great Lakes III, L.P.	37-1708623		Delaware
JPMCC Commercial Mortgage Securities Trust 2017-JP7	38-4041011; 38-4041012		New York
JPMDB Commercial Mortgage Securities Trust 2017-C5	38-4032059		New York
KKR-MM Vector LP	82-1512591		Delaware
Marco Hotel LLC	46-4255307		Delaware
Miami Douglas One GP LLC*	04-1590850		Delaware
Miami Douglas Two GP LLC*	04-1590850		Delaware
Miami Douglas One LP*	04-1590850		Delaware
Miami Douglas Two LP*	04-1590850		Delaware
MM BIG Peninsula Co-Invest Member LLC	04-1590850		Massachusetts
NYDIG Digital Assets Fund II LP	85-3886824		Delaware
HB Naples Golf Owner LLC	45-3623262		Delaware
MM CM Holding LLC	None		Delaware
MM Debt Participations LLC	81-3000420		Delaware
RB Apartments LLC	82-4411267		Delaware
Reston Arboretum LLC	75-2901061		Delaware
Rockville Town Center LLC	54-2055778		Virginia
Somerset Special Opportunities Fund L.P.*	20-8856877		Delaware
SouthPointe Industrial LLC	04-1590850		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

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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>
Trailside MM Member LLC*	04-1590850		Delaware
Washington Gateway Two LLC*	83-1325764		Delaware
Washington Gateway Three LLC*	32-0574045		Delaware
West 46 <sup>th</sup> Street Hotel LLC	05-1590850		Delaware
<b>Barings Affiliates &amp; Funds:</b>			
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	HU7DQI.00015.SF.826		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
<b>Barings Real Estate Affiliates &amp; Funds:</b>			
50 Liberty LLC*	36-4823011		Delaware
Barings California Mortgage Fund IV	None		California
Barings Hotel Opportunity Venture	87-0977058		Delaware
Barings Umbrella Fund LUX SCSp SICAV RAIF*	None		Luxembourg
Calgary Railway Holding LLC*	82-2285211		Delaware
Combrook PRS Holdings LLC	82-3307907		Delaware
Comerstone California Mortgage Fund I LLC	95-4207717		California
Comerstone California Mortgage Fund II LLC	95-4207717		California
Comerstone California Mortgage Fund III LLC	95-4207717		California
Comerstone Fort Pierce Development LLC*	56-2630592		Delaware
Comerstone Permanent Mortgage Fund	45-2632610		Massachusetts
Comerstone Permanent Mortgage Fund II	61-1750537		Massachusetts
Comerstone Permanent Mortgage Fund III	35-2531693		Massachusetts
Comerstone Permanent Mortgage Fund IV	61-1793735		Massachusetts
CREA/PPC Venture LLC	20-0348173		Delaware
CREA Madison Member LLC	81-0890084		Delaware
Danville Riverwalk Venture, LLC	82-2783393		Delaware
Fan Pier Development LLC*	20-3347091		Delaware
GIA EU Holdings LLC	04-1590850		Delaware
Landmark Manchester Holdings LLC	81-5360103		Delaware
MM Island Member LLC	04-1590850		Delaware
NoHo West Venture LLC	83-0881588		Delaware
One Harbor Shore LLC*	80-0948028		Delaware
PACO France Logistics LLC	04-1590850		Delaware
Portland 400 Sixth Manager LLC	82-3393166		Delaware
Raleigh Crossing Phase I Holdings LLC	None		Delaware
Salomon Brothers Commercial Mortgage Trust 2001-MM	None		Delaware
Sawgrass Village Shopping Center LLC*	27-2977720		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>
STOA Holding LLC	None		Delaware
Three PW Office Holding LLC	81-5273574		Delaware
Twenty Two Liberty LLC*	35-2484550		Massachusetts
Unna, Dortmund Holding LLC	82-3250684		Delaware
Washington Gateway Apartments Venture LLC*	45-5401109		Delaware
<b>MassMutual Premier Funds:</b>			
MassMutual Premier Focused International Fund	02-0754273		Massachusetts
MassMutual Premier Main Street Fund	51-0529328		Massachusetts
MassMutual Premier Strategic Emerging Markets Fund	26-3229251		Massachusetts
<b>MassMutual Select Funds:</b>			
MassMutual Select Diversified Value Fund	01-0821120		Massachusetts
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
<b>MML Series Investment Funds:</b>			
MML Series International Equity Fund	46-4257056		Massachusetts
<b>MML Series Investment Funds II:</b>			
MML Series II Asset Momentum Fund	47-3517233		Massachusetts
MML Series II Dynamic Bond Fund	47-3529636		Massachusetts
MML Series II Equity Rotation Fund	47-3544629		Massachusetts
MML Series II Special Situations Fund	47-3559064		Massachusetts
<b>MassMutual RetireSMART Funds:</b>			
MassMutual RetireSMART 2035 Fund	27-1933380		Massachusetts
MassMutual RetireSMART 2045 Fund	27-1932769		Massachusetts
MassMutual RetireSMART 2055 Fund	46-3289207		Massachusetts
MassMutual RetireSMART 2060 Fund	47-5326235		Massachusetts
MassMutual 20/80 Allocation Fund	45-1618155		Massachusetts

\*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

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	<u>Federal Tax ID</u>	<u>NAIC Co Code</u>	<u>State of Domicile</u>
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

\*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, 2021 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? (Y/N)	*
.0435	Massachusetts Mut Life Ins Co	65935	04-1590850	3848388			Massachusetts Mutual Life Insurance Company (MLLIC)	MA	RE	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0435	Massachusetts Mut Life Ins Co	93432	06-1041383				C.M. Life Insurance Company	CT	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.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	MLLIC		
.0000			06-1041383				CML Mezzanine Investor III, LLC	DE	DS	C.M. Life Insurance Company	Ownership	100.000	MLLIC		
.0000							CML Special Situations Investor LLC	DE	DS	C.M. Life Insurance Company	Ownership	100.000	MLLIC		
.0000							CML Global Capabilities LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							MM Global Capabilities I LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							MassMutual Global Business Services India LLP	IND	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							MM Global Capabilities (Netherlands) B.V.	NLD	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							MassMutual Global Business Services Romania S.R.L.	ROU	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							MM Global Capabilities II LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							MM Global Capabilities III LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							MM/Barings Multifamily TEBS 2020 LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			04-1590850				New Haven Holdco LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							MML Special Situations Investor LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			47-5322979				Timberland Forest Holding LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			47-5322979				Timberland Forest Holding LLC	DE	DS	C.M. Life Insurance Company	Ownership	0.000	MLLIC		
.0000			47-5322979				Timberland Forest Holding LLC	DE	DS	Wood Creek Capital Management LLC	Management		MLLIC		
.0000							Lyme Adirondack Forest Company, LLC	DE	DS	Timberland Forest Holding LLC	Ownership	100.000	MLLIC		
.0000							Lyme Adirondack Timberlands I, LLC	DE	DS	Timberland Forest Holding LLC	Ownership	100.000	MLLIC		
.0000							Lyme Adirondack Timberlands II, LLC	DE	DS	Timberland Forest Holding LLC	Ownership	100.000	MLLIC		
.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 MCOM Insurance Company, Inc.	VT	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 Private Equity Funds LLC	DE	NIA	MassMutual Trad Private Equity LLC	Ownership	100.000	MLLIC		
.0000							MassMutual Private Equity Funds Subsidiary LLC	DE	NIA	MassMutual Private Equity Funds LLC	Ownership	100.000	MLLIC		
.0000			04-1590850				MassMutual Intellectual Property LLC	DE	NIA	Insurance Road LLC	Ownership	100.000	MLLIC		
.0000			04-1590850				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		



STATEMENT AS OF JUNE 30, 2021 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? (Y/N)	*
.0000			27-0105644				Jefferies Finance LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	50.000	MLLIC		1
.0000							Massachusetts Mutual Life Insurance Company								
.0435	Massachusetts Mut Life Ins Co	63312	86-2294635				Glidepath Holdings Inc.	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000			13-1935920				Great American Life Insurance Company	OH	DS	Glidepath Holdings Inc.	Ownership	100.000	MLLIC		
.0435	Massachusetts Mut Life Ins Co	93661	31-1422717				AAG Insurance Agency, LLC	KY	DS	Great American Life Insurance Company	Ownership	100.000	MLLIC		
.0000			31-1021738				Annuity Investors Life Insurance Company	OH	DS	Great American Life Insurance Company	Ownership	100.000	MLLIC		
.0435	Massachusetts Mut Life Ins Co	67083	31-1395344				Great American Advisors, LLC	OH	DS	Great American Life Insurance Company	Ownership	100.000	MLLIC		
.0000			26-3260520				Manhattan National Holding, LLC	OH	DS	Great American Life Insurance Company	Ownership	100.000	MLLIC		
.0435	Massachusetts Mut Life Ins Co		45-0252531				Manhattan National Life Insurance Company	OH	DS	Manhattan National Holding, LLC	Ownership	100.000	MLLIC		
.0000							MassMutual Mortgage Lending LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MLLIC		
.0000							Apex Credit Partners 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							Jefferies Credit Management LLC	DE	NIA	Jefferies Credit Partners LLC	Ownership	100.000	MLLIC		
.0000							Jefferies Private Credit GP LLC	DE	NIA	Jefferies Credit Management LLC	Ownership	100.000	MLLIC		
.0000							Jefferies Private Credit Fund LP	DE	NIA	Jefferies Private Credit GP LLC	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							JFIN Fund VI LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN Asset Management LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFAM GP LLC	DE	NIA	JFIN Asset Management, LLC	Ownership	100.000	MLLIC		
.0000							JFAM GP LP	DE	NIA	JFIN Asset Management, LLC	Ownership	100.000	MLLIC		
.0000							Jefferies Direct Lending Fund C LP	DE	NIA	JFIN Asset Management, LLC	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		
.0000							JFIN Revolver Holdings LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN Revolver Holdings II LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN Co-Issuer Corporation	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN Europe GP, S.a.r.l.	LUX	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							Jefferies Finance Europe, S.L.P.	LUX	NIA	JFIN Europe GP, S.a.r.l.	Ownership	100.000	MLLIC		
.0000							Jefferies Finance Europe, SCSp	LUX	NIA	JFIN Europe GP, S.a.r.l.	Ownership	100.000	MLLIC		
.0000							Jefferies Finance Business Credit LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN Business Credit Fund I LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN High Yield Investments LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN LC Fund LLC	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN CLO 2012 Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN CLO 2013 Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN CLO 2014-II Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN CLO 2015 Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	44.000	MLLIC		
.0000							JFIN CLO 2015 Ltd.	CYM	NIA	Apex Credit Partners LLC	Ownership	56.000	MLLIC		
.0000							JFIN Revolver CLO 2014 Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN Revolver CLO 2017 Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN Revolver CLO 2017-II Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN Revolver CLO 2017-III Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN Revolver CLO 2018 Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN Revolver CLO 2019 Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN Revolver CLO 2019-II Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN Revolver CLO 2020 Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN Revolver CLO 2021-II Ltd.	CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN Revolver CLO 2021-III Ltd.	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		
.0000							JFIN Revolver Fund, L.P.	DE	NIA	Jefferies Finance LLC	Ownership	90.000	MLLIC		
.0000							JFIN Revolver Funding 2021 Ltd.	DE	NIA	Jefferies Finance LLC	Ownership	100.000	MLLIC		

STATEMENT AS OF JUNE 30, 2021 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? (Y/N)	*
.0000							Apex Credit CLO 2015-II Ltd.	.CYM	NIA	Jefferies Finance LLC	Ownership	33.000	MMLIC		
.0000							Apex Credit CLO 2015-II Ltd.	.CYM	NIA	Apex Credit Partners LLC	Ownership	53.000	MMLIC		
.0000							Apex Credit CLO 2016 Ltd.	.CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							Apex Credit CLO 2017 Ltd.	.CYM	NIA	Jefferies Finance LLC	Ownership	100.000	MMLIC		
.0000							Apex Credit CLO 2017-II Ltd.	.CYM	NIA	Jefferies Finance 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 Investment Holding	.CYM	.DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			26-0073611				MassMutual Asset Finance 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			90-1005837				MMAF Equipment Finance LLC 2013-A	.DE	.DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.0000			36-4785301				MMAF Equipment Finance LLC 2014-A	.DE	.DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.0000			38-3969560				MMAF Equipment Finance LLC 2015-A	.DE	.DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.0000			32-0489588				MMAF Equipment Finance LLC 2016-A	.DE	.DS	MassMutual Asset Finance LLC	Ownership	100.000	MMLIC		
.0000			35-2590691				MMAF Equipment Finance LLC 2017-A	.DE	.DS	MassMutual Asset Finance LLC	Ownership	100.000	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 2021-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	Y	
.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 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	100.000	MMLIC		
.0000			04-3356880				MML Distributors LLC	.MA	.DS	MassMutual Holding LLC	Ownership	100.000	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	Y	
.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	MML Private Equity Fund Investor LLC	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	Y	
.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							Sleeper Street 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		

STATEMENT AS OF JUNE 30, 2021 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? (Y/N)	*
.0000			04-1590850				MassMutual Capital Partners LLC	DE	DS	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 Holding LLC	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 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							Open Alternatives LLC	DE	DS	MassMutual Ventures Holding LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				MM Rothesay Holdco US LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							Rothesay Limited	GBR	DS	MM Rothesay Holdco US LLC	Ownership	100.000	MMLIC		
.0000							Rothesay Life Plc	GBR	DS	Rothesay Limited	Ownership	100.000	MMLIC		
.0000							Rothesay Assurance Limited	GBR	DS	Rothesay Life PLC	Ownership	100.000	MMLIC		
.0000							Rothesay MA No.1 Limited	GBR	DS	Rothesay Life PLC	Ownership	100.000	MMLIC		
.0000							Rothesay MA No.2 Limited	GBR	DS	Rothesay Life PLC	Ownership	100.000	MMLIC		
.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 Limited	Ownership	100.000	MMLIC		
.0000							Rothesay Property Partnership 1 LLP	GBR	DS	Rothesay Limited	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 US 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			47-1466022				LifeScore Labs, 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				MMLISI Financial Alliances, LLC	DE	DS	MML Investors Services, LLC	Ownership	100.000	MMLIC		
.0000			45-4000072				MM Asset Management Holding LLC	DE	DS	MassMutual Holding 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	Baring Asset Management (Asia) 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		

STATEMENT AS OF JUNE 30, 2021 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? (Y/N)	*
.0000							Barings Australia Holding Company Pty Ltd	AUS	DS	Barings Asset Management (Asia) Holdings Limited	Ownership	100.000	MLLIC		
.0000			98-0457456				Barings Australia Pty Ltd	AUS	DS	Barings Australia Holding Company Pty Ltd	Ownership	100.000	MLLIC		
.0000			80-0875475				Barings Finance LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							BCF Europe Funding Limited	IRL	DS	Barings Finance LLC	Ownership	100.000	MLLIC		
.0000							BCF Senior Funding I LLC	DE	DS	Barings Finance LLC	Ownership	100.000	MLLIC		
.0000							BCF Senior Funding I Designated Activity Company	IRL	DS	Barings Finance LLC	Ownership	100.000	MLLIC		
.0000			04-3238351				Barings Securities LLC	DE	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000			98-0437588				Barings Guernsey Limited	GGY	DS	Barings LLC	Ownership	100.000	MLLIC		
.0000							Barings Europe Limited	GBR	DS	Barings Guernsey Limited	Ownership	100.000	MLLIC		
.0000							Barings Asset Management Spain SL	ESP	DS	Barings Europe Limited	Ownership	100.000	MLLIC		
.0000							Barings Italy S.r.l.	ITA	DS	Barings Europe Limited	Ownership	100.000	MLLIC		
.0000							Barings Sweden AB	SWE	DS	Barings Europe Limited	Ownership	100.000	MLLIC		
.0000							Barings Finland Oy	FIN	DS	Barings Europe Limited	Ownership	100.000	MLLIC		
.0000							Barings Netherlands B.V.	NLD	DS	Barings Europe Limited	Ownership	100.000	MLLIC		
.0000							Barings Real Estate UK Holdings Limited	DE	DS	Barings Europe Limited	Ownership	100.000	MLLIC		
.0000							BREAE AIFM LLP	GBR	DS	Barings Real Estate UK Holdings Limited	Ownership	100.000	MLLIC		
.0000			98-0654401				Barings Real Estate Advisers (Continental Europe) Limited	GBR	DS	Barings Real Estate UK Holdings Limited	Ownership	100.000	MLLIC		
.0000			98-0654388				Barings Real Estate Advisers Europe LLP	GBR	DS	Barings Real Estate UK Holdings Limited	Ownership	100.000	MLLIC		
.0000			98-0654412				Barings Real Estate Advisers Europe Finance LLP	GBR	DS	Barings Real Estate UK Holdings Limited	Ownership	100.000	MLLIC		
.0000			98-1194368				Barings Real Estate GmbH	DEU	DS	Barings Real Estate UK Holdings Limited	Ownership	100.000	MLLIC		
.0000			98-0241935				Barings Asset Management Limited	GBR	DS	MassMutual Holdings (Bermuda) Limited	Ownership	100.000	MLLIC		
.0000							Barings European Direct Lending 1 GP LLP	GBR	DS	Barings Asset Management Limited	Ownership	100.000	MLLIC		
.0000			98-1012393				Barings Global Advisors Limited	GBR	DS	Barings Asset Management Limited	Ownership	100.000	MLLIC		
.0000			98-0457328				Barings International Investment Limited	GBR	DS	Barings Asset Management Limited	Ownership	100.000	MLLIC		
.0000			98-0457587				Barings International Investment Management Holdings	GBR	DS	Barings Asset Management Limited	Ownership	100.000	MLLIC		
.0000			98-0457576				Barings Asset Management UK Holdings Limited	GBR	DS	Barings International Investment Management Holdings	Ownership	100.000	MLLIC		
.0000			98-0465031				Barings Asset Management GmbH	DEU	DS	Barings Asset Management UK Holdings Limited	Ownership	100.000	MLLIC		
.0000			98-0524272				Barings International Fund Managers (Ireland) Limited	IRL	DS	Barings Asset Management UK Holdings Limited	Ownership	100.000	MLLIC		
.0000							Barings Asset Management Switzerland Sarl	CHE	DS	Barings Asset Management UK Holdings Limited	Ownership	100.000	MLLIC		
.0000			98-0497550				Barings France SAS	FRA	DS	Barings Asset Management Limited	Ownership	100.000	MLLIC		
.0000			98-0457586				Barings Fund Managers Limited	GBR	DS	Barings Asset Management Limited	Ownership	100.000	MLLIC		
.0000							BCGSS 2 GP LLP	GBR	DS	Barings Fund Managers Limited	Ownership	100.000	MLLIC		
.0000			98-0457574				Barings Pension Trustees Limited	GBR	DS	Barings Asset Management Limited	Ownership	100.000	MLLIC		
.0000			98-0457578				Barings Investment Services Limited	GBR	DS	Barings Asset Management Limited	Ownership	100.000	MLLIC		
.0000							Barings Core Fund Feeder I GP S.a.r.l.	LUX	DS	Barings Asset Management Limited	Ownership	100.000	MLLIC		
.0000							Barings BME GP S.a.r.l.	GBR	DS	Barings Asset Management Limited	Ownership	100.000	MLLIC		
.0000							Barings GPC GP S.a.r.l.	LUX	DS	Barings Asset Management Limited	Ownership	100.000	MLLIC		
.0000							Barings European Core Property Fund GP Sarl	GBR	DS	Barings Asset Management Limited	Ownership	100.000	MLLIC		
.0000							Barings Investment Fund (LUX) GP S.a.r.l.	LUX	DS	Barings Asset Management Limited	Ownership	100.000	MLLIC		
.0000							Barings Umbrella Fund (LUX) GP S.a.r.l.	LUX	DS	Barings Asset Management Limited	Ownership	100.000	MLLIC		
.0000							GPLF4(S) GP S.a.r.l.	LUX	DS	Barings Asset Management Limited	Ownership	100.000	MLLIC		
.0000							PREIF Holdings Limited Partnership	GBR	DS	Barings Asset Management Limited	Ownership	100.000	MLLIC		
.0000			98-0432153				Barings (U.K.) Limited	GBR	DS	Barings Guernsey Limited	Ownership	100.000	MLLIC		
.0000							Newpoint Real Estate Capital	DE	DS	Barings LLC	Ownership	100.000	MLLIC		

STATEMENT AS OF JUNE 30, 2021 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? (Y/N)	*
.0000			04-3238351	3456895			Barings Real Estate Advisers Inc.	CA	DS	Barings Real Estate Advisers 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			81-2244465				Chassis Acquisition Holding LLC	DE	NIA	Barings LLC	Influence		MMLIC		
.0000			81-4258759				CRA Aircraft Holding LLC	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			83-0560183				Aland Royalty Holdings LP	DE	NIA	Company	Ownership	26.700	MMLIC		
.0000			83-0560183				Aland Royalty Holdings LP	DE	NIA	Barings LLC	Management		MMLIC		
.0000			46-2344300				Intermodal Holdings II LLC	DE	NIA	Company	Ownership	18.000	MMLIC		
.0000			47-3055009				Milestone Acquisition Holding, LLC	DE	NIA	MassMutual Holding LLC	Ownership/Influence	19.700	MMLIC		
.0000			47-3055009				Milestone Acquisition Holding, LLC	DE	NIA	Barings LLC	Influence		MMLIC		
.0000							Novation Companies, Inc.	MD	NIA	Massachusetts Mutual Life Insurance Company	Ownership	17.100	MMLIC		
.0000			46-5460309				Red Lake Ventures, LLC	DE	NIA	Company	Ownership/Influence	31.500	MMLIC		
.0000			46-5460309				Red Lake Ventures, LLC	DE	NIA	Barings LLC	Influence		MMLIC		
.0000			81-4065378				Remington L & W Holdings LLC	CT	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	66.300	MMLIC		
.0000			81-4065378				Remington L & W Holdings LLC	CT	NIA	Barings LLC	Influence		MMLIC		
.0000							Tamiami Citrus, LLC	DE	NIA	Company	Ownership	15.700	MMLIC		
.0000							Teaktree Acquisition, LLC	DE	NIA	MassMutual Holding LLC	Ownership/Influence	14.700	MMLIC		
.0000							Teaktree Acquisition, LLC	DE	NIA	Barings LLC	Influence		MMLIC		
.0000							Techquity, LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	15.600	MMLIC		
.0000							Techquity, LP	DE	NIA	Barings LLC	Influence		MMLIC		
.0000			46-0687392				Validus Holdings Company LLC	DE	NIA	Barings LLC	Ownership	40.400	MMLIC		
.0000							Validus Pharmaceuticals LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	70.000	MMLIC		
.0000							VGS Acquisition Holding, LLC	DE	NIA	MassMutual Holding LLC	Ownership/Influence	33.300	MMLIC		
.0000							VGS Acquisition Holding, LLC	DE	NIA	Barings LLC	Management		MMLIC		
.0000							Aland Royalty GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Alaska Future Fund GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							BAI GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							BAI Funds SLP, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Baring Asset-Based Income Fund (US) GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings Investment Series LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings Capital Investment LLC	MD	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings Emerging Generation Fund GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings Global Investment Funds (U.S.) Management LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings ABIF SLP, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings QLO Investment Partners GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings Core Property Fund GP LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings Direct Lending GP Ltd.	CYM	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			84-3784245				Barings Emerging Generation Fund LP	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	73.500	MMLIC		
.0000			84-3784245				Barings Emerging Generation Fund LP	DE	DS	Barings LLC	Management		MMLIC		
.0000							Barings Global Energy Infrastructure Advisors, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		

135

STATEMENT AS OF JUNE 30, 2021 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							Barings North American Private Loan Fund Management, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings North American Private Loan Fund Management II, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings Global Real Assets Fund GP, LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings GPSF	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							Barings Private Credit Corporation	MD	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			84-5063008				Barings Small Business Fund LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	42.300	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							BRECS VII GP LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							CCM Fund I REIT Manager LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000							CHY Venture 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			04-1590850				Loan Strategies Management 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							Somerset Special Opportunities Management LLC	DE	DS	Barings LLC	Ownership	100.000	MMLIC		
.0000			04-1590850				Amherst Long Term Holdings, LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	24.500	MMLIC		
.0000							MassMutual International LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-3313782				MassMutual Solutions LLC	DE	DS	MassMutual International LLC	Ownership	100.000	MMLIC		Y
.0000							Haven Technologies Asia Limited	HKG	DS	MassMutual International 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			04-1590850				MML Mezzanine Investor II, LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				MML Mezzanine Investor III, LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	11.100	MMLIC		
.0000			27-3576835				MassMutual External Benefits Group LLC	DE	DS	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				100 w. 3rd Street LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				2160 Grand Manager LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	98.100	MMLIC		
.0000			82-2432216				300 South Tryon Hotel LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				300 South Tryon LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							Almack Mezzanine Fund II Unleveraged LP	GBR	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	72.900	MMLIC		
.0000							Barings Affordable Housing Mortgage Fund I LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							Barings Affordable Housing Mortgage Fund I LLC	DE	NIA	Barings LLC	Management		MMLIC		

STATEMENT AS OF JUNE 30, 2021 OF THE Massachusetts Mutual Life Insurance Company

**SCHEDULE Y**

**PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM**

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.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	Massachusetts Mutual Life Insurance Company	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	77.800	MMLIC		
.0000							Barings Emerging Markets Corporate Bond Fund	IRL	NIA	Barings LLC	Management		MMLIC		
.0000							Barings European Real Estate Debt Income Fund	LUX	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	100.000	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	Massachusetts Mutual Life Insurance Company	Ownership/Influence	23.600	MMLIC		
.0000			98-1206017				Babson Capital Global Special Situation Credit Fund 2	DE	NIA	C.M. Life Insurance Company	Ownership	1.500	MMLIC		
.0000			98-1206017				Babson Capital Global Special Situation Credit Fund 2	DE	NIA	Barings LLC	Management		MMLIC		
.0000			37-1506417				Babson Capital Loan Strategies Fund, L.P.	DE	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	57.200	MMLIC		
.0000							Barings US High Yield Bond Fund	IRL	NIA	Barings LLC	Management		MMLIC		
.0000							Babson CLO Ltd. 2013-I	CYM	NIA	Barings LLC	Influence		MMLIC		3
.0000							Babson CLO Ltd. 2014-I	CYM	NIA	Barings LLC	Influence		MMLIC		2
.0000							Babson CLO Ltd. 2015-I	CYM	NIA	Barings LLC	Influence		MMLIC		4
.0000							Babson CLO Ltd. 2015-II	CYM	NIA	Barings LLC	Influence		MMLIC		5
.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			98-1473665				Barings CLO 2018-IV	CYM	NIA	Barings LLC	Influence		MMLIC		
.0000							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							Babson Euro CLO 2014-I BV	NLD	NIA	Barings LLC	Influence		MMLIC		
.0000							Babson Euro CLO 2014-II BV	NLD	NIA	Barings LLC	Influence		MMLIC		
.0000							Babson Euro CLO 2015-I BV	NLD	NIA	Barings LLC	Influence		MMLIC		
.0000							Babson Euro CLO 2016-I BV	NLD	NIA	Barings LLC	Influence		MMLIC		

STATEMENT AS OF JUNE 30, 2021 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? (Y/N)	*
.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			81-0841854				Barings CLO Investment Partners LP	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	99.300	MLLIC		
.0000			81-0841854				Barings CLO Investment Partners LP	.DE	NIA	Barings LLC	Management		MLLIC		
.0000							Barings Euro Value Add II (BREEVA II)	.LUX	NIA	Company	Ownership/Influence	69.900	MLLIC		
.0000							Barings Euro Value Add II (BREEVA II)	.LUX	NIA	C.M. Life Insurance Company	Ownership	6.100	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	44.700	MLLIC		
.0000							Barings Real Estate European Value Add I SCSp	.GBR	NIA	C.M. Life Insurance Company	Ownership	5.000	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	100.000	MLLIC		
.0000			85-3449260				Barings Real Estate Debt Income Fund LP	.DE	NIA	Company	Ownership/Influence		MLLIC		
.0000			85-3449260				Barings Real Estate Debt Income Fund LP	.DE	NIA	C.M. Life Insurance Company	Ownership		MLLIC		
.0000			82-5330194				Barings Global Em. Markets Equity Fund	.NC	NIA	Barings LLC	Management		MLLIC		
.0000							Barings Global Energy Infrastructure Fund I LP	.CYM	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 Global Inv. Grade Strat Fund	.IRL	NIA	Barings LLC	Management		MLLIC		
.0000							Barings Global Private Loan Fund	.LUX	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	12.300	MLLIC		
.0000							Barings Global Private Loan Fund	.LUX	NIA	Barings LLC	Management		MLLIC		
.0000			82-3867745				Barings Global Real Assets Fund LP	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	42.700	MLLIC		
.0000			82-3867745				Barings Global Real Assets Fund LP	.DE	NIA	Company	Ownership/Influence		MLLIC		
.0000			82-3867745				Barings Global Real Assets Fund LP	.DE	NIA	C.M. Life Insurance Company	Ownership	7.500	MLLIC		
.0000							Barings Global Special Situations Credit Fund 3	.IRL	NIA	Barings LLC	Management		MLLIC		
.0000							Barings Global Special Situations Credit Fund 3	.IRL	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	16.000	MLLIC		
.0000							Barings Global Special Situations Credit 4 Delaware	.DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	67.600	MLLIC		
.0000							Barings Global Special Situations Credit 4 Delaware	.DE	NIA	Barings LLC	Management		MLLIC		
.0000							Barings Global Special Situations Credit 4 Delaware	.DE	NIA	C.M. Life Insurance Company	Ownership	3.600	MLLIC		
.0000							Barings Global Special Situations Credit 4 LUX	.LUX	NIA	Barings LLC	Management		MLLIC		
.0000							Barings Global Special Situations Credit 4 LUX	.LUX	NIA	Massachusetts Mutual Life Insurance Company	Ownership	17.400	MLLIC		
.0000							Barings Global Special Situations Credit 4 LUX	.LUX	NIA	Company	Ownership		MLLIC		
.0000							Barings Global Special Situations Credit 4 LUX	.LUX	NIA	C.M. Life Insurance Company	Ownership	0.900	MLLIC		
.0000							Barings Global Special Situations Credit 4 LUX	.LUX	NIA	Barings LLC	Management		MLLIC		
.0000							Barings Global Special Situations Credit Fund 3	.IRL	NIA	Barings LLC	Management		MLLIC		
.0000							Barings Middle Market CLO 2017-I Ltd & LLC	.CYM	NIA	Barings LLC	Influence		MLLIC		
.0000							Barings Middle Market CLO 2018-I	.CYM	NIA	Barings LLC	Influence		MLLIC		
.0000							Barings Middle Market CLO 2019-I	.CYM	NIA	Barings LLC	Influence		MLLIC		



STATEMENT AS OF JUNE 30, 2021 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? (Y/N)	*
.0000			38-4010344				Barings North American Private Loan Fund LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	43.700	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							Braemar Energy Ventures I, L.P.	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	89.800	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	9.800	MMLIC		
.0000							Barings European Core Property Fund SCSp	LUX	NIA	C.M. Life Insurance Company	Ownership	0.600	MMLIC		
.0000							Barings European Core Property Fund SCSp	LUX	NIA	Barings Real Estate Advisers LLC	Management		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			04-1590850				Braselton Point LLC	DE	NIA	Barings LLC	Ownership	100.000	MMLIC		
.0000			20-5578089				Barings Core Property Fund LP	DE	NIA	MassMutual Holding LLC	Ownership/Influence	20.200	MMLIC		
.0000			20-5578089				Barings Core Property Fund LP	DE	NIA	Barings Real Estate Advisers LLC	Management		MMLIC		
.0000							Cornerstone Real Estate Fund X LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	25.300	MMLIC		
.0000			46-5432619				Cornerstone Real Estate Fund X LP	DE	NIA	C.M. Life Insurance Company	Ownership	2.800	MMLIC		
.0000			46-5432619				Cornerstone Real Estate Fund X LP	DE	NIA	Barings Real Estate Advisers LLC	Management		MMLIC		
.0000							Cornerstone Permanent Mortgage Fund III LLC	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	100.000	MMLIC		
.0000							Cornerstone Permanent Mortgage Fund IV LLC	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000					0001597511		Gateway Mezzanine Partners II LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	33.000	MMLIC		
.0000					0001597511		Gateway Mezzanine Partners II LP	DE	NIA	C.M. Life Insurance Company	Ownership	4.900	MMLIC		
.0000							GASL Holdings, LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	11.300	MMLIC		
.0000					0001597511		Gateway Mezzanine Partners II LP	DE	NIA	Barings LLC	Management		MMLIC		
.0000							Great Lakes III, L.P.	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	41.400	MMLIC		
.0000							Great Lakes III, L.P.	DE	NIA	Barings LLC	Management		MMLIC		
.0000							JPMCC Commercial Mortgage Securities Trust 2017-JP7	NY	NIA	Barings LLC	Influence		MMLIC		
.0000							JPMDB Commercial Mortgage Securities Trust 2017-C5	NY	NIA	Barings LLC	Influence		MMLIC		
.0000							KKR-MM Vector LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	100.000	MMLIC		
.0000							Marco Hotel LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							Miami Douglas One GP LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			04-1590850				Miami Douglas One GP LLC	DE	NIA	C.M. Life Insurance Company	Ownership	5.500	MMLIC		
.0000							Miami Douglas Two GP LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			04-1590850				Miami Douglas Two GP LLC	DE	NIA	C.M. Life Insurance Company	Ownership	0.000	MMLIC		
.0000							Miami Douglas One LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	90.000	MMLIC		
.0000			04-1590850				Miami Douglas One LP	DE	NIA	C.M. Life Insurance Company	Ownership	10.000	MMLIC		

STATEMENT AS OF JUNE 30, 2021 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			04-1590850				Miami Douglas Two LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	90.000	MMLIC		
.0000			04-1590850				MM BIG Peninsula Co-Invest Member LLC	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	91.300	MMLIC		
.0000			04-1590850				MM BIG Peninsula Co-Invest Member LLC	MA	NIA	C.M. Life Insurance Company	Ownership	3.000	MMLIC		
.0000			85-3886824				NYDIG Digital Assets Fund II LP	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			04-1590850				Miami Douglas Two LP	DE	NIA	C.M. Life Insurance Company	Ownership	0.000	MMLIC		
.0000			45-3623262				HB Naples Golf Owner LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							MM CM Holding LLC	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			82-4411267				RB Apartments LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			75-2901061				Reston Arboretum LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			54-2055778				Rockville Town Center LLC	VA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	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			04-1590850				SouthPointe Industrial LLC	DE	NIA	Barings LLC	Ownership	100.000	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	15.900	MMLIC		
.0000			41-2280129				Tower Square Capital Partners IIIA, L.P.	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership/Influence	85.100	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	59.600	MMLIC		
.0000			04-1590850				Trailside MM Member LLC	DE	NIA	C.M. Life Insurance Company	Ownership	7.400	MMLIC		
.0000			83-1325764				Washington Gateway Two LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	88.700	MMLIC		
.0000			83-1325764				Washington Gateway Two LLC	DE	NIA	C.M. Life Insurance Company	Ownership	6.700	MMLIC		
.0000			32-0574045				Washington Gateway Three LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	83.700	MMLIC		
.0000			32-0574045				Washington Gateway Three LLC	DE	NIA	C.M. Life Insurance Company	Ownership	11.400	MMLIC		
.0000			04-1590850				West 46th Street Hotel LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000							Babson Capital Loan Strategies Master Fund LP	CYM	NIA	Barings LLC	Management		MMLIC		
.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	22.500	MMLIC		
.0000			47-3790192				Barings Global High Yield Fund	MA	NIA	Barings LLC	Management		MMLIC		
.0000							CCIC Fund	CHN	NIA	Barings LLC	Ownership/Influence	51.600	MMLIC		
.0000			71-1018134				Great Lakes II LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	11.200	MMLIC		
.0000			71-1018134				Great Lakes II LLC	DE	NIA	C.M. Life Insurance Company	Ownership	1.000	MMLIC		

13.10

STATEMENT AS OF JUNE 30, 2021 OF THE Massachusetts Mutual Life Insurance Company

**SCHEDULE Y**

**PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM**

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.0000			04-1590850				Wood Creek Venture Fund LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	40.000	MMLIC		
.0000			36-4823011				50 Liberty LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	65.000	MMLIC		
.0000			36-4823011				50 Liberty LLC	DE	NIA	C.M. Life Insurance Company	Ownership	5.800	MMLIC		
.0000			87-0977058				Barings Hotel Opportunity Ventures	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	50.000	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	26.100	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				
.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				
.0000			61-1793735				Cornerstone Permanent Mortgage Fund IV	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			81-0890084				CREA Madison Member LLC	DE	NIA	C.M. Life Insurance Company	Ownership	100.000	MMLIC		
.0000			20-0348173				CREA/PPC Venture LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			82-2783393				Danville Riverwalk Venture, LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	94.400	MMLIC		
.0000			20-3347091				Fan Pier Development LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	66.200	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 Island Member LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	49.000	MMLIC		
.0000			83-0881588				NoHo West Venture LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	94.800	MMLIC		
.0000			80-0948028				One Harbor Shore LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	76.000	MMLIC		
.0000			80-0948028				One Harbor Shore LLC	DE	NIA	C.M. Life Insurance Company	Ownership	6.000	MMLIC		

STATEMENT AS OF JUNE 30, 2021 OF THE Massachusetts Mutual Life Insurance Company

**SCHEDULE Y**

**PART 1A - DETAIL OF INSURANCE HOLDING COMPANY SYSTEM**

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.0000			04-1590850				PACO France Logistics LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			82-3393166				Portland 400 Sixth Manager LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	95.000	MMLIC		
.0000							Raleigh Crossing Phase I Holdings LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	90.000	MMLIC		
.0000							Salomon Brothers Commercial Mortgage Trust 2001-MM	DE	NIA	Barings Real Estate Advisers LLC	Influence		MMLIC		
.0000			27-2977720				Sawgrass Village Shopping Center LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	84.200	MMLIC		
.0000			27-2977720				Sawgrass Village Shopping Center LLC	DE	NIA	C.M. Life Insurance Company	Ownership	15.800	MMLIC		
.0000							STOA Holding LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	50.000	MMLIC		
.0000			81-5273574				Three PW Office Holding LLC	DE	NIA	Massachusetts Mutual Life Insurance Company	Ownership	95.100	MMLIC		
.0000			35-2484550				Twenty Two Liberty LLC	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	65.000	MMLIC		
.0000			35-2484550				Twenty Two Liberty LLC	MA	NIA	C.M. Life Insurance Company	Ownership	35.000	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	90.700	MMLIC		
.0000			45-5401109				Washington Gateway Apartments Venture LLC	DE	NIA	C.M. Life Insurance Company	Ownership	4.800	MMLIC		
.0000			51-0529328		0000927972	00	MassMutual Premier Main Street Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	91.900	MMLIC		
.0000			26-3229251		0000927972	00	MassMutual Premier Strategic Emerging Markets Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	3.300	MMLIC		
.0000			01-0821120		0000916053	00	MassMutual Select Diversified Value Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.800	MMLIC		
.0000			04-3512593		0000916053	00	MassMutual Select Fundamental Growth Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	2.800	MMLIC		
.0000			42-1710935		0000916053	00	MassMutual Select Mid-Cap Value Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	23.000	MMLIC		
.0000			02-0769954		0000916053	00	MassMutual Select Small Capital Value Equity Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			04-3584140		0000916053	00	MassMutual Select Small Company Value Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	9.900	MMLIC		
.0000			82-3347422		0000916053	00	MassMutual Select T. Rowe Price Retirement 2005 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	5.700	MMLIC		
.0000			82-3355639		0000916053	00	MassMutual Select T. Rowe Price Retirement 2010 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3382389		0000916053	00	MassMutual Select T. Rowe Price Retirement 2015 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3396442		0000916053	00	MassMutual Select T. Rowe Price Retirement 2020 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3417420		0000916053	00	MassMutual Select T. Rowe Price Retirement 2025 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3430358		0000916053	00	MassMutual Select T. Rowe Price Retirement 2030 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3439837		0000916053	00	MassMutual Select T. Rowe Price Retirement 2035 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3451779		0000916053	00	MassMutual Select T. Rowe Price Retirement 2040 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		

13.12

STATEMENT AS OF JUNE 30, 2021 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? (Y/N)	*
.0000			82-3472295		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2045 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3481715		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2050 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3502011		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2055 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3525148		0000916053	OQ	MassMutual Select T. Rowe Price Retirement 2060 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			82-3533944		0000916053	OQ	MassMutual Select T. Rowe Price Retirement Balanced Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			46-4257056				MML Series International Equity Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			47-3517233				MML Series II Asset Momentum Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	100.000	MMLIC		
.0000			47-3529636				MML Series II Dynamic Bond Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			47-3544629				MML Series II Equity Rotation Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	95.000	MMLIC		
.0000			47-3559064				MML Series II Special Situations Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	97.400	MMLIC		
.0000			27-1933389		0000916053	OQ	MassMutual RetireSMART 2035 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	3.000	MMLIC		
.0000			27-1932769		0000916053	OQ	MassMutual RetireSMART 2045 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	8.300	MMLIC		
.0000			46-3289207		0000916053	OQ	MassMutual RetireSMART 2055 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	24.300	MMLIC		
.0000			47-5326235		0000916053	OQ	MassMutual RetireSMART 2060 Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	55.800	MMLIC		
.0000			45-1618155		0000916053	OQ	MassMutual 20/80 Allocation Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			45-1618222		0000916053	OQ	MassMutual 80/20 Allocation Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			03-0532464		0000916053	OQ	MassMutual RetireSMART In Retirement Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	1.700	MMLIC		
.0000			45-1618262		0000916053	OQ	MassMutual 40/60 Allocation Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		
.0000			45-1618046		0000916053	OQ	MassMutual 60/40 Allocation Fund	MA	NIA	Massachusetts Mutual Life Insurance Company	Ownership	0.000	MMLIC		

Asterisk	Explanation
1	Massachusetts Mutual Life Insurance Company owns 14.23% of the affiliated debt of Jefferies Finance LLC
2	Debt investors own .6% and includes only Great Lakes III, L.P.
3	Debt investors own 9.6% and includes only Babson Capital Loan Strategies Fund, L.P.
4	Debt investors own .5% and includes only Great Lakes III, L.P.
5	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.

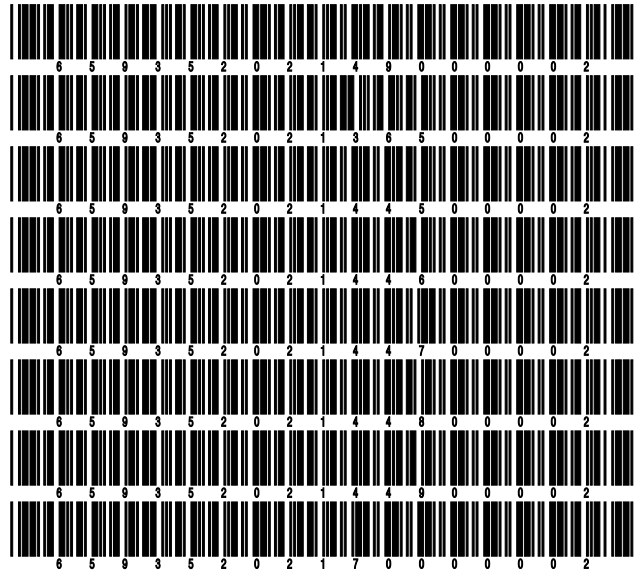
	Response
1. Will the Trusteed Surplus Statement be filed with the state of domicile and the NAIC with this statement? .....	NO
2. Will the Medicare Part D Coverage Supplement be filed with the state of domicile and the NAIC with this statement? .....	NO
3. Will the Reasonableness of Assumptions Certification 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. ....	NO

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]



**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 .....	26,813,275		26,813,275	26,583,398
2505. Pension plan asset .....	636,491,773	636,491,773		
2506. Cash advances to agents .....	243,254,656	243,254,656		
2507. Commissions and expenses on long-term lease .....	86,852,824	86,852,824		
2508. Intangible assets .....	59,745,581	59,745,581		
2509. Bills receivable .....	26,531	26,531		
2597. Summary of remaining write-ins for Line 25 from overflow page	1,053,184,640	1,026,371,365	26,813,275	26,583,398

## Additional Write-ins for Liabilities Line 25

	1 Current Statement Date	2 December 31 Prior Year
2504. Funds awaiting escheat and other miscellaneous liabilities .....	203,705,843	281,280,933
2505. Deferred income liability .....	12,681,945	13,022,833
2597. Summary of remaining write-ins for Line 25 from overflow page	216,387,788	294,303,766

## 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 .....	43,200,835	54,060,554	99,624,913
08.305. Revenue sharing .....	21,641,794	31,723,298	57,107,606
08.397. Summary of remaining write-ins for Line 8.3 from overflow page	64,842,629	85,783,852	156,732,519

## 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. Miscellaneous charges to operations .....	53,889,269	20,228,452	56,689,210
2705. Change in reserves due to reinsurance agreement .....	23,310,945	(415,786,225)	(1,038,280,566)
2706. Market value adjustment transfer .....		(9,183,288)	(490,486,297)
2797. Summary of remaining write-ins for Line 27 from overflow page	77,200,214	(404,741,061)	(1,472,077,654)

## Additional Write-ins for Summary of Operations Line 53

	1 Current Year To Date	2 Prior Year To Date	3 Prior Year Ended December 31
5304. Change in minimum pension liability .....			111,043,030
5305. Deferred gain on reinsurance ceded .....			1,662,259,416
5397. Summary of remaining write-ins for Line 53 from overflow page			1,773,302,446

## STATEMENT AS OF JUNE 30, 2021 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 .....	362,371,153	358,212,616
2. Cost of acquired:		
2.1 Actual cost at time of acquisition .....		
2.2 Additional investment made after acquisition .....	106,732,010	146,027,851
3. Current year change in encumbrances .....	576,000	(25,948,000)
4. Total gain (loss) on disposals .....		952,949
5. Deduct amounts received on disposals .....		952,949
6. Total foreign exchange change in book/adjusted carrying value .....		
7. Deduct current year's other than temporary impairment recognized .....	5,416,511	30,462,722
8. Deduct current year's depreciation .....	45,098,125	85,458,592
9. Book/adjusted carrying value at the end of current period (Lines 1+2+3+4-5+6-7-8) .....	419,164,527	362,371,153
10. Deduct total nonadmitted amounts .....		
11. Statement value at end of current period (Line 9 minus Line 10) .....	419,164,527	362,371,153

**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 .....	26,078,333,015	27,472,894,866
2. Cost of acquired:		
2.1 Actual cost at time of acquisition .....	2,605,950,353	4,318,539,633
2.2 Additional investment made after acquisition .....	187,069,555	265,281,198
3. Capitalized deferred interest and other .....	25,400,933	75,170,409
4. Accrual of discount .....	14,621,621	18,998,719
5. Unrealized valuation increase (decrease) .....		
6. Total gain (loss) on disposals .....	8,789,567	(31,922,612)
7. Deduct amounts received on disposals .....	1,900,889,214	6,176,624,391
8. Deduct amortization of premium and mortgage interest points and commitment fees .....	606,983	(1,050,093)
9. Total foreign exchange change in book value/recorded investment excluding accrued interest .....	8,224,943	174,765,303
10. Deduct current year's other than temporary impairment recognized .....	6,181,706	39,820,203
11. Book value/recorded investment excluding accrued interest at end of current period (Lines 1+2+3+4+5+6-7-8+9-10) .....	27,020,712,084	26,078,333,015
12. Total valuation allowance .....	(3,920,690)	
13. Subtotal (Line 11 plus Line 12) .....	27,016,791,394	26,078,333,015
14. Deduct total nonadmitted amounts .....		
15. Statement value at end of current period (Line 13 minus Line 14) .....	27,016,791,394	26,078,333,015

**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 .....	9,586,349,814	9,072,179,122
2. Cost of acquired:		
2.1 Actual cost at time of acquisition .....	431,396,378	1,112,323,617
2.2 Additional investment made after acquisition .....	579,271,550	1,104,875,862
3. Capitalized deferred interest and other .....		
4. Accrual of discount .....		
5. Unrealized valuation increase (decrease) .....	996,261,132	(24,102,844)
6. Total gain (loss) on disposals .....	(6,481,062)	15,332,137
7. Deduct amounts received on disposals .....	643,704,422	1,726,753,615
8. Deduct amortization of premium and depreciation .....	594,137	1,140,736
9. Total foreign exchange change in book/adjusted carrying value .....	(12,364,732)	37,244,153
10. Deduct current year's other than temporary impairment recognized .....	47,348	3,607,881
11. Book/adjusted carrying value at end of current period (Lines 1+2+3+4+5+6-7-8+9-10) .....	10,930,087,175	9,586,349,814
12. Deduct total nonadmitted amounts .....	62,588,487	52,727,080
13. Statement value at end of current period (Line 11 minus Line 12) .....	10,867,498,688	9,533,622,734

**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 .....	136,241,389,634	120,811,328,057
2. Cost of bonds and stocks acquired .....	23,465,486,769	51,891,280,245
3. Accrual of discount .....	169,837,381	288,607,285
4. Unrealized valuation increase (decrease) .....	444,494,972	861,379,934
5. Total gain (loss) on disposals .....	176,460,715	1,142,789,426
6. Deduct consideration for bonds and stocks disposed of .....	20,352,947,936	39,545,387,271
7. Deduct amortization of premium .....	82,749,805	134,315,971
8. Total foreign exchange change in book/adjusted carrying value .....	(236,123,824)	1,080,113,708
9. Deduct current year's other than temporary impairment recognized .....	54,384,998	220,518,142
10. Total investment income recognized as a result of prepayment penalties and/or acceleration fees .....	14,472,379	66,112,363
11. Book/adjusted carrying value at end of current period (Lines 1+2+3+4+5-6-7+8-9+10) .....	139,785,935,287	136,241,389,634
12. Deduct total nonadmitted amounts .....	189,047	189,047
13. Statement value at end of current period (Line 11 minus Line 12) .....	139,785,746,240	136,241,200,587



STATEMENT AS OF JUNE 30, 2021 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
<b>BONDS</b>								
1. NAIC 1 (a) .....	57,257,793,289	19,610,908,183	18,071,295,084	(185,939,407)	57,257,793,289	58,611,466,981		60,640,333,123
2. NAIC 2 (a) .....	49,772,403,760	51,399,053,483	50,487,885,460	(35,308,998)	49,772,403,760	50,648,262,785		47,685,654,402
3. NAIC 3 (a) .....	5,254,196,745	2,534,036,576	2,578,589,167	311,500,141	5,254,196,745	5,521,144,295		4,816,985,775
4. NAIC 4 (a) .....	3,110,943,130	845,238,107	583,016,940	(143,961,718)	3,110,943,130	3,229,202,579		3,102,194,871
5. NAIC 5 (a) .....	2,501,012,270	58,606,995	576,949,281	111,599,459	2,501,012,270	2,094,269,443		2,557,549,449
6. NAIC 6 (a) .....	524,207,523	4,235,784	17,150,682	44,430,615	524,207,523	555,723,240		517,651,531
7. Total Bonds	118,420,556,717	74,452,079,128	72,314,886,614	102,320,092	118,420,556,717	120,660,069,323		119,320,369,151
<b>PREFERRED STOCK</b>								
8. NAIC 1 .....	282,683,569			1,614,213	282,683,569	284,297,782		273,895,397
9. NAIC 2 .....	5,000,000			58,000	5,000,000	5,058,000		11,405,364
10. NAIC 3 .....	141,021,927	6,500,000			141,021,927	147,521,927		141,021,927
11. NAIC 4 .....	7,500,000				7,500,000	7,500,000		7,695,774
12. NAIC 5 .....	20,721,080		99,788	11,503,370	20,721,080	32,124,662		20,533,581
13. NAIC 6 .....	12,703,060	4,684,712		136,508	12,703,060	17,524,280		15,707,262
14. Total Preferred Stock	469,629,636	11,184,712	99,788	13,312,091	469,629,636	494,026,651		470,259,305
15. Total Bonds and Preferred Stock	118,890,186,353	74,463,263,840	72,314,986,402	115,632,183	118,890,186,353	121,154,095,974		119,790,628,456

(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 \$ 2,130,503,652 ; NAIC 2 \$ 4,404,305,957 ; NAIC 3 \$ ; NAIC 4 \$ 51,105,313 ; NAIC 5 \$ ; NAIC 6 \$ 544,019

**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
9199999 Totals	2,370,518,907	xxx	2,367,699,015	2,688,868	13,077

**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 .....	2,213,051,262	1,159,172,265
2. Cost of short-term investments acquired .....	2,361,623,505	15,767,063,927
3. Accrual of discount .....	3,468,820	29,882,742
4. Unrealized valuation increase (decrease) .....		
5. Total gain (loss) on disposals .....	225,960	909,995
6. Deduct consideration received on disposals .....	2,207,850,639	14,743,977,667
7. Deduct amortization of premium .....		
8. Total foreign exchange change in book/adjusted carrying value .....		
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) .....	2,370,518,907	2,213,051,262
11. Deduct total nonadmitted amounts .....		
12. Statement value at end of current period (Line 10 minus Line 11)	2,370,518,907	2,213,051,262

**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)	3,785,478,430
2. Cost Paid/(Consideration Received) on additions	26,954,632
3. Unrealized Valuation increase/(decrease)	1,206,301,428
4. SSAP No. 108 adjustments	
5. Total gain (loss) on termination recognized	(567,677,483)
6. Considerations received/(paid) on terminations	(378,802,213)
7. Amortization	99,267
8. Adjustment to the Book/Adjusted Carrying Value of hedged item	
9. Total foreign exchange change in Book/Adjusted Carrying Value	
10. Book/Adjusted Carrying Value at End of Current Period (Lines 1+2+3+4+5-6+7+8+9)	4,829,958,486
11. Deduct nonadmitted assets	
12. Statement value at end of current period (Line 10 minus Line 11)	4,829,958,486

**SCHEDULE DB - PART B - VERIFICATION**

Futures Contracts

1. Book/Adjusted carrying value, December 31 of prior year (Line 6, prior year)	(57,823,336)
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	113,462,132
3.14 Section 1, Column 18, prior year	(57,823,336)      171,285,468      171,285,468
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	113,462,132
3.24 Section 1, Column 19, prior year plus	(57,823,336)
3.25 SSAP No. 108 adjustments	171,285,468      171,285,468
3.3 Subtotal (Line 3.1 minus Line 3.2)	
4.1 Cumulative variation margin on terminated contracts during the year	(476,029,081)
4.2 Less:	
4.21 Amount used to adjust basis of hedged item	
4.22 Amount recognized	(418,205,745)
4.23 SSAP No. 108 adjustments	(418,205,745)
4.3 Subtotal (Line 4.1 minus Line 4.2)	(57,823,336)
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	(113,462,132)
6. Book/Adjusted carrying value at end of current period (Lines 1+2+3.3-4.3-5.1-5.2)	113,462,133
7. Deduct total nonadmitted amounts	
8. Statement value at end of current period (Line 6 minus Line 7)	113,462,133

STATEMENT AS OF JUNE 30, 2021 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	
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate Corp Inv Grade Equiv Bonds	1Z	50,000,000	13,078,363	16,354,192	06/03/2021	06/03/2051	Interest Rate Swap		3,260,676		42086P-AC-7	Kingsland Ltd-SERIES 18-8A CLASS A	1	13,078,363	13,093,516
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate Corp Inv Grade Equiv Bonds	1Z		11,864,489	12,285,000	06/03/2021	06/03/2051	Interest Rate Swap				32080B-AD-0	FIRST MARYLAND CAP I-LIMITED GUARANTEE NOTE	2	11,864,489	12,285,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate Corp Inv Grade Equiv Bonds	1Z		17,947,822	18,042,471	06/03/2021	06/03/2051	Interest Rate Swap				38136M-AC-2	Goldentree Loan Management US Clo 2 Ltd	1	17,947,822	18,042,471
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate Corp Inv Grade Equiv Bonds	1Z		10,000,000	10,000,070	06/03/2021	06/03/2051	Interest Rate Swap				09629L-AE-5	BLUEMOUNTAIN CLO XXIII L-BLUEM 2018-23A B	1	10,000,000	10,000,070
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate Corp Inv Grade Equiv Bonds	1Z		6,195,122	6,175,262	06/03/2021	06/03/2051	Interest Rate Swap				03328Y-AG-9	Anchorage Capital CLO Lt-ANCHC 2018-1RA C	1	6,195,122	6,175,262
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	264,000,000	13,990,729	53,165,727	11/29/2012	11/29/2042	Interest Rate Swap		39,173,250		48251B-AL-4	KKR Clo 16 Ltd-SERIES 16 CLASS A1R	1	13,990,729	13,992,477
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,221,992	4,283,300	11/29/2012	11/29/2042	Interest Rate Swap				83149F-AD-6	SLM Student Loan Trust 2006-6	1	4,221,992	4,283,300
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		22,675,628	23,000,230	11/29/2012	11/29/2042	Interest Rate Swap				375415-AA-4	GILBERT PARK CLO LTD-SERIES 17-1A CLASS A	1	22,675,628	23,000,230
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,500,000	13,368,362	11/29/2012	11/29/2042	Interest Rate Swap				14310D-AV-3	CARLYLE GLOBAL MKT STRATEGIES CLO 2013-2 LTD MEZZ SECD DEF NT	1	13,500,000	13,368,362
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,100,000	13,099,948	11/29/2012	11/29/2042	Interest Rate Swap				67097Q-AC-9	OPC CLO 2017-14 Ltd-SERIES 17-14A CLASS A1B	1	13,100,000	13,099,948
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,000,000	7,977,288	11/29/2012	11/29/2042	Interest Rate Swap				38137H-BW-7	Goldentree Loan Opportun-SERIES 2015-11A CLASS BR2	1	8,000,000	7,977,288
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,043,373	9,999,940	11/29/2012	11/29/2042	Interest Rate Swap				56845N-AE-0	Signal Peak CLO 8 Ltd-SPEAK 2020-8A C	1	10,043,373	9,999,940
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,976,630	11/29/2012	11/29/2042	Interest Rate Swap				33833V-AE-5	S22 Funding CLO 2019-5 L-MORGN 2021-7A B	1	10,000,000	9,976,630
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,050,000	11,051,481	11/29/2012	11/29/2042	Interest Rate Swap				03331J-AJ-1	Anchorage Capital CLO Lt-ANCHC 2018-10A B	1	11,050,000	11,051,481
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,000,000	15,001,530	11/29/2012	11/29/2042	Interest Rate Swap				38137M-AK-3	Goldentree Loan Opportun-GLD12 2016-12A AJR	1	15,000,000	15,001,530
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,500,000	4,491,810	11/29/2012	11/29/2042	Interest Rate Swap				03767M-AJ-7	Apidos CLO-APID 2018-29A B	1	4,500,000	4,491,810
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		19,600,000	19,600,157	11/29/2012	11/29/2042	Interest Rate Swap				17181T-AA-9	CIFC Funding 2018-IV Ltd-SERIES 18-4A CLASS A1	1	19,600,000	19,600,157
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,000,000	12,000,312	11/29/2012	11/29/2042	Interest Rate Swap				04017J-AE-1	ARES CLO Ltd-ARES 2018-49A B	1	12,000,000	12,000,312
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,700,000	8,705,351	11/29/2012	11/29/2042	Interest Rate Swap				05875P-AE-5	Ballyrock Ltd	1	8,700,000	8,705,351
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		39,400,000	39,410,717	11/29/2012	11/29/2042	Interest Rate Swap				00119V-AA-7	AGL CLO Ltd-AGL 2020-6A A1	1	39,400,000	39,410,717
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		23,250,000	23,318,123	11/29/2012	11/29/2042	Interest Rate Swap				13876N-AA-1	Canyon CLO 2020-2 Ltd-CANYC 2020-2A A	1	23,250,000	23,318,123
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,000,000	20,027,860	11/29/2012	11/29/2042	Interest Rate Swap				00851K-AA-3	AGL CLO Ltd-AGL 2020-8A A1	1	20,000,000	20,027,860
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,600,000	3,600,000	11/29/2012	11/29/2042	Interest Rate Swap				05683E-AC-6	Bain Capital Credit CLO-BCC 2020-2A B1	1	3,600,000	3,600,000
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,000,000	9,011,367	11/29/2012	11/29/2042	Interest Rate Swap				12547L-AE-8	CIFC Funding Ltd-CIFC 2020-2A B	1	9,000,000	9,011,367
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,425,000	1,413,857	11/29/2012	11/29/2042	Interest Rate Swap				06760E-AG-1	Babson CLO Ltd 2013-I-SERIES 2013-IA CLASS DR	2	1,425,000	1,413,857
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,220,000	1,183,879	11/29/2012	11/29/2042	Interest Rate Swap				056162-AU-4	Babson CLO Ltd 2015-I-SERIES 2015-IA CLASS DR	2	1,220,000	1,183,879
57629*AC5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		196,970	196,442	11/29/2012	11/29/2042	Interest Rate Swap				06759F-AE-6	BABSON CLO LTD 2015-II-SERIES 15-2A CLASS C1R	1	196,970	196,442
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	100,000,000	12,000,000	30,301,219	12/27/2012	12/27/2042	Interest Rate Swap		18,300,607		67112K-AC-3	OPC CLO Ltd-SEREIS 18-15A CLASS A3	1	12,000,000	12,000,612
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,575,000	12,575,252	12/27/2012	12/27/2042	Interest Rate Swap				056162-AN-0	Babson CLO Ltd 2015-I-BABSN 2015-IA AR	1	12,575,000	12,575,252
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,250,000	7,250,493	12/27/2012	12/27/2042	Interest Rate Swap				40439D-AE-8	Highbridge Loan Managem-HLM 15A-19 B	1	7,250,000	7,250,493
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,200,000	3,197,267	12/27/2012	12/27/2042	Interest Rate Swap				03330A-AC-6	Anchorage Capital CLO 3-ANCHC 2014-3RA B	1	3,200,000	3,197,267

S105

STATEMENT AS OF JUNE 30, 2021 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*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		50,000,000	50,003,800	12/27/2012	12/27/2042	Interest Rate Swap			87271L-AJ-1	TIAA CLO I Ltd-TIA 2016-1A AR	1	50,000,000	50,003,800
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,800,000	8,748,608	12/27/2012	12/27/2042	Interest Rate Swap			14310D-AW-7	Carlyle Global Market St-SERIES 2013-2A CLASS BR	1	8,800,000	8,748,608
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,900,000	5,909,051	12/27/2012	12/27/2042	Interest Rate Swap			87250R-AB-0	TICP CLO XV Ltd-TICP 2020-15A B HIGHER EDUCATION FUNDING-SERIES	1	5,900,000	5,909,051
57629*AE1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,928,459	1,687,476	12/27/2012	12/27/2042	Interest Rate Swap			429827-AR-9	2004-1 CLASS B1 WACHOVIA STUDENT LOAN TR-WSLT 2005-1 B	1	1,928,459	1,687,476
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	100,000,000	8,662,268	26,459,567	12/27/2012	12/27/2042	Interest Rate Swap		18,300,607	92977H-AG-3	Wellfleet CLO 2017-1 Ltd-WELF 2017-1A A2R	1	8,662,268	8,158,960
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,049,818	19,957,380	12/27/2012	12/27/2042	Interest Rate Swap			94950G-AN-7	610 Funding CLO-SIX10 2021-2RA A1R2	1	20,049,818	19,957,380
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		30,000,000	30,093,150	12/27/2012	12/27/2042	Interest Rate Swap			83004L-AC-9	Babson CLO Ltd/Cayman Is-BABSN 2018-3A A2	1	30,000,000	30,093,150
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		23,000,000	22,999,931	12/27/2012	12/27/2042	Interest Rate Swap			06760P-AE-1	Madison Park Funding Ltd-SERIES 18-28A CLASS B	1	23,000,000	22,999,931
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,500,000	9,500,209	12/27/2012	12/27/2042	Interest Rate Swap			55821A-AE-8	APPROXMARK COLORADO HOLDI-SERIES 17-7A CLASS B	1	9,500,000	9,500,209
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,000,000	3,969,792	12/27/2012	12/27/2042	Interest Rate Swap			28622J-AB-3	Magnetite XXIV Ltd-SERIES 2019-24A CLASS B	1	4,000,000	3,969,792
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,750,000	4,755,805	12/27/2012	12/27/2042	Interest Rate Swap			55954W-AC-3	SLC STUDENT LOAN TRUST 2-SERIES 07-1 CLASS B	1	4,750,000	4,755,805
57629*AD3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,011,438	1,907,998	12/27/2012	12/27/2042	Interest Rate Swap			784424-AE-3	Goldentree Loan Managem-GLM 2018-3A B1	1	2,011,438	1,907,998
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	100,000,000	6,000,000	25,118,413	12/28/2012	12/28/2042	Interest Rate Swap		19,118,335	38138B-AG-5	Signal Peak CLO 8 Ltd-SPEAK 2020-8A B	1	6,000,000	6,000,078
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,095,579	20,032,320	12/28/2012	12/28/2042	Interest Rate Swap			56845N-AC-4	Magnetite XIX Ltd-SERIES 2017-19A CLASS B1R	1	20,095,579	20,032,320
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,750,000	13,749,945	12/28/2012	12/28/2042	Interest Rate Swap			55954K-AN-5	MADISON PARK FUNDING LTD-SERIES 2015-16A CLASS BR	1	13,750,000	13,749,945
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,000,612	8,999,991	12/28/2012	12/28/2042	Interest Rate Swap			55818X-BA-0	TICP CLO Ltd MELNET STUDENT LOAN TRUS-SERIES 2015-3A CLASS B	1	9,000,612	8,999,991
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,400,000	5,407,506	12/28/2012	12/28/2042	Interest Rate Swap			87250C-AE-7	Crestline Denali CLO XIV-SERIES16-1A CLASS A1R	1	5,400,000	5,407,506
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,996,398	2,173,275	12/28/2012	12/28/2042	Interest Rate Swap			64033T-AB-9	Tryon Park CLO Ltd-TPCLO 2013-1A A1JR	1	1,996,398	2,173,275
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		22,975,085	22,976,050	12/28/2012	12/28/2042	Interest Rate Swap			22615M-AL-6	TICP CLO VI 2016-5 LTD-TICP 2016-5A A2R	1	22,975,085	22,976,050
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,000,000	8,001,320	12/28/2012	12/28/2042	Interest Rate Swap			89852T-AN-8	Wellfleet CLO Ltd-SERIES 18-1A CLASS A	1	8,000,000	8,001,320
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,000,000	3,000,306	12/28/2012	12/28/2042	Interest Rate Swap			87248K-AS-3	HPS LOAN MANAGEMENT 13-2-HLM 13A-18 A2	1	3,000,000	3,000,306
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,000,000	999,942	12/28/2012	12/28/2042	Interest Rate Swap			94950J-AA-9	Voya CLO Ltd-SERIES 18-1A CLASS B Wellfleet CLO Ltd-SERIES 18-1A CLASS A	1	1,000,000	999,942
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,000,000	4,001,332	12/28/2012	12/28/2042	Interest Rate Swap			40437L-AE-2	BABSON CLO LTD 2015-11-SERIES 15-2A CLASS AR	1	4,000,000	4,001,332
57629*AF8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,060,000	5,016,611	12/28/2012	12/28/2042	Interest Rate Swap			92917A-AE-6	Ares XXXIR CLO Ltd-SERIES 14-31RA CLASS B	1	5,060,000	5,016,611
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	100,000,000	59,000,000	78,114,913	12/28/2012	12/28/2042	Interest Rate Swap		19,118,335	94950J-AA-9	TICP CLO VI 2016-2 Ltd-TICP 2016-6A CR2	1	59,000,000	58,996,578
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,200,000	14,200,682	12/28/2012	12/28/2042	Interest Rate Swap			06759F-AB-2	CIFC Funding 2018-1 Ltd-SERIES 18-1A CLASS C	1	14,200,000	14,200,682
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,000,000	20,001,120	12/28/2012	12/28/2042	Interest Rate Swap			04017T-AE-9	Benefit Street Partners -BSP 2018-15A A2A	1	20,000,000	20,001,120
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,599,996	1,599,994	12/28/2012	12/28/2042	Interest Rate Swap			87246M-AW-2	BlueMountain CLO 2015-4 -SERIES 15-4A CLASS A2R	1	1,599,996	1,599,994
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,200,000	4,175,846	12/28/2012	12/28/2042	Interest Rate Swap			12551R-AE-8		1	4,200,000	4,175,846
57629*AH4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,100,000	1,100,047	12/28/2012	12/28/2042	Interest Rate Swap			08179M-AC-3		1	1,100,000	1,100,047
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	100,000,000	20,000,000	39,118,615	12/28/2012	12/28/2042	Interest Rate Swap		19,118,335	09628N-AQ-5		1	20,000,000	20,000,280

S105.1

STATEMENT AS OF JUNE 30, 2021 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		12,050,000	11,960,368	12/28/2012	12/28/2042	Interest Rate Swap				64031D-AB-6	NetNet Student Loan Tru-SERIES 19-3A CLASS B	1	12,050,000	11,960,368
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		3,682,287	3,517,234	12/28/2012	12/28/2042	Interest Rate Swap				63939F-AC-4	Navient Student Loan Tru-SERIES 15-1 CLASS B	1	3,682,287	3,517,234
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		5,000,000	5,000,515	12/28/2012	12/28/2042	Interest Rate Swap				12550G-AE-3	CIFC Funding Ltd-CIFC 2018-5A B	1	5,000,000	5,000,515
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		54,300,377	56,276,911	12/28/2012	12/28/2042	Interest Rate Swap				72403Z-NG-3	PIONEERS GATE LLC 2020-1 USAUT	1	54,300,377	56,276,911
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		3,200,000	3,199,987	12/28/2012	12/28/2042	Interest Rate Swap				48250R-BN-5	KKR CLO 12 Ltd-KKR 12 BR2	1	3,200,000	3,199,987
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		4,250,000	4,251,003	12/28/2012	12/28/2042	Interest Rate Swap				09626U-AQ-1	BLUEMOUNTAIN CLO LTD-BLUEM 2013-1A BR	1	4,250,000	4,251,003
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		4,250,000	4,250,591	12/28/2012	12/28/2042	Interest Rate Swap				75888M-AG-5	Regatta XIV Funding Ltd-SERIES 18-3A CLASS B	1	4,250,000	4,250,591
57629*AG6	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		5,200,000	5,200,525	12/28/2012	12/28/2042	Interest Rate Swap				41154X-AG-0	Harbor Park CLO, Ltd-HAR-HARB 2018-1A B1	1	5,200,000	5,200,525
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1	50,000,000	9,550,000	19,109,787	12/28/2012	12/28/2042	Interest Rate Swap		9,559,166		04965F-AG-6	Atrium XV-SERIES 15A CLASS B	1	9,550,000	9,550,621
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		10,000,000	10,004,990	12/28/2012	12/28/2042	Interest Rate Swap				55819B-AL-4	MADISON PARK FUNDING XVI-SERIES 15-18A CLASS A1R	1	10,000,000	10,004,990
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		6,585,563	6,447,415	12/28/2012	12/28/2042	Interest Rate Swap				63940A-AD-0	NAVIENT STUDENT LOAN TRU-SERIES 17-4A CLASS B	1	6,585,563	6,447,415
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		9,200,000	9,201,582	12/28/2012	12/28/2042	Interest Rate Swap				03328W-AN-8	Anchorage Capital CLO 9 -SERIES 16-9A CLASS CR	1	9,200,000	9,201,582
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		2,000,000	2,000,344	12/28/2012	12/28/2042	Interest Rate Swap				04019L-AG-9	ARES 2019-51A C	1	2,000,000	2,000,344
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		1,100,000	1,100,047	12/28/2012	12/28/2042	Interest Rate Swap				08179M-AC-3	Benefit Street Partners -BSP 2018-15A A2A	1	1,100,000	1,100,047
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		2,500,000	2,500,053	12/28/2012	12/28/2042	Interest Rate Swap				13876J-AE-2	Canyon Capital CLO Ltd-CANVC 2012-18A B	1	2,500,000	2,500,053
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		6,400,000	6,400,326	12/28/2012	12/28/2042	Interest Rate Swap				77342K-AC-4	Rockford Tower CLO 2018-2 Ltd	1	6,400,000	6,400,326
57629*AJ0	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		5,900,000	5,900,124	12/28/2012	12/28/2042	Interest Rate Swap				06760G-AC-5	Barings CLO Ltd 2018-1-SERIES 18-1A CLASS B	1	5,900,000	5,900,124
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1	50,000,000	10,000,000	19,562,916	12/28/2012	12/28/2042	Interest Rate Swap		9,559,166		24380L-AE-3	DEER CREEK CLO LTD 2017--SERIES 17-1A CLASS B	1	10,000,000	10,003,750
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		30,000,000	30,000,000	12/28/2012	12/28/2042	Interest Rate Swap				04624W-AC-1	ASSURANT CLO III LTD-SERIES 2018-2A CLASS A	1	30,000,000	30,000,000
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		13,570,000	13,570,014	12/28/2012	12/28/2042	Interest Rate Swap				48249V-AQ-4	KKR FINANCIAL CLO LTD-SERIES 13-1A CLASS A2R	1	13,570,000	13,570,014
57629*AK7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		4,850,000	4,850,146	12/28/2012	12/28/2042	Interest Rate Swap				08179H-AB-6	BENEFIT STREET PARTNERS -SERIES 2017-12A CLASS A2	1	4,850,000	4,850,146
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1	50,000,000	33,439,062	42,998,228	12/28/2012	12/28/2042	Interest Rate Swap		9,559,166		24702F-ZZ-3	DelI Conduit Funding-B L.L.C. - Revolver	1	33,439,062	33,439,062
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		4,028,340	4,207,026	12/28/2012	12/28/2042	Interest Rate Swap				784170-ZZ-8	SFR FTTH SAS Term Loan	3	4,028,340	4,207,026
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		8,750,000	8,750,000	12/28/2012	12/28/2042	Interest Rate Swap				48252R-AE-4	KKR 24 B	1	8,750,000	8,750,000
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		1,100,000	1,100,047	12/28/2012	12/28/2042	Interest Rate Swap				08179M-AC-3	Benefit Street Partners -BSP 2018-15A A2A	1	1,100,000	1,100,047
57629*AL5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		4,600,000	4,600,106	12/28/2012	12/28/2042	Interest Rate Swap				05875H-AE-3	Ballyrook CLO 2018-1 Ltd-SERIES 2018-1A CLASS B	1	4,600,000	4,600,106
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1	50,000,000	5,400,000	14,959,890	12/28/2012	12/28/2042	Interest Rate Swap		9,559,166		12548J-AE-2	CIFC FUNDING LTD-SERIES 17-3A CLASS A2	1	5,400,000	5,400,724
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		11,900,000	11,900,464	12/28/2012	12/28/2042	Interest Rate Swap				74988L-AC-8	ALM XIV Ltd-SERIES 14-14A CLASS A2R2	1	11,900,000	11,900,464
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		5,864,562	5,885,622	12/28/2012	12/28/2042	Interest Rate Swap				66704J-AJ-7	Northstar Education Fina-REVENUE BONDS	1	5,864,562	5,885,622
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		4,500,000	4,500,005	12/28/2012	12/28/2042	Interest Rate Swap				50184K-AW-8	LGM LTD PARTNERSHIP-SERIES 13A CLASS CR	1	4,500,000	4,500,005
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		4,200,000	4,200,832	12/28/2012	12/28/2042	Interest Rate Swap				38809P-AN-6	Greywolf CLO V Ltd-GWOLF 2015-1A A2R	1	4,200,000	4,200,832

S105.2

STATEMENT AS OF JUNE 30, 2021 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*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		11,200,000	11,200,571	12/28/2012	12/28/2042	Interest Rate Swap			08181B-AS-8	Benefit Street Partners -SERIES 16-9A CLASS BR	1	11,200,000	11,200,571
57629*AM3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,000,000	8,001,080	12/28/2012	12/28/2042	Interest Rate Swap			94951D-AC-7	Wellfleet CLO 2018-3 Ltd-SERIES 18-3A CLASS A1B	1	8,000,000	8,001,080
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		350,000,000	20,000,000	06/10/2021	06/10/2051	Interest Rate Swap		13,939,356	36248M-AJ-6	GT Loan Financing I Ltd -SERIES 2013-1A CLASS AR	1	20,000,000	20,003,060
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		328,989,373	328,989,373	06/10/2021	06/10/2051	Interest Rate Swap			49232#-MM-2	KREOCS LENDING I LLC - Senior Secured Term Facility	1	328,989,373	328,989,373
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		5,850,000	5,850,041	06/10/2021	06/10/2051	Interest Rate Swap			64131Q-AC-4	NEUBERGER BERMAN LOAN AD-SERIES 2017-26A CLASS B	1	5,850,000	5,850,041
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		225,000,000	157,728,744	06/10/2021	06/10/2051	Interest Rate Swap		7,728,744	88165Z-MM-7	Tetragon Financial Group (Delaware) LLC - Revolver	1	150,000,000	150,000,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		19,745,338	19,745,338	06/10/2021	06/10/2051	Interest Rate Swap			04014#-MM-3	Ares Credit Facility	1	19,745,338	19,745,338
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		11,000,000	11,000,000	06/10/2021	06/10/2051	Interest Rate Swap			32008Z-MM-6	Secured Revolving Loan Facility VPC ASSET BACKED OPPORTUNISTIC CREDIT Holdings Fund, L.P - Secured Revolving Loan Facility	1	11,000,000	11,000,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		6,000,000	6,000,000	06/10/2021	06/10/2051	Interest Rate Swap			91831Z-MM-3	CHA Loan Funding 2013-2 -QHAF	1	6,000,000	6,000,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		25,000,000	25,007,375	06/10/2021	06/10/2051	Interest Rate Swap			67104L-AF-4	2013-2A BR	1	25,000,000	25,007,375
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		13,850,000	13,852,105	06/10/2021	06/10/2051	Interest Rate Swap			38137P-AU-4	Goldentree Loan Opportun-SERIES 2015-10A CLASS BR	1	13,850,000	13,852,105
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		1,000,000	1,000,000	06/10/2021	06/10/2051	Interest Rate Swap			941848-D#-9	Waters Corporation Gtd Senior Note Series H	2	1,000,000	1,000,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		3,800,000	3,800,547	06/10/2021	06/10/2051	Interest Rate Swap			74988L-AJ-3	ALM XIV Ltd-SERIES 14-14A CLASS BR2	1	3,800,000	3,800,547
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		300,000,000	25,000,000	06/10/2021	06/10/2051	Interest Rate Swap		12,824,302	50079#-MO-4	KREF Lending VII 2018-3 Term Loan	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		15,000,000	15,000,000	06/10/2021	06/10/2051	Interest Rate Swap			48250W-AJ-4	KKR CLO 14 Ltd-KKR 14 BR	1	15,000,000	15,000,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		5,000,000	5,000,510	06/10/2021	06/10/2051	Interest Rate Swap			87248K-AS-3	TICP CLO VI 2016-5 LTD-TICP 2016-5A A2R	1	5,000,000	5,000,510
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		1,022,858	977,010	06/10/2021	06/10/2051	Interest Rate Swap			63939F-AC-4	Navigent Student Loan Tru-SERIES 15-1 CLASS B	1	1,022,858	977,010
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		7,800,000	7,800,000	06/10/2021	06/10/2051	Interest Rate Swap			05875J-AJ-5	Ballyrook CLO 2019-1 Ltd-BALLY 2019-1A A2	1	7,800,000	7,800,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		4,000,000	3,969,792	06/10/2021	06/10/2051	Interest Rate Swap			28622J-AJ-3	ARROWMARK COLORADO HOLDI-SERIES 17-7A CLASS B	1	4,000,000	3,969,792
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		252,000,000	252,181,440	06/10/2021	06/10/2051	Interest Rate Swap			06762W-AA-2	BABSN 2020-3A A FLOATING COUPON 1.538220 MATURITY 20340115	1	252,000,000	252,181,440
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		250,000,000	8,800,000	06/11/2021	06/11/2051	Interest Rate Swap		8,552,351	38137P-AS-9	Goldentree Loan Opportun-SERIES 2015-10A CLASS AJR	1	8,800,000	8,801,100
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		231,647,836	231,647,836	06/11/2021	06/11/2051	Interest Rate Swap			96269#-MM-9	X WH REDF2-TSE SELLER, LLC - Term Loan Facility	1	231,647,836	231,647,836
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		7,500,000	7,488,713	06/11/2021	06/11/2051	Interest Rate Swap			55819T-AJ-5	Madison Park Funding XX -SERIES 2016-20A CLASS CR	1	7,500,000	7,488,713
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		13,900,000	13,900,014	06/11/2021	06/11/2051	Interest Rate Swap			03328Y-AE-4	Anchorage Capital CLO Lt-ANCHC 2018-1RA B	1	13,900,000	13,900,014
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		7,463,954	7,290,169	06/11/2021	06/11/2051	Interest Rate Swap			64034C-AB-5	Nelnet Student Loan Tru-NSLT 2019-1A B	1	7,463,954	7,290,169
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		325,000,000	17,902,889	06/11/2021	06/11/2051	Interest Rate Swap		9,597,585	05684D-AG-8	Bain Capital Credit CLO-BCC 2020-1A B FLOATING	1	8,300,000	8,305,304
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		8,000,000	7,923,712	06/11/2021	06/11/2051	Interest Rate Swap			83608G-AQ-9	Sound Point CLO II Ltd-SNDPT 2013-1A A2R	1	8,000,000	7,923,712
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		15,000,000	15,000,030	06/11/2021	06/11/2051	Interest Rate Swap			05682V-AC-9	Bain Capital Credit CLO -SERIES 18-2A CLASS A2	1	15,000,000	15,000,030
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		6,910,000	6,911,133	06/11/2021	06/11/2051	Interest Rate Swap			50188Q-AE-1	LOM XIX LTD PARTNERSHIP DEF MEZZ NT CL C	1	6,910,000	6,911,133
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		193,151,587	193,151,587	06/11/2021	06/11/2051	Interest Rate Swap			901399-MQ-5	Twinbrook Capital Funding VII DSPV, LLC - Term Loan	1	193,151,587	193,151,587

S105.3

STATEMENT AS OF JUNE 30, 2021 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
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		97,756,599	97,756,599	06/11/2021	06/11/2051	Interest Rate Swap			69324F-MM-7	PCRED LENDING III LLC, PCRED LENDING III SPE I LLC and PCRED LENDING III OFFSHORE LTD.-Term Loan 2020-2	1	97,756,599	97,756,599
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		1,100,000	1,100,047	06/11/2021	06/11/2051	Interest Rate Swap			08179M-AC-3	Benefit Street Partners -BSP 2018-15A A2A	1	1,100,000	1,100,047
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		5,800,000	5,735,591	06/11/2021	06/11/2051	Interest Rate Swap			01749B-AC-3	Allegro CLO VI Ltd-ALLEG 2017-2A C	1	5,800,000	5,735,591
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z	325,000,000	10,000,000	18,044,166	06/11/2021	06/11/2051	Interest Rate Swap		8,043,096	87248W-AC-2	TICP CLO VIII LTD-SERIES 2017-8A CLASS A2	1	10,000,000	10,001,070
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		5,800,000	5,802,181	06/11/2021	06/11/2051	Interest Rate Swap			67570Q-AP-6	OOP CLO 2019-16 Ltd-SERIES 19-16A CLASS CR	1	5,800,000	5,802,181
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		12,000,000	11,948,136	06/11/2021	06/11/2051	Interest Rate Swap			92917J-AE-7	Voya CLO 2018-2 Ltd-VOYA 2018-2A B1	1	12,000,000	11,948,136
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		201,600,000	201,600,000	06/11/2021	06/11/2051	Interest Rate Swap			69324F-MO-5	PCRED LENDING III LLC, PCRED LENDING III SPE I LLC and PCRED LENDING III OFFSHORE LTD - Term Loan Series 2020-3	1	201,600,000	201,600,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		104,589,939	104,589,939	06/11/2021	06/11/2051	Interest Rate Swap			69324F-MM-9	Term Loan Series 2019-1	1	104,589,939	104,589,939
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	55,000,000	23,500,000	34,325,628	04/09/2013	04/09/2043	Interest Rate Swap		10,911,215	92558V-AC-8	Vibrant CLO Ltd-SERIES 18-9A CLASS A2	1	23,500,000	23,414,413
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,631,501	7,330,598	04/09/2013	04/09/2043	Interest Rate Swap			78442G-PL-4	SLM STUDENT LOAN TRUST-SERIES 2005-4 CLASS B	1	7,631,501	7,330,598
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,400,000	6,351,750	04/09/2013	04/09/2043	Interest Rate Swap			01749B-AB-5	Allegro CLO VI Ltd-ALLEG 2017-2A B	1	6,400,000	6,351,750
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,133,115	3,550,724	04/09/2013	04/09/2043	Interest Rate Swap			12481X-AS-9	CBAM 2018-6 Ltd-CBAM 2018-6A B1R	1	3,133,115	3,550,724
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,500,000	7,500,165	04/09/2013	04/09/2043	Interest Rate Swap			77342J-AC-7	Rockford Tower CLO 2018-SERIES 18-1A CLASS B	1	7,500,000	7,500,165
57629*AW1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,900,000	6,900,435	04/09/2013	04/09/2043	Interest Rate Swap			65023T-AK-8	Newark BSL CLO 1 Ltd-NBCLO 2016-1A A2R	1	6,900,000	6,900,435
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	60,000,000	27,877,783	41,017,513	04/09/2013	04/09/2043	Interest Rate Swap		11,903,143	784170-ZZ-8	SFR FTTH SAS Term Loan	3	27,877,783	29,114,370
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		18,500,000	18,458,246	04/09/2013	04/09/2043	Interest Rate Swap			50188G-AX-1	LCM XVIII LP-LCM 18A A2R	1	18,500,000	18,458,246
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,500,000	7,484,955	04/09/2013	04/09/2043	Interest Rate Swap			33882G-AG-3	Flatiron Clo 17 Ltd-FLAT 2017-1A BR	1	7,500,000	7,484,955
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,700,000	4,704,178	04/09/2013	04/09/2043	Interest Rate Swap			67707C-AU-2	Oak Hill Credit Partners-OAKC 2014-10RA CR	1	4,700,000	4,704,178
57629*AV3	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,000,000	2,000,206	04/09/2013	04/09/2043	Interest Rate Swap			62848F-AC-6	MYERS PARK CLO LTD-MYERS 2018-1A A2	1	2,000,000	2,000,206
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	55,000,000	26,000,000	36,704,023	04/09/2013	04/09/2043	Interest Rate Swap		10,764,291	83609Y-AC-0	Sounds Point CLO IV-R LT-SERIES 13-3RA CLASS A	1	26,000,000	25,939,732
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,219,272	3,054,302	04/09/2013	04/09/2043	Interest Rate Swap			78442G-OA-7	SLM STUDENT LOAN TRUST-SERIES 2005-6 CLASS B	1	3,219,272	3,054,302
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		8,500,000	8,531,782	04/09/2013	04/09/2043	Interest Rate Swap			29002G-AB-7	Elmwood CLO IV Ltd-ELMW4 2020-1A A	1	8,500,000	8,531,782
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,000,000	15,013,410	04/09/2013	04/09/2043	Interest Rate Swap			29001L-AN-1	Elmwood CLO II Ltd-ELMW2 2019-2A BR	1	15,000,000	15,013,410
57629*AX9	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,000,000	3,018,030	04/09/2013	04/09/2043	Interest Rate Swap			05684A-AG-4	Bain Capital Credit CLO-BCC 2019-4A C	1	3,000,000	3,018,030
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	55,000,000	25,900,000	36,480,582	04/09/2013	04/09/2043	Interest Rate Swap		10,764,291	04016V-AC-9	ARES XLVII CLO Ltd-SERIES 18-47A CLASS A2	1	25,900,000	25,716,291
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,181,153	3,226,672	04/09/2013	04/09/2043	Interest Rate Swap			40638T-AE-2	Halsey Point CLO Ltd-SERIES 20-2A CLASS B	1	3,181,153	3,226,672
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,000,000	9,980,810	04/09/2013	04/09/2043	Interest Rate Swap			033292-AS-2	ANCHORAGE CAPITAL CLO 20-SERIES 13-1A CLASS A2R	1	10,000,000	9,980,810
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,400,000	6,400,000	04/09/2013	04/09/2043	Interest Rate Swap			67112R-AG-9	OHA Credit Funding 3 LTD-OAKC 2019-3A B1	1	6,400,000	6,400,000
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,800,000	4,800,000	04/09/2013	04/09/2043	Interest Rate Swap			09627F-AE-0	Bluemountain CLO Ltd-SERIES 2019-25A CLASS B	1	4,800,000	4,800,000

S105.4



STATEMENT AS OF JUNE 30, 2021 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*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,300,000	3,300,611	04/09/2013	04/09/2043	Interest Rate Swap			06761C-AC-3	Babson CLO Ltd 2016-II-BABSN 2016-2A BR	1	3,300,000	3,300,611
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,000,000	1,000,165	04/09/2013	04/09/2043	Interest Rate Swap			89852T-AN-8	Tryon Park CLO Ltd-TPCLO 2013-1A A1JR	1	1,000,000	1,000,165
57629*AY7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,000,000	1,000,021	04/09/2013	04/09/2043	Interest Rate Swap			13876J-AE-2	Canyon Capital CLO Ltd-CANVC 2012-1RA B	1	1,000,000	1,000,021
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	55,000,000	10,530,000	20,973,480	04/09/2013	04/09/2043	Interest Rate Swap		10,443,480	500798-MM-8	KREF Lending VII 2018-1 Term Loan	1	10,530,000	10,530,000
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		25,768,816	27,504,180	04/09/2013	04/09/2043	Interest Rate Swap			65023T-AJ-1	Newark BSL CLO 1 Ltd-NBCLO 2016-1A A1R	1	25,768,816	27,504,180
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,631,694	13,878,344	04/09/2013	04/09/2043	Interest Rate Swap			05875H-AC-7	BALLYROCK CLO 2018-1 LTD-SERIES 2018-1A CLASS A2	1	13,631,694	13,878,344
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,000,000	1,000,103	04/09/2013	04/09/2043	Interest Rate Swap			62848F-AC-6	MYERS PARK CLO LTD-MYERS 2018-1A A2	1	1,000,000	1,000,103
57629*AU5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,500,000	5,512,650	04/09/2013	04/09/2043	Interest Rate Swap			48661N-AE-8	KAYNE CLO-SERIES 19-6A CLASS B1	1	5,500,000	5,512,650
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	60,000,000	21,900,000	33,293,413	04/09/2013	04/09/2043	Interest Rate Swap		11,392,887	56607F-AA-3	Marble Point CLO XI Ltd-MP11 2017-2A A	1	21,900,000	21,900,526
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,587,330	10,920,771	04/09/2013	04/09/2043	Interest Rate Swap			66704J-BD-9	NORTHSTAR EDUCATION FINA-SERIES 04-2 CLASS B	1	12,587,330	10,920,771
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		10,962,256	10,022,922	04/09/2013	04/09/2043	Interest Rate Swap			66704J-BK-3	NORTHSTAR EDUCATION FINA-SERIES 05-1 CLASS B	1	10,962,256	10,022,922
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,500,000	3,499,986	04/09/2013	04/09/2043	Interest Rate Swap			94950J-AC-5	Wellfleet CLO Ltd-SERIES 18-1A CLASS B	1	3,500,000	3,499,986
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,200,000	3,135,213	04/09/2013	04/09/2043	Interest Rate Swap			22615E-AE-0	Crestline Denali CLO Ltd-SERIES 2018-1A CLASS C	1	3,200,000	3,135,213
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		2,000,000	2,000,206	04/09/2013	04/09/2043	Interest Rate Swap			62848F-AC-6	MYERS PARK CLO LTD-MYERS 2018-1A A2	1	2,000,000	2,000,206
57629*BA8	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,100,000	7,046,168	04/09/2013	04/09/2043	Interest Rate Swap			44330G-AE-3	Highbridge Loan Managemen-SERIES 4A-2014 CLASS A2R	1	7,100,000	7,046,168
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z	225,000,000	34,500,000	40,904,320	06/11/2021	06/11/2051	Interest Rate Swap		6,400,766	01750C-AA-1	Allegro CLO VII Ltd-ALLEG 2018-1A A	1	34,500,000	34,503,554
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		1,000,000	1,000,291	06/11/2021	06/11/2051	Interest Rate Swap			48250W-AG-0	KKR CLO 14 Ltd-KKR 14 AR	1	1,000,000	1,000,291
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		7,100,000	7,100,000	06/11/2021	06/11/2051	Interest Rate Swap			941848-D8-9	Waters Corporation Gtd Senior Note Series H	2	7,100,000	7,100,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		5,000,000	5,000,275	06/11/2021	06/11/2051	Interest Rate Swap			14314L-AE-5	Carlyle Global Market St-GMS 2014-2RA A2	1	5,000,000	5,000,275
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		2,496,964	2,499,999	06/11/2021	06/11/2051	Interest Rate Swap			64032V-AB-5	Nelnet Student Loan Trus-NSLT 2020-5A B	1	2,496,964	2,499,999
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		140,600,000	140,600,000	06/11/2021	06/11/2051	Interest Rate Swap			91831Z-MM-5	VPC SPECIALTY LENDING INVESTMENTS INTERMEDIATE, L.P. - Secured Revolving Loan Facility	1	140,600,000	140,600,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		34,838,710	34,817,806	06/11/2021	06/11/2051	Interest Rate Swap			72403Z-NS-9	PIONEERS GATE LLC 2021-1 CFCC	1	34,838,710	34,817,806
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z	250,000,000	14,000,000	21,648,287	06/11/2021	06/11/2051	Interest Rate Swap		7,646,859	55820C-AE-5	MADISON PARK FUNDING XXI-MDPK 2018-29A A2	1	14,000,000	14,001,428
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		22,850,000	22,853,245	06/11/2021	06/11/2051	Interest Rate Swap			26251L-AC-8	DRYDEN 64 CLO LTD-DRSLF 2018-64A A	1	22,850,000	22,853,245
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		6,700,000	6,701,240	06/11/2021	06/11/2051	Interest Rate Swap			06761C-AC-3	Babson CLO Ltd 2016-II-BABSN 2016-2A BR	1	6,700,000	6,701,240
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		7,000,000	6,999,678	06/11/2021	06/11/2051	Interest Rate Swap			94950C-AG-1	Wellfleet CLO Ltd-WELF 2021-1A C Senior Secured Notes - Term Loan	1	7,000,000	6,999,678
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		212,275,950	212,275,950	06/11/2021	06/11/2051	Interest Rate Swap			46143#-MM-6	Series 2020-1	1	212,275,950	212,275,950
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	100,000,000	15,000,000	36,689,604	03/05/2014	03/05/2034	Interest Rate Swap		21,688,749	55818R-BA-3	Madison Park Funding XIV-MDPK 2014-14A BR	1	15,000,000	15,000,855
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,920,000	4,920,074	03/05/2014	03/05/2034	Interest Rate Swap			48249V-AS-0	KKR FINANCIAL CLO LTD-SERIES 13-1A CLASS BR	1	4,920,000	4,920,074
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		21,015,000	21,019,098	03/05/2014	03/05/2034	Interest Rate Swap			48249V-AN-1	KKR FINANCIAL CLO LTD-SERIES 13-1A CLASS A1R	1	21,015,000	21,019,098
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,800,000	20,801,331	03/05/2014	03/05/2034	Interest Rate Swap			22616C-AA-1	CRESTLINE DENALI CLO XV -SERIES 17-1A CLASS A	1	20,800,000	20,801,331

S105.5

STATEMENT AS OF JUNE 30, 2021 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*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,000,000	7,002,037	03/05/2014	03/05/2034	Interest Rate Swap				48250W-AG-0	KKR CLO 14 Ltd-KKR 14 AR	1	7,000,000	7,002,037
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,200,000	12,205,014	03/05/2014	03/05/2034	Interest Rate Swap				55818P-AS-9	MADISON PARK FUNDING LTD-MDPK 2014-12A CR	1	12,200,000	12,205,014
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,500,000	9,508,398	03/05/2014	03/05/2034	Interest Rate Swap				13876N-AC-7	Canyon CLO 2020-2 Ltd-CANYC 2020-2A B1	1	9,500,000	9,508,398
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,525,000	9,538,221	03/05/2014	03/05/2034	Interest Rate Swap				38136N-AC-0	Goldentree Loan Managemen-GLM 2020-8A B1	1	9,525,000	9,538,221
57629*BD2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,650,000	1,595,626	03/05/2014	03/05/2034	Interest Rate Swap				06760G-AD-3	Barings CLO Ltd 2018-I-SERIES 18-1A CLASS C	2	1,650,000	1,595,626
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	100,000,000	20,821,959	40,774,927	03/05/2014	03/05/2034	Interest Rate Swap		21,712,427		346845-AC-4	FORT BENNING FAM-UNSECURED	1	20,821,959	19,062,500
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,000,000	15,014,985	03/05/2014	03/05/2034	Interest Rate Swap				05682L-AC-1	Bain Capital Credit CLO -BCC 2019-2A B	1	15,000,000	15,014,985
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,612,239	13,557,951	03/05/2014	03/05/2034	Interest Rate Swap				04017E-AE-2	ARES XXXI IR CLO LTD-SERIES 14-32RA CLASS A1B	1	13,612,239	13,557,951
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		1,920,422	1,967,864	03/05/2014	03/05/2034	Interest Rate Swap				00435T-AB-7	ACCESS GROUP INC-SERIES 2015-1 CLASS B	1	1,920,422	1,967,864
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,200,000	4,211,462	03/05/2014	03/05/2034	Interest Rate Swap				05682L-AE-7	Bain Capital Credit CLO -BCC 2019-2A C	1	4,200,000	4,211,462
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,600,000	5,586,756	03/05/2014	03/05/2034	Interest Rate Swap				12563E-AC-7	CIFC Funding 2021-I Ltd-CIFC 2021-1A B	1	5,600,000	5,586,756
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		5,500,000	5,496,810	03/05/2014	03/05/2034	Interest Rate Swap				48661A-AN-6	KAYNE CLO I Ltd-KAYNE 2018-1A CR	1	5,500,000	5,496,810
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		14,656,530	15,036,255	03/05/2014	03/05/2034	Interest Rate Swap				87250C-AA-5	TICP CLO Ltd	1	14,656,530	15,036,255
57629*BC4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		20,000,000	20,057,600	03/05/2014	03/05/2034	Interest Rate Swap				44932V-AA-0	IGS US CLO Ltd-SERIES 19-1A CLASS A1A	1	20,000,000	20,057,600
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	125,000,000	55,904,072	80,090,377	05/19/2014	05/19/2034	Interest Rate Swap		23,849,632		77342J-AA-1	Rockford Tower CLO 2018-SERIES 18-1A CLASS A	1	55,904,072	56,240,745
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,000,000	7,000,203	05/19/2014	05/19/2034	Interest Rate Swap				64130P-AE-3	Neuberger Berman CLO Ltd-NEUB 2018-28A B	1	7,000,000	7,000,203
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,000,000	14,976,900	05/19/2014	05/19/2034	Interest Rate Swap				13877E-AE-2	Canyon Capital CLO Ltd-CANYC 2021-1A B	1	15,000,000	14,976,900
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		19,900,000	19,907,104	05/19/2014	05/19/2034	Interest Rate Swap				39808P-AL-0	Greywolf CLO V Ltd-GWOLF 2015-1A A1R	1	19,900,000	19,907,104
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,000,000	9,000,441	05/19/2014	05/19/2034	Interest Rate Swap				04017Q-AE-5	ARES CLO Ltd-SERIES 18-28RA CLASS B	1	9,000,000	9,000,441
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		6,900,000	6,905,527	05/19/2014	05/19/2034	Interest Rate Swap				670881-AC-5	OCP CLO Ltd-SERIES 20-19A CLASS B	1	6,900,000	6,905,527
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,000,000	7,021,028	05/19/2014	05/19/2034	Interest Rate Swap				278300-AE-8	Eaton Vance CDO Ltd-EATON 2020-1A C	1	7,000,000	7,021,028
57629*BF7	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		4,749,979	4,772,273	05/19/2014	05/19/2034	Interest Rate Swap				48661Y-AA-2	Kayne CLO 4 Ltd-SERIES 19-4A CLASS B1	1	4,749,979	4,772,273
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	85,000,000	23,242,507	40,801,804	05/09/2014	05/09/2034	Interest Rate Swap		17,311,117		12551R-AA-6	CIFC Funding 2018-I Ltd-CIFC 2018-1A A	1	23,242,507	23,490,687
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,000,000	15,001,155	05/09/2014	05/09/2034	Interest Rate Swap				03765W-BC-1	Apollo Credit Funding IV-SERIES 4A CLASS A1BR	1	15,000,000	15,001,155
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		7,500,000	7,510,035	05/09/2014	05/09/2034	Interest Rate Swap				33883J-AC-5	Flatiron CLO Ltd-SERIES 19-1A CLASS B	1	7,500,000	7,510,035
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,570,000	13,538,708	05/09/2014	05/09/2034	Interest Rate Swap				22616C-AC-7	CRESTLINE DENALI CLO XV -SERIES 17-1A CLASS B	1	13,570,000	13,538,708
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,570,000	13,572,918	05/09/2014	05/09/2034	Interest Rate Swap				77342K-AA-8	ROCKFORD TOWER CLO 2018-ROCKT 2018-2A A	1	13,570,000	13,572,918
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		3,900,000	3,871,066	05/09/2014	05/09/2034	Interest Rate Swap				05683L-AG-1	Bain Capital Credit CLO -SERIES 1A CLASS C	1	3,900,000	3,871,066
57629*BP5	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		9,009,170	9,408,794	05/09/2014	05/09/2034	Interest Rate Swap				784170-ZZ-8	SFR FTTH SAS Term Loan	3	9,009,170	9,408,794
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	125,000,000	13,100,000	50,072,825	07/22/2014	07/22/2044	Interest Rate Swap		37,036,412		67707B-AB-6	OHA Credit Partners XV L-SERIES 17-15A CLASS B	1	13,100,000	13,036,413
57629*BR1	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,300,000	13,300,785	07/22/2014	07/22/2044	Interest Rate Swap				75888F-AE-5	Regatta XIII Funding LLC-SERIES 18-2A CLASS A2	1	13,300,000	13,300,785

S105.6





## STATEMENT AS OF JUNE 30, 2021 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*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		3,700,000	3,700,781	10/06/2014	10/06/2044	Interest Rate Swap			04009G-AE-7	ARES L CLO Ltd-SERIES 19-53A CLASS	1	3,700,000	3,700,781
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		5,000,000	5,000,565	10/06/2014	10/06/2044	Interest Rate Swap			03328W-AL-2	B Anchorage Capital CLO 9 -SERIES 16-9A CLASS BR	1	5,000,000	5,000,565
57629*CH2	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1		10,500,000	10,570,935	10/06/2014	10/06/2044	Interest Rate Swap			64034W-AD-7	7A B Navient Student Loan Tru-NSLT 2019-	1	10,500,000	10,570,935
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z	100,000,000	13,378,939	14,652,771	06/16/2021	06/16/2051	Interest Rate Swap		1,710,935	66776M-ZZ-9	ORANGE GROVE ENERGY, L.P DELAYED DRAW TE	2	13,378,939	12,941,836
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		1,926,766	1,937,860	06/16/2021	06/16/2051	Interest Rate Swap			247358-BB-9	EAIIV Delta MSN 15153	1	1,926,766	1,937,860
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		1,481,802	1,490,843	06/16/2021	06/16/2051	Interest Rate Swap			247358-DD-3	EAIIV Delta MSN 15161	1	1,481,802	1,490,843
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		1,571,142	1,579,990	06/16/2021	06/16/2051	Interest Rate Swap			247358-PP-3	Delta Air Lines Inc. - MSN 15147	1	1,571,142	1,579,990
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		1,571,224	1,586,304	06/16/2021	06/16/2051	Interest Rate Swap			247358-RR-7	EAIIV 2017 Delta MSN 15146	1	1,571,224	1,586,304
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		1,481,802	1,490,843	06/16/2021	06/16/2051	Interest Rate Swap			247358-RW-6	EAIIV Delta MSN 15162	1	1,481,802	1,490,843
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		4,623,066	4,828,133	06/16/2021	06/16/2051	Interest Rate Swap			784170-ZZ-8	SFR FTTH SAS Term Loan	3	4,623,066	4,828,133
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		3,962,714	3,857,038	06/16/2021	06/16/2051	Interest Rate Swap			429827-AS-7	2004-1 CLASS B2	1	3,962,714	3,857,038
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		8,500,000	8,500,672	06/16/2021	06/16/2051	Interest Rate Swap			87166R-AE-7	Symphony CLO XXI Ltd-SYMP 2019-21A B	1	8,500,000	8,500,672
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		22,500,000	23,832,540	06/16/2021	06/16/2051	Interest Rate Swap			G1093*-AA-7	BIF III SAFE HARBOR HOLDINGS LLC	2	22,500,000	23,832,540
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		40,000,000	40,000,000	06/16/2021	06/16/2051	Interest Rate Swap			500798-MO-4	KREF Lending VII 2018-3 Term Loan	1	40,000,000	40,000,000
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z	250,000,000	10,000,000	16,286,767	06/16/2021	06/16/2051	Interest Rate Swap		6,286,067	48253H-AE-5	KKR CLO 26 LLC-SERIES 26 CLASS B1	1	10,000,000	10,000,700
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		28,292,827	28,481,561	06/16/2021	06/16/2051	Interest Rate Swap			05682V-AA-3	BAIN CAPITAL CREDIT CLO -SERIES 18-2A CLASS A1	1	28,292,827	28,481,561
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		150,800,625	150,800,625	06/16/2021	06/16/2051	Interest Rate Swap			500798-MR-7	KREF Lending VII - Term Loan Series 2019-6	1	150,800,625	150,800,625
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		11,300,000	11,327,888	06/16/2021	06/16/2051	Interest Rate Swap			38138D-AJ-5	Goldentree Loan Manage-GLM 2019-5A C	1	11,300,000	11,327,888
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		10,000,000	10,002,380	06/16/2021	06/16/2051	Interest Rate Swap			03330N-AC-8	2019-11A B Anchorage Capital CLO 11-ANHC	1	10,000,000	10,002,380
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		10,000,000	10,022,850	06/16/2021	06/16/2051	Interest Rate Swap			69700G-AC-6	Palmer Square CLO 2019-1-SERIES 19-1A CLASS A2	1	10,000,000	10,022,850
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		10,500,000	10,500,441	06/16/2021	06/16/2051	Interest Rate Swap			14315L-AC-8	CGMS 2014-3RA A1B FLOATING COUPON	1	10,500,000	10,500,441
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		10,500,000	10,508,442	06/16/2021	06/16/2051	Interest Rate Swap			12564D-AC-8	1.848090 MATURITY 20360715	1	10,500,000	10,508,442
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		10,000,000	10,010,060	06/16/2021	06/16/2051	Interest Rate Swap			69701X-AC-8	PLMRS 2021-2A B FLOATING COUPON	1	10,000,000	10,010,060
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z	250,000,000	135,435,000	141,751,503	06/16/2021	06/16/2051	Interest Rate Swap		6,316,503	46143H-MO-2	1.755760 MATURITY 20340715 Senior Secured Notes - Term Loan Series 2021-3	1	135,435,000	135,435,000
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		4,700,000	4,701,354	06/16/2021	06/16/2051	Interest Rate Swap			03330N-AE-4	Anchorage Capital CLO 11-ANHC	1	4,700,000	4,701,354
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		10,490,000	10,490,315	06/16/2021	06/16/2051	Interest Rate Swap			40437L-AG-7	2019-11A C HPS Loan Management 13-2-HLM 13A-18	1	10,490,000	10,490,315
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		10,000,000	10,000,870	06/16/2021	06/16/2051	Interest Rate Swap			40436G-AL-6	HPS Loan Management 9-20-HLM 9A-2016 A1BR	1	10,000,000	10,000,870
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		7,500,000	7,478,843	06/16/2021	06/16/2051	Interest Rate Swap			64132D-AL-2	Neuberger Berman Loan Ad-NEUB 2019-32A BR	1	7,500,000	7,478,843
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		4,800,000	4,761,946	06/16/2021	06/16/2051	Interest Rate Swap			64131J-AQ-9	Neuberger Berman Loan Ad-SERIES 17-25A CLASS CR	1	4,800,000	4,761,946
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		10,000,000	10,008,100	06/16/2021	06/16/2051	Interest Rate Swap			44932V-AE-2	ICG US CLO 2019-1 LTD	1	10,000,000	10,008,100
	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds .	1Z		10,000,000	10,002,690	06/16/2021	06/16/2051	Interest Rate Swap			92918F-AB-0	Voya CLO 2019-3 Ltd	1	10,000,000	10,002,690

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STATEMENT AS OF JUNE 30, 2021 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
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		3,200,000	3,195,529	06/18/2021	06/18/2051	Interest Rate Swap			63942N-AC-2	Navient Student Loan Tru-NAVSL 2021-1A B	1	3,200,000	3,195,529
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		11,200,000	11,200,840	06/18/2021	06/18/2051	Interest Rate Swap			17181T-AC-5	CIFC Funding 2018-IV Ltd-SERIES 18-4A CLASS A2	1	11,200,000	11,200,840
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		16,200,000	16,200,373	06/18/2021	06/18/2051	Interest Rate Swap			16409T-AC-3	CHENANGO PARK CLO LTD-SERIES 18-1A CLASS A1B	1	16,200,000	16,200,373
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1	125,000,000	45,000,000	57,842,867	02/05/2015	02/05/2045	Interest Rate Swap		12,842,867	05683H-AC-9	BAIN CAPITAL CREDIT CLO -SERIES 2017-2A CLASS AR	1	45,000,000	45,000,000
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		13,600,000	13,613,654	02/05/2015	02/05/2045	Interest Rate Swap			67690A-AG-6	OAKC 2021-9A B FLOATING COUPON MATURITY 20350719	1	13,600,000	13,613,654
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		12,750,000	12,750,548	02/05/2015	02/05/2045	Interest Rate Swap			40436Q-AN-2	HPS Loan Management 9-20-HLM 9A-2016 A2R	1	12,750,000	12,750,548
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		25,000,000	25,000,500	02/05/2015	02/05/2045	Interest Rate Swap			87249Q-AA-8	TICP CLO Ltd-TICP 2018-11A A	1	25,000,000	25,000,500
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		18,020,110	18,040,665	02/05/2015	02/05/2045	Interest Rate Swap			06760E-AA-4	Babson CLO Ltd 2013-I-SERIES 2013-1A CLASS AR	1	18,020,110	18,040,665
57629*DB4	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1		15,200,000	15,201,535	02/05/2015	02/05/2045	Interest Rate Swap			87248K-AL-8	TICP CLO VI 2016-5 Ltd-TICP 2016-5A BR	1	15,200,000	15,201,535
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z	300,000,000	11,279,985	13,846,979	06/21/2021	06/21/2051	Interest Rate Swap		2,423,084	78449F-AC-5	SMB PRIVATE ED LN TR 201-SMB PRIVATE ED LN TR 2016-A NT	1	11,279,985	11,423,895
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		22,420,000	23,396,111	06/21/2021	06/21/2051	Interest Rate Swap			63940F-AC-1	NAVIENT STUDENT LOAN TRU-SERIES 16-2 CLASS A3	1	22,420,000	23,396,111
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		2,219,070	2,284,111	06/21/2021	06/21/2051	Interest Rate Swap			26827X-AA-1	EMC GROUP STUDENT LOAN -SERIES 2016-1A CLASS A	1	2,219,070	2,284,111
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		138,388,209	138,388,209	06/21/2021	06/21/2051	Interest Rate Swap			143008-MM-7	REVOLVING PROM NT - ISSUED SEPT 2019	1	138,388,209	138,388,209
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		73,827,574	74,883,308	06/21/2021	06/21/2051	Interest Rate Swap			72403Z-NJ-4	PIONEERS GATE LLC 2021-3 FORT	1	73,827,574	74,883,308
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		21,393,306	21,416,839	06/21/2021	06/21/2051	Interest Rate Swap			72403Z-NT-7	PIONEERS GATE LLC 2021-2 OPTN	1	21,393,306	21,416,839
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		10,000,000	10,000,350	06/21/2021	06/21/2051	Interest Rate Swap			67109Y-AN-4	Oak Hill Credit Partners-SERIES 15-12A CLASS A2R	1	10,000,000	10,000,350
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		4,200,000	4,173,994	06/21/2021	06/21/2051	Interest Rate Swap			08180X-AU-6	Benefit Street Partners -BSP 2015-8A BR	1	4,200,000	4,173,994
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		6,380,000	6,380,306	06/21/2021	06/21/2051	Interest Rate Swap			22616C-AE-3	CRESTLINE DENALI CLO XV -SERIES 17-1A CLASS C	1	6,380,000	6,380,306
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		10,000,000	10,003,450	06/21/2021	06/21/2051	Interest Rate Swap			04965L-AE-8	ATRIUM XIV LLC-ATRM 14A A2A	1	10,000,000	10,003,450
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		5,000,000	5,000,565	06/21/2021	06/21/2051	Interest Rate Swap			03328W-AL-2	Anchorage Capital CLO 9 -SERIES 16-9A CLASS BR	1	5,000,000	5,000,565
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		9,400,000	9,408,310	06/21/2021	06/21/2051	Interest Rate Swap			08186P-AC-7	Benefit Street Partners CLO X	1	9,400,000	9,408,310
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		9,050,000	9,031,556	06/21/2021	06/21/2051	Interest Rate Swap			06760E-AE-6	Babson CLO Ltd 2013-I-SERIES 2013-1A CLASS CR	1	9,050,000	9,031,556
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z	250,000,000	44,625,000	42,321,237	06/22/2021	06/22/2051	Interest Rate Swap		(2,303,763)	70163H-AA-0	Parliament Funding I LLC-Variable Funding Notes	2	44,625,000	44,625,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		5,600,000	5,639,096	06/22/2021	06/22/2051	Interest Rate Swap			64034N-AB-1	NSLT 2019-2A B	1	5,600,000	5,639,096
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		30,000,000	30,000,000	06/22/2021	06/22/2051	Interest Rate Swap			50079E-MM-6	KREF Lending VII 2018-2 Term Loan	1	30,000,000	30,000,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		11,841,768	11,941,066	06/22/2021	06/22/2051	Interest Rate Swap			78448Q-AD-0	SMB PRIVATE EDUCATION LO-SMB 2015-B A3	1	11,841,768	11,941,066
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		2,208,318	2,217,162	06/22/2021	06/22/2051	Interest Rate Swap			10620N-AX-6	BRAZOS HIGHER EDUCATION -SER 2006-2 STUDENT LN REV NT	1	2,208,318	2,217,162
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		13,000,000	13,002,080	06/22/2021	06/22/2051	Interest Rate Swap			75887X-AC-1	Regatta Funding Ltd.-REG11 2018-1A B	1	13,000,000	13,002,080
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		7,100,000	7,100,000	06/22/2021	06/22/2051	Interest Rate Swap			25255D-AE-0	DCLO 2021-1A A2 FLOATING COUPON MATURITY 20360715	1	7,100,000	7,100,000
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		7,050,000	7,052,785	06/22/2021	06/22/2051	Interest Rate Swap			04016P-AN-8	ARES 2017-43A CR FLOATING COUPON MATURITY 20340715	1	7,050,000	7,052,785
Need to File with the NAIC	Evergreen Basket of Long Fixed Rate ABS Bank Loans and Corporate Bonds	1Z		94,000,000	94,000,000	06/22/2021	06/22/2051	Interest Rate Swap			12499F-MM-8	CCOF Onshore Co-Borrower Revolving Loan	1	94,000,000	94,000,000

S105.13

























STATEMENT AS OF JUNE 30, 2021 OF THE Massachusetts Mutual Life Insurance Company

SCHEDULE DB - PART C - SECTION 1

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

Table with columns: 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, 9-16 Derivative Instrument(s) Open / Cash Instrument(s) Held (including Description, CUSIP, Book/Adjusted Carrying Value, Fair Value, NAIC Designation or Other Description, and Fair Value).

S105.25



















STATEMENT AS OF JUNE 30, 2021 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 .....	111	15,988,959,993	111	15,988,959,993					111	15,988,959,993
2. Add: Opened or Acquired Transactions .....	5	100,000,000	25	6,351,972,174					30	6,451,972,174
3. Add: Increases in Replication (Synthetic Asset) Transactions Statement Value .....	XXX		XXX		XXX		XXX		XXX	
4. Less: Closed or Disposed of Transactions .....	5	100,000,000	29	3,270,468,750					34	3,370,468,750
5. Less: Positions Disposed of for Failing Effectiveness Criteria .....										
6. Less: Decreases in Replication (Synthetic Asset) Transactions Statement Value .....	XXX		XXX		XXX		XXX		XXX	
7. Ending Inventory .....	111	15,988,959,993	107	19,070,463,417					107	19,070,463,417

STATEMENT AS OF JUNE 30, 2021 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.....	4,829,958,486
2. Part B, Section 1, Column 15 plus Part B, Section 1 Footnote - Total Ending Cash Balance.....	.....
3. Total (Line 1 plus Line 2).....	4,829,958,486
4. Part D, Section 1, Column 6.....	17,346,604,198
5. Part D, Section 1, Column 7.....	(12,403,183,485)
6. Total (Line 3 minus Line 4 minus Line 5).....	(113,462,226)
	Fair Value Check
7. Part A, Section 1, Column 16.....	5,018,561,125
8. Part B, Section 1, Column 13.....	113,462,132
9. Total (Line 7 plus Line 8).....	5,132,023,258
10. Part D, Section 1, Column 9.....	18,474,744,631
11. Part D, Section 1, Column 10.....	(13,342,721,372)
12. Total (Line 9 minus Line 10 minus Line 11).....	.....
	Potential Exposure Check
13. Part A, Section 1, Column 21.....	4,385,170,374
14. Part B, Section 1, Column 20.....	125,439,344
15. Part D, Section 1, Column 12.....	4,510,609,718
16. Total (Line 13 plus Line 14 minus Line 15).....	.....

**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 .....	3,252,909,998	2,428,048,838
2. Cost of cash equivalents acquired .....	97,954,327,414	238,037,972,220
3. Accrual of discount .....		
4. Unrealized valuation increase (decrease) .....	2,549,930	46,078,991
5. Total gain (loss) on disposals .....	584,811	(11,171,126)
6. Deduct consideration received on disposals .....	96,443,666,087	237,248,018,925
7. Deduct amortization of premium .....		
8. Total foreign exchange change in book/adjusted carrying value .....	(917,340)	
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) .....	4,765,788,726	3,252,909,998
11. Deduct total nonadmitted amounts .....		
12. Statement value at end of current period (Line 10 minus Line 11)	4,765,788,726	3,252,909,998